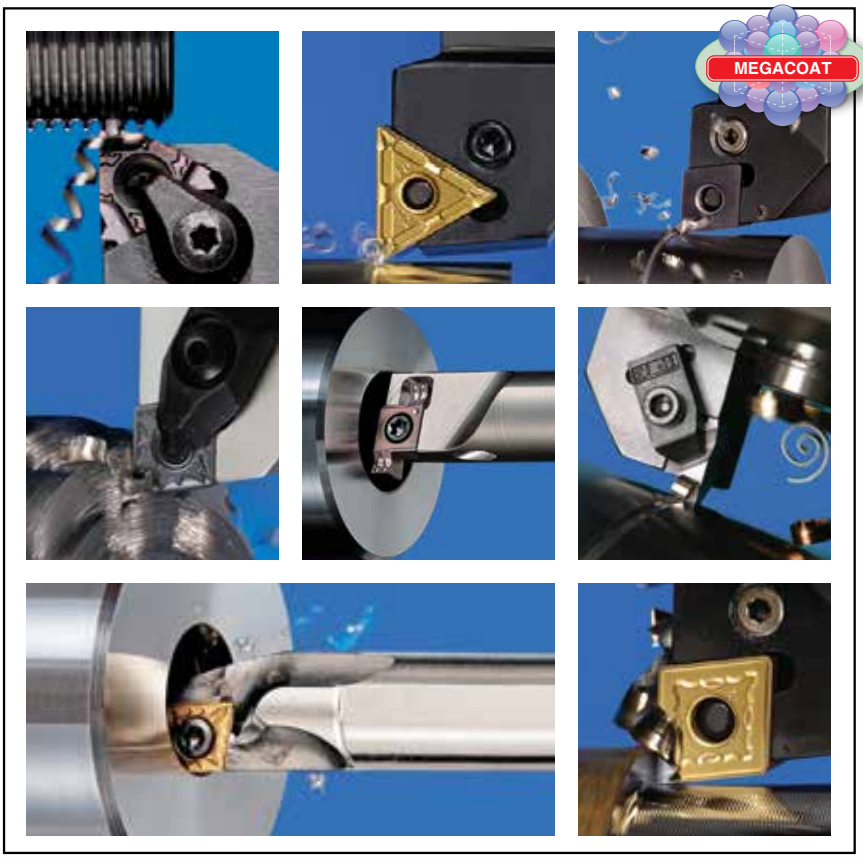
THE NEW VALUE FRONTIER

KYOCERA

2012

KYOCERA Cutting Tools

Turning Catalog



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ADVANCING PRODUCTIVITY

KYOCERA



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Kyocera Cutting Tool Network

KYOCERA Cutting Tools
Global Manufacturing Facilities


Okaya Factory (JAPAN)


Yokaichi Factory (JAPAN)


Sendai Factory (JAPAN)


Silong Factory (CHINA)


Incheon Factory (KOREA)



KYOCERA Cutting Tools
North America Manufacturing Facilities


North Carolina Facility


Washington Facility


Ohio Facility


California Facility

Kyocera Cutting Tool Network

KYOCERA Cutting Tools
Global Technical Centers



North American Technical Center (NC)

- **KYOCERA Industrial Ceramics Corp. (Mtn. Home, NC)**
  North American Headquarters and CT Manufacturing Facility
- **KYOCERA Industrial Ceramics Corp. (Vancouver, WA)**
  Advanced Ceramics Components Facility
- **KYOCERA Cutting Tool Division (Wapakoneta, OH)**
  CT Manufacturing Facility


Technical Center (BRAZIL)


Technical Center (JAPAN)


Technical Center (JAPAN)



Sales Office and Technical Center (GERMANY)


Technical Center (JAPAN)


Technical Center (SINGAPORE)


Technical Center (CHINA)


Technical Center (KOREA)

Company Profile

Kyocera Industrial Ceramics Corporation (KICC), a core company of the Kyocera Group, is a leading manufacturer and provider of **cutting tool products**, advanced ceramic components, liquid crystal displays, thermal printheads, metallized assemblies and industrial lenses. The Kyocera Group is a diversified network of companies working together to create new value for businesses and consumers. Kyoto, Japan-based Kyocera Corporation (NYSE: KYO), the group's global parent, employs approximately 64,000 people in 25 nations and recorded consolidated net sales of approximately US$13 billion during the year ended March 31, 2010.



KICC North American Headquarters
Hendersonville, NC

Kyocera's Cutting Tool Division is the market leader in Japan and a leading supplier of high-quality tooling solutions in North America with plants in Ohio, North Carolina, and Washington. Kyocera manufactures a diversified product line of turning, milling, Swiss, and drilling products. Our indexable inserts and steel products are manufactured to the highest quality standards and include coated and uncoated carbide, cermet, ceramic, CBN and PCD.



KICC, Cutting Tool Division Ohio Production Facility
Wapakoneta, OH

Kyocera's continuous **investment and focus on R&D** has resulted in market beating products such as our innovative CVD coated CA45-Series for cast iron, CA55-series for steel and CA65-series for stainless steel, our high performance MECH helical endmills, our highly acclaimed MFPN high-efficiency 10-edged face mill, and most recently our new line of MEGACOAT carbide, cermet, CBN and ceramic tools, just to name a few.

The Kyocera Industrial Ceramics Corporate headquarters are located in Mountain Home, NC which also serves as the primary North American cutting tool manufacturing plant and is home to the Cutting Tool Division Customer Service, Marketing, and Technical Center staff.

THE NEW VALUE FRONTIER

KYOCERA

How to Order Kyocera Cutting Tool Products

Kyocera Cutting Tool products are sold exclusively through our North American line of authorized distributors. To locate a local Kyocera Cutting Tool Distributor, please contact Kyocera Customer Service at 800-823-7284.

Using the Kyocera Product Catalogs

All standard Kyocera Cutting Tool 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 5-7 business days for World Express items to arrive.

All Stock Standard and World Express items are subject to availability

Kyocera Authorized Distributor Ordering Guide

Order online

To place an order for Kyocera Cutting Tools, please utilize the MyKICC Distributor Website - **http://mykicc.kyocera.com**

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

Call us

- Kyocera Cutting Tool Customer Service – (800) 823-7284.
  Representatives are available Monday through Friday from 8:00am to 5:30pm (EST).
- Kyocera Applications Engineers – (800) 823-7284.
  Engineers are available Monday through Friday from 8:00am to 5:00pm (EST).

Email us

- General Inquiries – **cuttingtools@kyocera.com**
- Customer Service – **ctsales@kyocera.com**
- Technical Center – **cttechs@kyocera.com**

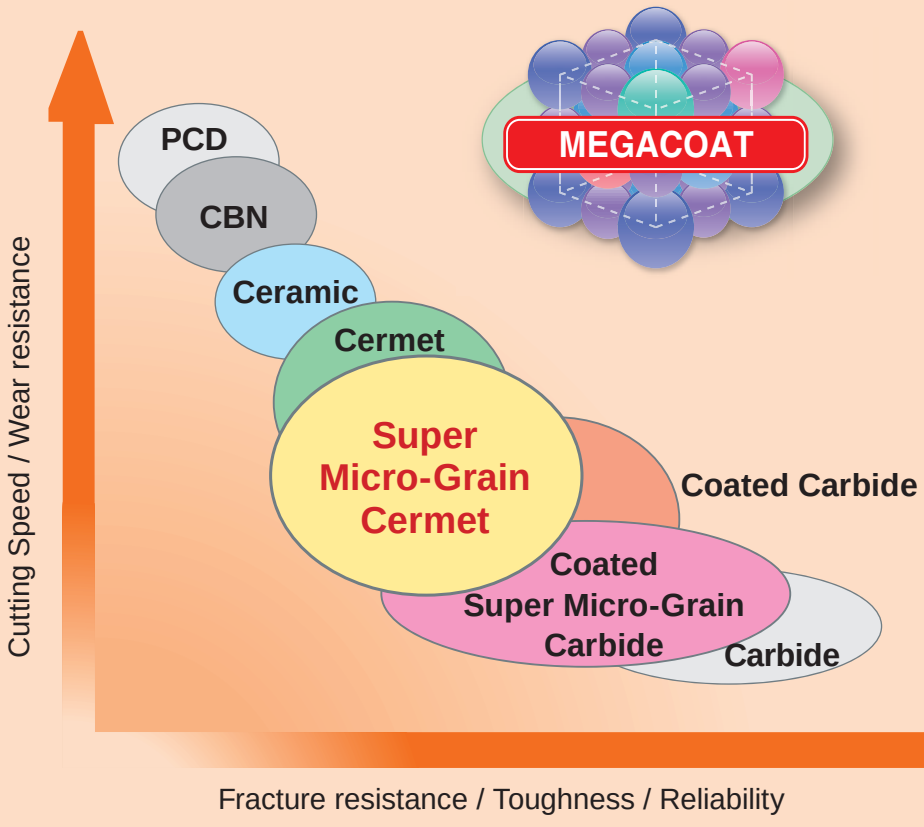
Insert Grades

A

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Summary of Insert Grades

Kyocera promotes reseach and development to help improve customers' productivity and profitability.
Kyocera provides high-quality inserts in various grades including Cermet, Coated Carbide, Coated Super Micro Grain Carbide, Carbide, Ceramic, PCD and CBN.

Turning

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	TN6010, TN6020, TN60, TN90					TN6010, TN6020, TN60, TN90					TN60			
	TC Series	TC40, TC60					TC60					TC40			
	PV Series	PV7020, PV60, PV90					PV7020, PV60, PV90								
	MEGACOAT (PV Series)	PV7010, PV7025					PV7010, PV7025					PV7005			
Coated Carbide	CA Series	CA5505, CA5515, CA5525, CA5535					CA6515, CA6525					CA4010, CA4115, CA4120, CA4505, CA4515			
	CR Series	CR9025					CR9025								
	PR Series	PR630, PR660, PR915, PR930, PR1005, PR1025, PR1115					PR630, PR660, PR915, PR930, PR1025, PR1125								
	MEGACOAT (PR Series)	PR1225					PR1225								
Ceramic												KA30, KT66, A66N, PT600M, KS6000, KS6050, CS7050			
Carbide												KW10, GW15			
CBN												KBN60M, KBN900			

Turning

Workpiece Material		Non-ferrous Metals (Aluminum / Non-ferrous metals / Non-metals)				Heat-resistant alloys / Inconel				Hardened materials (Hardened steel / Chilled cast Iron)				Sintered 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	CA Series						CA6515	CA6525									
	PR Series							PR1125							PR930		
	MEGACOAT (PR Series)					PR1305		PR1310	PR1325					TN6010			
Cermet										KT66					TN60		
Ceramic							CF1			A66N							
										PT600M							
										KBN510							
CBN										KBN525							
										KBN900							
MEGACOAT										KBN05M					KBN65M		
										KBN10M					KBN70M		
										KBN25M							
										KBN30M							
										KBN35M							

Workpiece Material		Non-ferrous Metals (Aluminum / Non-ferrous metals / Non-metals)				Titanium / Titanium alloys				Hardened materials (Hardened steel / Chilled cast Iron)				Sintered 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
Carbide						SW05											
							SW10										
								SW25									
			KW10				KW10										
			GW15				GW15										
PCD		KPD001				KPD001											
		KPD010				KPD010											

PVD Coated Carbide for Small Tools A10

Workpiece Material		Steel (Carbon steel / Alloy steel / Free-cutting 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
Coated Carbide	PR Series		PR930					PR930							
		PR1005						PR1025							
			PR1025					PR1125							
			PR1115					PR1115							
	MEGACOAT (PR Series)		PR1225						PR1225						
	MEGACOAT NANO (PR Series)		PR1425					PR1425							

Summary of Insert Grades

Grooving / Cut-Off

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

Workpiece Material		Non-ferrous Metals (Aluminum / Non-ferrous metals / Non-metals)				Titanium / Titanium alloys				Hardened materials (Hardened steel / Chilled cast Iron)				Sintered 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)														PR1215, PR1225		
Cermet															TN60		
Ceramic										A65, A66N, PT600M							
Carbide			KW10, GW15				KW10, GW15										
CBN										KBN510, KBN525							
PCD		KPD001, KPD010				KPD001, KPD010											

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	TN60					TN60								
		TN100M					TN100M								
	TC Series		TC60					TC60							
Coated Carbide	PR Series			PR630					PR630				PR905		
				PR660					PR660						
			PR730					PR730							
			PR830					PR830							
								PR1025							
	MEGACOAT (PR Series)		PR1225					PR1225					PR1210		
			PR1230												
Carbide					PW30								KW10		
													GW25		

Workpiece Material		Non-ferrous Metals (Aluminum / Non-ferrous metals / Non-metals)				Titanium / Titanium alloys				Hardened 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						
Carbide		KW10					KW10						
		GW25					GW25						
CBN										KBN525			
PCD		KPD001				KPD001							
		KPD010				KPD010							
		KPD230				KPD230							

Drilling

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
Coated Carbide	PR Series				PR660					PR660					
			PR730					PR730					PR905		
			PR830					PR830							
		PR915					PR915								
		PR930					PR930								
			PR1025					PR1025							
	MEGACOAT (PR Series)		PR1225					PR1225					PR1210		
			PR1230												
Carbide													KW10		
													GW15		

Workpiece Material		Non-ferrous Metals (Aluminum / Non-ferrous metals / Non-metals)				Titanium / Titanium alloys				Hardened materials (Hardened steel / Chilled cast Iron)			
Cutting Range		Finishing ⟷ Roughing				Finishing ⟷ Roughing				Finishing ⟷ Roughing			
Classification		N01	N10	N20	N30	S01	S10	S20	S30	H01	H10	H20	H30
Coated Carbide	MEGACOAT (PR Series)										PR1230		
Carbide			KW10				KW10						
			GW15				GW15						

Summary of Insert Grades

Insert Material Selection Table

Application		Cutting Range	P Steel	M Stainless Steel	K Gray Cast Iron	K Nodular Cast Iron	N Non-ferrous Metals	S Heat-Resistant Steel	S Titanium Alloys	H Hardened materials	Sintered steel
Turning		Finishing ↕ Roughing	TN6010 TN60 TN6020 PV7010 PV7025 CA5505 CA5515 CA5525 CA5535	TN60 PV7025 CA6515 CA5525 CA5535 CA6525 PR1125 PR660	KBN60M KA30 PV7005 CA5505 CA4505 CA4515	TN60 PV7005 CA5505 CA4505 CA4515	KPD001 KPD010 KW10	CF1 KW10 CA6515 CA6525 PR1305 PR1310 PR1325	KPD001 KPD010 SW05 SW10 SW25	KT66 A66N PT600M KBN05M KBN10M KBN25M KBN30M KBN35M KBN900	TN6010 TN60 PR930 KBN65M KBN70M
Small Tools		Finishing ↕ Roughing	TN6010 TN60 TN6020 PV7010 PV7025 PR1005 PR930 PR1025 PR1225 PR1425	PV7025 PR930 PR1025 PR1225	CA4505 CA4515 KW10	CA4505 CA4515 KW10	KPD001 KPD010 KW10	CA6515 PR1125 PR660	KPD001 KPD010 KW10	KBN05M KBN10M KBN25M KBN30M	TN6010 TN60 PR930 KBN65M KBN70M
Boring		Large Cutting Dia. Small	TN6010 TN60 TN6020 PV7010 PV7025 CA5515 CA5525 CA5535 PR1025 PR1425 PR930	TN60 PV7025 CA6515 CA6525 PR1125 PR1025 PR1225 PR930	KBN60M PV7005 CA4505 CA4515 KW10 KBN60M	PV7005 CA4505 CA4515 KW10	KPD001 KPD010 KW10	CA6515 CA6525 PR1125 PR660	KPD001 KPD010 KW10	PT600M KBN05M KBN10M KBN25M KBN30M	TN6010 TN60 PR930 KBN65M KBN70M
Cut-Off		Large Cutting Dia. Small	CR9025 PR1215 PR1225 PR660 PR930 PR915	CR9025 PR1215 PR1225 PR660 PR930 PR915	KW10 PR1215	KW10 PR1215	KW10	KW10 PR660	KW10	-	-
Cut-Off		(Depends on the workpiece material)	PR1025 PR1225	PR1025 PR1225	KW10	KW10	KW10	KW10 PR1025 PR1225	KW10	-	-
Grooving		Glossy finish ↕ Stable Cutting	TC40 TN6020 TN90 TC90 PV7040 PR930 PR1115 PR1215 PR1225	TC40 TN6020 TN90 PV7040 PR930 PR115 PR1115 PR1215 PR1225	PR905 PR1215 KW10 GW15	PR905 PR1215 KW10 GW15	KPD001 KW10 GW15	PR915 KW10 PR1215 PR1225	KPD001 KW10	KBN510 KBN525 PT600M	TC40 PR930
Threading		Glossy finish ↕ Stable Cutting Roughing	TC60 PR630 PR930 PR1115	TC60 PR630 PR930 PR1115	KW10 GW15	KW10 GW15	KW10 GW15	KW10 GW15	KW10 GW15	-	PR930 PR1115

Highlighted materials are recommended choice.

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.

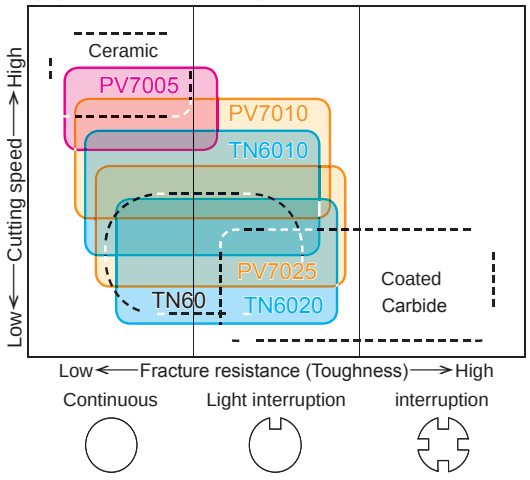
PVD Coated Cermet

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 and PVD Coated Cermet

Workpiece Material		Symbol	Color	Main Component (Coated Composition)	Advantages
P Steel	Cermet	**TN6010** (Super Micro-Grain)	Gray	TiCN	• Improved surface cermet with superior wear resistance and toughness • Application: Economical uncoated cermet for steel
		TN60	Gray	TiCN+NbC	• Typical choice cermet with superior wear resistance and toughness • Application: Cutting of steel and stainless steel
		TN6020 (Super Micro-Grain)	Gray	TiCN	• Super micro-grain cermet with superior wear resistance and toughness • Application: First choice cermet for steel and stainless steel cutting
		TN100M	Gray	TiCN+NbC	• Tough cermet with improved oxidation resistance and thermal shock resistance • Application: Milling of steel at high speed
		TC40	Gray	TiC+TiN	• Good balance of wear resistance and toughness • Application: Grooving and threading of steel
	PVD	**PV7010** (Super Micro-Grain)	Blackish red	TiCN (MEGACOAT)	• 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)	• MEGACOAT on the super micro-grain cermet • Application: First choice PVD cermet for general steel cutting. High strength and long life given by MEGACOAT.
		PV7040 (Super Micro-Grain)	Blackish red	TiC+TiN (MEGACOAT)	• MEGACOAT on the super micro-grain cermet • Application: First choice PVD cermet for general steel grooving. High strength and long life given by MEGACOAT.
K Cast Iron		**PV7005**	Blackish red	TiC+TiN (MEGACOAT)	• Heat-resistant MEGACOAT on cermet with excellent wear resistance • Application: High speed finishing of gray and nodular cast iron

Application Map



PV7025,PV7010,PV7005,PV7040,TN6020,TN6010

MEGACOAT Cermet

- Improved tool life and high speed capability due to its superior heat resistance and hardness
- Stability improvement through prevention of crater wear (oxidation, diffusional wear)
- High thermal stability and surface smoothness provide excellent surface finish

PV7025: MEGACOAT for Steel
PV7010: MEGACOAT for Steel
PV7005: MEGACOAT for Cast Iron

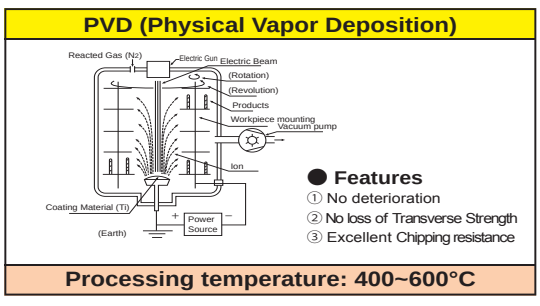


Improved Surface Cermet

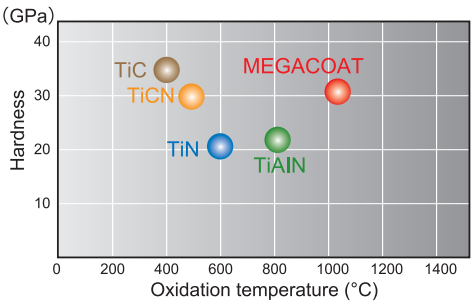
- Hard surface and tougher inner phase
- Achieves balance between wear resistance and toughness
- Economical uncoated cermet

TN6020: Uncoated Cermet for Steel
TN6010: Uncoated Cermet for Steel

Features of PVD



Properties of PVD Coating



CVD Coated Carbide



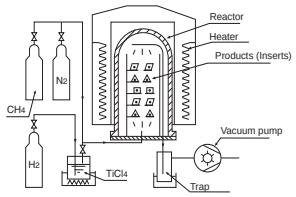
CVD Coated Carbide

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

Features

- 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

CVD (Chemical Vapor Deposition)



Features

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

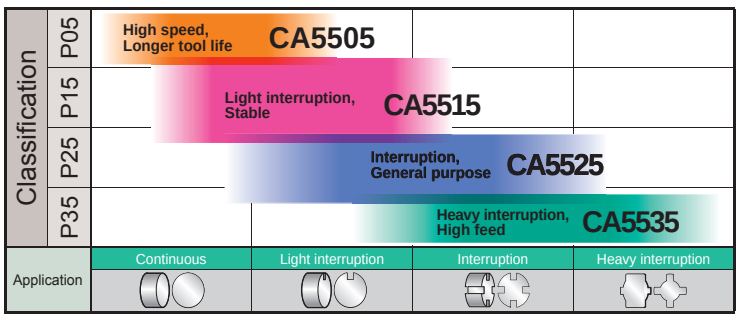
Processing temperature: 900~1100°C

Features of CVD Coated Carbide

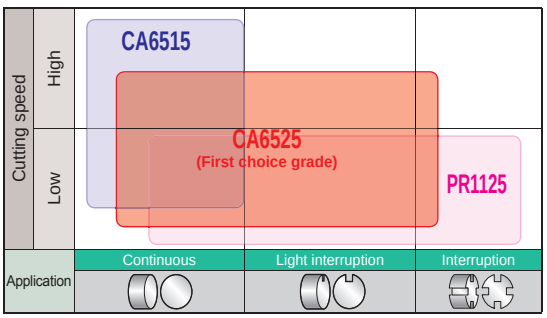
Workpiece Material	Symbol	Color	Coated Composition main Component	Advantages
P Steel	CA5505	Gold	Micro columnar TiCN+Al_2O_3+TiN	• Improved wear resistance due to hard carbide substrate and micro columnar structure of coated composition • Application: High speed continuous cutting of steel, continuous to light interrupted cutting of cast iron
	CA5515	Gold	Micro columnar TiCN+Al_2O_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_2O_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_2O_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_2O_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_2O_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_2O_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_2O_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_2O_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_2O_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_2O_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

Steel



Stainless Steel



CA45series

New CVD Coated Carbide for Gray / Nodular Cast Iron

CA4515

- First choice for stability
- Wide application range for continuous to heavy interrupted cutting

CA4505

- Suitable for high-speed and efficient cutting
- Improved tool life through superior wear resistance

New Bright Black (BB) Coating Technology

Special top coating

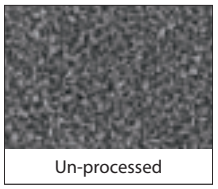
The innovative surface treatment applied to the top layer of the BB Coating prevents chip adhesion.

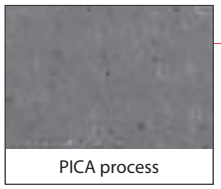
New special coating structure for gray / nodular cast iron

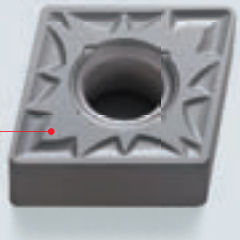
Long and stable tool life is attained through the use of a multi-layer coating structure with a dedicated substrate for cast iron turning.

Special top coating and surface finish

PICA Technology: Promotes a smooth insert surface and reduces built-up-edge.


Un-processed


PICA process

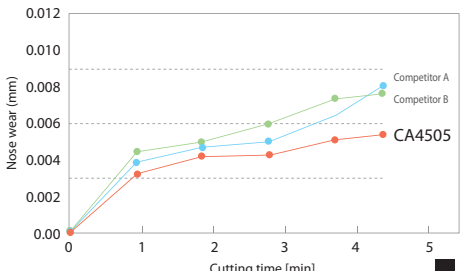


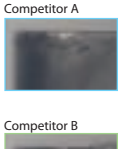
The New BB Coating (Bright Black) Technology

Improved resistance to delamination (coating peeling)
Improved chipping resistance



Wear Resistance Comparison (Nodular Cast Iron)

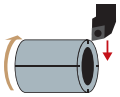



Competitor A

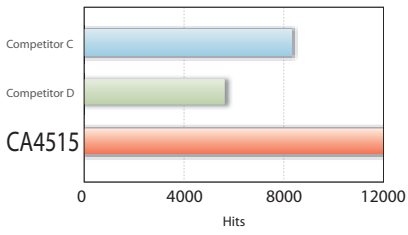

Competitor B


CA4505

Cutting conditions
60-40-8 Vc=1475 sfm ap=0.059"
f=0.014 ipr Wet
Four slot facing

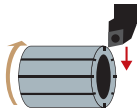


Fracture Resistance Comparison (Nodular Cast Iron)





Cutting conditions
100-70-03 Vc=984 sfm ap=0.059"
f=0.012 ipr Wet
Eight slot facing



PVD Coated Carbide (for Turning)



PVD Coated Carbide

KYOCERA's PVD coated carbide grades are based on ceramic thin film coating and precise edging technologies and are good for precision turning, grooving, threading and cut-off. Very tough carbide substrate and innovative coating technology promote excellent wear resistance and strong coating adhesion for long tool life and stable cutting.

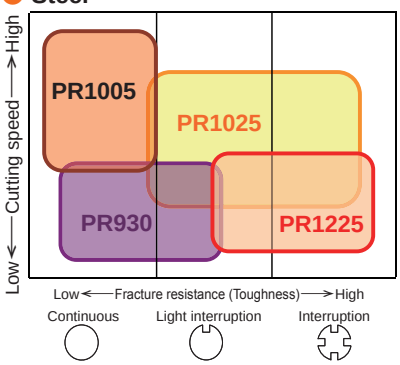
Features

- Good for low to high speeds and finishing to heavy roughing cutting
- Stable cutting with excellent toughness
- Smooth fine surface of PVD coated carbide provides good surface finish and high precision cutting

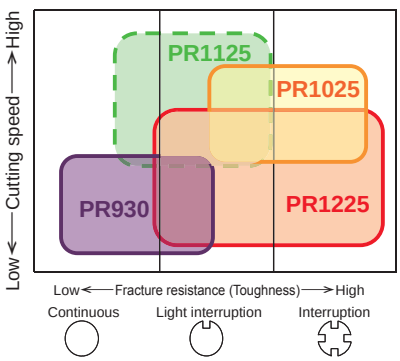
Features of PVD Coated Carbide

Workpiece Material	Symbol	Color	Main Component	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	Purple red	MEGACOAT	• Hard TiAlN base PVD coated super micro-grain carbide • Primary application: 1st choice for grooving in steel and cast iron • Secondary application: Wear-resistant grooving in stainless steel
	PR1425	Purple red	MEGACOAT NANO	• Hard TiAlN base PVD coated super micro-grain carbide • Primary application: 1st choice for high-speed, small part steel machining without interruption • Secondary application: High-speed machining of stainless steel without interruption
M Stainless Steel	**PR1125**	Purple red	TiAlN	• Hard TiAlN base PVD coated super micro-grain carbide, superior toughness and heat resistance • Application: 1st choice for heavy interrupted machining of stainless steel
	PR1225	Blackish red	MEGACOAT	• Superior wear and oxidation resistant MEGACOAT on micro grain carbide substrate • Primary application: 1st choice for small parts machining in steel and stainless at low to moderate speeds • Secondary application: 1st choice for general purpose grooving/turning/cut-off with KGD & KGDF toolholders
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 and turning of heat-resistant alloys
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

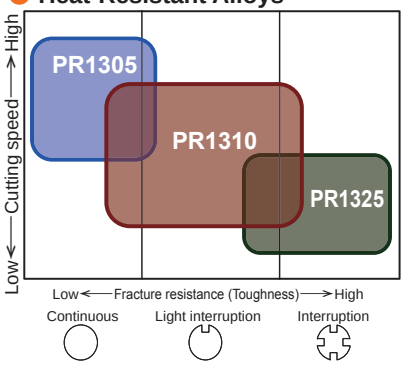
Steel



Stainless Steel



Heat-Resistant Alloys



Advantages of PR13 Series

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

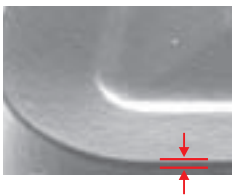
2) New edge preparation technology (FET: Fine Edge Treatment) controls and minimizes R horning and realizes large tip rake angle, and thus prevents burrs and notching. It provides good finished surface.

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)

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.

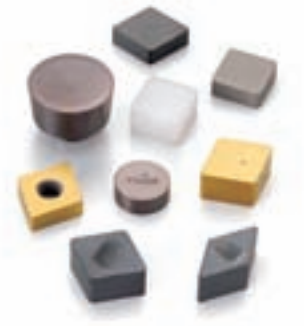
Features

- 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

Workpiece Material	Symbol	Color	Main Component	Advantages
P Steel	PW30	Gray	WC+Co+TiC+TaC	• ISO identification symbol P carbide (K10 relevant) • Application: Milling of steel, stable wear resistance and toughness
N Non-ferrous materials	KW10	Gray	WC+Co	• ISO identification symbol K carbide (K10 relevant) • Application: General purpose grade for multiple applications in aluminum and other non-ferrous materials
	GW15	Gray	WC+Co	• ISO identification symbol K carbide (equivalent to K10), tough micro-grain carbide • Application: 1st choice for grooving, cut-off, and threading of aluminum and non-ferrous materials
	GW25	Gray	WC+Co	• ISO identification symbol K carbide (K30 relevant) • Application: 1st choice for milling of aluminum and other non-ferrous materials
S Heat-Resistant Alloys	SW05	Gray	WC+Co	• ISO identification symbol K carbide (K05 relevant) • Application: 1st choice for continuous turning of titanium alloys
	SW10 (Made to order)	Gray	WC+Co	• 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	• ISO identification symbol K carbide (K25 relevant) • Application: Interrupted and light interrupted cutting of titanium alloys maintaining stable result

Ceramic



Ceramic

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

Features

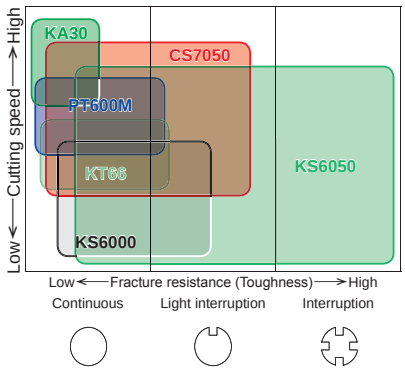
- Excellent wear resistance enables high cutting speeds
- Ceramic maintains good surface finishes due to the low affinity to workpiece materials
- Silicon nitride ceramic has improved thermal shock resistance allowing cast iron cutting using coolants

Features of Ceramic

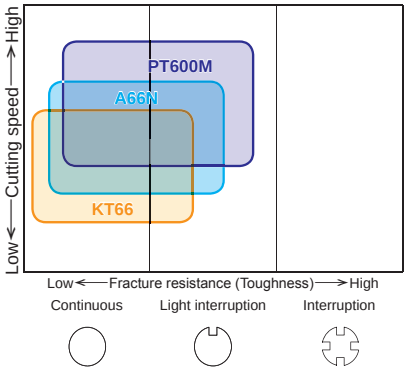
Workpiece Material	Symbol	Color	Main Component	Hardness of Coated Layer (GPa)	Hardness of Substrate (GPa)	Fracture Toughness ($MPa \cdot m^{1/2}$)	Transverse Strength (MPa)	Advantages
K Cast Iron	**KA30**	White	Al_2O_3	-	17.5	4.0	750	• Aluminum Oxide ceramic (Al_2O_3) • Application: Finishing of cast iron at high cutting speeds without coolant
	KS6000	Gray	Si_3N_4	-	15.7	6.5	1230	• Silicon nitride ceramic (Si_3N_4) • Application: High feed and interrupted cutting of cast iron (with or without coolant)
	KS6050	Gray	Si_3N_4	-	15.6	7.8	1200	• Silicon nitride ceramic (Si_3N_4) • Application: Roughing and interrupted cutting of cast iron. Focusing on stability. Capable of running with coolant.
	CS7050	Grayish white	Si_3N_4 (Special Al_2O_3 COAT)	Thin CVD coating	15.6	7.8	1200	• Silicon nitride ceramic (Si_3N_4) + CVD Coated Carbide (Special Al_2O_3 COAT) • Application: Finishing and continuous cutting at high speeds. Capable of running with coolant.
K Cast Iron	**A65**	Black	Al_2O_3+TiC_3	-	20.1	4.1	980	• Aluminum Oxide and Titanium Carbide ceramic (Al_2O_3+TiC) • Application: Semi-roughing to finishing of steel, cast iron, and hardened materials
	A66N (TiN coat)	Gold	Al_2O_3+TiC	20	20.1	4.1	980	• TiN PVD coated Aluminum Oxide and Titanium Carbide ceramic (TiN coated Al_2O_3+TiC) • Application: Semi-roughing to finishing of hardened materials
H Hardened Materials	**PT600M (MEGACOAT)**	Blackish red	Al_2O_3+TiC	30	20.1	4.1	980	• Heat-resistant MEGACOAT on Aluminum Oxide and Titanium Carbide ceramic (MEGACOAT Al_2O_3+TiC) • Primary Application: 1st choice for continuous to light-interrupted turning of hardened materials • Secondary Application: Finishing of cast iron

Application Maps

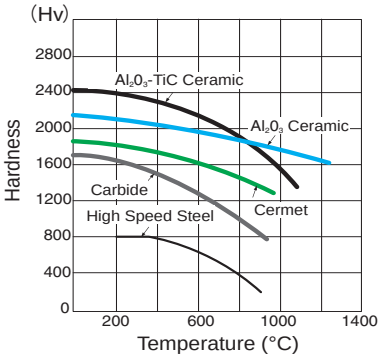
Cast Iron



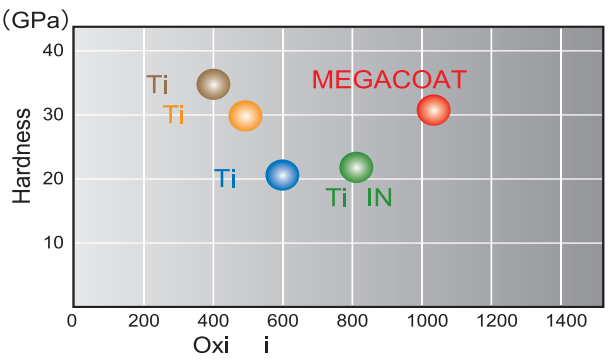
Hardened Materials



High-Temperature Hardness



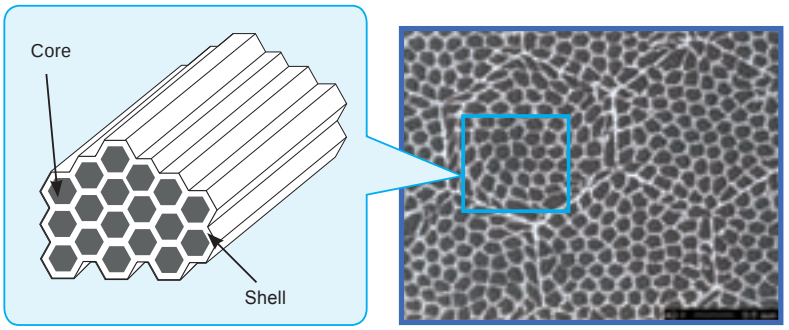
Properties of PVD Coating



Cell Fiber

Cell Fiber

Cell Fiber is composite material consisting of a controlled fibrous core (gray portion) and shell (white portion).



Features

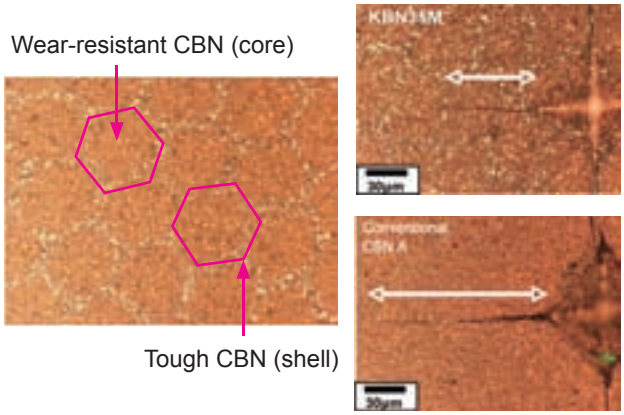
- Cell Fibers combine a hard, wear-resistant core and a tough shell into one insert.
- The tough shell stops cracks that form in the core.
- Characteristics of Cell Fiber are obtained through a combinations of materials and structures.

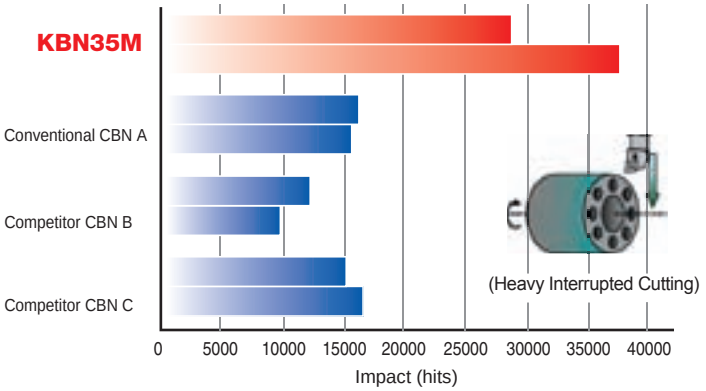
Features of Cell Fiber

Workpiece Material	Symbol	Color	Main Component	Advantages
H Hardened Materials	KBN35M (MEGACOAT)	Blackish red	CBN	• Cell Fiber CBN composite material consisting of wear resistant CBN (core) and tough CBN (shell) • Heat-resistant MEGACOAT on tough Cell Fiber CBN • Application: 1st choice for interrupted machining of hardened steel
S Heat-Resistant Alloys	CF1	Gray	Ceramic	• Cell Fiber ceramic composite material consisting of wear resistant ceramic (core) and tough ceramic (shell) • Application: Cutting of nickel-based, heat-resistant alloys up to 50Rc

KBN35M (MEGACOAT Cell Fiber CBN)

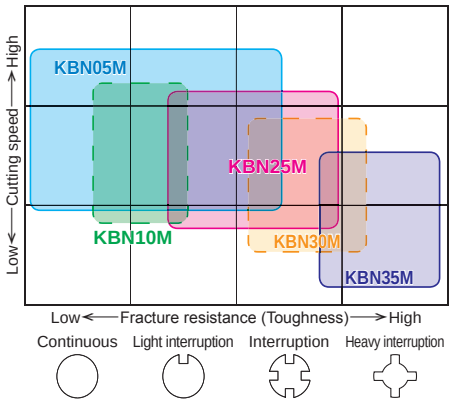
Tough CBN (shell) prevents crack growth



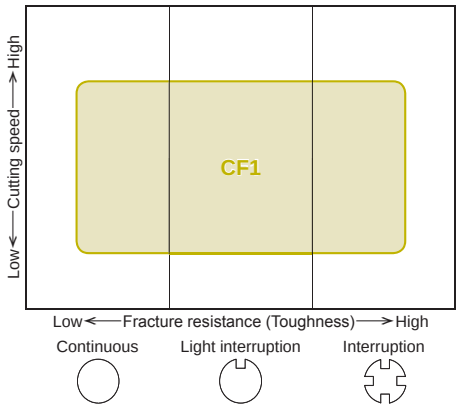


Application Map

Hardened Steel / Chilled Cast Iron



Heat-Resistant Alloys



PCD



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.)

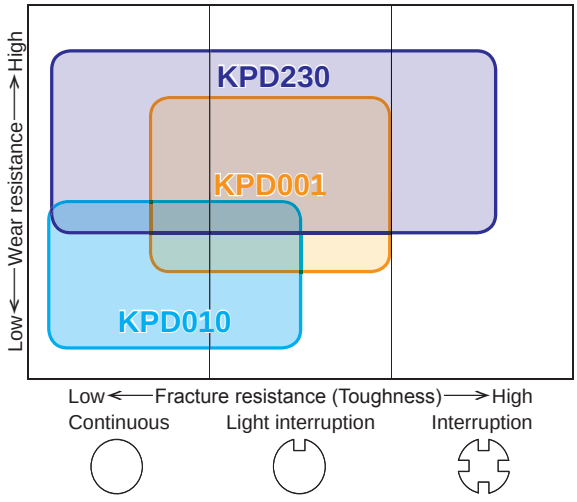
Features of PCD

Workpiece Material	Symbol	Av. grain size (μm)	Advantages
N Non-ferrous metals	KPD001	0.5	• Super Micro-Grain PCD features cutting edge strength, wear resistance, fracture resistance, good edge-sharpening performance and long, stable tool life. • Application: 1st choice for high speed cutting of aluminum alloys, brass, non-ferrous metals and non-metals including plastics, fiberglass, carbide and ceramics.
	KPD010	10	• 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	• 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

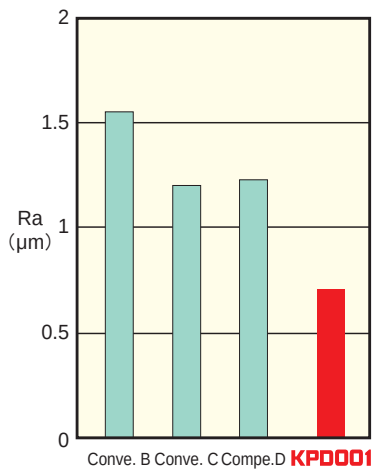
Applications

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

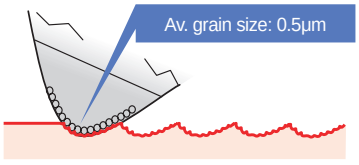
Application Map



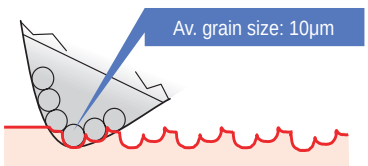
Surface Finish Roughness Comparison of Aluminum Cutting



Excellent surface finish provided by Super Micro-Grain KPD001



Surface finish of conventional PCD



(Grain size affects surface finish quality)

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

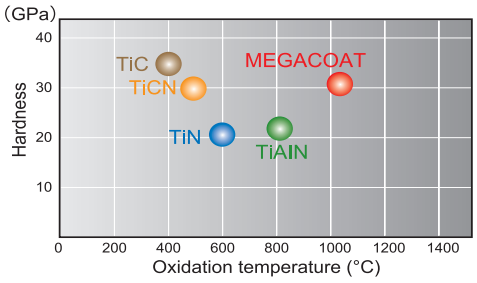
Features of CBN

Workpiece Material	Symbol	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: Supplemental grade for continous cutting of hardened tool steels
	KBN525	Black	1 and under	45	25	1,250	• Good balance of toughness and wear resistance, non-coated CBN • Application: Supplemental grade for general purpose machining of hardened steels
	KBN05M (MEGACOAT)	Blackish red	0.5-1.5	55	27	1,000	• Heat-resistant MEGACOAT on highly heat-resistant CBN substrate • Application: 1st choice for the continuous to light-interrupted machining of heat treated steels
	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 machining of tool steels
	KBN25M (MEGACOAT)	Blackish red	1 and under	45	25	1,250	• Heat-resistant MEGACOAT on micro-grain CBN with heat resistant binder phase • Application: 1st choice for general purpose machining of heat treated steels and stainless steels
	KBN30M (MEGACOAT)	Blackish red	1-4	65	30	1,350	• Heat-resistant MEGACOAT on tougher CBN • Application: Supplemental grade for interrupted machining of hardened steels (see 1st choice grade, KBN35M on page A13)
Powdered Metal	**KBN65B**	Black	2	85	32	1,150	• Excellent wear resistance due to CBN with heat-resistant binder phase, non-coated CBN • Application: Uncoated grade for general purpose machining of powdered metal at low to moderate speeds
	KBN65M (MEGACOAT)	Blackish red	2	85	32	1,150	• Heat-resistant MEGACOAT on CBN with heat-resistant binder phase • Application: Supplemental coated grade for general purpose machining of powdered metal
	KBN70M (MEGACOAT)	Blackish red	2-4	90	34	1,350	• Heat-resistant MEGACOAT on CBN rich substrate • Application: 1st choice for general purpose machining of powdered metal at moderate to high speeds
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: 1st choice for high speed finishing of gray cast iron
	KBN900 (TiN COAT)	Gold	9	90	31	1,050	• TiN coated solid CBN • Application: 1st choice for severe interruptions in hardened steels

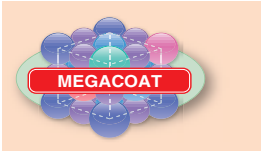
• For **KBN35M**, see page ⇒**A13**.

MEGACOAT CBN

Properties of PVD coated layer



Advantages of MEGACOAT

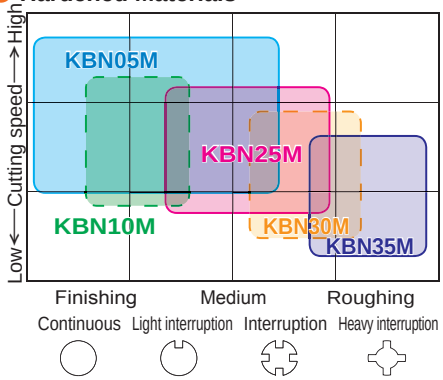


Improved Stability
Extended Tool Life
High Speed cutting

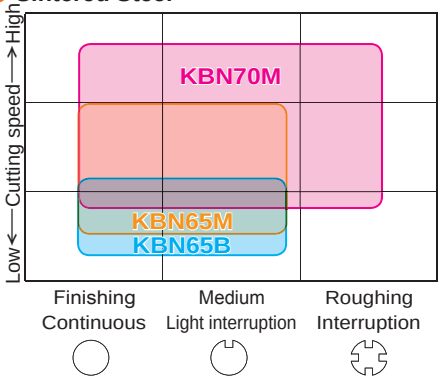
- Long tool life and stable cutting due to superior heat-resistance and hardness.
- Improvement of crater wear resistance.

Application Map

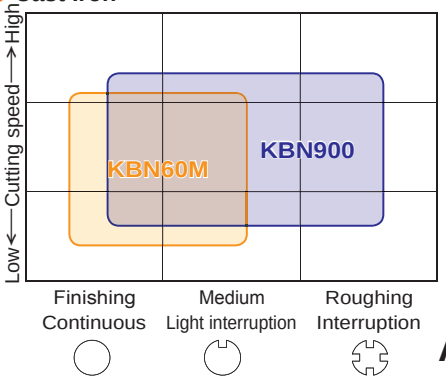
Hardened Materials



Sintered Steel



Cast Iron



Grade Properties

Cermet

Symbol	Color	Main Component	Coating Layer	Relative Density	Hardness of Substrate		Fracture Toughness ($MPam^{1/2}$)	Transverse Strength (MPa)
					(HV)	(GPa)		
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 Cermet

Symbol	Color	Main Component	Coating Layer	Relative Density	Hardness of Substrate		Fracture Toughness ($MPam^{1/2}$)	Transverse Strength (MPa)
					(HV)	(GPa)		
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

Symbol	Color	Main Component	Coating Layer	Relative Density	Hardness of Substrate		Fracture Toughness ($MPam^{1/2}$)	Transverse Strength (MPa)
					(HV)	(GPa)		
CA4010	Gold	Columnar TiCN+Al_2O_3+TiN	Thick coating	14.8	1,670	16.4	10.0	3,000
CA4115	Gold	Micro columnar TiCN+Al_2O_3+TiN	Thick coating	14.7	1,550	15.2	12.0	2,750
CA4120	Gold	Micro columnar TiCN+Al_2O_3+TiN	Thick coating	14.7	1,550	15.2	12.0	2,750
CA4505	Blackish gray	Micro columnar TiCN+Al_2O_3	Thick coating	14.9	1,780	17.4	9.5	2,350
CA4515	Blackish gray	Micro columnar TiCN+Al_2O_3	Thick coating	14.9	1,570	15.4	12.0	2,780
CA5505	Gold	Micro columnar TiCN+Al_2O_3+TiN	Thick coating	14.7	1,730	17.0	10.0	2,540
CA5515	Gold	Micro columnar TiCN+Al_2O_3+TiN	Thick coating	14.7	1,550	15.2	12.0	2,750
CA5525	Gold	Micro columnar TiCN+Al_2O_3+TiN	Thick coating	14.5	1,400	13.7	12.0	2,780
CA5535	Gold	Micro columnar TiCN+Al_2O_3+TiN	Thick coating	14.1	1,340	13.1	16.5	2,970
CA6515	Gold	Micro columnar TiCN+Al_2O_3+TiN	Thin coating	14.7	1,530	15.0	12.0	2,780
CA6525	Gold	Micro columnar TiCN+Al_2O_3+TiN	Thin coating	14.7	1,370	13.4	16.0	3,100
CR9025	Gold	Columnar TiCN+TiN	Thick coating	14.5	1,400	13.7	12.0	2,780

PVD Coated Carbide

Symbol	Color	Main Component	Coating Layer	Relative Density	Hardness of Substrate		Fracture Toughness ($MPam^{1/2}$)	Transverse Strength (MPa)
					(HV)	(GPa)		
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

Carbide

Symbol	Color	Main Component	Relative Density	Hardness of Substrate		Fracture Toughness ($MPam^{1/2}$)	Transverse Strength (MPa)
				(HV)	(GPa)		
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

Turning Indexable Inserts

B

B1~B94

Turning Indexable Inserts Identification System **B2**

Insert Color **B3**

Chipbreaker Selection **B4~B13**

Negative Inserts **B4**

Positive Inserts **B10**

Cermet / Coated Carbide / Carbide Lineup **B14~B83**

Turning Negative Inserts	CN□□ ...80°Diamond	B14
	DN□□ ...55°Diamond	B20
	KN□□ ...55°Parallelogram	B25
	RN□□ ...Round	B25
	SN□□ ...90°Square	B26
	TN□□ ...60°Triangle	B30
	VN□□ ...35°Diamond	B36
	WN□□ ...80°Trigon	B38
	Small Double Sided Tools	B42
	Double Sided Tools	B44
Turning Positive Inserts	CC□□, CP□□ ...80°Diamond	B45
	DC□□, DP□□ ...55°Diamond	B52
	JC□□ ...70°Diamond	B60
	RC□□ ...Round	B60
	SC□□, SP□□ ...90°Square	B61
	TB□□, TC□□, TP□□ ...60°Triangle	B63
	VB□□, VC□□, VP□□ ...35°Diamond	B72
	WB□□, WP□□ ...80°Trigon	B77
	YP□□ ...45°Diamond	B80
Bearing Machining	R□MT-BB/SNMF	B80
Inserts for Back Turning	TKFB	B81
	ABS15 / ABW15 / ABW23	B82
Solid Tip-bars		B83

Ceramic Inserts Identification System **B84**

Ceramic Lineup **B85~B94**

Turning Negative Inserts	CN□□ ...80°Diamond	B85
	DN□□ ...55°Diamond	B86
	EN□□ ...75°Diamond	B87
	RN□□ ...Round	B87
	SN□□ ...90°Square	B88
	TN□□ ...60°Triangle	B90
	VN□□ ...35°Diamond	B91
	WN□□ ...80°Trigon	B91
Turning Positive Inserts	SP□□ ...90°Square	B92
	TB□□, TC□□, TP□□ ...60°Triangle	B92
Inserts for High Hardened Roll	RBG / RCGX / LNUN	B93
Grooving Inserts	GH / GS	B94

Turning Indexable Inserts Identification System

Symbol	Shape
H	120°Hexagon
O	135°Octagon
P	108°Pentagon
S	90°Square
T	60°Triangle
C	80°Rhombic
D	55°Rhombic
E	75°Rhombic
F	50°Rhombic
M	86°Parallelogram
V	35°Rhombic
W	80°Trigon
L	90°Rectangle
A	85°Parallelogram
B	82°Parallelogram
K	55°Parallelogram
R	Round

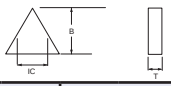
Shown angle stands for acute angle for rhombic and parallelogram inserts.

①Shape Symbol

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

②Relief Angle Symbol

Tolerance



Symbol (class)	B (+/-) Tolerance (mm) Corner Height ANSI (in)	Corner Height ISO (mm)	IC (+/-) Tolerance (mm) Thickness ANSI (in)	Thickness ISO (mm)	T (+/-) I.C. Size ANSI (in)	I.C. Size ISO (mm)
A	.0002	.005	.001	.025	.001	.025
C	.0005	.013	.001	.025	.001	.025
E	.001	.025	.001	.025	.001	.025
F	.0002	.005	.0005	.013	.001	.025
G	.001	.025	.001	.025	.005	.13
H	.0005	.013	.0005	.013	.001	.025
J*	.0002	.005	.002-.006	.05-.15	.001	.025
K*	.0005	.013	.002-.006	.05-.15	.001	.025
L*	.001	.025	.002-.006	.05-.15	.001	.025
M*	.002-.009	.08-.23	.002-.006	.05-.15	.005	.13
N*	.002-.009	.08-.23	.002-.010	.05-.25	.005	.13
U*	.005-.015	.13-.38	.003-.010	.08-.25	.005	.13

* Tolerance depends on the size and shape of the insert

③Tolerance Symbol

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

④Hole / Chipbreaker Symbol

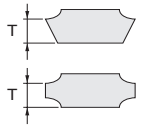
	①	②	③	④	⑤	⑥	⑦	⑧
ISO (metric)	C	N	M	G	12	04	08	PS
ANSI (inch)	C	N	M	G	4	3	2	PS

⑤Edge Length Symbol (ISO)

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

⑥Thickness Symbol

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



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

⑦Corner-R(rε) Symbol

ISO Corner-R (rε:mm)	ISO Symbol	ANSI Corner-R (rε:inch)	ANSI Symbol
Sharp Corner	00	.000	00
0.03	003	.001	0.1
0.1	01	.004	0.2
0.2	02	.008	0.5
0.4	04	1/64	1
0.8	08	1/32	2
1.2	12	3/64	3
1.6	16	1/16	4
2.0	20	5/64	5
2.4	24	3/32	6
2.8	28	7/64	7
3.2	32	1/8	8
Round Insert	00 (inch) or M0 (metric)	Round Insert	0

⑧Manufacturer's Option

Hand Symbol, Chipbreaker Symbol, etc.

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

Positive Insert Identification System

CCGT060201M E R - U

- Minus tolerance for Corner-R (rε)
- With honing
- Insert Hand
- Chipbreakers

CCGT060201M F P - GF

- Minus tolerance for Corner-R (rε)
- Sharp edge
- Mirror-finish inserts
- Chipbreakers

When a minus tolerance is specified for the 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(rε) = 0.2 mm may result in larger radius than specified.
Use an insert whose corner-R(rε) has a minus tolerance.

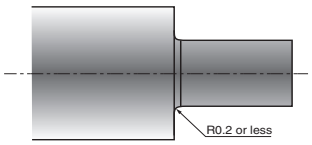


Fig.1 Example of a specified corner-R in the drawing

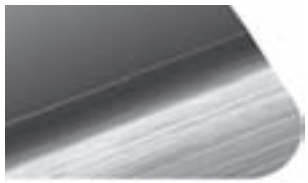
Features of insert with tolerance symbol of “E” Class

● High Quality Ground Insert “Super Fine”

- Applicable for mechatronics, electronics and high precision machined parts
- Sub-micron accuracy possible

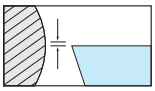
High Quality Ground Insert

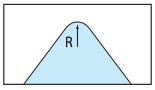
- Reduced micro chipping during edge grounding
- Less adhesion • Long tool life



“E” Class Turning Insert

- Accuracy of index position after insert replacement





Insert Color (Red Font indicates newest grades)

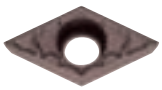
● Cermet, MEGACOAT Cermet and PVD Coated Cermet

Grades	Cermet						MEGACOAT Cermet				PVD Coated Cermet		
	TN6010	TN6020	TN60	TN100M	TC40	TC60	PV7005	PV7010	PV7025	PV7040	PV7020	PV60	PV90
Insert Color													

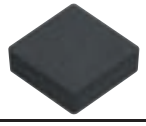
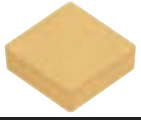
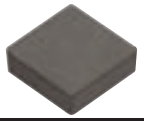
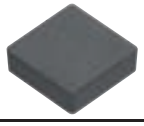
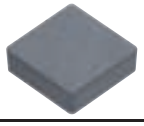
● MEGACOAT (PVD Coated Carbide)

Grades	MEGACOAT						
	PR1210	PR1215	PR1225	PR1230	PR1305	PR1310	PR1325
Insert Color							

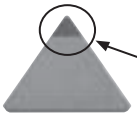
● CVD Coated Carbide and PVD Coated Carbide

Grades	CVD Coated Carbide				PVD Coated Carbide									MEGACOAT NANO
	CA45 Series	CA40 CA41 Series	CA55 Series	CA65 Series	PR660	PR730	PR830	PR915	PR930	PR1005	PR1025	PR1115	PR1125	PR905	PR1425
Insert Color															

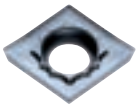
● Ceramic

Grades	Alumina Ceramic			PVD Coated Carbide Ceramic	MEGACOAT Ceramic	Silicon Nitride Ceramic		CVD Coated Carbide Silicon Nitride Ceramic	Cell Fiber Ceramic
	KA30	A65	KT66	A66N	PT600M	KS6000	KS6050	CS7050	CF1
Insert Color									

● CBN and PCD

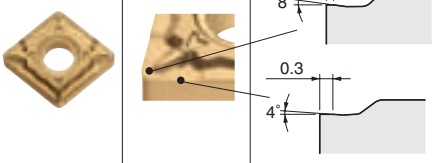
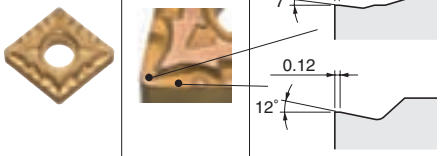
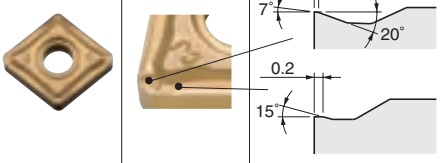
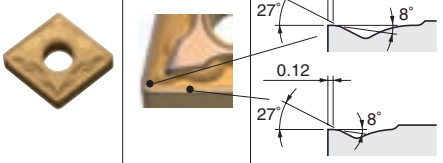
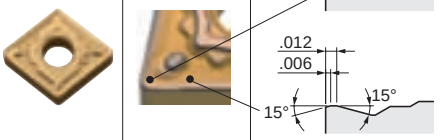
Grades	CBN			PCD			MEGACOAT CBN	PVD Coated CBN
	KBN65B	KBN510	KBN525	KPD001	KPD010	KPD230	KBN・・M	KBN900
Insert Color								

● Carbide

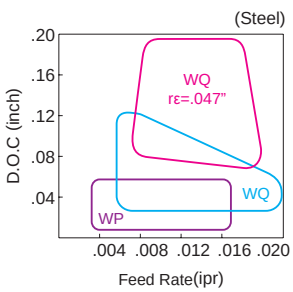
Grades	Carbide				
	GW15	GW25	KW10	PW30	SW05
Insert Color					

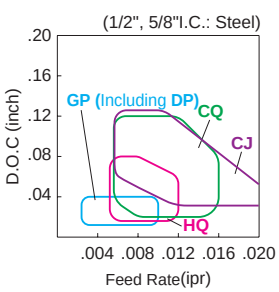
Steel

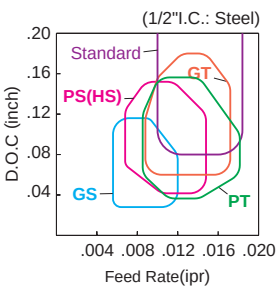
1 Molded Chipbreaker

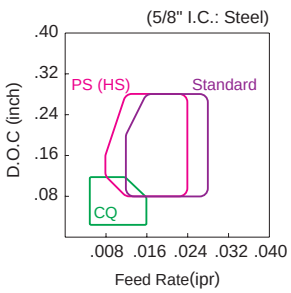
Cutting Range	Name	Design	Advantages
Finishing-Medium (With Wiper Edge)	WP		Wiper Insert. Double feed rate is available at finishing to light cutting, while maintaining a smooth finish.
Finishing-Medium (With Wiper Edge)	WQ		Wiper insert. Double feed rate possible while maintaining a smooth finish. High efficiency and good chip control.
Finishing	GP (1st Choice)		Finishing to light cutting. Good chip control.
Finishing-Medium	HQ (1st Choice)		Sharp cutting performance and wide range chip control with 3-D rake angle and double projection design.
Finishing-Medium	CQ		Good chip control at varied D.O.C. such as copying. Applicable to up facing.
Finishing-Medium (Up facing)	CJ		Ensures chips will curl even in small and high feed rate machining. Improves chip evacuation when copying and up facing.
Medium-Roughing	GS		Strong edge chipbreaker. Stable at continuous machining and light interrupted cutting.
Medium-Roughing	CS		Strong edge chipbreaker for general purpose machining. Stable at continuous machining and light interrupted cutting.

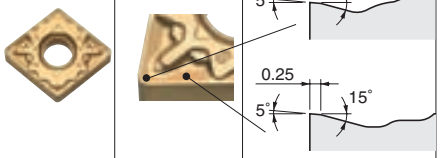
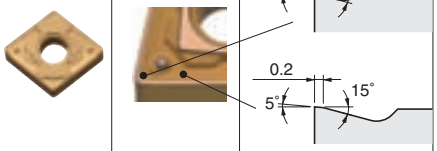
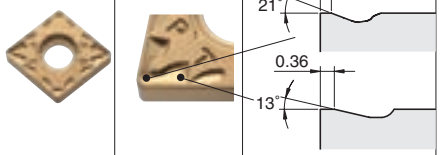
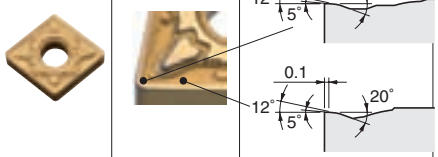
● Applicable Chipbreaker Range

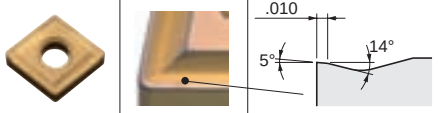
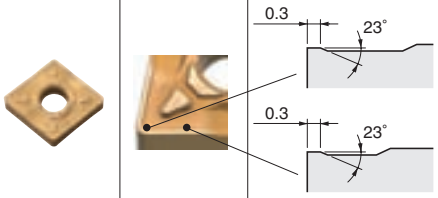
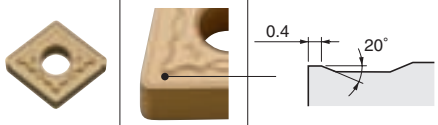
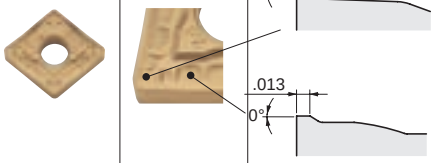




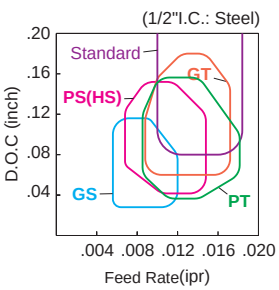


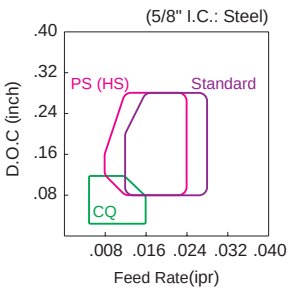


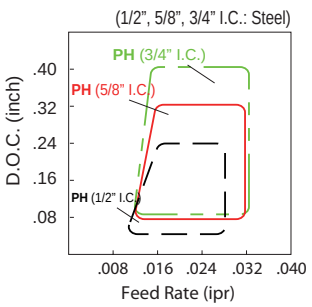
Cutting Range	Name	Design	Advantages
General Purpose	PS (1st Choice)		General purpose with wide application range. More stable due to large contact surface.
Medium-Roughing	HS		General purpose chipbreaker. Applicable to copying.
Medium-Roughing (High Feed)	PT (1st Choice)		Low cutting forces at high feed machining. Land support structure.
Medium-Roughing (High Feed)	GT		Strong edge chipbreaker. Wide land design and smooth chip control even at high feed rate machining.

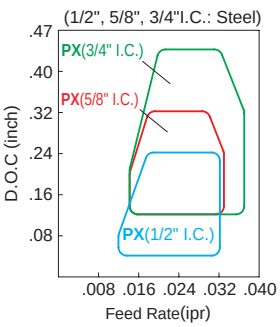
Cutting Range	Name	Design	Advantages
Roughing	Standard		Low cutting force and suitable for large D.O.C. roughing.
Medium-Roughing (High Feed)	HT		Low cutting force at high feed rate machining. Strong edge and applicable to interrupted cutting.
Roughing	PH (1st Choice)		For roughing of steel. Suitable for heavy interrupted cutting and for workpieces with scale due to strong cutting edge.
Single Sided Roughing (High Feed)	PX		Roughing and high feed rate operation. Low cutting force chipbreaker.

● Applicable Chipbreaker Range

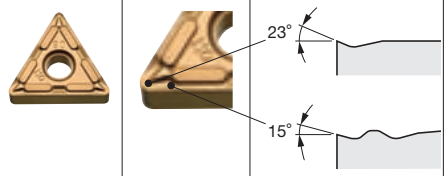
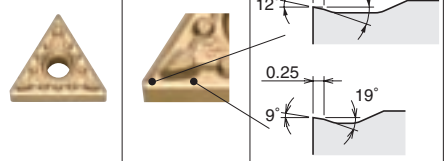
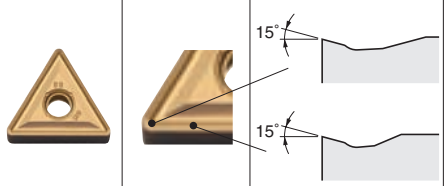
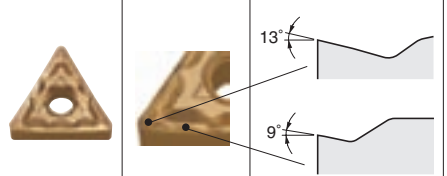




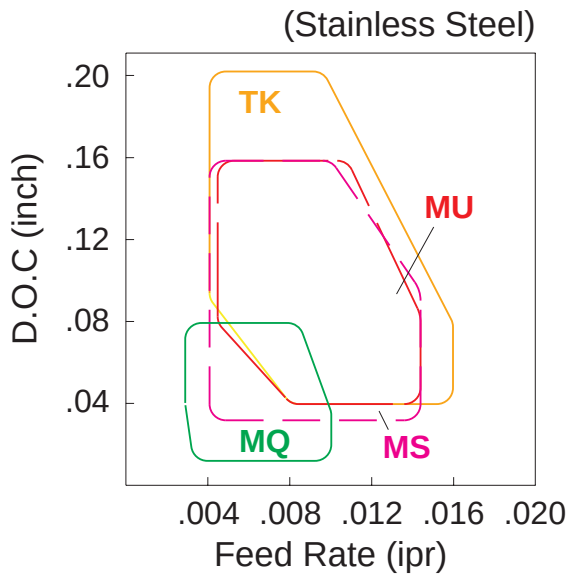


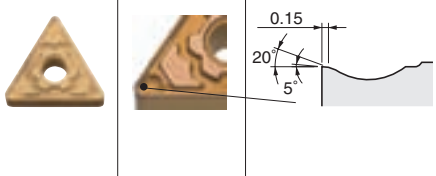
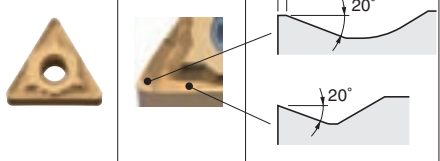
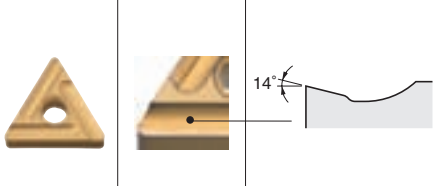


Stainless Steel/Heat-Resistant Alloys

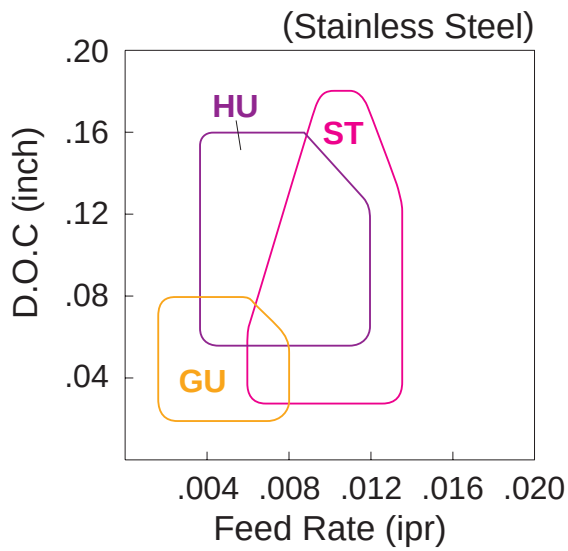
Cutting Range	Name	Design	Advantages
Finishing	MQ		Large rake angle and circular edge line. Low cutting force and good chip control.
General Purpose	MS (1st Choice)		Superior cutting edge sharpness and strength achieved by a positive land. Extra strength of cutting edge inhibits damage from wall shouldering.
Medium-Roughing	MU		Large rake angle reduces cutting force. Less burring achieved by diminishing damage from notching.
Medium-Roughing	TK		Smooth chipbreaker geometry improves chip flow with less adhesion. Large curled chips.

● Applicable Chipbreaker Range



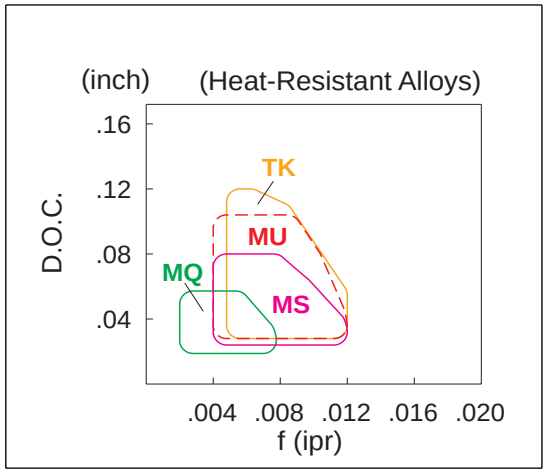
Cutting Range	Name	Design	Advantages
Finishing	GU		Sharp cutting performance and low cutting force due to 3-D rake angle. Applicable to small shaft machining.
Medium-Roughing	HU		Sharp cutting performance and strong edge due to 3-D rake angle. Applicable to small shaft machining.
Medium-Roughing	ST		Less cutting force due to large rake angle. Less notching by special design.

● Applicable Chipbreaker Range



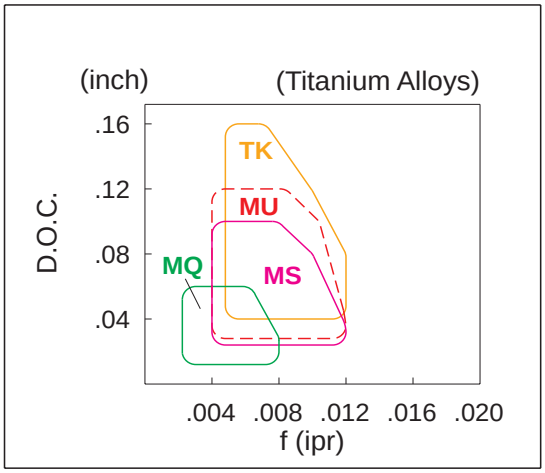
Heat-Resistant Alloy (PR13 Series)

Applicable Chipbreaker Range

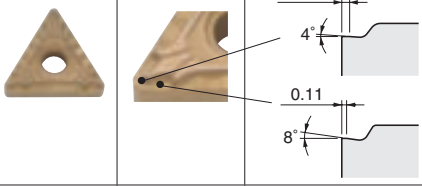
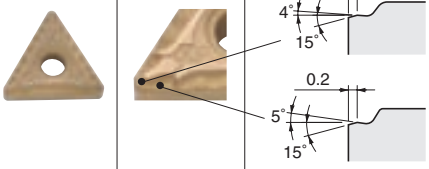


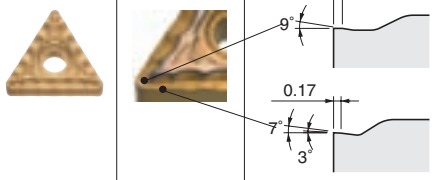
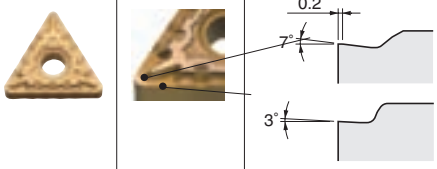
Titanium Alloy (SW Series)

Applicable Chipbreaker Range

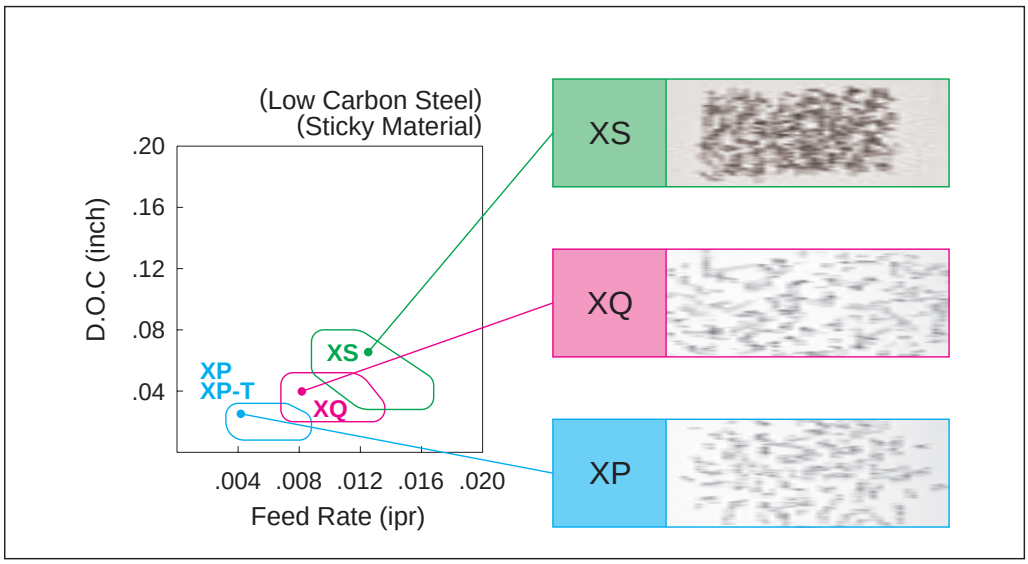


Low Carbon Steel (Pipe / Rolled Plate / Rolled Steel)

Cutting Range	Name	Design	Advantages
Finishing	XP		Short chips when finishing due to sharp cutting and special design.
Finishing	XP-T		Tough edge type for finishing. Recommended for interrupted cutting and unstable finishing cutting.

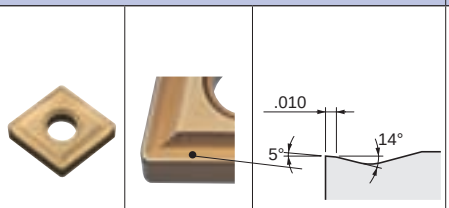
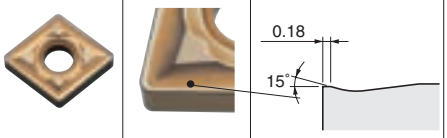
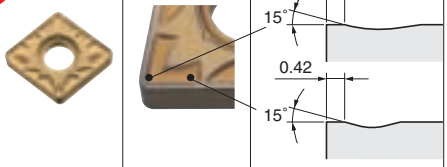
Cutting Range	Name	Design	Advantages
Medium	XQ		Consistent chip breaking at medium cutting due to moderate rake face and special design.
Roughing	XS		Consistent chip breaking when roughing due to special rake face and rake angle design.

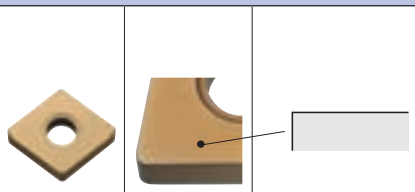
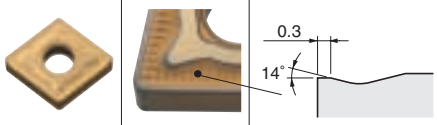
Applicable Chipbreaker Range



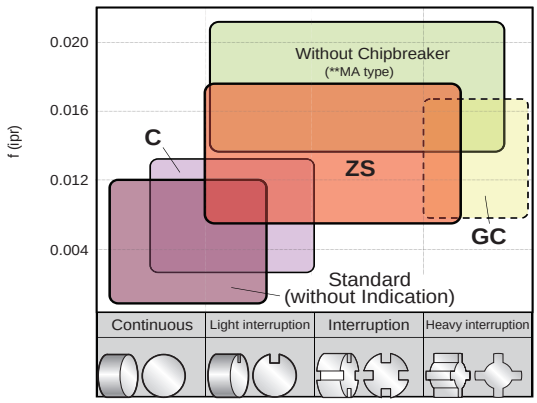
Chipbreaker Selection (Negative Inserts)

Cast Iron

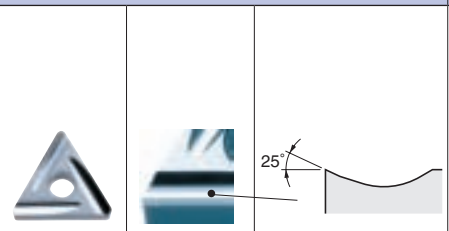
Cutting Range	Name	Design	Advantages
Sharp Cutting Oriented	Standard		Standard chipbreaker for continuous to light interrupted cutting of cast iron. (Low cutting force)
	C		High feed rate chipbreaker for continuous to light interrupted cutting of cast iron.
	ZS (1st Choice)		Standard chipbreaker for light interrupted to interrupted cutting of cast iron. (High stability)

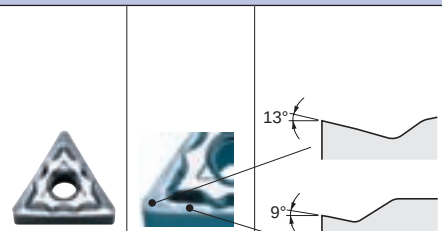
Cutting Range	Name	Design	Advantages
Stability Oriented	No Chipbreaker		High feed rate chipbreaker for light interrupted cutting of cast iron.
	GC		Chipbreaker for heavy interrupted cutting of cast iron.

Chipbreaker Selection (Negative Insert)

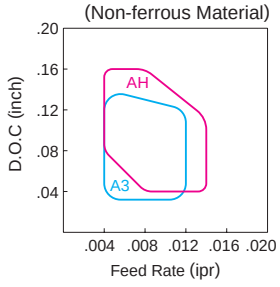


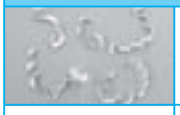
Non-ferrous Metals

Cutting Range	Name	Design	Advantages
Finishing-Medium	A3		Large rake angle and smooth surface. Good chip control and less adhesion.

Cutting Range	Name	Design	Advantages
Medium-Roughing	AH	 G class: Sharp Edge M class: Honed Cutting Edge	Polished chipbreaker. Smooth chip control and less adhesion.

Applicable Chipbreaker Range

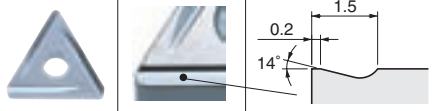
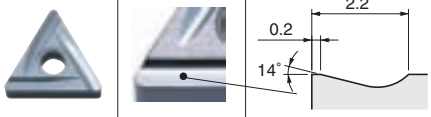
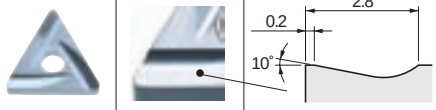
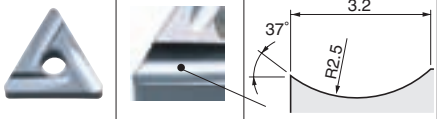


A3 Chipbreaker	
	D.O.C.=.08 inch f=.008 ipr
	D.O.C.=.08 inch f=.012 ipr

AH Chipbreaker	
	D.O.C.=.12 inch f=.008 ipr
	D.O.C.=.12 inch f=.012 ipr

Steel

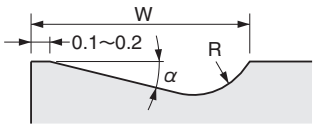
2 Ground Chipbreaker

Cutting Range	Name	Design	Advantages
Finishing	S		Sharp edge and less cutting force. Good chip control and smooth chip evacuation.
Finishing-Medium	B		Suitable for general purpose machining at feed rate .006 to .010 ipr.
Medium-Roughing	C		Suitable for general purpose machining at feed rate .008 to .014 ipr.
Roughing	D		Suitable for general purpose machining at feed rate .012 to .018 ipr.
Medium-Roughing Low Cutting Resistance	25R		Applicable to sticky material such as low carbon steel. Large rake angle and suitable for stainless steel.

● Effectiveness of ground chipbreaker

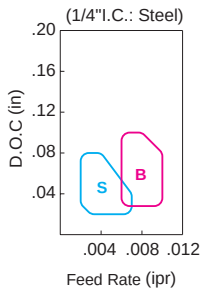
1) Lower cutting force and improved edge
2) Increased adhesion force
3) Improved dimension accuracy and finishing surface accuracy
4) Controled chip evacuation direction

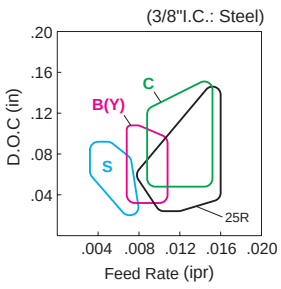
● Specification of B, C, D and Parallel ground chipbreaker

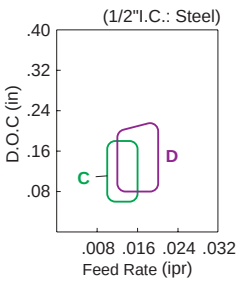


Insert Type	I.C. Size	Chipbreaker Name	W (in)	α	R (in)
CNGG	3/8,1/2	Without Indication (similar to C)	.087	14°	.040
WNGG	3/8	Without Indication (similar to C)	.087	14°	.040
TNGG	1/4,3/8	B	.060	14°	.020
	3/8,1/2	C	.087	14°	.040
	3/8,1/2	D	.110	10°	.060
DNGG	3/8,1/2	Without Indication (similar to C)	.100	14°	.080
VNGG	3/8	Without Indication (similar to B)	.060	14°	.020
SNGG	3/8,1/2	B	.060	14°	.020
	1/2	C	.087	14°	.040

● Applicable Chipbreaker Range



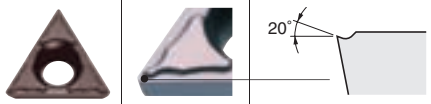
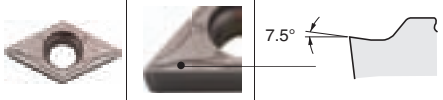
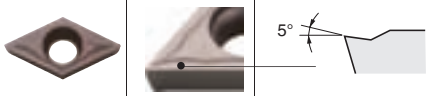
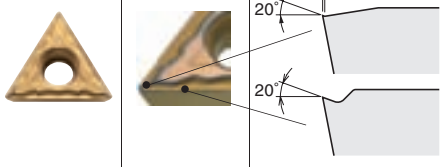
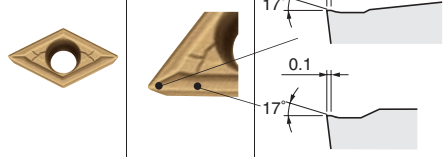


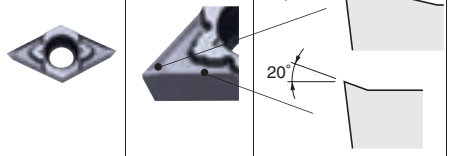
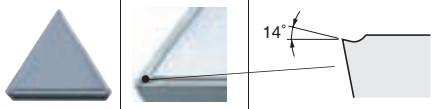
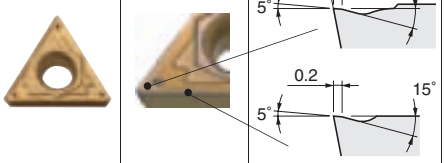
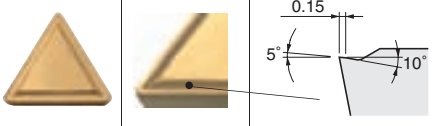
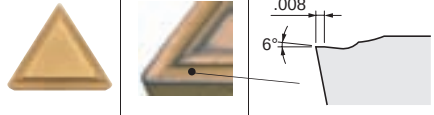


Chipbreaker Selection (Positive Inserts)

Steel

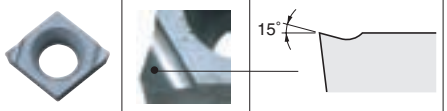
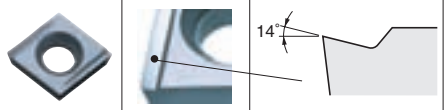
1 Molded Chipbreaker

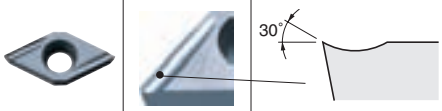
Cutting Range	Name	Design	Advantages
Minute D.O.C.	CF		Available for minute D.O.C. (.0008 - .008 inch) finishing.
Finishing	GF		Dot located close to ridge line of cutting edge on corner. Chips fragmented in small pieces in cutting of small D.O.C.
General Purpose - Small Parts Machining	GQ		Enables cutting over a wide range of conditions by using the optimum chipbreaker width according to the cutting depth.
Finishing	XP		Consistent chip breaking performance even for low carbon steel and sticky material.
Finishing-Medium	XQ		Wide chip control range and sharp cutting performance. Suitable for low carbon steel and sticky material.
Finishing-Medium	GK		Good chip evacuation at wide range by breaker dot and wide chip pocket.

Cutting Range	Name	Design	Advantages
Finishing	CK		Good cutting performance. Applicable without hand for two direction cutting on automatic lathe.
Finishing	GP		Good chip control at finishing. Applicable to sticky material like low carbon steel, pipe material.
Finishing	DP		Consistent chip breaking performance for finishing.
General Purpose - Boring	HQ		General purpose chipbreaker for medium cutting.
Medium cutting	G		Chipbreaker for short chips at medium cutting.
Medium cutting	**Standard (Without Indication)**		Strong edge chipbreaker for medium cutting range.

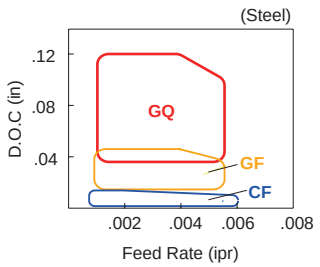
Steel

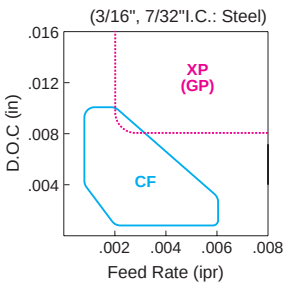
2 Ground Chipbreaker

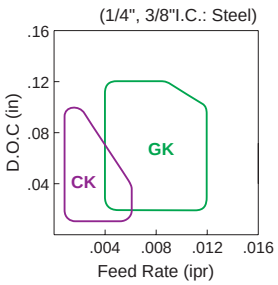
Cutting Range	Name	Design	Advantages
Finishing	Lead (Without Indication)		Good chip control at finishing to light cutting with low cutting force.
Finishing	F		Good chip control at finishing to light cutting with low cutting force.
Medium cutting	Y		Sharp cutting performance and good surface finish.

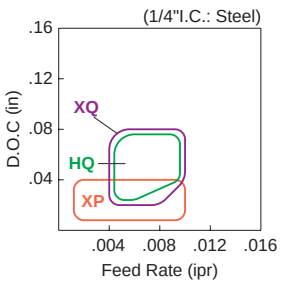
Cutting Range	Name	Design	Advantages
Low Feed	J		Slant chipbreaker width and chip control at various D.O.C. Suitable for automatic lathes.
Low Feed	U		Good chip control at low feed rates and varied D.O.C. with low cutting force.

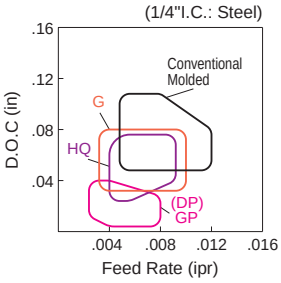
● Applicable Chipbreaker Range

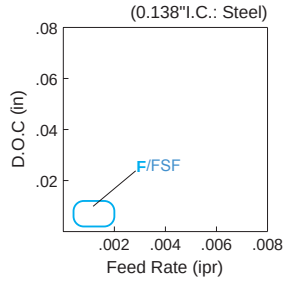


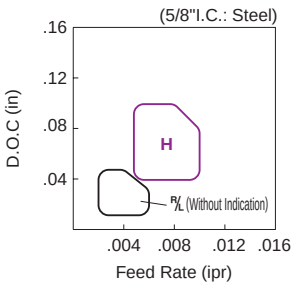


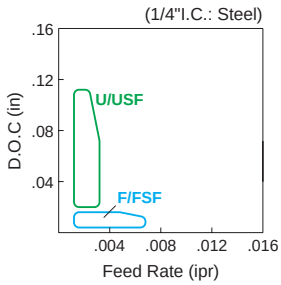


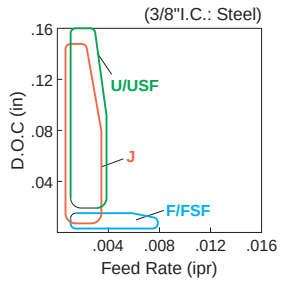








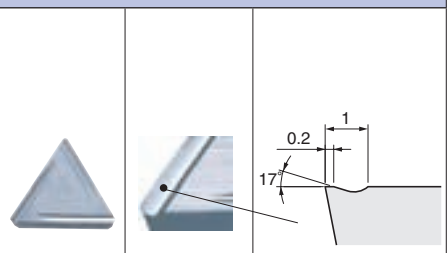
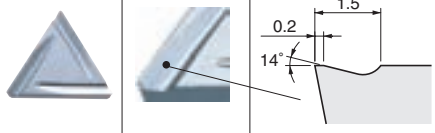
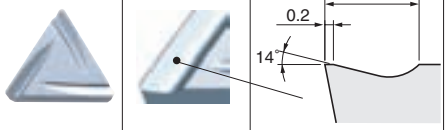
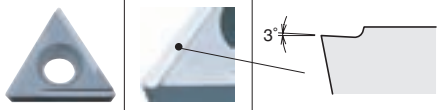




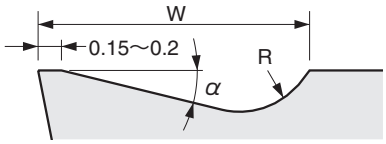
Chipbreaker Selection (Positive Insert)

Steel

2 Ground Chipbreaker

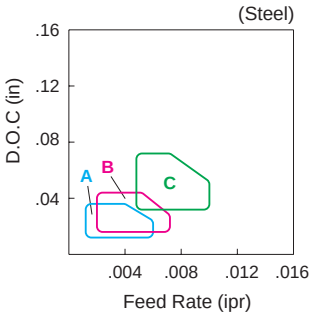
Cutting Range	Name	Design	Advantages
Finishing	A		Large rake angle and low cutting force. Narrow chipbreaker width and consistent chip control.
Finishing-Medium	B		General purpose for light cutting range. Good balance between chip control and sharp cutting.
Medium cutting	C		Applicable to high load cutting. Good chip flow and less resistance.
Medium cutting	H		Sharp cutting performance and small curled chips.

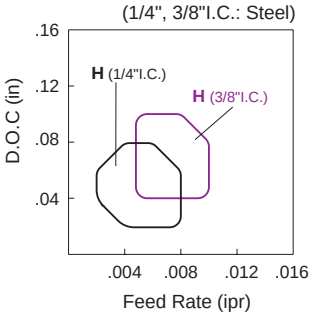
● Specification of A, B, C and Parallel ground chipbreaker



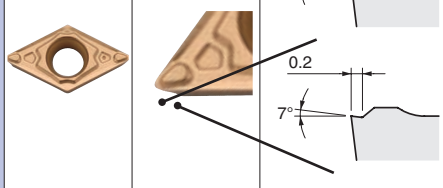
Insert Type	I.C. Size	Chipbreaker Name	W (in)	α	R (in)
TPGR	1/4	A	.040	17°	.020
	1/4,3/8	B	.060	14°	.020
	3/8	C	.087	14°	.040
SPGR	3/8	Without Indication (similar to B)	.060	14°	.020
	1/2	Without Indication (similar to C)	.087	14°	.040

● Applicable Chipbreaker Range

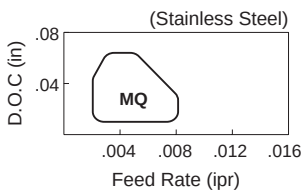




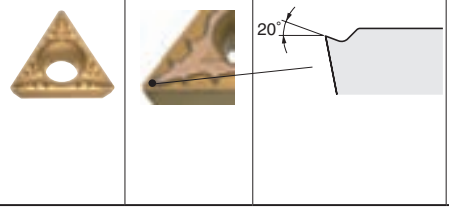
Stainless Steel

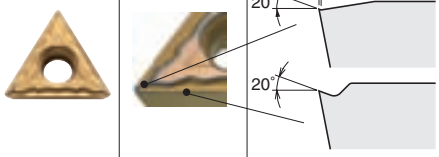
Cutting Range	Name	Design	Advantages
Finishing	MQ		Good chip evacuation at internal turning. Small curled chips. Prevents chip entanglement with toolholder and stabilizes surface roughness.

● Applicable Chipbreaker Range

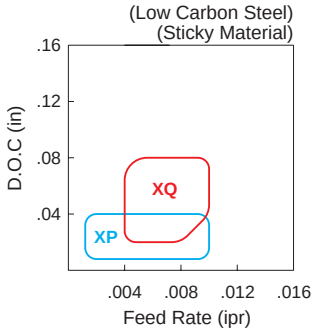


Low Carbon Steel / Sticky Material

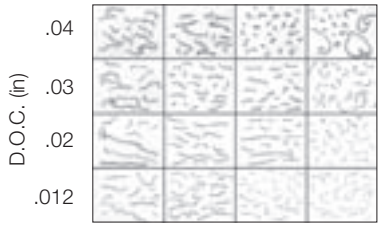
Cutting Range	Name	Design	Advantages
Finishing	XP		Consistent chip breaking performance even for low carbon steel and sticky material.

Cutting Range	Name	Design	Advantages
Finishing-Medium	XQ		Wide chip control range and sharp cutting performance. Applicable to low carbon steel and sticky material.

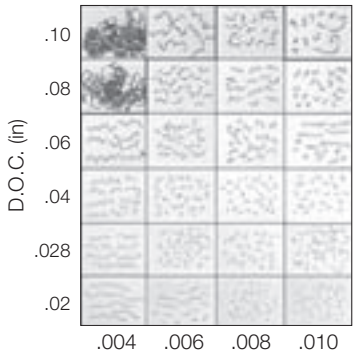
Applicable Chipbreaker Range



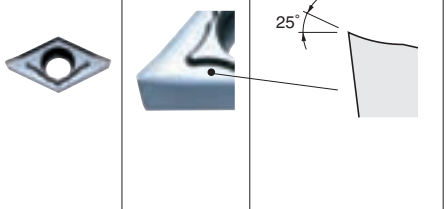
XP Chipbreaker

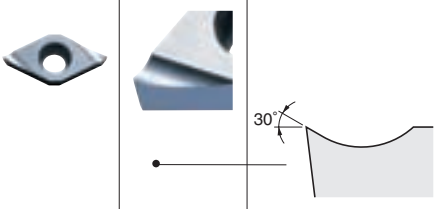


XQ Chipbreaker

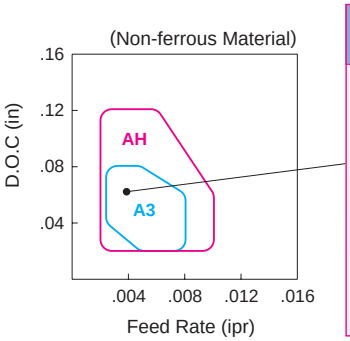


Non-ferrous Material

Cutting Range	Name	Design	Advantages
Finishing-Medium	AH		Positive chip groove and good chip control with low cutting force. Polished surface reduces adhesion.

Cutting Range	Name	Design	Advantages
Finishing-Medium	A3		Large rake angle, smooth chip flow and less adhesion. Sharp edge and good surface finish.

Applicable Chipbreaker Range



AH Chipbreaker



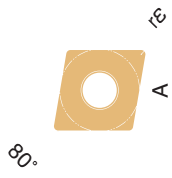
80°Diamond / Negative with Hole

(in)

Description	A	T	ød
CN_32_	3/8	1/8	0.150
CN_33_	3/8	3/16	0.150

(in)

Description	A	T	ød
CN_43_	1/2	3/16	0.203
CN_54_	5/8	1/4	0.250
CN_64_	3/4		0.312



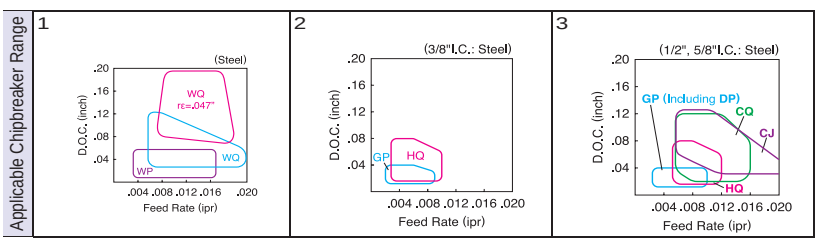
Classification of usage
- ✱: Interruption / 1st Choice
- ✱: Interruption / 2nd Choice
- ◕: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

(In case hardness is under 45HRC)

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 alloy / Titanium Alloy
H		Hard Materials

Insert		Description (ANSI)	Description (ISO)	Dim. (in.) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
With Wiper Edge	Finishing	CNMG 431WP	CNMG 120404WP	1/64		●			●	●	●	●	●																	1
		432WP	120408WP	1/32		●			●	●	●	●	●																	
With Wiper Edge	Finishing-Medium	CNMG 431WQ	CNMG 120404WQ	1/64		●	○		●	●	●	●	●																	
		432WQ	120408WQ	1/32		●	●		●	●	●	●	●				●	●												
		433WQ	120412WQ	3/64		●					●	●	●				●	●												
Finishing		CNMG 431DP	CNGG 120404DP	1/64																										3
		432DP	120408DP	1/32																										
Finishing		CNMG 331GP	CNMG 090404GP	1/64					●																					2
		332GP	090408GP	1/32					○																					
		CNMG 4305GP	CNGG 120402GP	.008		○	●		●	●		●	●																	3
		431GP	120404GP	1/64	○	●	●		●	●	●	●	●																D8 D9 F82	
		432GP	120408GP	1/32					●		●	●	●																	
Finishing-Medium		CNMG 331HQ	CNMG 090404HQ	1/64			○					●	●																	2
		332HQ	090408HQ	1/32			○					●	●																	
		CNMG 431HQ	CNMG 120404HQ	1/64	○	●	●		●	●	●	●	●	●	●	●														
		432HQ	120408HQ	1/32	○	●	●		●	●	●	●	●	●	●	○						●								
		433HQ	120412HQ	3/64			●				●	●	●	●	●	●						●								
		CNGG 432HQ	CNGG 120408HQ	1/32								●	●																	
		433HQ	120412HQ	3/64								●	●																	
Finishing-Medium	Up facing	CNMG 431CQ	CNMG 120404CQ	1/64	○	○			●	●	●	●	●	●																3
		432CQ	120408CQ	1/32	○	○	●		●	●	●	●	●	●																
		433CQ	120412CQ	3/64			●				●	●	●	●																
		CNMG 542CQ	CNMG 160608CQ	1/32								●	●																	
		543CQ	160612CQ	3/64								●	●																	
Finishing-Medium	Up facing	CNMG 432CJ	CNMG 120408CJ	1/32							○	●	●	○																
		433CJ	120412CJ	3/64							○	●	●	○																
		CNMG 543CJ	CNMG 160612CJ	3/64							○	○	○	○																
		544CJ	160616CJ	1/16							○	○	○	○																

Applicable Chipbreaker Range



TN30 PV30 PV60 PV90 PV7020
CA4010 CA4115 CA4120 PR915 PR905

Reference Page B19

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

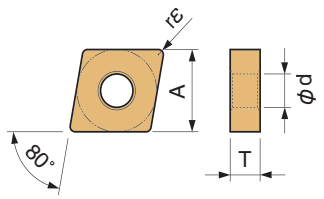
80°Diamond / Negative with Hole

(in)

Description	A	T	ød
CN_32_	3/8	1/8	0.150
CN_33_	3/8	3/16	0.150

(in)

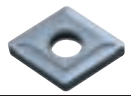
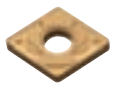
Description	A	T	ød
CN_43_	1/2	3/16	0.203
CN_54_	5/8	1/4	0.250
CN_64_	3/4		0.312



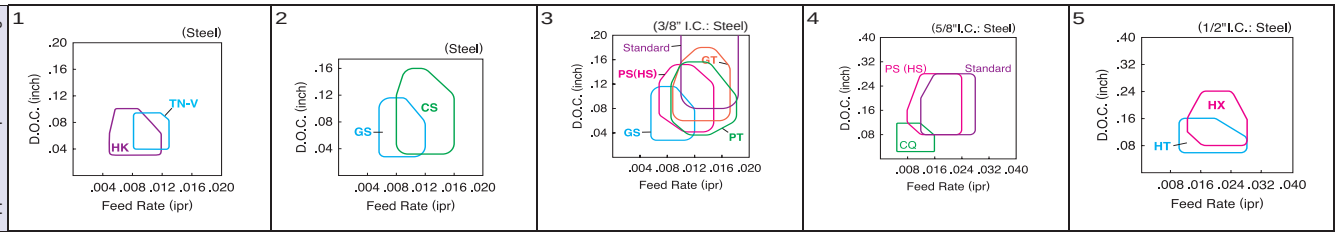
Classification of usage
- ✱: Interruption / 1st Choice
- ✱: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

(In case hardness is under 45HRC)

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 alloy
	Titanium Alloy
H	Hard Materials

	Insert	Description (ANSI)	Description (ISO)	Dim. (in.) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Medium		CNMG 431HK	CNMG 120404HK	1/64			●																						D8 D9 F82	1
		CNMG 432HK	CNMG 120408HK	1/32			●																							
Medium		CNMG 431TN-V	CNMG 120404TN-V	1/64			○																							
		CNMG 432TN-V	CNMG 120408TN-V	1/32			○																							
Medium-Roughing		CNMG 431CS	CNMG 120404CS	1/64								●	○																	
		CNMG 432CS	CNMG 120408CS	1/32								●	●																	
		CNMG 433CS	CNMG 120412CS	3/64								●	●																	
		CNMG 331GS	CNMG 090404GS	1/64			○					●	●																	2
		CNMG 332GS	CNMG 090408GS	1/32			○					●	●																	
		CNMG 431GS	CNMG 120404GS	1/64								●	●																	
		CNMG 432GS	CNMG 120408GS	1/32								●	●																	
		CNMG 433GS	CNMG 120412GS	3/64								●	●																	
		CNMG 431PS	CNMG 120404PS	1/64	○				●	●	●	●	●	●	●	●						●								3
		CNMG 432PS	CNMG 120408PS	1/32	○				●	●	●	●	●	●	●	●						●								
		CNMG 433PS	CNMG 120412PS	3/64					○	●	●	●	●	●	●	●						●								
		CNMG 434PS	CNMG 120416PS	1/16								●	●	●	●	●														
		CNMG 543PS	CNMG 160612PS	3/64								●	●	●	●	●														4
		CNMG 544PS	CNMG 160616PS	1/16							●	●	●	●	●	●														
		CNMG 431HS	CNMG 120404HS	1/64		●	○					●	●																	3
		CNMG 432HS	CNMG 120408HS	1/32		●	●					●	●																	
		CNMG 433HS	CNMG 120412HS	3/64		○	○					●	●																	
		CNMG 434HS	CNMG 120416HS	1/16			○					●	●																	
		CNMG 543HS	CNMG 160612HS	3/64																										4
		CNMG 544HS	CNMG 160616HS	1/16																										
		CNMG 643HS	CNMG 190612HS	3/64									○																	-
Medium-Roughing / High Feed		CNMG 432PT	CNMG 120408PT	1/32							●	●	●	●	●	●														3
		CNMG 433PT	CNMG 120412PT	3/64							●	●	●	●	●	●														
		CNMG 542PT	CNMG 160608PT	1/32							●	●	●	●	●	●														-
		CNMG 543PT	CNMG 160612PT	3/64							●	●	●	●	●	●														
		CNMG 544PT	CNMG 160616PT	1/16							●	●	●	●	●	●														
		CNMG 432GT	CNMG 120408GT	1/32								●	●																	3
		CNMG 433GT	CNMG 120412GT	3/64								●	●																	
		CNMG 643GT	CNMG 190612GT	3/64									●																	-
		CNMG 432HT	CNMG 120408HT	1/32			○					●	●																	5
		CNMG 433HT	CNMG 120412HT	3/64			○					●	●																	

Applicable Chipbreaker Range



TN30 PV30 PV60 PV90 PV7020
CA4010 CA4115 CA4120 PR915 PR905

Reference Page B19

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

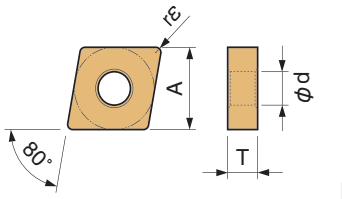
80°Diamond / Negative with Hole

(in)

Description	A	T	ød
CN_32_	3/8	3.18	0.150
CN_33_	3/8	3/16	0.150

(in)

Description	A	T	ød
CN_43_	1/2	3/16	0.203
CN_54_	5/8	1/4	0.250
CN_64_	3/4		0.312



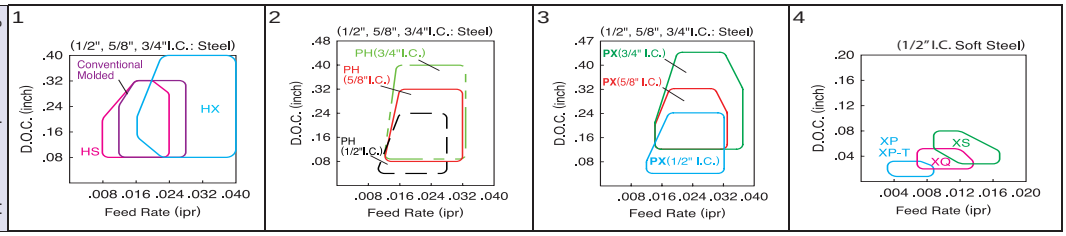
Classification of usage
- ⁂: Interruption / 1st Choice
- ⁂: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◌: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

(In case hardness is under 45HRC)

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 alloy / Titanium Alloy
H		Hard Materials

Insert		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Roughing		CNMG 431	CNMG 120404	1/64	●	●	○	●	●	○	○			●	●	○	●				○								
		CNMG 432	CNMG 120408	1/32	●	●	○	●	●	○	●	●	●	●	●	●	●				●					●			
		CNMG 433	CNMG 120412	3/64		●	○			○	●	●	●	●	●		●				○								
		CNMG 434	CNMG 120416	1/16						●							○												
		CNMG 542	CNMG 160608	1/32						●	●	●																D8	
		CNMG 543	CNMG 160612	3/64						●	●	●	●				○											D9	1
		CNMG 544	CNMG 160616	1/16						●	○		●				○											F82	
		CNMG 642	CNMG 190608	1/32						●							○												
		CNMG 643	CNMG 190612	3/64						●	●	●	●				●				●								
		CNMG 644	CNMG 190616	1/16						●	●	●	●				○												
		CNMG 646	CNMG 190624	3/32																									
Roughing		CNMG 432PH	CNMG 120408PH	1/32							●	●	●																
		CNMG 433PH	CNMG 120412PH	3/64							●	●	●																
		CNMG 434PH	CNMG 120416PH	1/16							●	●	●																
		CNMG 542PH	CNMG 160608PH	1/32							●	●																	
		CNMG 543PH	CNMG 160612PH	3/64							●	●	●																2
		CNMG 544PH	CNMG 160616PH	1/16							●	●																	
		CNMG 642PH	CNMG 190608PH	1/32							●	●																	
		CNMG 643PH	CNMG 190612PH	3/64							●	●	●																
		CNMG 644PH	CNMG 190616PH	1/16							●	●	●																
		CNMG 646PH	CNMG 190624PH	3/32							●	●																	
Single Sided / Roughing / High Feed		CNMM 432PX	CNMM 120408PX	1/32							○	○	●	○															
		CNMM 433PX	CNMM 120412PX	3/64							○	○	●	○															
		CNMM 434PX	CNMM 120416PX	1/16							○	○	●	○															
		CNMM 542PX	CNMM 160608PX	1/32							○	○	○	○															
		CNMM 543PX	CNMM 160612PX	3/64							○	○	●	○															3
		CNMM 544PX	CNMM 160616PX	1/16							○	●	●	○															
		CNMM 642PX	CNMM 190608PX	1/32							○	○	○	○															
		CNMM 643PX	CNMM 190612PX	3/64							○	●	●	●															
		CNMM 644PX	CNMM 190616PX	1/16							○	○	○	●														D8	
		CNMM 646PX	CNMM 190624PX	3/32							○	○	●	○														D9	
Low Carbon Steel	 Finishing	CNMG 431XP	CNMG 120404XP	1/64		○	○		●	●	●	●	●															F82	
		CNMG 432XP	CNMG 120408XP	1/32		○	●		●	●	●	●	●																
Low Carbon Steel	 Finishing / Tough Edge Type	CNMG 431XP-T	CNMG 120404XP-T	1/64			○																						4
		CNMG 432XP-T	CNMG 120408XP-T	1/32			○																						
Low Carbon Steel	 Medium	CNMG 431XQ	CNMG 120404XQ	1/64		○	●		●	●	●	●	●																
		CNMG 432XQ	CNMG 120408XQ	1/32		○	○		●	●	●	●	●																
Low Carbon Steel	 Roughing	CNMG 432XS	CNMG 120408XS	1/32		○	○			●	●	●	●																

Applicable Chipbreaker Range



{ TN30 PV30 PV60 PV90 PV7020 CA4010 CA4115 CA4120 PR915 PR905 } Reference Page B19

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

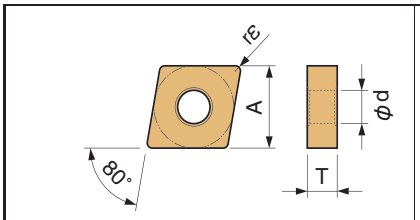
80°Diamond / Negative with Hole

(in)

Description	A	T	ød
CN_32_	3/8	1/8	0.150
CN_33_	3/8	3/16	0.150

(in)

Description	A	T	ød
CN_43_	1/2	3/16	0.203
CN_54_	5/8	1/4	0.250
CN_64_	3/4		0.312

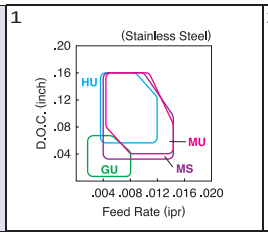


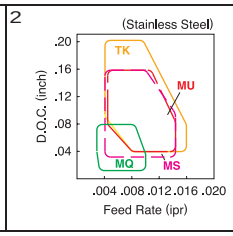
Classification of usage
✱: Interruption / 1st Choice
✱: Interruption / 2nd Choice
●: Light Interruption / 1st Choice
○: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice
(In case hardness is under 45HRC)

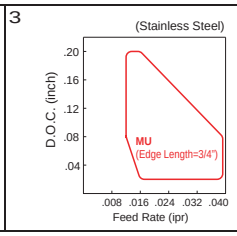
P		Free-cutting steel
		Carbon Steel / Alloy Steel
M		Stainless Steel
K		Gray Cast Iron
		Nodular Cast Iron
N		Non-ferrous Metals
S		Heat-resistant alloy
		Titanium Alloy
H		Hard Materials

Insert		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	PR1225	MEGACOAT MEGACOAT NANO PR1305	PR1310	PR1325	PR1425	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Stainless Steel	Finishing	CNMG 431GU	CNMG 120404GU	1/64											●	●															
		432GU	120408GU	1/32											●	●															
Stainless Steel	Medium-Roughing	CNMG 432HU	CNMG 120408HU	1/32									●		●	●															1
		433HU	120412HU	3/64											●	●															
Stainless Steel / Heat-Resistant Alloys	Finishing-Medium	CNMG 431MQ	CNMG 120404MQ	1/64											●	●						●		●	●	●			○		
		432MQ	120408MQ	1/32											●	●						●		●	●	●			○		
	Medium-Roughing	CNMG 431MS	CNMG 120404MS	1/64											●	●						●		●	●	●			○		
		432MS	120408MS	1/32											●	●						●		●	●	●			○		
		433MS	120412MS	3/64											●	●						●		●	●	●			○		2
		434MS	120416MS	1/16											●	●						●		●	●	●					
		CNMG 431MU	CNMG 120404MU	1/64											●	●						●		●	●	●					
		432MU	120408MU	1/32											●	●						●		●	●	●					
		433MU	120412MU	3/64											●	●						●									
		CNMG 542MU	CNMG 160608MU	1/32											○	●						○			●	●				D8	
		543MU	160612MU	3/64											○	○						○			●	●				D9	
		544MU	160616MU	1/16											○	○						○			●	●				F82	
	Medium-Roughing	CNMG 643MU	CNMG 190612MU	3/64																					●	●					3
		644MU	190616MU	1/16																					●	●					
	NEW Medium-Roughing / Sharp Edge	CNGG 431TK	CNGG 120404TK	1/32											●	○						●		●	●	●					
		432TK	120408TK	1/64											●	●						●		●	●	●					2
	Medium-Roughing	CNMG 431TK	CNMG 120404TK	1/64											●	○						●		●	●	●					
		432TK	120408TK	1/32											●	●						●		●	●	●					
Cast Iron	Roughing	CNMG 431C	CNMG 120404C	1/64							○						●														
		432C	120408C	1/32							○						○														
		433C	120412C	3/64							○						●														
		434C	120416C	1/16							○						●														
		CNMG 543C	CNMG 160612C	3/64							○						●														5
Cast Iron	Roughing	CNMG 432ZS	CNMG 120408ZS	1/32							●						●	●													
		433ZS	120412ZS	3/64							●						●	●													

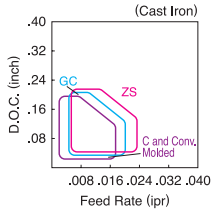
Applicable Chipbreaker Range

1


2


3


4
Heat-Resistant Alloys
Titanium Alloys
Applicable Chipbreaker Range
See ➡ B7

5


Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

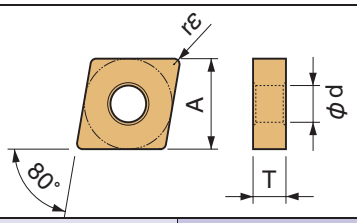
80°Diamond / Negative with Hole

(in)

Description	A	T	ød
CN_32_	3/8	1/8	0.150
CN_33_	3/8	3/16	0.150

(in)

Description	A	T	ød
CN_43_	1/2	3/16	0.203
CN_54_	5/8	1/4	0.250
CN_64_	3/4		0.312

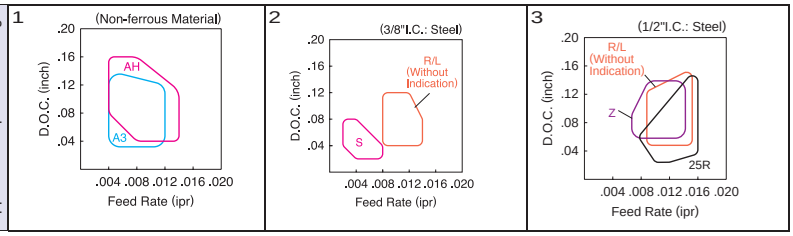


Classification of usage
✱:Interruption / 1st Choice
✱:Interruption / 2nd Choice
●:Light Interruption / 1st Choice
○:Light Interruption / 2nd Choice
●:Continuous / 1st Choice
○:Continuous / 2nd Choice
(In case hardness is under 45HRC)

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 alloy
																													Titanium Alloy
H																													Hard Materials

Insert Right-Handed insert shown where applicable		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Cast Iron	Roughing	CNMG 432GC	CNMG 120408GC	1/32																									See B17
		433GC	120412GC	3/64							●						○												
Cast Iron	Without Chipbreaker	CNGA 431	CNGA 120404	1/64				●																			●		D8 D9 F82	-
		CNGA 432	CNGA 120408	1/32			○	●																			●			
		CNMA 431	CNMA 120404	1/64							○						○										●			
		CNMA 432	CNMA 120408	1/32																										
		CNMA 433	CNMA 120412	3/64							○						○													
		CNMA 434	CNMA 120416	1/16							○						○													
		CNMA 543	CNMA 160612	3/64								○																		
Non-ferrous Metals	Finishing-Medium / Sharp Edge	CNGG 431R/L-A3	CNGG 120404R/L-A3	1/64																							○		D8 D9	1
		432R/L-A3	120408R/L-A3	1/32																							○			
Non-ferrous Metals	Medium-Roughing / Sharp Edge	CNGG 431AH	CNGG 120404AH	1/64																							○			
		432AH	120408AH	1/32																							○			
Non-ferrous Metals	Medium-Roughing / With Honing	CNMG 431AH	CNMG 120404AH	1/64																							●			
		432AH	120408AH	1/32																							●			
Finishing	Surface Roughness Oriented	CNGG 3305R/L-S	CNGG 090402R/L-S	0.008			●																				○			2
		331R/L-S	090404R/L-S	1/64			●																				○			
		332R/L-S	090408R/L-S	1/32			●																				○			
Medium		CNGG 331R/L	CNGG 090404R/L	1/64																									D8 D9	
		332R/L	090408R/L	1/32			○																				○			
		CNGG 431R/L	CNGG 120404R/L	1/64		○	○																							3
		432R/L	120408R/L	1/32		○	○																							
Medium-Roughing	Low cutting force	CNGG 431R/L-25R	CNGG 120404R/L-25R	1/64			○																				○			
		432R/L-25R	120408R/L-25R	1/32			○																				○			
Medium-Roughing		CNGG 431Z	CNGG 120404Z	1/64			●																							
		432Z	120408Z	1/32			●																							
Medium-Roughing	NEW Sharp Edge / Polished	CNGG 431FP-TK	CNGG 120404FP-TK	1/64																		●							See B44
		432FP-TK	120408FP-TK	1/32																		●							

Applicable Chipbreaker Range



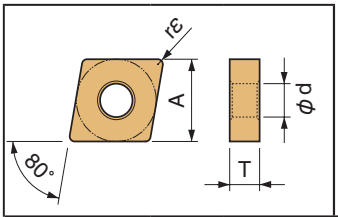
TN30 PV30 PV60 PV90 PV7020
CA4010 CA4115 CA4120 PR915 PR905

Reference Page B19

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

80°Diamond / Negative with Hole



(in)

Description	A	T	ød
CN_33_	3/8	3/16	0.150
CN_43_	1/2		0.203
CN_54_	5/8	1/4	0.250
CN_64_	3/4		0.312

Insert Right-Handed insert shown where applicable	Description	Dim. (in) rε	Cermet TN30	PVD Coated Cermet PV30	PV60	PV90	PV7020	CVD Coated Carbide CA4010	CA4115	CA4120	PVD Coated Carbide PR915	PR905	Ref. Page for Toolholder
Finishing With Wiper Edge	CNMG 431WP	1/64					●						D8 D9 F82
	432WP	1/32					●						
Finishing-Medium With Wiper Edge	CNMG 431WQ	1/64				●	●						
	432WQ	1/32				●	●						
	433WQ	3/64					●						
Finishing	CNMG 331GP	1/64				○							
	332GP	1/32				○							
	CNMG 4305GP	0.008			○	●	●						
	431GP	1/64	○		●	●	●						
	432GP	1/32	○		○	●	●						
Finishing-Medium	CNMG 331HQ	1/64				○							
	332HQ	1/32				○							
	CNMG 431HQ	1/64	○	○	○	●	●						
	432HQ	1/32	○	○	○	●	●						
	433HQ	3/64	○		○	○							
Finishing-Medium / Up Facing	CNMG 431CQ	1/64			○	●	●						
	432CQ	1/32			○	●	●						
	433CQ	3/64			○	●							
Finishing-Medium	CNMP 431TK	1/64											
	432TK	1/32											
Medium-Roughing	CNMG 431CS	1/64			○								
	432CS	1/32			○								
	433CS	3/64			○								
Medium-Roughing	CNMG 331GS	1/64				○							
	332GS	1/32				○							
	CNMG 431GS	1/64			○	●	●						
	432GS	1/32			○	●	●						
	433GS	3/64			○	●	●						
Medium-Roughing	CNMG 431HS	1/64	○		○	●	●						
	432HS	1/32	○	○	○	●	●						
	433HS	3/64			○	●	●						
	CNMG 543HS	3/64						●	●				
	544HS	1/16											
Medium-Roughing / High Feed	CNMG 432GT	1/32				○	●						
	433GT	3/64				○	●						
Medium-Roughing / High Feed	CNMG 432HT	1/32				●							
	433HT	3/64				○							

Insert Right-Handed insert shown where applicable	Description	Dim. (in) rε	Cermet TN30	PVD Coated Cermet PV30	PV60	PV90	PV7020	CVD Coated Carbide CA4010	CA4115	CA4120	PVD Coated Carbide PR915	PR905	Ref. Page for Toolholder
Roughing	CNMG 431	1/64	○	○	○	○		○	●	○			D8 D9 F82
	432	1/32	○	○	○	●		●	●	●			
	433	3/64			●	○		○	●	●			
	434	1/16						●	●	●			
	CNMG 543	3/64						●					
	544	1/16											
	CNMG 642	1/32							●	○			
	643	3/64							●	○			
	644	1/16							●	○			
Low Carbon Steel / Finishing	CNMG 431XP	1/64		○	○	○	●						
	432XP	1/32			○	●	●						
Low Carbon Steel / Finishing / Tough Edge	CNMG 431XP-T	1/64											
	432XP-T	1/32											
Low Carbon Steel / Medium cutting	CNMG 431XQ	1/64			○	○	●						
	432XQ	1/32			○	○	●						
Low Carbon Steel / Roughing	CNMG 432XS	1/32			○	○	●						
Low Carbon Steel / Roughing	CNMG 431C	1/64							○	●			
	432C	1/32							●	●			
	433C	3/64							●	●			
	434C	1/16							○	●			
	CNMG 543C	3/64							●	●			
Low Carbon Steel / Roughing	CNMG 432ZS	1/32						○	●	●			
	433ZS	3/64						●	●	●			
Low Carbon Steel / Roughing	CNMG 432GC	1/32						○	●	●			
	433GC	3/64						○	●	○			
Without Chipbreaker	CNMA 431	1/64		○				○	○	●			
	432	1/32	○	○				●	●	●			
	433	3/64						●	●	●			
	434	1/16						○	●	●			
	CNMA 543	3/64											
Finishing / Surface Roughness Oriented	CNGG 3305R/L-S	0.008				○							
	331R/L-S	1/64				○							
	332R/L-S	1/32				○							
Medium	CNGG 331R/L	1/64				○							
	332R/L	1/32				○							

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

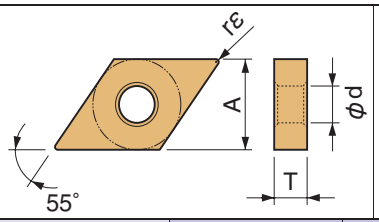
55°Diamond / Negative with Hole

(in)

Description	A	T	ød
DN_33_	3/8	3/16	0.150
DN_43_	1/2		0.203

(in)

Description	A	T	ød
DN_44_	1/2	1/4	0.203

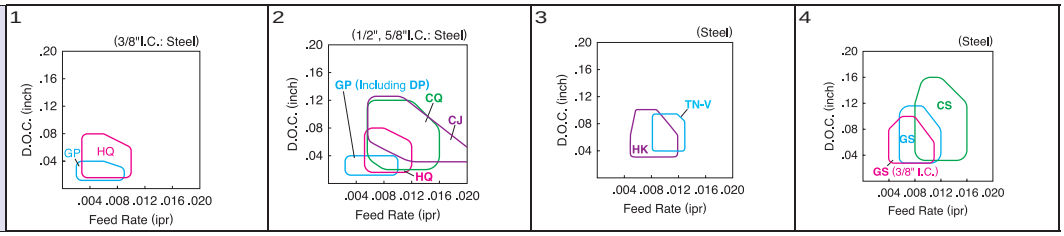


Classification of usage
✱: Interruption / 1st Choice
❋: Interruption / 2nd Choice
●: Light Interruption / 1st Choice
◔: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice
(In case hardness is under 45HRC)

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 alloy / Titanium Alloy
H		Hard Materials

Insert	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing		DNGG 431DP	DNGG 150404DP	1/64			●																						2
		432DP	150408DP	1/32			●																						
Finishing		DNMG 331GP	DNMG 110404GP	1/64			○				●	●																	1
		332GP	110408GP	1/32			○					●																	
		DNMG 4305GP	DNMG 150402GP	0.008	○	●	●		●	●		●	●																2
		431GP	150404GP	1/64	○	●	●		●	●	●	●	●																
		432GP	150408GP	1/32		●	●		●	●	●	●	●																
		DNMG 4405GP	DNMG 150602GP	0.008	○				●																				
		441GP	150604GP	1/64	○				●																				
		442GP	150608GP	1/32	○				●																				
Finishing-Medium		DNMG 3305HQ	DNMG 110402HQ	0.008			●					●	●																1
		331HQ	110404HQ	1/64			●					●	●																
		DNMG 431HQ	DNMG 150404HQ	1/64	○	●	●		●	●	●	●	●	●	●	●					●								2
		432HQ	150408HQ	1/32	○	●	●		●	●	●	●	●	●	●	●					●								
		433HQ	150412HQ	3/64		●	●			○	●	●	●	●															
		DNMG 441HQ	DNMG 150604HQ	1/64	○		○		●		○	○	○	○	●	●					●								
		442HQ	150608HQ	1/32	○		○		●		○	○	○	○	●	●					●								
		443HQ	150612HQ	3/64	○				●		○	○	○	○															
Finishing-Medium / Up Facing		DNMG 431CQ	DNMG 150404CQ	1/64	○	○	●		●	●	●	●	●	●															2
		432CQ	150408CQ	1/32	○	○	○		●		●	●	●	●															
		433CQ	150412CQ	3/64		○	○			○	●	●	●	●															
		DNMG 441CQ	DNMG 150604CQ	1/64	○				●		○	○	○	○															
		442CQ	150608CQ	1/32							●	●	●	●															
		443CQ	150612CQ	3/64							○	●	●	○															
Finishing-Medium / Up Facing		DNMG 432CJ	DNMG 150408CJ	1/32							○	●	●	○															
		433CJ	150412CJ	3/64							○	●	●	○															
		DNMG 442CJ	DNMG 150608CJ	1/32							○	○	○	○															
		443CJ	150612CJ	3/64							○	○	●	○															
Finishing-Medium		DNMP 441TK	DNMP 150604TK	1/64																									-
		442TK	150608TK	1/32														○											
Medium		DNMG 431HK	DNMG 150404HK	1/64			●																						3
		432HK	150408HK	1/32			●																						
Medium		DNMG 431TN-V	DNMG 150404TN-V	1/64			○																						
		432TN-V	150408TN-V	1/32			○																						
Medium-Roughing		DNMG 431CS	DNMG 150404CS	1/64								●	●																4
		432CS	150408CS	1/32								●	●																
		DNMG 441CS	DNMG 150604CS	1/64																									
		442CS	150608CS	1/32																									

Applicable Chipbreaker Range



Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

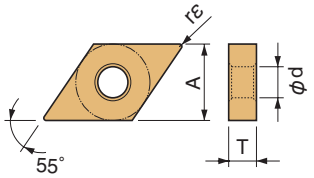
55°Diamond / Negative with Hole

(in)

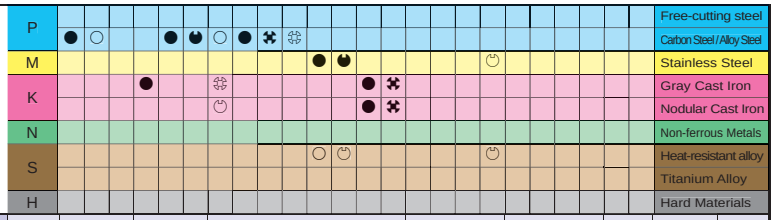
Description	A	T	ød
DN_33_	3/8	3/16	0.150
DN_43_	1/2		0.203

(in)

Description	A	T	ød
DN_44_	1/2	1/4	0.203

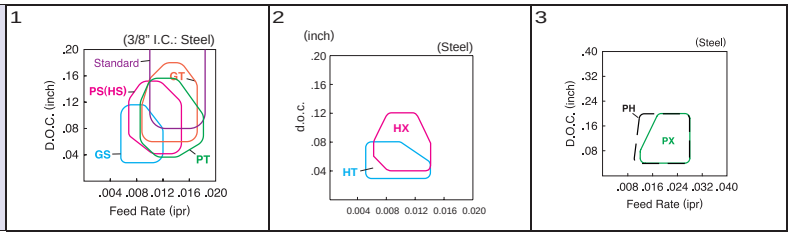


Classification of usage
✱:Interruption / 1st Choice
✲:Interruption / 2nd Choice
●:Light Interruption / 1st Choice
◔:Light Interruption / 2nd Choice
●:Continuous / 1st Choice
○:Continuous / 2nd Choice
(In case hardness is under 45HRC)



Insert	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Medium-Roughing		DNMG 331GS	DNMG 110404GS	1/64			○				●	●																D10 D11 D12 F83	See B20
		332GS	110408GS	1/32			○				●	●																	
		DNMG 431GS	DNMG 150404GS	1/64							●	●																	
		432GS	150408GS	1/32							●	●																	
		433GS	150412GS	3/64							●	●																	
		DNMG 441GS	DNMG 150604GS	1/64							○	○																	
		442GS	150608GS	1/32								○																	
		443GS	150612GS	3/64																									
Medium-Roughing		DNMG 431PS	DNMG 150404PS	1/64	○			●	●	●	●	●	●	●	●						●								1
		432PS	150408PS	1/32	○			●	●	●	●	●	●	●	●						●								
		433PS	150412PS	3/64					○	●	●	●	●	●	●														
		434PS	150416PS	1/16							●	●																	
		DNMG 441PS	DNMG 150604PS	1/64	○			●			●	●		●	●						●								
		442PS	150608PS	1/32	○			●		●	●	●	●	●	●						●								
		443PS	150612PS	3/64	○			●		●	●	●	●	●	●														
		444PS	150616PS	1/16								●	●																
Medium-Roughing		DNMG 431HS	DNMG 150404HS	1/64			●	●				●	●																
		432HS	150408HS	1/32			●	●				●	●																
		433HS	150412HS	3/64			○	●				●	●																
		DNMG 441HS	DNMG 150604HS	1/64				○				●	●																
		442HS	150608HS	1/32				○				●	●																
		443HS	150612HS	3/64				○				●	●																
Medium-Roughing / High Feed		DNMG 432PT	DNMG 150408PT	1/32						●	●	●	●	○	●														
		433PT	150412PT	3/64						○	●	○	●	○	●														
		DNMG 442PT	DNMG 150608PT	1/32						●	●	●	●	●	●														
		443PT	150612PT	3/64						●	●	○	●	●	●														
Medium-Roughing / High Feed		DNMG 432GT	DNMG 150408GT	1/32							●	●																	
		433GT	150412GT	3/64							●	●																	
		DNMG 442GT	DNMG 150608GT	1/32							●	●																D10 D11 D12 F83	
		443GT	150612GT	3/64							●	●																	
Medium-Roughing / High Feed		DNMG 432HT	DNMG 150408HT	1/32				○			●	●																	2
		433HT	150412HT	3/64				○			●	●																	
		DNMG 442HT	DNMG 150608HT	1/32																									
		443HT	150612HT	3/64							●	●																	
Roughing		DNMG 431	DNMG 150404	1/64		●	●				●	●	●				●	●											1
		432	150408	1/32		●	●	○			●	●	●	●				●											
		433	150412	3/64							●			●				●											
		DNMG 441	DNMG 150604	1/64																									
		442	150608	1/32				○			○	●	●	●				○											
		443	150612	3/64							○	●	●	●				○											
Roughing		DNMG 432PH	DNMG 150408PH	1/32							●	●																	3
		433PH	150412PH	3/64							●	●																	
		434PH	150416PH	1/16							●	●																	
		DNMG 442PH	DNMG 150608PH	1/64							●	●	●																
		443PH	150612PH	3/64							●	●	●																
		444PH	150616PH	1/16							●	●																	
Single Sided / Roughing / High Feed		DNMM 432PX	DNMM 150408PX	1/32						○	○	○	○																
		433PX	150412PX	3/64						○	○	●	○																
		434PX	150416PX	1/16						○	○	○	○																
		DNMM 442PX	DNMM 150608PX	1/32						○	○	○	○																
		443PX	150612PX	3/64						○	●	●	○																
		444PX	150616PX	1/16						○	●	○	○																

Applicable Chipbreaker Range



TN30 PV30 PV60 PV90 PV7020
CA4010 CA4115 CA4120 PR915 PR905

Reference Page B24

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

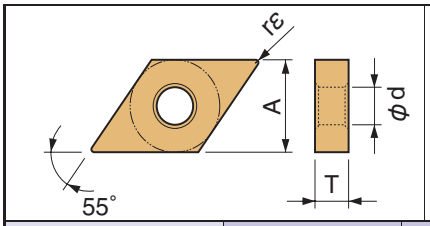
55°Diamond / Negative with Hole

(in)

Description	A	T	ød
DN_33_	3/8	3/16	0.150
DN_43_	1/2		0.203

(in)

Description	A	T	ød
DN_44_	1/2	1/4	0.203



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)

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 alloy
	●	Titanium Alloy
H		Hard Materials

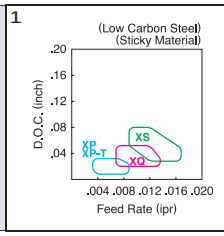
Insert (Right-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	MEGACOAT PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Low Carbon Steel — Finishing	DNMG 431XP	DNMG 150404XP	1/64	○	●		●	●		●	●	●																	1
	DNMG 432XP	DNMG 150408XP	1/32	○	●		●			●	●	●																	
	DNMG 441XP	DNMG 150604XP	1/64		○		●																						
	DNMG 442XP	DNMG 150608XP	1/32		○		●																						
Low Carbon Steel — Finishing / Tough Edge	DNMG 431XP-T	DNMG 150404XP-T	1/64	○	○																								
	DNMG 432XP-T	DNMG 150408XP-T	1/32		○																								
Low Carbon Steel — Medium	DNMG 431XQ	DNMG 150404XQ	1/64	○	○		●	●		●	●	●																	
	DNMG 432XQ	DNMG 150408XQ	1/32	○	●		●	●		●	●	●																	
	DNMG 441XQ	DNMG 150604XQ	1/64		○		●																						
	DNMG 442XQ	DNMG 150608XQ	1/32		○		●																						
Low Carbon Steel — Roughing	DNMG 432XS	DNMG 150408XS	1/32	○	○				●	●	●	●																	
	DNMG 442XS	DNMG 150608XS	1/32																										
Stainless Steel — Finishing	DNMG 431GU	DNMG 150404GU	1/64											●	●														
	DNMG 432GU	DNMG 150408GU	1/32											●	●														
	DNMG 441GU	DNMG 150604GU	1/64											●	●														
	DNMG 442GU	DNMG 150608GU	1/32											●	●														
Stainless Steel — Medium-Roughing	DNMG 432HU	DNMG 150408HU	1/32									●		●	●														
	DNMG 433HU	DNMG 150412HU	3/64											●	●													D10	
	DNMG 442HU	DNMG 150608HU	1/32											●	●													D11	
	DNMG 443HU	DNMG 150612HU	3/64											●	●													D12	
Stainless Steel / Heat-Resistant Alloys — Finishing-Medium	DNMG 431MQ	DNMG 150404MQ	1/64											●	●						●		●	●	●		○	F83	
	DNMG 432MQ	DNMG 150408MQ	1/32											●	●						●		●	●	●		○		
	DNMG 441MQ	DNMG 150604MQ	1/64											●	●						●		○	○	○		○		
	DNMG 442MQ	DNMG 150608MQ	1/32											●	●						●		○	○	○		○		
Stainless Steel / Heat-Resistant Alloys — Medium-Roughing	DNMG 431MS	DNMG 150404MS	1/64											●	●						●		●	●	●		○		2
	DNMG 432MS	DNMG 150408MS	1/32											●	●						●		●	●	●		○		
	DNMG 433MS	DNMG 150412MS	3/64											●	●						●		●	●	●		○		
	DNMG 441MS	DNMG 150604MS	1/64											●	●						●		○	○	○				
	DNMG 442MS	DNMG 150608MS	1/32											●	●						●		○	○	○				
	DNMG 443MS	DNMG 150612MS	3/64											●	●						●		○	○	○				
Stainless Steel / Heat-Resistant Alloys — Medium-Roughing	DNMG 431MU	DNMG 150404MU	1/64											●	●						●		●	●	●		○		
	DNMG 432MU	DNMG 150408MU	1/32											●	●						●		●	●	●		○		
	DNMG 441MU	DNMG 150604MU	1/64											●	●						●		○	○	○		○		
	DNMG 442MU	DNMG 150608MU	1/32											●	●						●		○	○	○		○		
Stainless Steel / Heat-Resistant Alloys — NEW Medium-Roughing / Sharp Edge	DNGG 431TK	DNGG 150404TK	1/64											●	●						●		●	●	●				
	DNGG 432TK	DNGG 150408TK	1/32											●	●						●		●	●	●				
	DNGG 441TK	DNGG 150604TK	1/64											●	●						●		○	○	○				
	DNGG 442TK	DNGG 150608TK	1/32											●	●						●		○	○	○				
Stainless Steel / Heat-Resistant Alloys — Medium-Roughing	DNMG 431TK	DNMG 150404TK	1/64											●	●						●		●	●	●				
	DNMG 432TK	DNMG 150408TK	1/32											●	●						●		●	●	●				
	DNMG 441TK	DNMG 150604TK	1/64											●	●						●		○	○	○				
	DNMG 442TK	DNMG 150608TK	1/32											●	●						●		○	○	○				
Stainless Steel — Medium-Roughing	DNGG 441R/L-ST	DNMG 150604R/L-ST	1/64									○																	
	DNGG 442R/L-ST	DNMG 150608R/L-ST	1/32								○	○																	

Also See B7

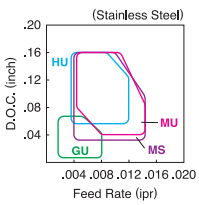
Also See B6

Applicable Chipbreaker Range

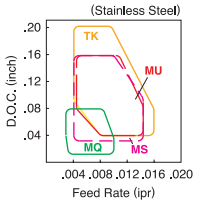
1 (Low Carbon Steel) (Sticky Material)



2 (Stainless Steel)



(Stainless Steel)



Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

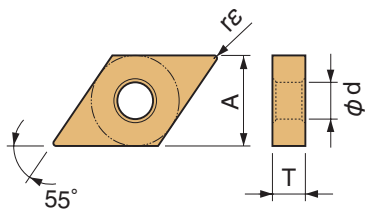
55°Diamond / Negative with Hole

(in)

Description	A	T	ød
DN_33_	3/8	3/16	0.150
DN_43_	1/2		0.203

(in)

Description	A	T	ød
DN_44_	1/2	1/4	0.203

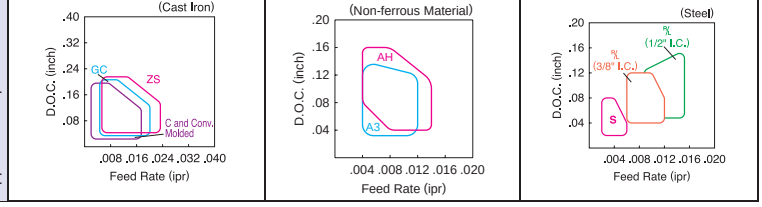


Classification of usage
✖: Interruption / 1st Choice
✖: Interruption / 2nd Choice
●: Light Interruption / 1st Choice
○: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice
(In case hardness is under 45HRC)

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 alloy / Titanium Alloy
H																											Hard Materials

Insert Right-Handed insert shown where applicable		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1425 NEW	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	MEGACOAT PR1225	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Cast Iron	Roughing	DNMG 431C	DNMG 150404C	1/64														○												
		DNMG 432C	DNMG 150408C	1/32														●												
		DNMG 433C	DNMG 150412C	3/64														●												
		DNMG 441C	DNMG 150604C	1/64														○												
		DNMG 442C	DNMG 150608C	1/32							○							○												
		DNMG 443C	DNMG 150612C	3/64							○							○												
Cast Iron	Roughing	DNMG 432ZS	DNMG 150408ZS	1/32							●						●	●												1
		DNMG 433ZS	DNMG 150412ZS	3/64							●						●	●												
		DNMG 442ZS	DNMG 150608ZS	1/32							○							○												
		DNMG 443ZS	DNMG 150612ZS	3/64							○							○												
Cast Iron	Roughing	DNMG 432GC	DNMG 150408GC	1/32							○							○												
		DNMG 433GC	DNMG 150412GC	3/64							○							●												
		DNMG 442GC	DNMG 150608GC	1/32							○							○												
		DNMG 443GC	DNMG 150612GC	3/64							○							○												
Cast Iron	Without Chipbreaker	DNMA 431	DNMA 150404	1/64							●							●									○			
		DNMA 432	DNMA 150408	1/32							●							●									○			
		DNMA 441	DNMA 150604	1/64														○												-
		DNMA 442	DNMA 150608	1/32														○												
Non-ferrous Metals	Finishing-Medium / Sharp Edge	DNGG 431R/L-A3	DNGG 150404R/L-A3	1/64																							○		D10 D11 D12 F83	
		DNGG 432R/L-A3	DNGG 150408R/L-A3	1/32																							○			
Non-ferrous Metals	Medium-Roughing / Sharp Edge	DNGG 431AH	DNGG 150404AH	1/64																							○			2
		DNGG 432AH	DNGG 150408AH	1/32																							○			
		DNGG 441AH	DNGG 150604AH	1/64																							○			
		DNGG 442AH	DNGG 150608AH	1/32																							○			
Non-ferrous Metals	Medium-Roughing / With Honing	DNMG 431AH	DNMG 150404AH	1/64																							●			
		DNMG 432AH	DNMG 150408AH	1/32																							●			
		DNMG 441AH	DNMG 150604AH	1/64																							○			
		DNMG 442AH	DNMG 150608AH	1/32																							○			
Finishing	Surface Roughness Oriented	DNGG 3305R/L-S	DNGG 110402R/L-S	0.008		○																					○			
		DNGG 331R/L-S	DNGG 110404R/L-S	1/64		○																					○			
		DNGG 332R/L-S	DNGG 110408R/L-S	1/32		○																					○			
Medium		DNGG 331R/L	DNGG 110404R/L	1/64		●																					○			3
		DNGG 332R/L	DNGG 110408R/L	1/32		○																					○			
		DNGG 431R/L	DNGG 150404R/L	1/64	○	●	○	○											○								○			
		DNGG 432R/L	DNGG 150408R/L	1/32	○	○	○												○								○			
Medium-Roughing	NEW Sharp Edge / Polished	DNGG 431FP-TK	DNGG 150404FP-TK	1/64																			●				●			See ⇒ B44
		DNGG 432FP-TK	DNGG 150408FP-TK	1/32																			●				●			

Applicable Chipbreaker Range

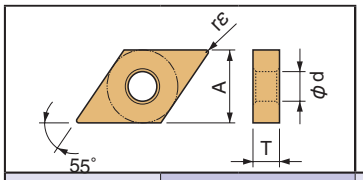


TN30 PV30 PV60 PV90 PV7020
CA4010 CA4115 CA4120 PR915 PR905
Reference Page ⇒ B24

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

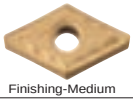
Inserts are sold in 10 piece boxes.

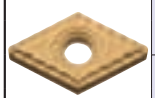
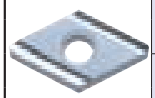
55°Diamond / Negative with Hole



(in)

Description	A	T	φd
DN_33_	3/8	3/16	0.150
DN_43_	1/2		0.203
DN_44_		1/4	

Insert	Description			Dim. (in) rε	Cermet	PVD Coated Cermet				CVD Coated Carbide			PVD Coated Carbide		Ref. Page for Toolholder
					TN30	PV30	PV60	PV90	PV7020	CA4010	CA4115	CA4120	PR915	PR905	
 Finishing	DNMG	331GP		1/64				●							D10 D11 D12 F83
		332GP		1/32				●							
	DNMG	4305GP		0.008			○	●	●						
		431GP		1/64	○		○	●	●						
		432GP		1/32	○		○	●	●						
	DNMG	4405GP		0.008											
		441GP		1/64											
		442GP		1/32											
 Finishing-Medium	DNMG	3305HQ		0.008				●							
		331HQ		1/64				●							
	DNMG	431HQ		1/64	○	○	○	●	●						
		432HQ		1/32	○	○	○	●	●			○			
		433HQ		3/64			○	○	●						
	DNMG	441HQ		1/64		○		○							
		442HQ		1/32					●						
		443HQ		3/64											
 Finishing-Medium / Up Facing	DNMG	431CQ		1/64			○	○	●						
		432CQ		1/32			○	●	●						
		433CQ		3/64			○	○	●						
	DNMG	441CQ		1/64											
		442CQ		1/32											
		443CQ		3/64					●						
 Finishing-Medium	DNMP	441TK		1/64											
		442TK		1/32											
 Medium-Roughing	DNMG	431CS		1/64			○								
		432CS		1/32			○								
 Medium-Roughing	DNMG	331GS		1/64				○							
		332GS		1/32				●							
	DNMG	431GS		1/64			○	○	●						
		432GS		1/32			○	●	●						
		433GS		3/64			○	●							
	DNMG	441GS		1/64				○							
		442GS		1/32				○							
		443GS		3/64				○							
 Medium-Roughing	DNMG	431HS		1/64	○		●	○	●						
		432HS		1/32	○	○	○	○	●			○			
		433HS		3/64	○	○	○	○	●						
	DNMG	441HS		1/64				○							
		442HS		1/32				○							
		443HS		3/64				○							
 Medium-Roughing / High Feed	DNMG	432GT		1/32				○							
		433GT		3/64				○							
	DNMG	442GT		1/32				○							
		443GT		3/64				○							
 Medium-Roughing / High Feed	DNMG	432HT		1/32				○							
		433HT		3/64				○							
	DNMG	442HT		1/32				○							
		443HT		3/64				○							

Insert Right-Handed insert shown where applicable	Description			Dim. (in) rε	Cermet	PVD Coated Cermet				CVD Coated Carbide			PVD Coated Carbide		Ref. Page for Toolholder
					TN30	PV30	PV60	PV90	PV7020	CA4010	CA4115	CA4120	PR915	PR905	
 Roughing	DNMG	431		1/64	○	○	○	○		●	●	●			D10 D11 D12 F83
		432		1/32	○	○	○	●		○	●	●			
		433		3/64				○		●	●	●			
	DNMG	441		1/64											
		442		1/32							○	●			
		443		3/64							○	●			
 Low Carbon Steel / Finishing	DNMG	431XP		1/64			●	●							
		432XP		1/32			○	●	●						
	DNMG	441XP		1/64				○							
		442XP		1/32				○							
 Low Carbon Steel / Finishing / Tough Edge	DNMG	431XP-T		1/64			○	○							
		432XP-T		1/32			○	○							
 Low Carbon Steel / Medium cutting	DNMG	431XQ		1/64			○	●	●						
		432XQ		1/32			○	○	●						
	DNMG	441XQ		1/64											
		442XQ		1/32				○							
 Low Carbon Steel / Roughing	DNMG	432XS		1/32			○	○	●						
 Roughing	DNMG	431C		1/64							○	●			
		432C		1/32							●	○			
		433C		3/64							●	●			
	DNMG	442C		1/32							●	●			
		443C		3/64							●	●			
 Roughing	DNMG	432ZS		1/32						○	●	●			
		433ZS		3/64						●	●	●			
	DNMG	442ZS		1/32							○	○			
		443ZS		3/64							●	○			
 Roughing	DNMG	432GC		1/32						○	●	●			
		433GC		3/64							●	●			
	DNMG	442GC		1/32							●	●			
		443GC		3/64							●	●			
 Without Chipbreaker	DNMA	431		1/64	○						●	●			
		432		1/32	○	○				●	●	●			
	DNMA	441		1/64						○					
		442		1/32						○					
 Finishing / Surface Roughness Oriented	DNGG	3305R/L-S		0.008				○							
		331R/L-S		1/64				○							
		332R/L-S		1/32				○							
 Medium	DNGG	331R/L		1/64				○							
		332R/L		1/32				○							
	DNGG	431R/L		1/64	○		○	●	●						
		432R/L		1/32	○		○	○	●						

For other grades, Reference Page ➡ B20~B23

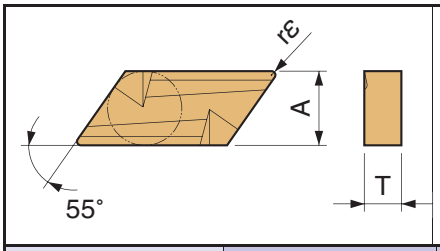
Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

55°Parallelogram / Negative

(in)

Description	A	T	φd
KNMX1604_	3/8	3/16	-



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)

| | | |

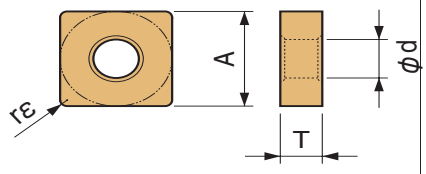
90°Square / Negative with Hole

(in)

Description	A	T	φd
SN_32_	3/8	1/8	0.150
SN_43_	1/2	3/16	0.203

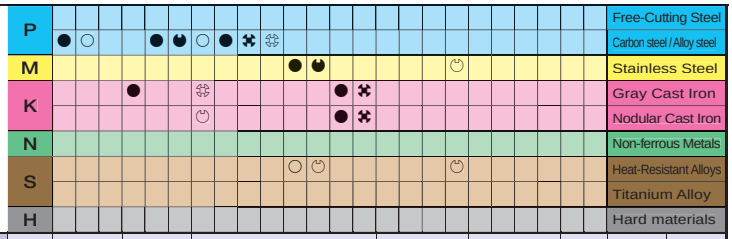
(in)

Description	A	T	φd
SN_54_	5/8	1/4	0.250
SN_64_	3/4		0.312



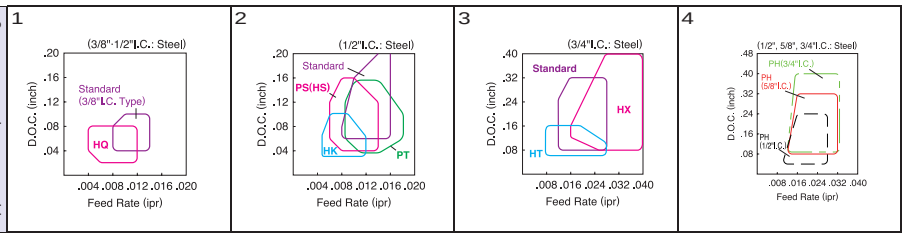
Classification of usage
- ✱: Interruption / 1st Choice
- ✱: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ○: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

(In case hardness is under 45HRC)



Insert	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing-Medium	SNMG 431HQ	SNMG 120404HQ	1/64	○	○	○		●	●		●	●																D14 D15	1
	SNMG 432HQ	SNMG 120408HQ	1/32	○	●	○		●	●	●	●	●	●	●	●						●								
	SNMG 433HQ	SNMG 120412HQ	3/64		○	○			○		●	●	●																
Medium	SNMG 431HK	SNMG 120404HK	1/64			○																							2
	SNMG 432HK	SNMG 120408HK	1/32			○																							
	SNMG 433HK	SNMG 120412HK	3/64			○																							
Medium-Roughing	SNMG 432PS	SNMG 120408PS	1/32	○				●	●	●	●	●	●	●	●						●								
	SNMG 433PS	SNMG 120412PS	3/64						○	●	●	●	●	●	●						●								
	SNMG 434PS	SNMG 120416PS	1/16								●	●	●	●	●														
Medium-Roughing	SNMG 432HS	SNMG 120408HS	1/32		○	○					○	●																	
	SNMG 433HS	SNMG 120412HS	3/64		○	○					●	●																	
	SNMG 434HS	SNMG 120416HS	1/16		○	○					●	●																	
Medium-Roughing / High Feed	SNMG 432PT	SNMG 120408PT	1/32							●	●	●	●	●	●														
	SNMG 433PT	SNMG 120412PT	3/64							●	●	●	●	●	●														
Medium-Roughing / High Feed	SNMG 432HT	SNMG 120408HT	1/32			○					●	●																	3
	SNMG 433HT	SNMG 120412HT	3/64			○																							
Roughing	SNMG 321	SNMG 090304	1/64			●						●																	1
	SNMG 322	SNMG 090308	1/32			●						●					○												
	SNMG 431	SNMG 120404	1/64		●	●	○			○							○												2
	SNMG 432	SNMG 120408	1/32		●	●	○			○	●	●	●	●	●	●	●				○								
	SNMG 433	SNMG 120412	3/64		○	●				○	●	●	●				○				○								
	SNMG 434	SNMG 120416	1/16		○	○				○	●	●	●				●												
	SNMG 435	SNMG 120420	5/64			○				○							○												
	SNMG 643	SNMG 190612	3/64							●	○		●								●								3
	SNMG 644	SNMG 190616	1/16							●	●	●	●																
Roughing	SNMG 432PH	SNMG 120408PH	1/32								●	●	●																4
	SNMG 433PH	SNMG 120412PH	3/64								●	●	●																
	SNMG 434PH	SNMG 120416PH	1/16								●	●	●																
	SNMG 543PH	SNMG 150612PH	3/64								●	●																	
	SNMG 544PH	SNMG 150616PH	1/16								●	●																	
	SNMG 643PH	SNMG 190612PH	3/64								●	●	●																
	SNMG 644PH	SNMG 190616PH	1/16								●	●	●																
	SNMG 646PH	SNMG 190624PH	3/32								●	●																	

Applicable Chipbreaker Range



TN30 PV30 PV60 PV90 PV7020
CA4010 CA4115 CA4120 PR915 PR905

Reference Page B29

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

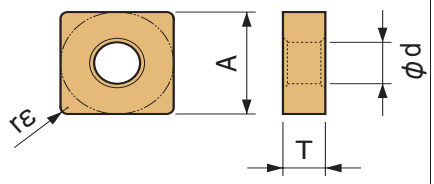
90°Square / Negative with Hole

(in)

Description	A	T	φd
SN_32_	3/8	1/8	0.150
SN_43_	1/2	3/16	0.203

(in)

Description	A	T	φd
SN_54_	5/8	1/4	0.250
SN_64_	3/4		0.312



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)

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

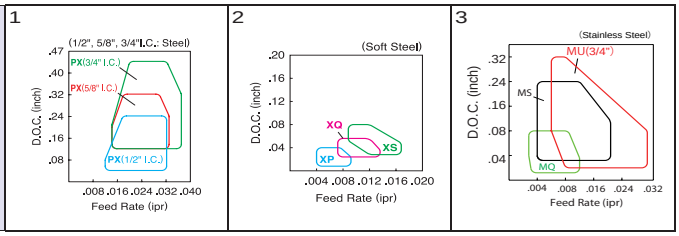
Insert (Right-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Single Sided / Roughing / High Feed	SNMM 432PX	SNMM 120408PX	1/32							○	○	○	○																
	SNMM 433PX	SNMM 120412PX	3/64							○	○	○	○																
	SNMM 434PX	SNMM 120416PX	1/16							○	○	○	○																
	SNMM 543PX	SNMM 150612PX	3/64							○	○	○	○																
	SNMM 544PX	SNMM 150616PX	1/16							○	○	○	○																
	SNMM 643PX	SNMM 190612PX	3/64							○	●	●	○																
	SNMM 644PX	SNMM 190616PX	1/16							○	○	●	●																
	SNMM 646PX	SNMM 190624PX	3/32							○	●	●	○																
Low Carbon Steel Finishing	SNMG 432XP	SNMG 120408XP	1/32		○	○		●	●		●	●																
Low Carbon Steel Medium	SNMG 432XQ	SNMG 120408XQ	1/32		○	●		●	●		●	●																
Low Carbon Steel Roughing	SNMG 432XS	SNMG 120408XS	1/32		○	○			●		●	●																
Stainless Steel / Heat-Resistant Alloys Finishing-Medium	SNMG 431MQ	SNMG 120404MQ	1/64										●	●							●		○	○	○		○		
	SNMG 432MQ	SNMG 120408MQ	1/32										●	●							●		○	○	○		○		
Stainless Steel / Heat-Resistant Alloys Medium-Roughing	SNMG 431MS	SNMG 120404MS	1/64										●	●							●		○	○	○		○		
	SNMG 432MS	SNMG 120408MS	1/32										●	●							●		○	○	○		○		
	SNMG 433MS	SNMG 120412MS	3/64										●	●							●		○	○	○		○		
	SNMG 434MS	SNMG 120416MS	1/16										●	●							●		○	○	○		○		
Stainless Steel / Heat-Resistant Alloys NEW Medium-Roughing	SNMG 643MU	SNMG 190612MU	3/64																					○	○				
	644MU	190616MU	1/16																					○	○				

D14
D15

1
2
3

See B7

Applicable Chipbreaker Range



〔TN30 PV30 PV60 PV90 PV7020
CA4010 CA4115 CA4120 PR915 PR905〕 Reference Page B29

●: Std. Stock ○: World Express R: R-hand Only L: L-hand Only

Inserts are sold in 10 piece boxes.

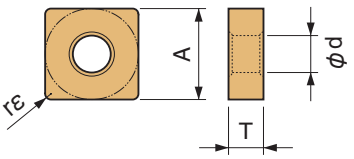
90°Square / Negative with Hole
90°Square / Negative without Hole

(in)

Description	A	T	φd
SN_32_	3/8	1/8	0.150
SN_43_	1/2	3/16	0.203

(in)

Description	A	T	φd
SN_54_	5/8	1/4	0.250
SN_64_	3/4		.0312



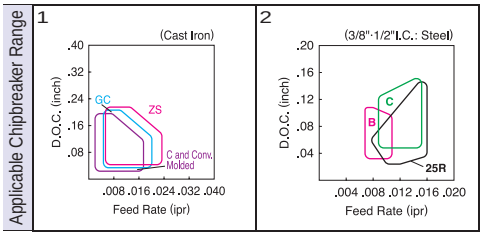
Classification of usage
- ✱: Interruption / 1st Choice
- ✱: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

(In case hardness is under 45HRC)

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

Insert (Right-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Cast Iron — Roughing	SNMG 432C	SNMG 120408C	1/32							○							○												1
	433C	120412C	3/64							○							○												
Cast Iron — Roughing	SNMG 432ZS	SNMG 120408ZS	1/32							●						●	●												
	433ZS	120412ZS	3/64							●						●	●												
Cast Iron — Roughing	SNMG 432GC	SNMG 120408GC	1/32							○							●												
	433GC	120412GC	3/64							○							●												
Cast Iron — Without Chipbreaker	SNGA 321	SNGA 090304	1/64																							○		D14 D15	-
	322	090308	1/32																							○			
	SNGA 431	SNGA 120404	1/64																							○			
	432	120408	1/32				○																			○			
	433	120412	3/64																							○			
	SNMA 431	SNMA 120404	1/64							●							○												
	432	120408	1/32							●						●	●												
	433	120412	3/64			●				●							●												
	434	120416	1/16							●							●												
	435	120420	5/64							○							○												
Cast Iron — Without Chipbreaker	SNM 432	SNMN 120408	1/32							○							○												
	433	120412	3/64														○												
Finishing-Medium / Medium-Roughing — -B Finishing-Medium -C Medium-Roughing	SNGG 321R/L-B	SNGG 090304R/L-B	1/64			○	○																						2
	322R/L-B	090308R/L-B	1/32			●																							
	SNGG 431R/L-C	SNGG 120404R/L-C	1/64			○	○																			○			
	432R/L-C	120408R/L-C	1/32			○	○																			●			
	SNMG 431R/L-C	SNMG 120404R/L-C	1/64			○	○																			○			
	432R/L-C	120408R/L-C	1/32			○	○																			●			
Medium-Roughing — Low cutting force	SNGG 431R/L-25R	SNGG 120404R/L-25R	1/64			○																							
	432R/L-25R	120408R/L-25R	1/32			○																							

Applicable Chipbreaker Range



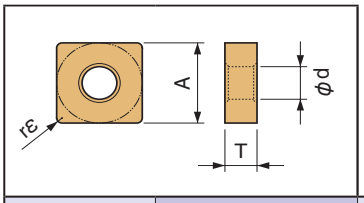
TN30 PV30 PV60 PV90 PV7020
CA4010 CA4115 CA4120 PR915 PR905

Reference Page B29

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

90°Square / Negative / with Hole / without Hole



(in)

Description	A	T	φd
SN_32_	3/8	1/8	0.150
SN_43_	1/2	3/16	0.203
SNM43_			-

Insert Right-Handed insert shown where applicable	Description (ANSI)	Dim. (in) rε	Cermet TN30	PVD Coated Cermet PV30	PV60	PV90	PV7020	CVD Coated Carbide CA4010	CA4115	CA4120	PVD Coated Carbide PR915	PR905	Ref. Page for Toolholder
 Finishing-Medium	SNMG 431HQ	1/64	○		○	○	●						
	432HQ	1/32	○	○	○	●	●						
	433HQ	3/64	○		○	○	●						
 Medium-Roughing	SNMG 432HS	1/32			○	○	●						
	433HS	3/64				○							
	434HS	1/16					●						
 Medium-Roughing / High Feed	SNMG 432HT	1/32				○							
	433HT	3/64				○							
 Roughing	SNMG 431	1/64	○		○	○			○	●			
	432	1/32	○			●		○	○	●			
	433	3/64				○							
	434	1/16	○			○		●	●	●			
	435	5/64						●	○	○			
	SNMG 634	1/16											
 Low Carbon Steel / Finishing	SNMG 432XP	1/32			○	○	●						D14 D15
 Low Carbon Steel / Medium cutting	SNMG 432XQ	1/32			○	○	●						
 Low Carbon Steel / Roughing	SNMG 432XS	1/32			○	○	●						
 Without Chipbreaker	SNMA 431	1/64							○	●			
	432	1/32	○					○	●	●			
	433	3/64						○	○	●			
	434	1/16						●	○	●			
	435	5/64						○	○	○			
 Without Hole / Without Chipbreaker	SNM 432	1/32										○	
	433	3/64										○	
 -B: Finishing-Medium -C: Medium-Roughing	SNGG 322R-B	1/32	○										
	SNGG 431R-C	1/64	○			○							
	432R-C	1/32	○			○							

Insert Right-Handed insert shown where applicable	Description (ANSI)	Dim. (in) rε	Cermet TN30	PVD Coated Cermet PV30	PV60	PV90	PV7020	CVD Coated Carbide CA4010	CA4115	CA4120	PVD Coated Carbide PR915	PR905	Ref. Page for Toolholder
 Cast Iron Roughing	SNMG 432C	1/32							●	●			D14 D15
	433C	3/64							●	●			
 Cast Iron Roughing	SNMG 432ZS	1/32						●	○	○			
	433ZS	3/64						●	●	○			
 Cast Iron Roughing	SNMG 432GC	1/32						○	○	●			
	433GC	3/64						○	○	○			

For other grades, Reference Page B26~B28

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

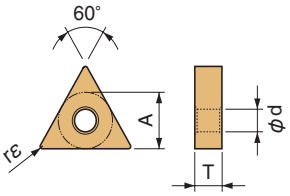
60°Triangle / Negative with Hole

(in)

Description	A	T	ød
TN_22_	1/4	1/8	0.089
TN_23_		3/16	

(in)

Description	A	T	ød
TN_32_	3/8	1/8	0.150
TN_33_		3/16	
TN_43_	1/2		0.203

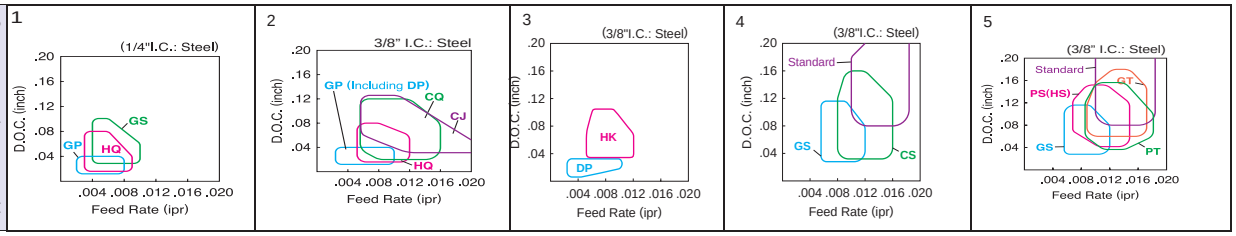


Classification of usage
✱:Interruption / 1st Choice
✲:Interruption / 2nd Choice
●:Light Interruption / 1st Choice
◔:Light Interruption / 2nd Choice
●:Continuous / 1st Choice
○:Continuous / 2nd Choice
(In case hardness is under 45HRC)

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 alloy / Titanium Alloy
H		Hard Materials

Insert	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing		TNGG 331DP	TNGG 160404DP	1/64		○	○																						
		332DP	160408DP	1/32		○	○																						3
		TNMG 331DP	TNMG 160404DP	1/64		○	○		○																				
		332DP	160408DP	1/32		○	○		○																				
Finishing		TNMG 231GP	TNMG 110404GP	1/64			○																						
		232GP	110408GP	1/32			○																						1
		TNMG 3305GP	TNMG 160402GP	0.008	○	●	●		●	●	●	●	●																
		331GP	160404GP	1/64	○	●	●		●	●	●	●	●																
		332GP	160408GP	1/32	○	●	●		●	●	●	●	●																2
Finishing-Medium		TNMG 231HQ	TNMG 110404HQ	1/64			○				●	●																	
		232HQ	110408HQ	1/32			○				●	●																	1
		TNMG 331HQ	TNMG 160404HQ	1/64	○	●	●		●	●	●	●	●	●	●						●								
		332HQ	160408HQ	1/32	○	●	●		●	●	●	●	●	●	●						●								
		333HQ	160412HQ	3/64		○	●			○	●	●																	2
Finishing-Medium / Up facing		TNMG 331CQ	TNMG 160404CQ	1/64	○	●			●	●	○	●	●	○	●	●					○								
		332CQ	160408CQ	1/32	○	●	●		●	●	○	●	●	●	●	●					○								
		333CQ	160412CQ	3/64		○	●			○		●	●																2
		TNMG 432CQ	TNMG 220408CQ	1/32								●	●																
		433CQ	220412CQ	3/64								●	●																See B31-2
Finishing-Medium		TNMP 331TK	TNMP 160404TK	1/64														○								○			
		332TK	160408TK	1/32														○										D16 ~ D19 F84	See B32-3,4
Medium		TNMG 331HK	TNMG 160404HK	1/64			○																						
		332HK	160408HK	1/32			●																						
		333HK	160412HK	3/64			○																						3
		TNMG 431HK	TNMG 220404HK	1/64			●																						
		432HK	220408HK	1/32			●																						-
Medium-Roughing		TNMG 331CS	TNMG 160404CS	1/64							●	●																	
		332CS	160408CS	1/32							●	●																	4
Medium-Roughing		TNMG 231GS	TNMG 110404GS	1/64			○					●																	
		232GS	110408GS	1/32			○					●																	1
		TNMG 331GS	TNMG 160404GS	1/64							●	●																	
		332GS	160408GS	1/32							●	●																	4
Medium-Roughing		TNMG 331PS	TNMG 160404PS	1/64	○			●	●	●	●	●	●	●	●						●								
		332PS	160408PS	1/32	○			●	●	●	●	●	●	●	●						●								
		333PS	160412PS	3/64							●	○	●	●	●														5
		431PS	TNMG 220404PS	1/64							●	●																	
	TNMG	432PS	220408PS	1/32						●	●	●	●	●	●														
		433PS	220412PS	3/64						●	●	●	●	●	●														See B31-2
		434PS	220416PS	1/16							●	●																	
Medium-Roughing		TNMG 331HS	TNMG 160404HS	1/64		●	○				●	●																	
		332HS	160408HS	1/32		●	●				●	●																	5
		333HS	160412HS	3/64		○	○				●	●																	
		TNMG 431HS	TNMG 220404HS	1/64			●																						
	TNMG	432HS	220408HS	1/32			●																						See B31-2
		433HS	220412HS	3/64							○																		

Applicable Chipbreaker Range



TN30 PV30 PV60 PV90 PV7020
CA4010 CA4115 CA4120 PR915 PR905
Reference Page B35

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

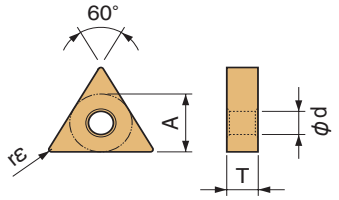
60°Triangle / Negative with Hole

(in)

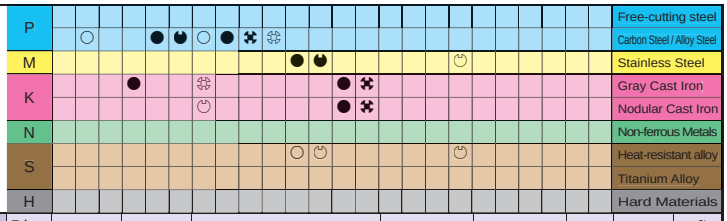
Description	A	T	ød
TN_22_	1/4	1/8	0.089
TN_23_		3/16	

(in)

Description	A	T	ød
TN_32_	3/8	1/8	0.150
TN_33_		3/16	
TN_43_	1/2		0.203

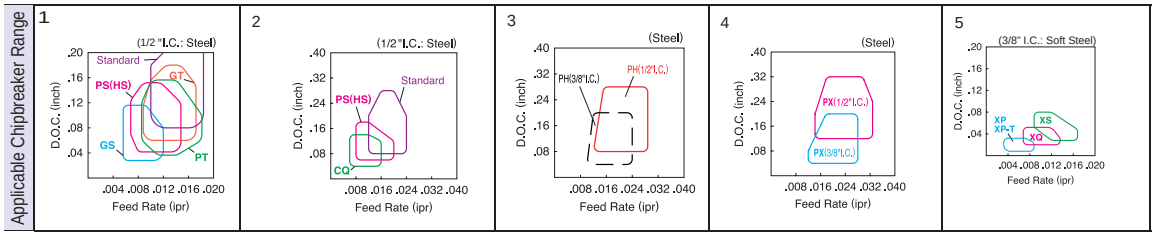


Classification of usage
✱:Interruption / 1st Choice
❁:Interruption / 2nd Choice
◕:Light Interruption / 1st Choice
◔:Light Interruption / 2nd Choice
●:Continuous / 1st Choice
○:Continuous / 2nd Choice
(In case hardness is under 45HRC)



Insert		Description (ANSI)		Description (ISO)		Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Medium-Roughing/ High Feed		TNMG	332PT	TNMG	160408PT	1/32							●	●	●	○	○	○													D16 ~ D19 F84	1
			333PT		160412PT	3/64							●	●	●	●	●	○														
Medium-Roughing/ High Feed		TNMG	332GT	TNMG	160408GT	1/32								●	●																	
			333GT		160412GT	3/64								●	●																	
Medium-Roughing/ High Feed		TNMG	332HT	TNMG	160408HT	1/32			○					●	●																	-
			333HT		160412HT	3/64			○																							
Roughing		TNMG	331	TNMG	160404	1/64	●	●	○	●	●		○	●	●		●	●		○				○								1
			332		160408	1/32	●	●	○	●	●		○	●	●		●	●		○				○								
			333		160412	3/64			○			○	○	●	●		●	●		○												
			334		160416	1/16							○							○												
			335		160420	5/64							○							○												
		TNMG	431	TNMG	220404	1/64		●					●	●																		2
			432		220408	1/32		●					●	●	●																	
			433		220412	3/64		●					●	●	●																	
Medium-Roughing		TNMG	332PH	TNMG	160408PH	1/32								●	●																	3
			333PH		160412PH	3/64								●	●																	
		TNMG	432PH	TNMG	220408PH	1/32								●	●																	
			433PH		220412PH	3/64								●	●	●																
			434PH		220416PH	1/16								●	●																	
Single Sided / Roughing / High Feed		TNMM	332PX	TNMM	160408PX	1/32								○	○	○																4
			333PX		160412PX	3/64								○	○	○																
		TNMM	432PX	TNMM	220408PX	1/32								○	○	○																
			433PX		220412PX	3/64								○	○	○																
			434PX		220416PX	1/16								○	○	○																
Low Carbon Steel	Finishing	TNMG	331XP	TNMG	160404XP	1/64		○	●		●	●	●	●	●																	5
			332XP		160408XP	1/32		○	●		●	●	●	●	●																	
Low Carbon Steel	Finish Edge Type	TNMG	332XP-T	TNMG	160404XP-T	1/64			○																							
			332XP-T		160408XP-T	1/32			○																							
Low Carbon Steel	Medium	TNMG	332XQ	TNMG	160404XQ	1/64		○	●		●	●	●	●	●																	
			332XQ		160408XQ	1/32		○	●		●	●	●	●	●																	
Low Carbon Steel	Medium	TNMG	332XS	TNMG	160408XS	1/32		○	○			●	●	●	●																	

Applicable Chipbreaker Range



TN30 PV30 PV60 PV90 PV7020
CA4010 CA4115 CA4120 PR915 PR905
Reference Page B35

Inserts are sold in 10 piece boxes.

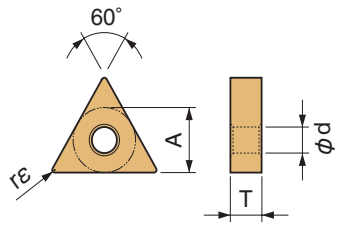
● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

(in)

Description	A	T	ød
TN_22_	1/4	1/8	0.089
TN_23_		3/16	

Description	A	T	ød
TN_32_	3/8	1/8	0.150
TN_33_		3/16	
TN_43_	1/2		0.203

60°Triangle / Negative with Hole

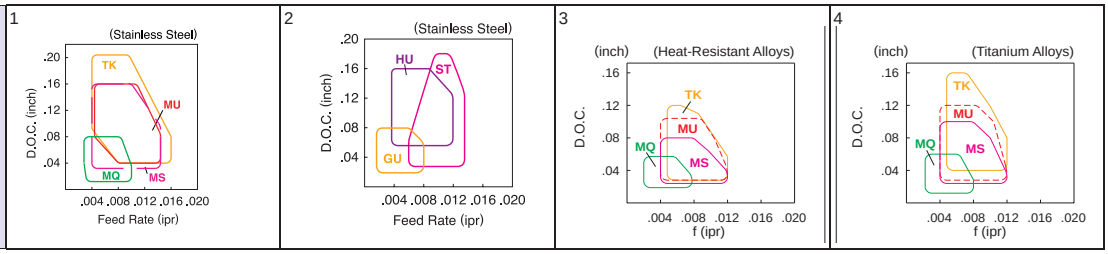


Classification of usage
✱:Interruption / 1st Choice
✲:Interruption / 2nd Choice
●:Light Interruption / 1st Choice
◌:Light Interruption / 2nd Choice
●:Continuous / 1st Choice
○:Continuous / 2nd Choice
(In case hardness is under 45HRC)

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 alloy / Titanium Alloy
H	Hard Materials

Insert (Right-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA4505	CA4515	CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Stainless Steel — Finishing	TNMG 331GU	TNMG 160404GU	1/64													●	●												
	332GU	160408GU	1/32													●	●												2
Stainless Steel — Medium-Roughing	TNMG 332HU	TNMG 160408HU	1/32											●		●	●												
	333HU	160412HU	3/64													●	●												
Stainless Steel / Heat-Resistant Alloys — Finishing-Medium	TNMG 331MQ	TNMG 160404MQ	1/64													●	●				●		●	●	●		○		
	332MQ	160408MQ	1/32													●	●				●		●	●	●		○		
Stainless Steel / Heat-Resistant Alloys — Medium-Roughing	TNMG 331MS	TNMG 160404MS	1/64													●	●				●		●	●	●		○		
	332MS	160408MS	1/32													●	●				●		●	●	●		○	D16 ~ D19 F84	
	333MS	160412MS	3/64													●	●				●		●	●	●		○		
Stainless Steel / Heat-Resistant Alloys — Medium-Roughing	TNMG 331MU	TNMG 160404MU	1/64													●	●						●	●	●		○		
	332MU	160408MU	1/32													●	●						●	●	●		○		1,3,4 (based on material to be machined)
Stainless Steel / Heat-Resistant Alloys — NEW Finishing-Medium / Sharp Edge	TNGG 331TK	TNGG 160404TK	1/64																				●	●			○		
	332TK	160408TK	1/32																				●	●			○		
Stainless Steel / Heat-Resistant Alloys — Medium-Roughing	TNMG 331TK	TNMG 160404TK	1/64													●	●				●								
	332TK	160408TK	1/32													●	●				●								
Stainless Steel — Medium-Roughing	TNMG 331R/L-ST	TNMG 160404R/L-ST	1/64			○						●	●			●	●				●								
	332R/L-ST	160408R/L-ST	1/32			○						●	●			●	●				●								2

Applicable Chipbreaker Range



TN30 PV30 PV60 PV90 PV7020
CA4010 CA4115 CA4120 PR915 PR905

Reference Page B35

Inserts are sold in 10 piece boxes.

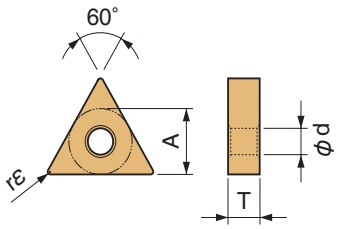
● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

(in)

Description	A	T	ød
TN_22_	1/4	1/8	0.089
TN_23_		3/16	

Description	A	T	ød
TN_32_	3/8	1/8	0.150
TN_33_		3/16	
TN_43_	1/2		0.203

60°Triangle / Negative with Hole



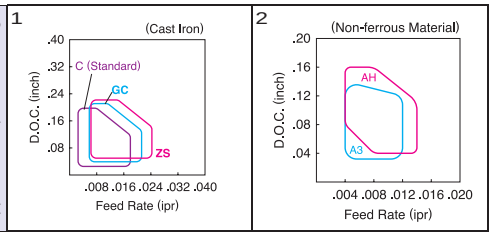
Classification of usage
- ✖: Interruption / 1st Choice
- ✖: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

(In case hardness is under 45HRC)

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 alloy / Titanium Alloy
H																											Hard Materials

Insert (Right-Handed insert shown where applicable)		Description (ANSI)		Description (ISO)		Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Cast Iron	 Roughing	TNMG	331C	TNMG	160404C	1/64							○							○												
			332C		160408C	1/32							○							○												
			333C		160412C	3/64																										
Cast Iron	 Roughing	TNMG	332ZS	TNMG	160408ZS	1/32							●							●												1
			333ZS		160412ZS	3/64							●							○												
Cast Iron	 Roughing	TNMG	332GC	TNMG	160408GC	1/32																										
			333GC		160412GC	3/64							○							○												
Cast Iron	 Without Chipbreaker	TNGA	221	TNGA	110304	1/64																							○		D16 ~ D19 F84	-
			222		110308	1/32																										
		TNGA	331	TNGA	160404	1/64			○																				○			
			332		160408	1/32			○																				○			
		TNMA	331	TNMA	160404	1/64																										
			332		160408	1/32		○					○						●	●												
			333		160412	3/64							●							○												
			334		160416	1/16																										
			335		160420	5/64							○							●												
		TNMA	432	TNMA	220408	1/32																										
Non-ferrous Metals	 Finishing-Medium / Sharp Edge	TNGG	331R/L-A3	TNGG	160404R/L-A3	1/64																							○			
			332R/L-A3		160408R/L-A3	1/32																							○			
Non-ferrous Metals	 Medium-Roughing / Sharp Edge	TNGG	331AH	TNGG	160404AH	1/64																										
			332AH		160408AH	1/32																							○			2
Non-ferrous Metals	 Medium-Roughing / With Honing	TNMG	331AH	TNMG	160404AH	1/64																							●			
			332AH		160408AH	1/32																										

Applicable Chipbreaker Range



TN30 PV30 PV60 PV90 PV7020
CA4010 CA4115 CA4120 PR915 PR905

Reference Page B35

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

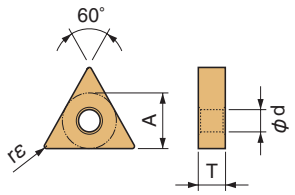
60°Triangle / Negative with Hole
60°Triangle / Negative without Hole

(in)

Description	A	T	ød
TN_22_	1/4	1/8	0.089
TN_23_		3/16	

(in)

Description	A	T	ød
TN_32_	3/8	1/8	0.150
TN_33_		3/16	
TN_43_	1/2		0.203

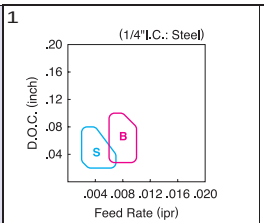


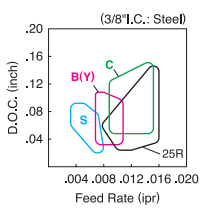
Classification of usage
✖:Interruption / 1st Choice
✱:Interruption / 2nd Choice
●:Light Interruption / 1st Choice
◔:Light Interruption / 2nd Choice
●:Continuous / 1st Choice
○:Continuous / 2nd Choice
(In case hardness is under 45HRC)

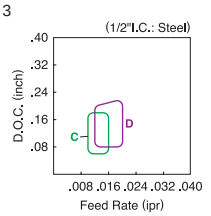
P	●	○				●	●										◔			◔					●							Free-cutting steel
																																Carbon steel / Alloy steel
M																	◔			◔	●				◔							Stainless Steel
K				●																						✱						Gray Cast Iron
																																Nodular Cast Iron
N																										✖						Non-ferrous Metals
S																				◔												Heat-resistant alloy
																										✱						Titanium Alloy
H																																Hard Materials

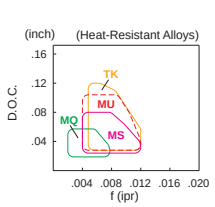
Insert Right-Handed insert shown where applicable	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1225	PR1305	PR1310	PR1325	PR1425 NEW	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing Super Fine Surface Roughness Oriented	TNGG 2305R/L-S	TNGG 110402R/L-S	0.008			○																					○			
	TNGG 231R/L-S	TNGG 110404R/L-S	1/64			○																					○			1
	TNGG 232R/L-S	TNGG 110408R/L-S	1/32			○																					○			
	TNGG 3302R/L-S	TNGG 160401R/L-S	0.004		○				○																					
	TNGG 3305R/L-S	TNGG 160402R/L-S	0.008	○	○	○		○	○									○			○					●				
	331R/L-S	160404R/L-S	1/64	○	○	●		○	○									●			●					●				2
	332R/L-S	160408R/L-S	1/32	○	○	○		○	○									○			●					●				
Finishing Sharp Edge / Precision	TNEG 3305R/L-SSF	TNEG 160402R/L-SSF	0.008		●	○												○												
	331R/L-SSF	160404R/L-SSF	1/64		○	○												○												2
Finishing / Medium-Roughing / Roughing	TNGG 2205R/L-B	TNGG 110302R/L-B	0.008			○																					○			
	TNGG 221R/L-B	TNGG 110304R/L-B	1/64			○																					●			1
	TNGG 222R/L-B	TNGG 110308R/L-B	1/32																								○			
	TNGG 321R/L-B	TNGG 160304R/L-B	1/64			○																								
	TNGG 3305R/L-B	TNGG 160402R/L-B	0.008	○	○	○		●	○									●									○			
	331R/L-B	160404R/L-B	1/64	○	○	○	○	●	○									○												
	332R/L-B	160408R/L-B	1/32			○																								
	TNGG 3305R/L-C	TNGG 160402R/L-C	0.008		○				○																					
	331R/L-C	160404R/L-C	1/64	○	○	●	○	●	○									○									○			
	332R/L-C	160408R/L-C	1/32	○	○	●	○	●	○									○									○			
	333R/L-C	160412R/L-C	3/64			○	○																							
	334R/L-C	160416R/L-C	1/16				○																							
	TNGG 431R/L-C	TNGG 220404R/L-C	1/64		●	●	○																						D16 ~ D19 F84	
	432R/L-C	220408R/L-C	1/32		○	●	○																							3
	TNGG 433R/L-D	TNGG 220412R/L-D	3/64			○																								
	TNGG 2305R/L	TNGG 110402R/L	0.008			○																					○			
	231R/L	110404R/L	1/64			○																					○			-
	232R/L	110408R/L	1/32			○																					○			
	TNMG 331R/L-C	TNMG 160404R/L-C	1/64		○	○			○																					
	332R/L-C	160408R/L-C	1/32		○	○			○																					
-B: Finishing-Medium -C: Medium-Roughing -D:Roughing	333R/L-C	160412R/L-C	3/64			○																								2
Medium-Roughing / Low Cutting Force	TNGG 331R/L-25R	TNGG 160404R/L-25R	1/64		○	○												○			●						○			
	332R/L-25R	160408R/L-25R	1/32		○	○												○			●						○			
Medium-Roughing Sharp Edge / Polished	TNGG 331FP-TK	TNGG 160404FP-TK	1/64																			●				●				
	332FP-TK	160408FP-TK	1/32																			●				●				4 (based on material to be machined)
Without Chipbreaker Without Hole	TNM 432	TNM 220408	1/32			○																								-

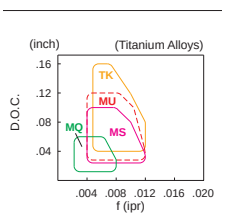
Applicable Chipbreaker Range

1


2


3


4


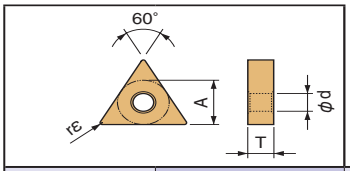


TN30 PV30 PV60 PV90 PV7020
CA4010 CA4115 CA4120 PR915 PR905
Reference Page B35

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

60°Triangle / Negative with Hole



(in)

Description	A	T	ød
TN_22_	1/4	1/8	0.089
TN_23_		3/16	
TN_33_	3/8	3/16	0.150
TN_43_	1/2		0.203

Insert	Description	Dim. (in) rε	Cermet TN30	PVD Coated Cermet PV30	PV60	PV90	PV7020	CVD Coated Carbide CA4010	CA4115	CA4120	PVD Coated Carbide PR915	PR905	Ref. Page for Toolholder
Finishing	TNGG 331DP	1/64					○						
	332DP	1/32					○						
	TNMG 331DP	1/64					●						
	332DP	1/32					●						
Finishing	TNMG 231GP	1/64				○							
	232GP	1/32				○							
	TNMG 3305GP	0.008			○	○	●						
	331GP	1/64	○			●	●						
	332GP	1/32	○		○	●	●						
Finishing-Medium	TNMG 231HQ	1/64				○							
	232HQ	1/32				●							
	TNMG 331HQ	1/64	○	○	○	●	●						
	332HQ	1/32	○	○	○	●							
	333HQ	3/64	○		○	○	●						
Finishing-Medium / Up Facing	TNMG 331CQ	1/64			○	○	●						
	332CQ	1/32			○	○	●						
	333CQ	3/64			○	○	●						
Finishing-Medium	TNMP 331TK	1/64											
	332TK	1/32											
Finishing-Medium	TNMG 331CS	1/64			○								D16
	332CS	1/32			○								D18
Medium-Roughing	TNMG 231GS	1/64				○							D19
	232GS	1/32				○							F84
	TNMG 331GS	1/64			○	○	●						
	332GS	1/32			○	●	●						
	333GS	3/64			○	○							
Medium-Roughing	TNMG 331HS	1/64	○		○	○	●						
	332HS	1/32	○		○	○	●						
	333HS	3/64			○	○	●						
	TNMG 432HS	1/32				○							
Medium-Roughing / High Feed	TNMG 332GT	1/32				○	●						
	333GT	3/64				○	●						
Medium-Roughing / High Feed	TNMG 332HT	1/32				○							
	333HT	3/64				○							
Roughing	TNMG 331	1/64	○		○	○		●	○	●			
	332	1/32	○	○	○	○		○	●	●			
	333	3/64	○			○		●	●	●			
	334	1/16						●	●	●			
	335	5/64						●	○	○			
	TNMG 431	1/64						●					
	432	1/32						●	○	●			
	433	3/64						●	●	●			
Low Carbon Steel / Finishing	TNMG 331XP	1/64			○	●	●						
	332XP	1/32			○	●	●						

Insert	Description	Dim. (in) rε	Cermet TN30	PVD Coated Cermet PV30	PV60	PV90	PV7020	CVD Coated Carbide CA4010	CA4115	CA4120	PVD Coated Carbide PR915	PR905	Ref. Page for Toolholder
Low Carbon Steel / Finishing / Tough Edge	TNMG 331XP-T	1/64			○	○							
	332XP-T	1/32			○	○							
Low Carbon Steel / Medium cutting	TNMG 331XQ	1/64			○	○	●						
	332XQ	1/32			○	●	●						
Low Carbon Steel / Roughing	TNMG 332XS	1/32			○	●	●						
Roughing	TNMG 331C	1/64							○	●			
	332C	1/32							○	●			
	333C	3/64							●	●			
Roughing	TNMG 332ZS	1/32						○	○	●			
	333ZS	3/64						●	○	●			
Roughing	TNMG 332GC	1/32						○	○	●			
	333GC	3/64						○	●	●			
Without Chipbreaker	TNMA 331	1/64	○					○	●	●			
	332	1/32	○					○	●	○			
	333	3/64						○	○	●			
	334	1/16						●	●	●			
	335	5/64						○	○	●			
Finishing / Surface Roughness Oriented	TNGG 2305R/L-S	0.008				○							
	231R/L-S	1/64				○							
	232R/L-S	1/32				○							
	TNGG 3302R/L-S	0.004					●						
	3305R/L-S	0.008	○	○	○	○	●						
	331R/L-S	1/64		○	○	○	●						
	332R/L-S	1/32	○		○		●						
Super Fine Sharp Edge / Precision	TNEG 3305R/L-SSF	0.008					●						
	331R/L-SSF	1/64					●						
Finishing-Medium	TNGG 331R/L-Y	1/64	○										
	332R/L-Y	1/32	○										
-B: Finishing-Medium -C: Medium-Roughing	TNGG 2205R/L-B	0.008	○										
	221R/L-B	1/64	○										
	TNGG 2305R/L	0.008				○							
	231R/L	1/64				○							
	232R/L	1/32				○							
	TNGG 3305R/L-B	0.008	○	○	○		●						
	331R/L-B	1/64	○		○		●						
	TNGG 3305R/L-C	0.008					●						
	331R/L-C	1/64	○	○	○	○	●						
	332R/L-C	1/32	○	○	○	○	●						
	TNGG 431R/L-C	1/64	○										
	432R/L-C	1/32											
	TNMG 331R/L-C	1/64	○	○	○		●						
	332R/L-C	1/32	○	○	○	○	●						
Medium-Roughing / Low Cutting Force	TNGG 331R/L-25R	1/64	○		○		●						
	332R/L-25R	1/32	○		○		●						

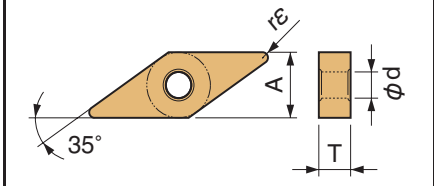
● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

35°Diamond / Negative with Hole

(in)

Description	A	T	ød
VN_33_	3/8	3/16	0.150

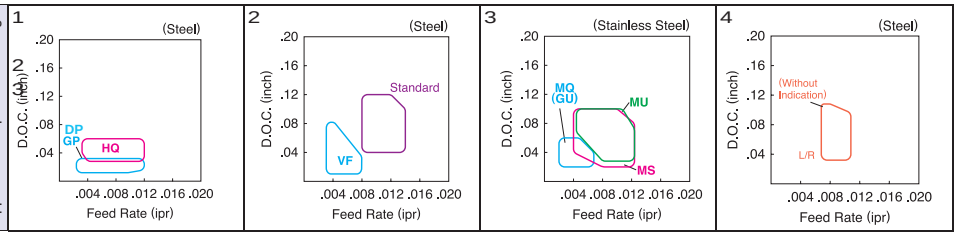


Classification of usage
✖: Interruption / 1st Choice
✖: Interruption / 2nd Choice
●: Light Interruption / 1st Choice
◔: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice
(In case hardness is under 45HRC)

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 alloy / Titanium Alloy
H																											◕	Hard Materials

Insert Right-Handed insert shown where applicable	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet			MEGACOAT Cermet		CVD Coated Carbide								PVD Coated Carbide			MEGACOAT			Carbide		Ref. Page for Toolholder	Applicable Chipbreaker Range
				TN6010	TN6020	TN60	PV7005	PV7010	PV7025	CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PR930	PR1005	PR1025	PR1125	PR1225	PR1305	PR1310	PR1325	KW10	SW05		
Finishing		VNMG 331DP	VNMG 160404DP	1/64			○																					
		332DP	160408DP	1/32			○																					
Finishing		VNMG 3305GP	VNMG 160402GP	0.008	○	●	●		●	●		●	●															1
		331GP	160404GP	1/64	○	●	●		●	●		●	●															
		332GP	160408GP	1/32	○	●	●		●	●		●	●															
Finishing / Medium		VNMG 331VF	VNMG 160404VF	1/64	○	●			●	●		●	●															
		332VF	160408VF	1/32	○	●			●	●		●	●															2
		333VF	160412VF	3/64		●				●		●	●															
Finishing / Medium		VNMG 331HQ	VNMG 160404HQ	1/64	○	●	●		●	●	●	●	●	●														
		332HQ	160408HQ	1/32	○	●	●		●	●	●	●	●	●														1
		333HQ	160412HQ	3/64		○	○			●	●	●	●	●														
Medium		VNMG 331TN-V	VNMG 160404TN-V	1/64																								
		332TN-V	160408TN-V	1/32																								-
		333TN-V	160412TN-V	3/64																								
Roughing		VNMG 331	VNMG 160404	1/64		●	●			●	●	●	●	●	●	●	●											
		VNMG 332	160408	1/32		●	●	○		●	●	●	●	●	●	●	●											2
Stainless Steel	Finishing	VNMG 331GU	VNMG 160404GU	1/64										●	●													
		332GU	160408GU	1/32										●	●													
Stainless Steel / Heat-Resistant Alloys	Finishing-Medium	VNMG 331MQ	VNMG 160404MQ	1/64										●	●						●		●	●	●		○	
		332MQ	160408MQ	1/32										●	●						●		●	●	●		○	
Stainless Steel / Heat-Resistant Alloys	Medium-Roughing	VNMG 331MS	VNMG 160404MS	1/64																								
		332MS	160408MS	1/32										●	●						●		●	●	●		○	
		333MS	160412MS	3/64										●	●						●		●	●	●			3
Stainless Steel / Heat-Resistant Alloys	Medium-Roughing	VNMG 331MU	VNMG 160404MU	1/64										●	●						●		●	●	●		○	
		332MU	160408MU	1/32										●	●						●		●	●	●		○	
Cast Iron	Without Chipbreaker	VNGA 331	VNGA 160404	1/64				○																		○		
		332	160408	1/32				○																		○		-
Medium		VNGG 3305R/L	VNGG 160402R/L	0.008	○	○	○			○								●										
		331R/L	160404R/L	1/64	○	●	○			○								○								○		4
		332R/L	160408R/L	1/32																								
Low Carbon Steel	Finishing	VNMG 331XP	VNMG 160404XP	1/64			○											○										-

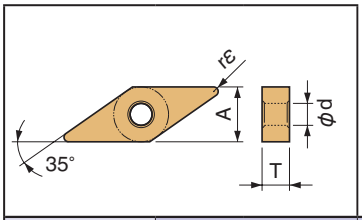
Applicable Chipbreaker Range



Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

35°Diamond / Negative with Hole



(in)

Description	A	T	ød
VN_33_	3/8	3/16	0.150

Insert Right-Handed insert shown where applicable	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN30	PVD Coated Cermet PV30	PV60	PV90	PV7020	CVD Coated Carbide CA4010	CA4115	CA4120	PVD Coated Carbide PR915	PR905	Ref. Page for Toolholder
 Finishing	VNMG 3305GP	VNMG 160402GP	0.008			○	●	●						D20 D21 D22
	331GP	160404GP	1/64	○		●	●	●						
	332GP	160408GP	1/32	○		○	●	●						
 Finishing-Medium	VNMG 331HQ	VNMG 160404HQ	1.64			○	●	●						
	332HQ	160408HQ	1.32			○	●	●						
	333HQ	160412HQ	3/64			○	○	●						
 Finishing-Medium	VNMG 331VF	VNMG 160404VF	1/64					●						
	332VF	160408VF	1/32					●						
	333VF	160412VF	3/64					●						
 Roughing	VNMG 331	VNMG 160404	1/64	○	○	○	●	●	●	●	●			
	332	160408	1/32	○	○	○	○	●	●	○	●			
 Medium	VNGG 3305R/L	VNGG 160402R/L	0.008	○	○	○	○	●						
	331R/L	160404R/L	1/64	○	○	○	○	●						
	332R/L	160408R/L	1/32				○							
 Finishing	VNMG 331XP	VNMG 160404XP	1/64				●							

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

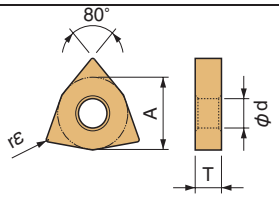
80°Trigon / Negative with Hole

(in)

Description	A	T	ød
WN_325	3/8	5/32	0.150
WN_33_		3/16	

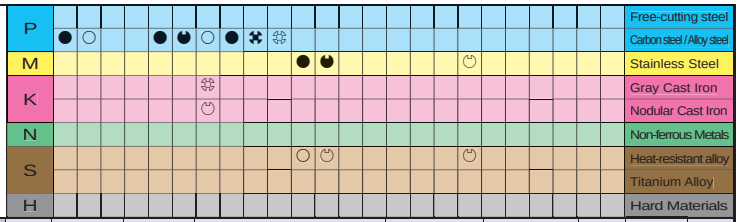
(in)

Description	A	T	ød
WN_43_	1/2	3/16	.203



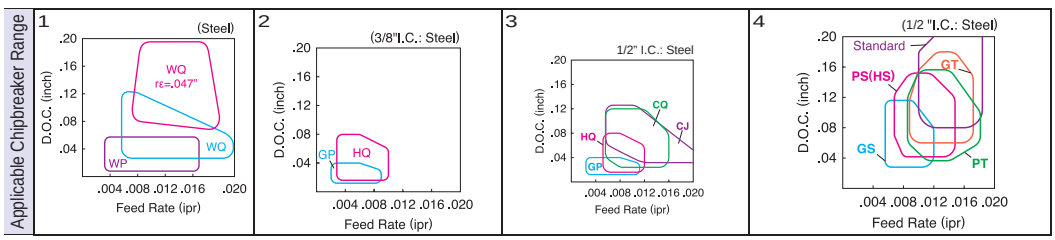
Classification of usage
- ✠: Interruption / 1st Choice
- ✠: Interruption / 2nd Choice
- ◓: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

(In case hardness is under 45HRC)



Insert	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
With Wiper Edge	WNMG 431WP	WNMG 080404WP	1/64	○	●			●	●	●	●	●						○										D23 D24 F85	1
	432WP	080408WP	1/32		●			●	●	●	●	●																	
With Wiper Edge	WNMG 431WQ	WNMG 080404WQ	1/64	○	●	○		●	●	●	●	●																	
	432WQ	080408WQ	1/32		○	○		●	●	●	●	●																	
	433WQ	080412WQ	3/64		●					●	●	●																	
Finishing	WNMG 331GP	WNMG 060404GP	1/64			○																							2
	332GP	060408GP	1/32			○																							
	WNMG 431GP	WNMG 080404GP	1/64	○	○	○		●	●																				3
	432GP	080408GP	1/32	○	○	○		●	●																				
Finishing-Medium	WNMG 3251HQ	WNMG 06T304HQ	1/64			●						○																	2
	3252HQ	06T308HQ	1/32			○						●																	
	WNMG 331HQ	WNMG 060404HQ	1/64			●					●	●																	
	332HQ	060408HQ	1/32			●					●	●																	
	WNMG 431HQ	WNMG 080404HQ	1/64	○	●	●		●	●	●	●	●	●	●	●						●								3
	432HQ	080408HQ	1/32	○	●	●		●	●	●	●	●	●	●	●						●								
	433HQ	080412HQ	3/64		○	○		○	●	●	●	●	●																
Finishing-Medium Up facing	WNMG 431CQ	WNMG 080404CQ	1/64	○	○			●	●	●	●	●																	
	432CQ	080408CQ	1/32	○	○	○		●	●	●	●	●	●																
	433CQ	080412CQ	3/64		○	○			○	●	●	●	●																
Finishing-Medium Up facing	WNMG 432CJ	WNMG 080408CJ	1/32							○	○	●	○																
	433CJ	080412CJ	3/64							○	●	●	○																
Finishing-Medium	WNMP 431TK	WNMP 080404TK	1/64															○										See B40-1	
	432TK	080408TK	1/32															○											
Medium-Roughing	WNMG 432CS	WNMG 080408CS	1/32								●	●																	-
Medium-Roughing	WNMG 331GS	WNMG 060404GS	1/64			○					●	●																	-
	332GS	060408GS	1/32			●					●	●																	
	WNMG 431GS	WNMG 080404GS	1/64								●	●																	4
	432GS	080408GS	1/32								●	●																	
	433GS	080412GS	3/64								●	●																	
Medium-Roughing	WNMG 431PS	WNMG 080404PS	1/64	○				●	●	●	●	●	●	●	●						●								
	432PS	080408PS	1/32	○				●	●	●	●	●	●	●	●						●								
	433PS	080412PS	3/64							●	●	●	●	●	●														
	434PS	080416PS	1/16								●	●																	

Applicable Chipbreaker Range



TN30 PV30 PV60 PV90 PV7020
CA4010 CA4115 CA4120 PR915 PR905

Reference Page B41

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

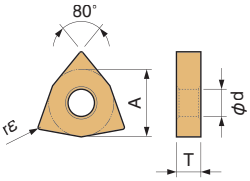
80°Trigon / Negative with Hole

(in)

Description	A	T	ød
WN_325	3/8	5/32	0.150
WN_33_		3/16	

(in)

Description	A	T	ød
WN_43_	1/2	3/16	.203



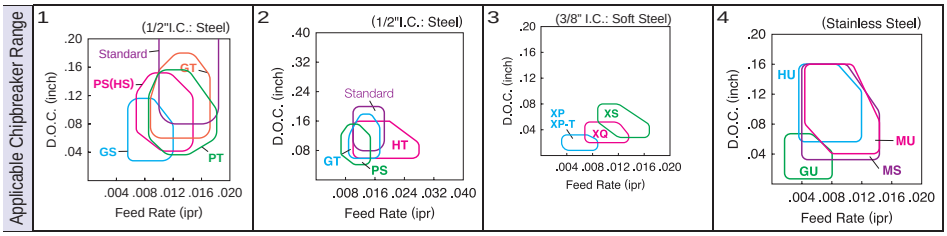
Classification of usage
- ✖: Interruption / 1st Choice
- ✖: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

(In case hardness is under 45HRC)

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 alloy
																								●		Titanium Alloy
H																										Hard Materials

Insert	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Medium-Roughing		WNMG 431HS	WNMG 080404HS	1/64	○	○					●	●									○								
		432HS	080408HS	1/32	●	●					●	●																	
		433HS	080412HS	3/64	○	●					●	●																	
Medium-Roughing / High Feed		WNMG 432PT	WNMG 080408PT	1/32						●	●	●	●	●	●														1
		433PT	080412PT	3/64						●	●	●	●	●	●														
Medium-Roughing / High Feed		WNMG 432GT	WNMG 080408GT	1/32							●	●																	
		433GT	080412GT	3/64							●	●																	
Finishing-Medium / Up facing		WNMG 432HT	WNMG 080408HT	1/32			○				●	●																	
		433HT	080412HT	3/64			○				●	●																	
Roughing		WNMG 431	WNMG 080404	1/64			○			●	●	●		●	●		○				○								2
		432	080408	1/32			○	○		●	●	●	●	●	●		●				○								
		433	080412	3/64			○			●	●	●	●	●	●	●	●				○								
Low Carbon Steel Finishing		WNMG 431XP	WNMG 080404XP	1/64	○	○		●	●	●	●	●																D23 D24 F85	
		432XP	080408XP	1/32	○	●		●	●	●	●	●																	
Low Carbon Steel Medium		WNMG 431XQ	WNMG 080404XQ	1/64	○	○		●	●	●	●	●																	3
		432XQ	080408XQ	1/32	○	○		●	●	●		●																	
Low Carbon Steel Roughing		WNMG 432XS	WNMG 080408XS	1/32	○	○			●	●	●	●																	
Stainless Steel Finishing		WNMG 431GU	WNMG 080404GU	1/64										●	●														
		432GU	080408GU	1/32										●	●														4
Stainless Steel Medium-Roughing		WNMG 432HU	WNMG 080408HU	1/32								●		●	●														
		433HU	080412HU	3/64										●	●														
Stainless Steel / Heat-Resistant Alloys Finishing-Medium		WNMG 431MQ	WNMG 080404MQ	1/64										●	●						●		●	●	●		○		See B40-1
		432MQ	080408MQ	1/32										●	●						●		●	●	●		○		

Applicable Chipbreaker Range



● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

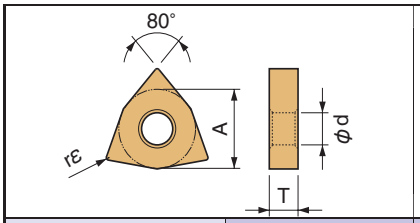
80°Trigon / Negative with Hole

(in)

Description	A	T	ød
WN_325	3/8	5/32	0.150
WN_33_		3/16	

(in)

Description	A	T	ød
WN_43_	1/2	3/16	.203



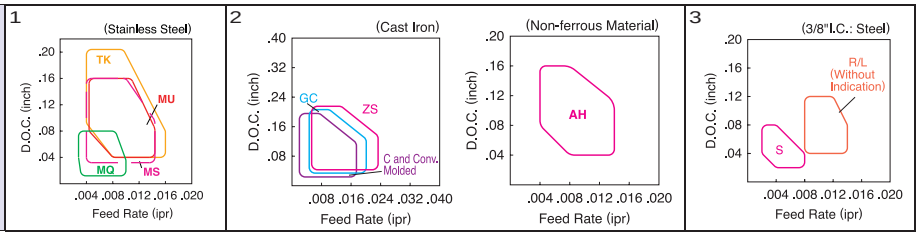
Classification of usage
- ✕: Interruption / 1st Choice
- ✲: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

(In case hardness is under 45HRC)

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

Insert (Right-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	MEGACOAT PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Stainless Steel / Heat-Resistant Alloys — Medium-Roughing	WNMG 431MS	WNMG 080404MS	1/64											●	●						●		●	●	●		○	D23 D24 F85	1 Also See B7
	WNMG 432MS	WNMG 080408MS	1/32											●	●						●		●	●	●		○		
	WNMG 433MS	WNMG 080412MS	3/64											●	●						●		●	●	●		○		
Stainless Steel / Heat-Resistant Alloys — Medium-Roughing	WNMG 431MU	WNMG 080404MU	1/64											●	●						●		●	●	●		○		
	WNMG 432MU	WNMG 080408MU	1/32											●	●						●		●	●	●		○		
Stainless Steel / Heat-Resistant Alloys — NEW Medium-Roughing / Sharp edge	WNGG 431TK	WNGG 080404TK	1/64																				●	●			○		
	WNGG 432TK	WNGG 080408TK	1/32																				●	●			○		
Stainless Steel / Heat-Resistant Alloys — Medium-Roughing	WNMG 431TK	WNMG 080404TK	1/64											●	●						●		●	●	●				
	WNMG 432TK	WNMG 080408TK	1/32											●	●						●		●	●	●				
Cast Iron — Roughing	WNMG 431C	WNMG 080404C	1/64							○							○												
	WNMG 432C	WNMG 080408C	1/32							○							●												
	WNMG 433C	WNMG 080412C	3/64							○							●												
Cast Iron — Roughing	WNMG 432ZS	WNMG 080408ZS	1/32							●	●	●					●												
	WNMG 433ZS	WNMG 080412ZS	3/64							●	●	●				●	●												
Cast Iron — Roughing	WNMG 432GC	WNMG 080408GC	1/32							○							●												
	WNMG 433GC	WNMG 080412GC	3/64							○							●												
Cast Iron — Without Chipbreaker	WNMA 432	WNMA 080408	1/32							●						●	●												
	WNMA 433	WNMA 080412	3/64							●						●	●												
Non-ferrous Metals — Medium-Roughing / Sharp edge	WNGG 431AH	WNGG 080404AH	1/64																							○			
	WNGG 432AH	WNGG 080408AH	1/32																							○			
Finishing — Surface Roughness Oriented	WNGG 3305R/L-S	WNGG 060402R/L-S	.008			○																				○		D23 D24 F85	3
	WNGG 331R/L-S	WNGG 060404R/L-S	1/64			○																				○			
	WNGG 332R/L-S	WNGG 060408R/L-S	1/32			○																				○			
Medium	WNGG 331R/L	WNGG 060404R/L	1/64			○																				○			
	WNGG 332R/L	WNGG 060408R/L	1/32			○																				○			

Applicable Chipbreaker Range

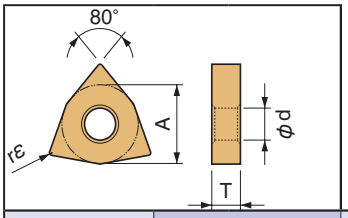


TN30 PV30 PV60 PV90 PV7020
CA4010 CA4115 CA4120 PR915 PR905
Reference Page B41

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

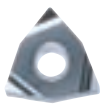
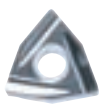
80°Trigon / Negative with Hole



(in)

Description	A	T	ød
WN_33_	3/8	3/16	0.150
WN_43_	1/2		0.203

Insert	Description (ANSI)	Dim. (in) rε	Carbide TN30	PVD Coated Cermet PV30	PV60	PV90	PV7020	CVD Coated Carbide CA4010	CA4115	CA4120	PVD Coated Carbide PR915	PR905	Ref. Page for Toolholder
 Finishing / With Wiper Edge	WNMG 431WP	1/64					●						
	432WP	1/32					●						
 Finishing-Medium / With Wiper Edge	WNMG 431WQ	1/64				○	●						
	432WQ	1/32				○	●						
	433WQ	3/64					●						
 Finishing	WNMG 331GP	1/64				●							
	332GP	1/32				●							
	WNMG 431GP	1/64			○	○	●						
	432GP	1/32			○	○	●						
 Finishing-Medium	WNMG 331HQ	1/64				●							
	332HQ	1/32				●							
	WNMG 431HQ	1/64			○	●	●						
	432HQ	1/32		○	○	●	●						
	433HQ	3/64		○	○	○	●						
 Finishing-Medium / Up Facing	WNMG 431CQ	1/64			○	○	●						
	432CQ	1/32			○	○	●						
	433CQ	3/64			○		●						D23 D24 F85
 Finishing-Medium	WNMP 431TK	1/64											
	432TK	1/32											
 Medium-Roughing	WNMG 432CS	1/32			○								
 Medium-Roughing	WNMG 331GS	1/64				○							
	332GS	1/32				●							
	WNMG 431GS	1/64			○	○	●						
	432GS	1/32			○	●	●						
	433GS	3/64			○	○	●						
 Medium-Roughing	WNMG 431HS	1/64			○	○	●						
	432HS	1/32			○	○	●						
	433HS	3/64			○	○	●						
 Medium-Roughing / High Feed	WNMG 432GT	1/32				○							
	433GT	3/64				○							

Insert Right-Handed insert shown where applicable	Description (ANSI)	Dim. (in) rε	Carbide TN30	PVD Coated Cermet PV30	PV60	PV90	PV7020	CVD Coated Carbide CA4010	CA4115	CA4120	PVD Coated Carbide PR915	PR905	Ref. Page for Toolholder
 Medium-Roughing / High Feed	WNMG 432HT	1/32				○							
	433HT	3/64				○							
 Roughing	WNMG 431	1/64	○	○				○	●	●			
	432	1/32	○	○				○	●	●			
	433	3/64						○	●	●			
 Low Carbon Steel / Finishing	WNMG 431XP	1/64			○	●	●						
	432XP	1/32			○	●	●						
 Low Carbon Steel / Medium cutting	WNMG 431XQ	1/64			○	○	●						
	432XQ	1/32			○	○	●						
 Low Carbon Steel / Roughing	WNMG 432XS	1/32			○	●	●						
 Roughing	WNMG 431C	1/64							○	●			D23 D24 F85
	432C	1/32							●	●			
	433C	3/64							●	●			
 Roughing	WNMG 432ZS	1/32						○	●	●			
	433ZS	3/64						○	●	●			
 Roughing	WNMG 432GC	1/32						○	●	●			
	433GC	3/64						○	●	●			
 Without Chipbreaker	WNMA 431	1/64	○										
	432	1/32	○	○				●	●	○			
	433	3/64						○	●	●			
 Finishing / Surface Roughness Oriented	WNGG 3305R/L-S	0.008				○							
	331R/L-S	1/64				○							
	332R/L-S	1/32				○							
 Medium cutting	WNGG 331R/L	1/64				○							
	332R/L	1/32				○							

For additional grades, Reference Page **B38~B40**

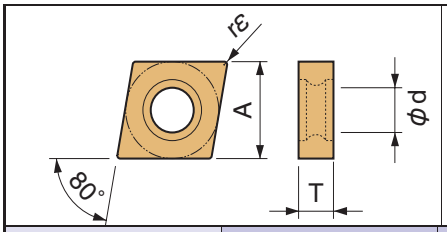
Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

(in)

Description	A	T	ød
CN_242_	0.295	1/8	0.142

Small Double Sided Tools



Classification of usage
- ✱: Interruption / 1st Choice
- ✱: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

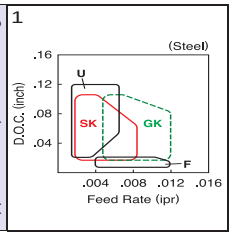
(In case hardness is under 45HRC)

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

Insert (Right-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1425 (NEW)	PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing-Medium — Sharp Edge	CNGU 24202MF-SK	CNGU 070301MF-SK	< 0.004																	●									E16	1
	24205MF-SK	070302MF-SK	< 0.008																	●										
Finishing-Medium — Sharp Edge / Polished	CNGU 24202MFP-SK	CNGU 070301MFP-SK	< 0.004																			●	●							
	24205MFP-SK	070302MFP-SK	< 0.008																			●	●							
Medium-Roughing — With Honing	CNMU 24205E-GK	CNMU 070302E-GK	< 0.008																	●		●	●							
	2421E-GK	070304E-GK	1/64																●	●		●	●							
Finishing — Sharp Edge	CNGU 242013MFR-F	CNGU 0703005MFR-F	< 0.002																●	●			●							
	24202MFR-F	070301MFR-F	< 0.004																●	●		●	●							
	24205MFR-F	070302MFR-F	< 0.008																●	●		●	●							
	2421MFR-F	070304MFR-F	< 1/64																●	●		●	●							
Low Feed — Sharp Edge	CNGU 242013MFR-U	CNGU 0703005MFR-U	< 0.002																●	●			●							
	24202MFR-U	070301MFR-U	< 0.004																●	●		●	●							
	24205MFR-U	070302MFR-U	< 0.008																●	●		●	●							
	2421MFR-U	070304MFR-U	< 1/64																●	●		●	●							
Low Feed — Honed Edge	CNGU 24202MER-U	CNGU 070301MER-U	< 0.004																●	●										
	24205MER-U	070302MER-U	< 0.008																●	●										
	2421MER-U	070304MER-U	< 1/64																●	●										

• Insert whose corner R(rε) dimension expressed with less than sign (e.g.**<0.004, <0.008, <0.012** etc.) indicate models with minus tolerance for corner R (rε).

Applicable Chipbreaker Range



Double-Sided Swiss Tools Identification System

CNGU24202M F P - SK
- Corner-R(rε) of minus tolerance
- Sharp Edge
- Polished
- Chipbreaker

CNGU24202M F R - U
- Corner-R(rε) of minus tolerance
- Sharp Edge
- Insert Hand
- Chipbreaker

CNGU24202M E R - U
- Corner-R(rε) of minus tolerance
- With Honing
- Insert Hand
- Chipbreaker

When a minus tolerance is specified for the 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(rε) = 0.2 mm may result in larger radius than specified.Use an insert whose corner-R(rε) has a minus tolerance.

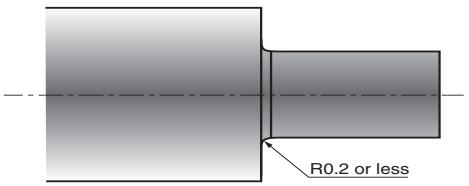


Fig.1: Example of a specified corner-R in the drawing

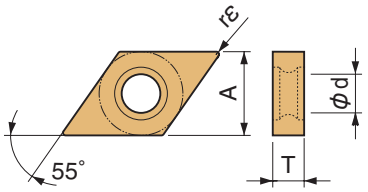
Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

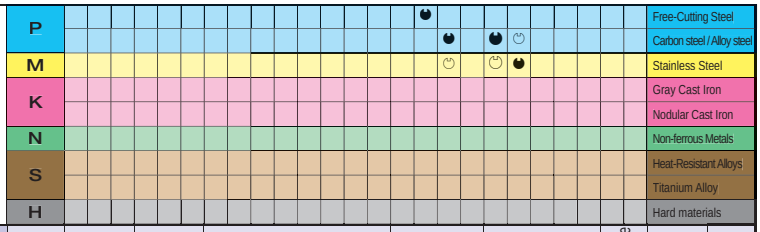
(in)

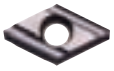
Description	A	T	ød
DN_222_	0.276	0.125	0.142

Small Double Sided Tools

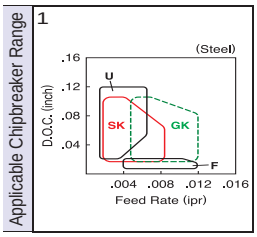


Classification of usage
✱: Interruption / 1st Choice
✱: Interruption / 2nd Choice
●: Light Interruption / 1st Choice
○: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice
(In case hardness is under 45HRC)

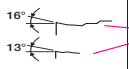
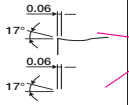
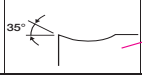


Insert (Right-Handed insert shown where applicable)		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1425 (NEW)	PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing-Medium	 Sharp Edge	DNGU 22202MF-SK	DNGU 080301MF-SK	< 0.004																●										
		22205MF-SK	080302MF-SK	< 0.008																●										
		2221MF-SK	080304MF-SK	< 1/64																●										
Finishing-Medium	 Sharp Edge / Polished	DNGU 22202MFP-SK	080301MFP-SK	< 0.004																		●	●							
		22205MFP-SK	080302MFP-SK	< 0.008																		●	●							
		2221MFP-SK	080304MFP-SK	< 1/64																		●	●							
Finishing-Medium	 Honed Edge	DNMU 22205E-GK	080302E-GK	0.008																●		●	●							
		2221E-GK	080304E-GK	1/64																●	●	●	●						E16	1
Finishing	 Sharp Edge	DNGU 222013MFR-F	0803005MFR-F	< 0.002																●	●		●							
		22202MFR-F	080301MFR-F	< 0.004																●	●	●	●							
		22205MFR-F	080302MFR-F	< 0.008																●	●	●	●							
		2221MFR-F	080304MFR-F	< 1/64																●	●	●	●							
Low Feed	 Sharp Edge	DNGU 222013MFR-U	0803005MFR-U	< 0.002																●	●		●							
		22202MFR-U	080301MFR-U	< 0.004																●	●	●	●							
		22205MFR-U	080302MFR-U	< 0.008																●	●	●	●							
		2221MFR-U	080304MFR-U	< 1/64																●	●	●	●							
Low Feed	 Honed Edge	DNGU 22202MER-U	080301MER-U	< 0.004																●	●									
		22205MER-U	080302MER-U	< 0.008																●	●									
		2221MER-U	080304MER-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).



Chipbreaker Selection (Negative Inserts)

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 comparable sized positive inserts.
Medium-Roughing	GK			Chipbreaker “dot” and pocket design provide chip control at multiple depths of cut and feed rates.
Finishing	F			Controled chip evacuation direction with low cutting force.
Low Feed	U			Good chip control at low feed rates and varied depths of cut with low cutting force.

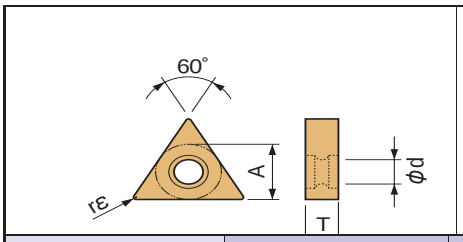
Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

(in)

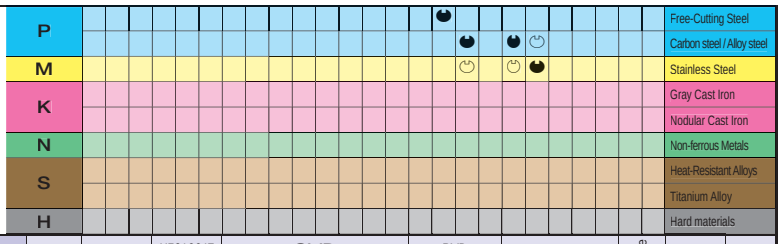
Description	A	T	ød
TN_182_	0.219	0.125	0.118

Small Double Sided Tools



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)



Insert (Right-Handed insert shown where applicable)		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1425	PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing	Sharp Edge	TNGU 182013MFR-F	TNGU 0903005MFR-F	< 0.002															●	●				●						E17	1
		NEW 18202MFR-F	090301MFR-F	< 0.004															●	●			●	●							
		18205MFR-F	090302MFR-F	< 0.008															●	●			●	●							
		1821MFR-F	090304MFR-F	< 1/64															●	●			●	●							
Low Feed	Sharp Edge	TNGU 182013MFR-U	TNGU 0903005MFR-U	< 0.002															●	●				●							
		NEW 18202MFR-U	090301MFR-U	< 0.004															●	●			●	●							
		18205MFR-U	090302MFR-U	< 0.008															●	●			●	●							
		1821MFR-U	090304MFR-U	< 1/64															●	●			●	●							
Low Feed	Honed Edge	TNGU 18202MER-U	TNGU 090301MER-U	< 0.004															●	●											
		NEW 18205MER-U	090302MER-U	< 0.008															●	●											
		1821MER-U	090304MER-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 Tools (Sharp Edge / Polished)

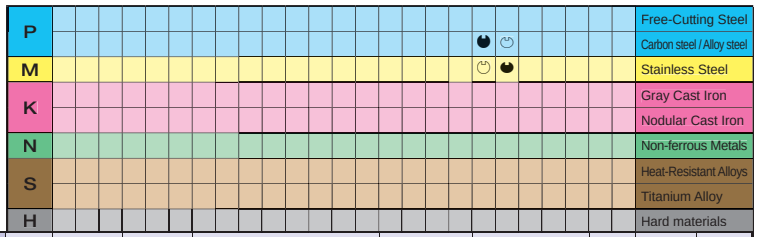
(in)

Description	A	T	ød	Drawing
CN_43_	1/2	3/16	.203	B18
DN_43_				B23
TN_33_	3/8		.150	B34

• Medium and rough cutting inserts for automatic lathe.

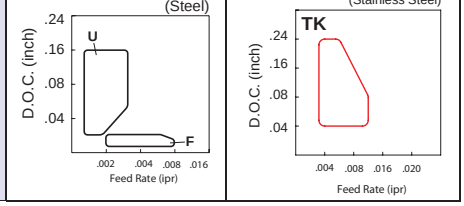
Classification of usage
- ✱: Interruption / 1st Choice
- ✱: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ○: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

(In case hardness is under 45HRC)



Insert		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1425	PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Medium-Roughing	NEW Sharp Edge / Polished	CNGG 431FP-TK	CNGG 120404FP-TK	1/64																		●	●						D8 D9 E18 F82	2
		432FP-TK	120408FP-TK	1/32																		●	●							
Medium-Roughing	NEW Sharp Edge / Polished	DNGG 431FP-TK	DNGG 150404FP-TK	1/64																			●						D10 D11 D12 F83	
		432FP-TK	150408FP-TK	1/32																			●							
Medium-Roughing	NEW Sharp Edge / Polished	TNGG 331FP-TK	TNGG 160404FP-TK	1/64																			●						D16 ~ D19 F84	
		332FP-TK	160408FP-TK	1/32																			●							

Applicable Chipbreaker Range



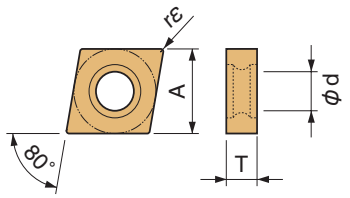
(in)

Description	A	T	ød	α
CC_1109_	0.138	0.055	0.075	7°
CC_1411_	0.169	0.071	0.091	

(in)

Description	A	T	ød	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	

80°Diamond / Positive with Hole



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)

| | | |

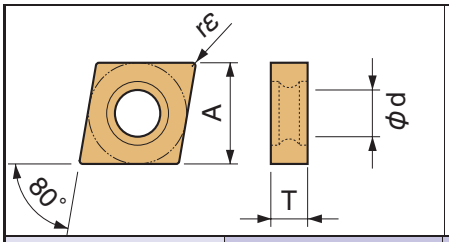
80°Diamond / Positive with Hole

(in)

Description	A	T	ød	α
CC_1109_	0.138	0.055	0.075	7°
CC_1411_	0.169	0.071	0.091	

(in)

Description	A	T	ød	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	



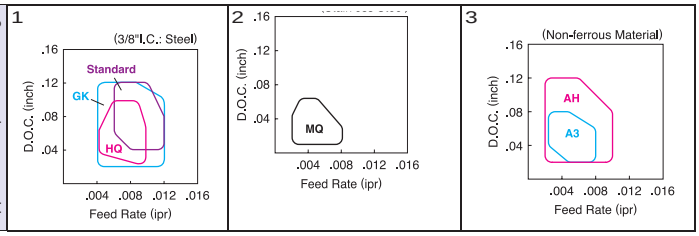
Classification of usage
✱: Interruption / 1st Choice
✱: Interruption / 2nd Choice
●: Light Interruption / 1st Choice
○: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice
(In case hardness is under 45HRC)

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

Insert (Left-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Medium — Honed Edge (Standard Chipbreaker)	CCGT 21502	CCGT 060201	0.004	●	●			●									●												
	CCGT 21505	CCGT 060202	0.008	●	●			●									●												
	CCGT 2151	CCGT 060204	1/64	●	●			●									●												
	CCGT 32502	CCGT 09T301	0.004	●	●			●									●												
	CCGT 32505	CCGT 09T302	0.008	●	●			●									●												
	CCGT 3251	CCGT 09T304	1/64	●	●			●									●												
	CCMT 3252	CCMT 09T308	1/32	○	○			●	●	●	●			●	●		●	●		○	●								
	CCGT 215013M	CCGT 0602005M	<0.002																	○									
	21502M	060201M	<0.004																	○									
	21505M	060202M	<0.008																	○									
	2151M	060204M	<1/64																	○									
	CCGT 325013M	CCGT 09T3005M	<0.002																	●									1
	32502M	09T301M	<0.004																	●									
	32505M	09T302M	<0.008																	●									
	3251M	09T304M	<1/64																	●									
Medium — Sharp Edge (Standard Chipbreaker)	CCGT 215013MF	CCGT 0602005MF	<0.002																										
	21502MF	060201MF	<0.004																○	○		●							
	21505MF	060202MF	<0.008																○	○		●						E20 ~ E21 E33 F28 F32 F33 F34 F36	
	2151MF	060204MF	<1/64																○	○		●							
	CCGT 325013MF	CCGT 09T3005MF	<0.002																	●		●							
	32502MF	09T301MF	<0.004																●	●		●							
	32505MF	09T302MF	<0.008																○	○		●							
	3251MF	09T304MF	<1/64																●	●		●							
Medium Cutting	CCGT 21505FN-Z	CCGT 060202FN-Z	0.008			○																							
	CCGT 2151FN-Z	CCGT 060204FN-Z	1/64			○																							
	CCGT 32505FN-Z	CCGT 09T302FN-Z	0.008			○																							
	CCGT 3251FN-Z	CCGT 09T304FN-Z	1/64			○																							
	CCGT 3252FN-Z	CCGT 09T308FN-Z	1/32																										
Stainless Steel — Finishing-Medium	CCMT 3251MQ	CCMT 09T304MQ	1/64											○	○						○		●	●	●		○		2
	3252MQ	09T308MQ	1/32											○	○						○		●	●	●		○		
Non-ferrous Metals — Finishing-Medium / Sharp Edge	CCGT 3251AH	CCGT 09T304AH	1/64																							●			
	3252AH	09T308AH	1/32																							●			
Non-ferrous Metals — Finishing-Medium / Sharp Edge	CCGT 32505R/L-A3	CCGT 09T302R/L-A3	0.008																							●			
	3251R/L-A3	09T304R/L-A3	1/64																							●			3
	3252R/L-A3	09T308R/L-A3	1/32																							●			
	CCGT 4305R/L-A3	CCGT 120402R/L-A3	0.008																							○			
	431R/L-A3	120404R/L-A3	1/64																							○			
	432R/L-A3	120408R/L-A3	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

Applicable Chipbreaker Range



For new MEGACOAT NANO Grade PR1425 selection reference Page **B49**

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

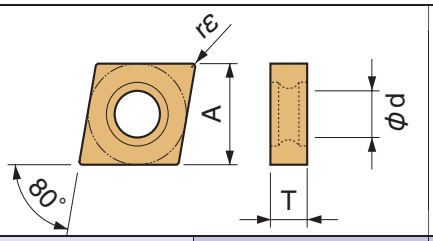
80°Diamond / Positive with Hole

(in)

Description	A	T	ød	α
CC_1109_	0.138	0.055	0.075	7°
CC_1411_	0.169	0.071	0.091	

(in)

Description	A	T	ød	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	



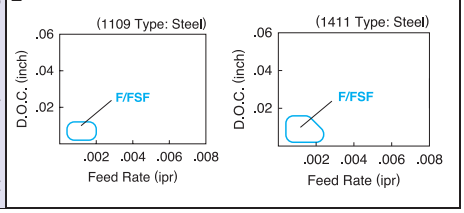
Classification of usage
✱: Interruption / 1st Choice
❄: Interruption / 2nd Choice
●: Light Interruption / 1st Choice
◌: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice
(In case hardness is under 45HRC)

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

Insert (Left-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Cast Iron — Without Chipbreaker	CCGW 21501	CCGW 060200	0.0																							◌			
	CCGW 21502	CCGW 060201	0.004																							◌			
	CCGW 21505	CCGW 060202	0.008																							◌			
	CCGW 32500	CCGW 09T300	0.0																							◌			—
	CCGW 32502	CCGW 09T301	0.004																							◌			
	CCGW 32505	CCGW 09T302	0.008																							◌			
	CCGW 3251	CCGW 09T304	1/64																							◌			
Finishing — Super Fine	CCET 110901R/L-FSF	CCET 0301003R/L-FSF	0.001															◌											
	CCET 110902R/L-FSF	CCET 030101R/L-FSF	0.004			L												◌											
	CCET 110905R/L-FSF	CCET 030102R/L-FSF	0.008			◌												◌											
	CCET 11091R/L-FSF	CCET 030104R/L-FSF	1/64			◌												◌											
	CCET 141101R/L-FSF	CCET 0401003R/L-FSF	0.001															◌											
	CCET 141102R/L-FSF	CCET 040101R/L-FSF	0.004			L												◌											
	CCET 141105R/L-FSF	CCET 040102R/L-FSF	0.008			◌												◌											
	CCET 14111R/L-FSF	CCET 040104R/L-FSF	1/64			L																							
	CCET 1109013MR/L-FSF	CCET 0301005MR/L-FSF	<0.002																			●							
	CCET 110902MR/L-FSF	CCET 030101MR/L-FSF	<0.004																	◌		●							
	CCET 110905MR/L-FSF	CCET 030102MR/L-FSF	<0.008																	◌		●							
	CCET 11091MR/L-FSF	CCET 030104MR/L-FSF	<1/64																	◌		●							
Sharp Edge / Precision	CCET 1411013MR/L-FSF	CCET 0401005MR/L-FSF	<0.002																			●						E20 ~ E21 E33	
	CCET 141102MR/L-FSF	CCET 040101MR/L-FSF	<0.004																	◌		●						F28 F32 F33 F34 F36	
	CCET 141105MR/L-FSF	CCET 040102MR/L-FSF	<0.008																	◌		●							
	CCET 14111MR/L-FSF	CCET 040104MR/L-FSF	<1/64																	◌		●							1
Finishing — Sharp Edge	CCGT 110901R/L-F	CCGT 0301003R/L-F	0.001			L												●											
	CCGT 110902R/L-F	CCGT 030101R/L-F	0.004			●			L									●								◌			
	CCGT 110905R/L-F	CCGT 030102R/L-F	0.008	L	L	●		L	◌									●								◌			
	CCGT 11091R/L-F	CCGT 030104R/L-F	1/64	L	L	◌		L	◌									●								◌			
	CCGT 141101R/L-F	CCGT 0401003R/L-F	0.001															◌											
	CCGT 141102R/L-F	CCGT 040101R/L-F	0.004			◌			◌									◌								◌			
	CCGT 141105R/L-F	CCGT 040102R/L-F	0.008	L	L			◌	◌									◌											
	CCGT 14111R/L-F	CCGT 040104R/L-F	1/64	L	L	●		◌	◌									◌								◌			
	CCGT 1109013MR/L-F	CCGT 0301005MR/L-F	<0.002																			●							
	CCGT 110902MR/L-F	CCGT 030101MR/L-F	<0.004																◌	◌		●				●			
	CCGT 110905MR/L-F	CCGT 030102MR/L-F	<0.008																◌	◌		●				●			
	CCGT 11091MR/L-F	CCGT 030104MR/L-F	<1/64																◌	◌						●			
	CCGT 1411013MR/L-F	CCGT 0401005MR/L-F	<0.002																			●							
	CCGT 141102MR/L-F	CCGT 040101MR/L-F	<0.004																◌	◌		●				●			
	CCGT 141105MR/L-F	CCGT 040102MR/L-F	<0.008																◌	◌		●				●			
	CCGT 14111MR/L-F	CCGT 040104MR/L-F	<1/64																◌	◌		●				●			
Finishing-Medium	CCGT 21505R/L-FS	CCGT 060202R/L-FS	0.008			◌																							
	CCGT 2151R/L-FS	CCGT 060204R/L-FS	1/64			◌																							—
	CCGT 32505R/L-FS	CCGT 09T302R/L-FS	0.008			◌																							
	CCGT 3251R/L-FS	CCGT 09T304R/L-FS	1/64			◌																							
	CCGT 3252R/L-FS	CCGT 09T308R/L-FS	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

Applicable Chipbreaker Range 1



For new MEGACOAT NANO Grade PR1425 selection reference Page ➡ **B49**

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

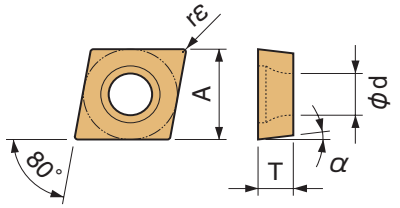
80°Diamond / Positive with Hole

(in)

Description	A	T	ød	α
CC_1109_	0.138	0.055	0.075	7°
CC_1411_	0.169	0.071	0.091	

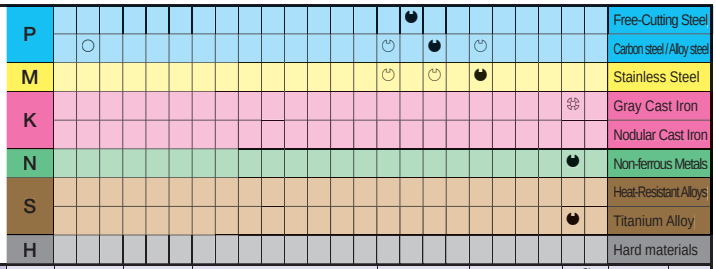
(in)

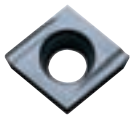
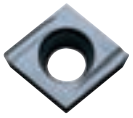
Description	A	T	ød	α
CC_215_	1/4	3/32	0.110	7°
CC_325_	3/8	5/32	0.173	
CC_43_	1/2	3/16	0.217	



Classification of usage
- ❋: Interruption / 1st Choice
- ❋: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◌: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

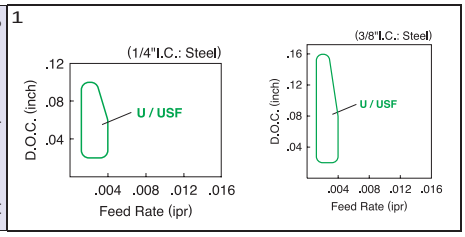
(In case hardness is under 45HRC)



Insert (Left-Handed insert shown where applicable)		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA4505	CA4515	CA4525	CA4535	CA6515	CA6525	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Low Feed	 Sharp Edge	CCGT 21501F℄-U	CCGT 0602003F℄-U	0.001			○										○								○		E20 ~ E21 E33 F28 F32 F33 F34 F36	1
		CCGT 21502F℄-U	CCGT 060201F℄-U	0.004		○	○										●								●			
		CCGT 21505F℄-U	CCGT 060202F℄-U	0.008		○	○			L							●								●			
		CCGT 32501F℄-U	CCGT 09T3003F℄-U	0.001			○										○								○			
		CCGT 32502F℄-U	CCGT 09T301F℄-U	0.004		R	○										●								●			
		CCGT 32505F℄-U	CCGT 09T302F℄-U	0.008		R	●										●								●			
		CCGT 215013MF℄-U	CCGT 0602005MF℄-U	<0.002																	●							
		CCGT 21502MF℄-U	CCGT 060201MF℄-U	<0.004														○	○		●							
		CCGT 21505MF℄-U	CCGT 060202MF℄-U	<0.008														○	○		●							
		CCGT 2151MF℄-U	CCGT 060204MF℄-U	<1/64														○	○		●							
		CCGT 325013MF℄-U	CCGT 09T3005MF℄-U	<0.002																	●							
		CCGT 32502MF℄-U	CCGT 09T301MF℄-U	<0.004														○	○		●							
		CCGT 32505MF℄-U	CCGT 09T302MF℄-U	<0.008														○	○		●							
		CCGT 3251MF℄-U	CCGT 09T304MF℄-U	<1/64														○	○		●							
Low Feed	 Sharp Edge / Precision	Super Fine CCET 21501F℄-USF	CCET 0602003F℄-USF	0.001													●											
		CCET 21502F℄-USF	CCET 060201F℄-USF	0.004			○										●											
		CCET 21505F℄-USF	CCET 060202F℄-USF	0.008			○										●											
		CCET 32501F℄-USF	CCET 09T3003F℄-USF	0.001			R										●											
		CCET 32502F℄-USF	CCET 09T301F℄-USF	0.004			○										●											
		CCET 32505F℄-USF	CCET 09T302F℄-USF	0.008			○										●											
		CCET 215013MF℄-USF	CCET 0602005MF℄-USF	<0.002																	●							
		CCET 21502MF℄-USF	CCET 060201MF℄-USF	<0.004															○		●							
		CCET 21505MF℄-USF	CCET 060202MF℄-USF	<0.008															○		●							
		CCET 325013MF℄-USF	CCET 09T3005MF℄-USF	<0.002																	●							
		CCET 32502MF℄-USF	CCET 09T301MF℄-USF	<0.004															○		●							
		CCET 32505MF℄-USF	CCET 09T302MF℄-USF	<0.008															○		●							
Low Feed	 Honed Edge	CCGT 21502E℄-U	CCGT 060201E℄-U	0.004			○										○											
		CCGT 21505E℄-U	CCGT 060202E℄-U	0.008		○	○			L							○											
		CCGT 2151E℄-U	CCGT 060204E℄-U	1/64		○	○			L							○											
		CCGT 32502E℄-U	CCGT 09T301E℄-U	0.004			○										○											
		CCGT 32505E℄-U	CCGT 09T302E℄-U	0.008		R											○											
		CCGT 3251E℄-U	CCGT 09T304E℄-U	1/64		R	○										○											
		CCGT 21502ME℄-U	CCGT 060201ME℄-U	<0.004															○									
		CCGT 21505ME℄-U	CCGT 060202ME℄-U	<0.008															○									
		CCGT 2151ME℄-U	CCGT 060204ME℄-U	<1/64															○									
		CCGT 32502ME℄-U	CCGT 09T301ME℄-U	<0.004															○									
		CCGT 32505ME℄-U	CCGT 09T302ME℄-U	<0.008															○									
		CCGT 3251ME℄-U	CCGT 09T304ME℄-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).

Applicable Chipbreaker Range

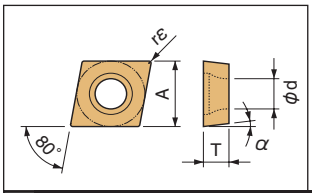


For new MEGACOAT NANO Grade PR1425 selection reference Page B49

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

80°Diamond / Positive with Hole



(in)

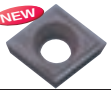
Description	A	T	ød	α
CC_1109_	0.138	0.055	0.075	7°
CC_1411_	0.169	0.071	0.091	

(in)

Description	A	T	ød	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	

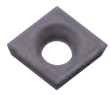
Classification of usage
✱: Interruption / 1st Choice
✲: Interruption / 2nd Choice
●: Light Interruption / 1st Choice
◔: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice
(In case hardness is under 45HRC)

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

Insert		Description (ANSI)	Dim. (in) rε	MEGACOAT NANO PR1425	Ref. Page for Toolholder
Micro Finishing	NEW  Sharp Edge / Polished	CCGT 110902MP-CF	<0.004	●	E20 ~ E21 E33 F28 F32 F33 F34 F36
		110905MP-CF	<0.008	●	
		CCGT 141102MP-CF	<0.004	●	
		141105MP-CF	<0.008	●	
Finishing	NEW  Sharp Edge / Polished	CCGT 21502MFP-GF	<0.004	●	
		21505MFP-GF	<0.008	●	
		2151MFP-GF	<0.016	●	
		CCGT 32502MFP-GF	<0.004	●	
		32505MFP-GF	<0.008	●	
		3251MFP-GF	<0.016	●	
Finishing-Medium	NEW  Sharp Edge / Polished	CCGT 21502MFP-GQ	<0.004	●	
		21505MFP-GQ	<0.008	●	
		2151MFP-GQ	<0.016	●	
		CCGT 32502MFP-GQ	<0.004	●	
		32505MFP-GQ	<0.008	●	
		3251MFP-GQ	<0.016	●	
Finishing-Medium	NEW 	CCMT 21505GK	0.008	●	
		2151GK	0.016	●	
		CCMT 32505GK	0.008	●	
		3251GK	0.016	●	
Finishing-Medium	NEW 	CCMT 21505HQ	0.008	●	
		2151HQ	0.016	●	
		CCMT 32505HQ	0.008	●	
		3251HQ	0.016	●	
		3252HQ	0.031	●	
Medium cutting	NEW 	CCMT 3252	0.031	●	

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)

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

Insert		Description (ANSI)	Dim. (in) rε	MEGACOAT NANO PR1425	Ref. Page for Toolholder
Medium cutting	NEW  Sharp Edge	CCGT 212013MF	<0.002	●	E20 ~ E21 E33 F28 F32 F33 F34 F36
		21502MF	<0.004	●	
		21505MF	<0.008	●	
		2151MF	<0.016	●	
		CCGT 325013MF	<0.002	●	
		32502MF	<0.004	●	
		32505MF	<0.008	●	
		3251MF	<0.016	●	
Finishing	NEW  Sharp Edge	CCET 1109013MR/L-F	<0.002	●	
		110902MR/L-F	<0.004	●	
		110905MR/L-F	<0.008	●	
		11091MR/L-F	<0.016	●	
		CCET 141102MR/L-F	<0.004	●	
		141105MR/L-F	<0.008	●	
		14111MR/L-F	<0.016	●	
Low Feed	NEW  Sharp Edge	CCET 215013MFR/L-U	<0.002	●	
		21502MFR/L-U	<0.004	●	
		21505MFR/L-U	<0.008	●	
		CCET 325013MFR/L-U	<0.002	●	
		32502MFR/L-U	<0.004	●	
		32505MFR/L-U	<0.008	●	
		3251MFR/L-U	<0.016	●	
Low Feed	NEW  Shape Edge / Precision	CCET 215013MFR/L-J	<0.002	R	
		21502MFR/L-J	<0.004	●	
		21505MFR/L-J	<0.008	●	
		CCET 32502MFR/L-J	<0.004	●	
		32505MFR/L-J	<0.008	●	
		3251MFR/L-J	<0.016	●	

• 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).

For other grades and chipbreaker charts reference page **B45~B48**

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

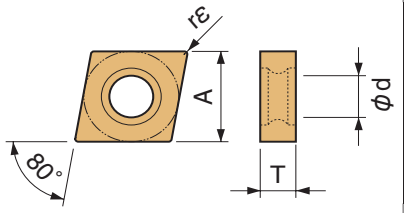
80°Diamond / Positive with Hole

(in)

Description	A	T	ød	α
CPMT2515_	5/16	3/32	0.130	11°
CPMT32_	3/8	1/8	0.173	

(in)

Description	A	T	ød	α
CPM(H/B)251_	5/16	3/32	0.138	11°
CPM(H/B)_32_	3/8	1/8	0.177	



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)

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

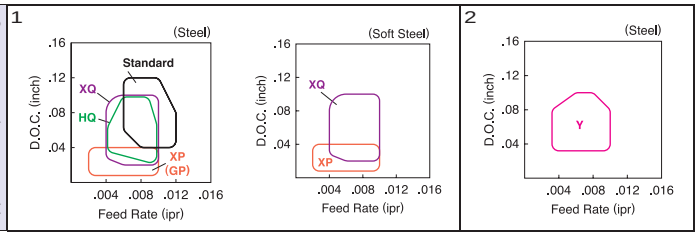
Insert (Left-Handed insert shown where applicable)		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing		CPMT 25151GP	CPMT 080204GP	1/64	○	○	●		●	●		●	●						●		○									
		CPMT 321GP	CPMT 090304GP	1/64	○	●	●		●	●		●	●						●		○									
		322GP	090308GP	1/32	○	○	○		●	●		●	●						●		○									
Finishing-Medium		CPMH 25151HQ	CPMH 080204HQ	1/64	○	●	●		●	●		●	●	●	●	●			○		○	●								
		25152HQ	080208HQ	1/32	○	●	○		●	●		●	●	●	●	●			○		○	●								
		CPMH 321HQ	CPMH 090304HQ	1/64	○	●	●		●	●		●	●	●	●	●			○		○	●								
		322HQ	090308HQ	1/32	○	●	●		●	●		●	●	●	●	●			●		○	●								
Medium	 Standard Chipbreaker	CPMH 25151	CPMH 080204	1/64	○	●	●	○	●	●	●	●	●		●	●		○	●		○	●								
		25152	080208	1/32	○	●	●	○	●	●	●	●	●		●	●		○	●		○	●								
		CPMH 321	CPMH 090304	1/64	○	●	●	○	●	●	●	●	●		●	●		○	●		○	●								
		322	090308	1/32	○	●	●	○	●	●	●	●	●		●	●		●	●		○	●								
Low Carbon Steel	 Finishing	CPMT 25151XP	CPMT 080204XP	1/64		○			●	●		●	●						●		○									
		CPMT 321XP	CPMT 090304XP	1/64		○			●	●		●	●						●		○									
		322XP	090308XP	1/32		○			●	●		●	●						●		○									
Low Carbon Steel	 Finishing-Medium	CPMT 321XQ	CPMT 090304XQ	1/64		○			●	●		●	●																	
		322XQ	090308XQ	1/32		○			●	●		●	●																	
Finishing-Medium		CPMH 25151R/L-Y	CPMH 080204R/L-Y	1/64		L	○												○		○						○			
		25152R/L-Y	080208R/L-Y	1/32			○												○		○						○			
		CPMH 321R/L-Y	CPMH 090304R/L-Y	1/64		L	○												○		○						○			
		322R/L-Y	090308R/L-Y	1/32			○												○		○						○			
Cast Iron	 Without Chipbreaker	CPMB 251505	CPMB 080202	0.008																							○			
		25151	080204	1/64																							○			
		25152	080208	1/32																							○			
		CPMB 3205	CPMB 090302	0.008																							○			
		321	090304	1/64																							○			
		322	090308	1/32																							○			

Ref. Page for Toolholder: F31 ~ F36

Applicable Chipbreaker Range: 1, 2

• 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

Applicable Chipbreaker Range

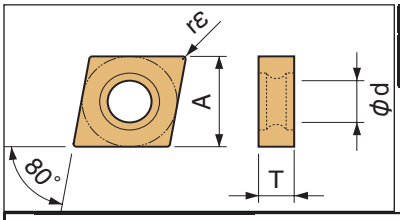


For new MEGACOAT NANO Grade PR1425 selection reference page B51

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

80°Diamond / Positive with Hole



(in)

Description	A	T	ød	α
CPMT2515_	5/16	3/32	0.130	11°
CPMT32_	3/8	1/8	0.173	

(in)

Description	A	T	ød	α
CPM(H/B)251_	5/16	3/32	0.138	11°
CPM(H/B)_32_	3/8	1/8	0.177	

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)

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

	Insert	Description (ANSI)	Dim. (in) rε	MEGACOAT NANO PR1425	Ref. Page for Toolholder
Finishing	NEW	CPMT 25151GP	1/64	●	F31 ~ F36
		CPMT 321GP	1/64	●	
		322GP	1/32	●	
Finishing-Medium	NEW	CPMH 25151HQ	1/64	●	
		25152HQ	1/32	●	
		CPMH 321HQ	1/64	●	
		322HQ	1/32	●	
Medium Cutting	NEW	CPMH 25151	1/64	●	
		25152	1/32	●	
		CPMH 321	1/64	●	
		322	1/32	●	
Low Carbon Steel	NEW	CPMT 25151XP	1/64	●	
		CPMT 321XP	1/64	●	
		322XP	1/32	●	

For other grades and chipbreaker charts reference page B50

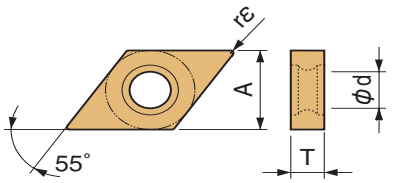
Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

(in)

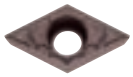
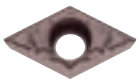
Description	A	T	ød	α
DC_215_	1/4	3/32	0.110	7°
DC_325_	3/8	5/32	0.173	7°

55°Diamond / Positive with Hole



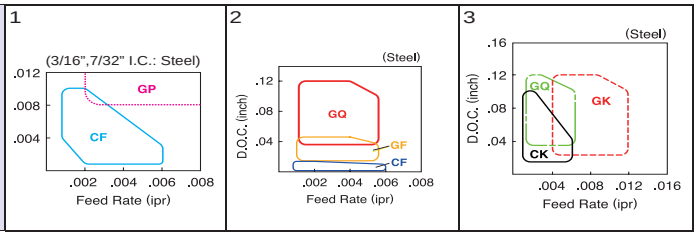
Classification of usage
※:Interruption / 1st Choice
※:Interruption / 2nd Choice
●:Light Interruption / 1st Choice
○:Light Interruption / 2nd Choice
●:Continuous / 1st Choice
○:Continuous / 2nd Choice
(In case hardness is under 45HRC)

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

Insert (Right-Handed insert shown where applicable)		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Micro-Finishing	 Sharp Edge	DCGT 21505CF	DCGT 070202CF	0.008															●										1
		DCGT 32505CF	DCGT 11T302CF	0.008															●										
		DCGT 21502M-CF	DCGT 070201M-CF	<0.004																○	○								
		21505M-CF	070202M-CF	<0.008																○	○								
		DCGT 32502M-CF	DCGT 11T301M-CF	<0.004																○	○								
		32505M-CF	11T302M-CF	<0.008																○	○								
Micro-Finishing	 Sharp Edge / Polished	DCGT 21502MP-CF	DCGT 070201MP-CF	<0.004																	○		●						
		21502MP-CF	070202MP-CF	<0.008																	○		●						
		DCGT 32502MP-CF	DCGT 11T301MP-CF	<0.004																	○		●						
		32505MP-CF	11T302MP-CF	<0.008																	○		●						
Finishing	 Sharp Edge	DCGT 21502MF-GF	DCGT 070201MF-GF	<0.004																	○								2
		21505MF-GF	070202MF-GF	<0.008																	○								
		DCGT 32502MF-GF	DCGT 11T301MF-GF	<0.004																	○								
		32505MF-GF	11T302MF-GF	<0.008																	○								
		3251MF-GF	11T304MF-GF	<1/64																	○								
Finishing	 Sharp Edge / Polished	DCGT 21502MFP-GF	DCGT 070201MFP-GF	<0.004																	○		●					E14 E22 ~ E25 F37 ~ F44	
		21505MFP-GF	070202MFP-GF	<0.008																	○		●						
		2151MFP-GF	070204MFP-GF	<1/64																			●						
		DCGT 32502MFP-GF	DCGT 11T301MFP-GF	<0.004																	○		●						
		32505MFP-GF	11T302MFP-GF	<0.008																	○		●						
		3251MFP-GF	11T304MFP-GF	<1/64																	○		●						
Finishing	 Honed Edge	DCGT 21502CK	DCGT 070201CK	0.004															●										3
		21505CK	070202CK	0.008															●										
		DCGT 32502CK	DCGT 11T301CK	0.004															●										
		32505CK	11T302CK	0.008															●										
		DCGT 21502M-CK	DCGT 070201M-CK	<0.004																○	○								
		21505M-CK	070202M-CK	<0.008																○	○								
		DCGT 32502M-CK	DCGT 11T301M-CK	<0.004																○	○								
		32505M-CK	11T302M-CK	<0.008																○	●								
Finishing	 Sharp Edge / Polished	DCGT 21502MP-CK	DCGT 070201MP-CK	<0.004																	○		●						
		21505MP-CK	070202MP-CK	<0.008																	○		●						
		DCGT 32502MP-CK	DCGT 11T301MP-CK	<0.004																	○		●						
		32505MP-CK	11T302MP-CK	<0.008																	○		●						
Finishing		DCMT 21505GP	DCMT 070202GP	0.008	○	○	○		●	●		●	●						●		○								1
		2151GP	070204GP	1/64	○	●	●		●	●		●	●						●		○								
		DCMT 3251GP	DCMT 11T304GP	0.004	○	●	●		●	○		●	●						●		○								
		3252GP	11T308GP	0.008	○	●	○		●	●		●	●						●		○								

・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).

Applicable Chipbreaker Range



For new MEGACOAT NANO Grade PR1425 selection reference Page B58

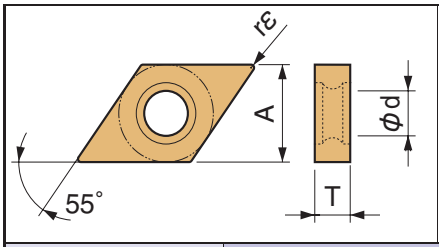
Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

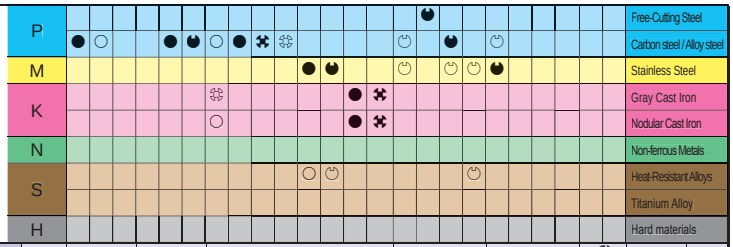
(in)

Description	A	T	ød	α
DC_215_	1/4	3/32	0.110	7°
DC_325_	3/8	5/32	0.173	7°

55°Diamond / Positive with Hole



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)



Insert (Right-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	CVD Coated Carbide PV7010	CVD Coated Carbide PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing-Medium	DCGT 21502MF-GQ 21505MF-GQ 2151MF-GQ	DCGT 070201MF-GQ 070202MF-GQ 070204MF-GQ	<0.004 <0.008 <1/64																	○ ○ ○									
Finishing-Medium	DCGT 32502MF-GQ 32505MF-GQ 3251MF-GQ	DCGT 11T301MF-GQ 11T302MF-GQ 11T304MF-GQ	<0.004 <0.008 <1/64																	○ ○ ●									
Finishing-Medium	DCGT 21502MFP-GQ 21505MFP-GQ 2151MFP-GQ	DCGT 070201MFP-GQ 070202MFP-GQ 070204MFP-GQ	<0.004 <0.008 <1/64																	○ ○ ○		●							
Finishing-Medium	DCGT 32502MFP-GQ 32505MFP-GQ 3251MFP-GQ	DCGT 11T301MFP-GQ 11T302MFP-GQ 11T304MFP-GQ	<0.004 <0.008 <1/64																	○ ○ ○		●							1
Finishing-Medium	DCMT 21505GK 2151GK 2152GK	DCMT 070202GK 070204GK 070208GK	0.008 1/64 1/32	○ ○ ○	○ ○ ○			● ● ●	● ● ●		● ● ●	● ● ●	● ● ●	● ● ●	● ● ●		○ ○	● ●		○ ○ ○	● ●								
Finishing-Medium	DCMT 32505GK 3251GK 3252GK	DCMT 11T302GK 11T304GK 11T308GK	0.008 1/64 1/32	○ ○ ○	○ ○ ○			● ● ●	● ● ●		● ● ●	● ● ●	● ● ●	● ○ ○	● ● ●		● ●	● ●		○ ○ ○	● ●								
Finishing-Medium	DCMT 21505HQ 2151HQ 2152HQ	DCMT 070202HQ 070204HQ 070208HQ	0.008 1/64 1/32	○ ○ ○	● ● ●	○ ●		● ● ●	● ● ●		● ● ●	● ● ●	● ● ●	● ● ●	● ● ●		○ ○	● ●		○ ○ ○	● ●							E14 E22 ~ E25	2
Finishing-Medium	DCMT 32505HQ 3251HQ 3252HQ	DCMT 11T302HQ 11T304HQ 11T308HQ	0.008 1/64 1/32	○ ○ ○	● ● ●	○ ●		● ● ●	● ● ●		● ● ●	● ● ●	● ● ●	● ● ●	● ● ●		○ ○	● ●		○ ○ ○	● ●								3
Medium	DCGT 21502 21505 2151	DCGT 070201 070202 070204	0.004 0.008 1/64		● ●	● ●			● ●									● ●										F37 ~ F44	2
Medium	DCGT 32502 32505 3251	DCGT 11T301 11T302 11T304	0.004 0.008 1/64		● ●	● ●			● ●									● ●											3
Medium	DCMT 3252	DCMT 11T308	1/32		○	○			● ●	● ●							○ ○			○									
Medium	DCGT 21501M 21502M 21505M 2151M	DCGT 0702005M 070201M 070202M 070204M	<0.002 <0.004 <0.008 <1/64																	○ ○ ○ ○									2
Medium	DCGT 32501M 32502M 32505M 3251M	DCGT 11T3005M 11T301M 11T302M 11T304M	<0.002 <0.004 <0.008 <1/64																	○ ○ ○ ○									3
Medium	DCGT 21501MF 21502MF 21505MF 2151MF	DCGT 0702005MF 070201MF 070202MF 070204MF	<0.002 <0.004 <0.008 <1/64																	○ ○ ○ ○		●							2
Medium	DCGT 32501MF 32502MF 32505MF 3251MF	DCGT 11T3005MF 11T301MF 11T302MF 11T304MF	<0.002 <0.004 <0.008 <1/64																	○ ○ ○ ○		●							3

Sharp Edge



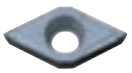
Sharp Edge / Polished







Standard Chipbreaker

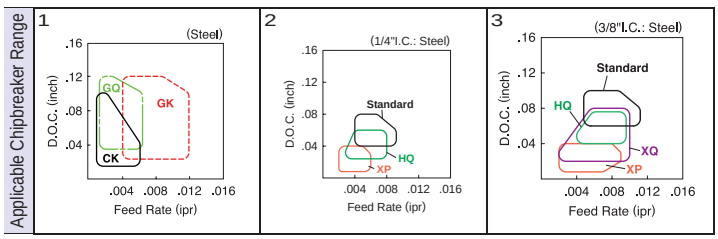


Sharp Edge (Standard Chipbreaker)



• Insert whose corner R (rε) dimension expressed with less than sign (e.g.**<0.001, <0.004, <0.008** etc.) indicate models with minus tolerance for corner R (rε).

Applicable Chipbreaker Range



For new MEGACOAT NANO Grade PR1425 selection reference Page **B58**

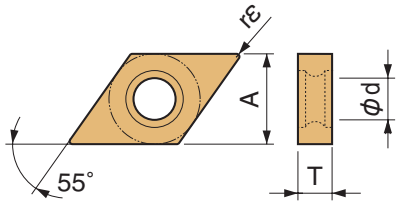
Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

(in)

Description	A	T	ød	α
DC_215_	1/4	3/32	2.8	7°
DC_325_	3/8	5/32	4.4	7°

55°Diamond / Positive with Hole



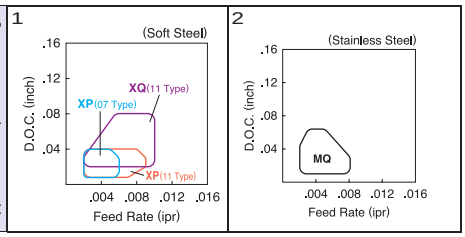
Classification of usage
✖: Interruption / 1st Choice
✖: Interruption / 2nd Choice
●: Light Interruption / 1st Choice
○: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice
(In case hardness is under 45HRC)

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

Insert (Right-Handed insert shown where applicable)		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	PVD Coated Carbide PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Medium	Sharp Edge	DCGT 21505FN-Z	DCGT 070202FN-Z	0.008			○																						
		2151FN-Z	070204FN-Z	1/64			○																						
		DCGT 32505FN-Z	DCGT 11T302FN-Z	0.008		○	○												○										—
		3251FN-Z	11T304FN-Z	1/64		○	○												○										
		3252FN-Z	11T308FN-Z	1/32																									
Low Carbon Steel	Finishing	DCMT 2151XP	DCMT 070204XP	1/64		○		●	●			●	●						○		○								1
		DCMT 32505XP	DCMT 11T302XP	0.008		○		●	●			●	●						○		○							E14 E22 ~ E25 F37 ~ F44	
		3251XP	11T304XP	1/64		○		●	●			●	●						○		○								
		3252XP	11T308XP	1/32		●		●	○			●	●						○		○								
Low Carbon Steel	Finishing-Medium	DCMT 3251XQ	DCMT 11T304XQ	1/64		●	○		●	●			●	●															
		3252XQ	11T308XQ	1/32		●	●		●	●			●	●															
Stainless Steel	Finishing-Medium	DCMT 21505MQ	DCMT 070202MQ	0.008											○	○					○			●	●	●		○	
		2151MQ	070204MQ	1/64											○	○					○			●	●	●		○	2
		DCMT 32505MQ	DCMT 11T302MQ	0.008											○	○					○								
		3251MQ	11T304MQ	1/64											○	○					○			●	●	●		○	
		3252MQ	11T308MQ	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).

Applicable Chipbreaker Range



For new MEGACOAT NANO Grade PR1425 selection reference Page B58

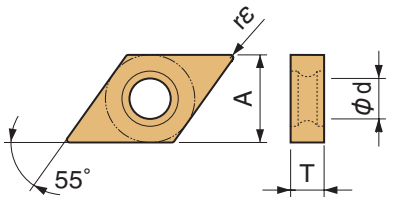
Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

(in)

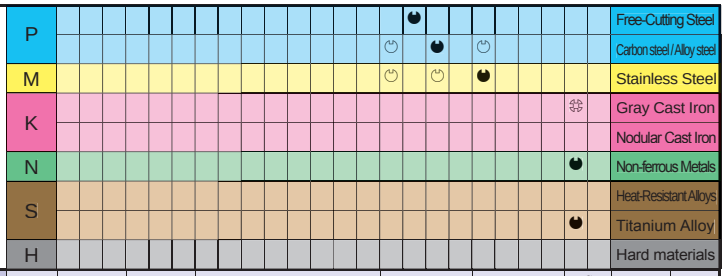
Description	A	T	ød	α
DC_215_	1/4	3/32	2.8	7°
DC_325_	3/8	5/32	4.4	7°

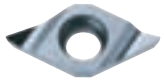
55°Diamond / Positive with Hole



Classification of usage
- ✱: Interruption / 1st Choice
- ✱: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

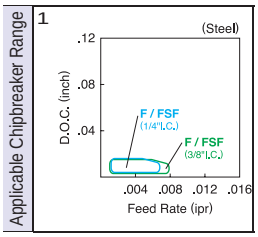
(In case hardness is under 45HRC)



Insert (Left-Handed insert shown where applicable)		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
	 Finishing / Medium	DCGT 21505R/L-FS	DCGT 070202R/L-FS	0.008			○																						
		2151R/L-FS	070204R/L-FS	1/64			○																						-
		DCGT 32505R/L-FS	DCGT 11T302R/L-FS	0.008			○																						
		3251R/L-FS	11T304R/L-FS	1/64			○																						
		3252R/L-FS	11T308R/L-FS	1/32																									
Finishing		DCGT 21501R/L-F	DCGT 0702003R/L-F	0.001															○								○		
		21502R/L-F	070201R/L-F	0.004			○																				○		
		21505R/L-F	070202R/L-F	0.008			○												○								○		
		2151R/L-F	070204R/L-F	1/64			○												○								○		
		DCGT 32501R/L-F	DCGT 11T3003R/L-F	0.001															○								○		
		32502R/L-F	11T301R/L-F	0.004																									
		32505R/L-F	11T302R/L-F	0.008			○												○								○		
		3251R/L-F	11T304R/L-F	1/64			○												○								○		
		DCGT 215013MR/L-F	DCGT 0702005MR/L-F	<0.002																		●							
		21502MR/L-F	070201MR/L-F	<0.004																○	○	●							
		21505MR/L-F	070202MR/L-F	<0.008																○	○	●						E14 E22 ~ E25 F37 ~ F44	
		2151MR/L-F	070204MR/L-F	<1/64																○	○	●							
		DCGT 325013MR/L-F	DCGT 11T3005MR/L-F	<0.002																		●							
		32502MR/L-F	11T301MR/L-F	<0.004																○	○	●							
		32505MR/L-F	11T302MR/L-F	<0.008																○	○	●							
		3251MR/L-F	11T304MR/L-F	<1/64																○	○	●							
Finishing	Super Fine 	DCET 21501R/L-FSF	DCET 0702003R/L-FSF	0.001															●								●		
		21502R/L-FSF	070201R/L-FSF	0.004			○												●								●		
		21505R/L-FSF	070202R/L-FSF	0.008			○												●								●		
		2151R/L-FSF	070204R/L-FSF	1/64			○												●								●		
		DCET 325013R/L-FSF	DCET 11T3003R/L-FSF	0.001																									
		32502R/L-FSF	11T301R/L-FSF	0.004			○												○										
		32505R/L-FSF	11T302R/L-FSF	0.008			○												○										
		3251R/L-FSF	11T304R/L-FSF	1/64			○												○										
		DCET 215013MR/L-FSF	DCET 0702005MR/L-FSF	<0.002																		●							
		21502MR/L-FSF	070201MR/L-FSF	<0.004																	○	●							
		21505MR/L-FSF	070202MR/L-FSF	<0.008																	○	●							
		2151MR/L-FSF	070204MR/L-FSF	<1/64																	○	●							
		DCET 325013MR/L-FSF	DCET 11T3005MR/L-FSF	<0.002																		●							
		32502MR/L-FSF	11T301MR/L-FSF	<0.004																	○	●							
		32505MR/L-FSF	11T302MR/L-FSF	<0.008																	○	●							
	Sharp Edge / Precision	3251MR/L-FSF	11T304MR/L-FSF	<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).

Applicable Chipbreaker Range



For new MEGACOAT NANO Grade PR1425 selection reference Page ➡ **B58**

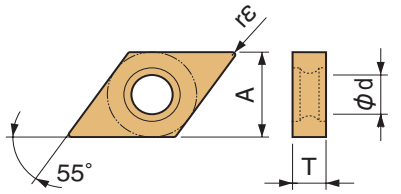
● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

(in)

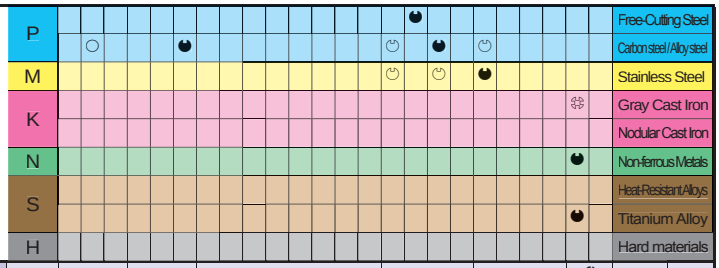
Description	A	T	ød	α
DC_215_	1/4	3/32	0.110	7°
DC_325_	3/8	5/32	0.173	7°

55°Diamond / Positive with Hole



Classification of usage
- ✱: Interruption / 1st Choice
- ❋: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

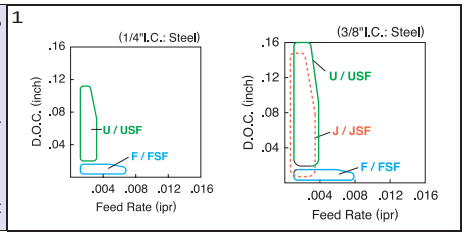
(In case hardness is under 45HRC)



Insert (Left-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Low Feed	DCGT 21501F□-U	DCGT 0702003F□-U	0.001			○												○								○			
	DCGT 21502F□-U	DCGT 070201F□-U	0.004		●	○												●								●			
	DCGT 21505F□-U	DCGT 070202F□-U	0.008		●	○												●								●			
	DCGT 32501F□-U	DCGT 11T3003F□-U	0.001			○												○								○			
	DCGT 32502F□-U	DCGT 11T301F□-U	0.004			○												●								●			
	DCGT 32505F□-U	DCGT 11T302F□-U	0.008		●	○												●								●			
	DCGT 21501MF□-U	DCGT 0702003MF□-U	<0.001																○	○									
	DCGT 215013MF□-U	DCGT 0702005MF□-U	<0.002																			●							
	DCGT 21502MF□-U	DCGT 070201MF□-U	<0.004																○	○		●							
	DCGT 21505MF□-U	DCGT 070202MF□-U	<0.008																○	○		●							
	DCGT 2151MF□-U	DCGT 070204MF□-U	<1/64																○	○		●							
	DCGT 325013MF□-U	DCGT 11T3005MF□-U	<0.002																○	○		●							
	DCGT 32502MF□-U	DCGT 11T301MF□-U	<0.004																○	○		●							
	DCGT 32505MF□-U	DCGT 11T302MF□-U	<0.008																○	○		●							
Sharp Edge	DCGT 3251MF□-U	DCGT 11T304MF□-U	<1/64																○	○		●							
Super Fine	DCET 21501F□-USF	DCET 0702003F□-USF	0.001															●								●			
	DCET 21502F□-USF	DCET 070201F□-USF	0.004			○												●								●			
	DCET 21505F□-USF	DCET 070202F□-USF	0.008			○												●								●			
	DCET 32501F□-USF	DCET 11T3003F□-USF	0.001			○												●											
	DCET 32502F□-USF	DCET 11T301F□-USF	0.004			○												●											
	DCET 32505F□-USF	DCET 11T302F□-USF	0.008			○												●											
Low Feed	DCET 215013MF□-USF	DCET 0702005MF□-USF	<0.004																			●						E14 E22 ~ E25 F37 ~ F44	1
	DCET 21502MF□-USF	DCET 070201MF□-USF	<0.008																	○		●							
	DCET 21505MF□-USF	DCET 070202MF□-USF	<1/64																	○		●							
	DCET 325013MF□-USF	DCET 11T3005MF□-USF	<0.002																	○		●							
	DCET 32502MF□-USF	DCET 11T301MF□-USF	<0.004																	○		●							
Sharp Edge / Precision	DCET 32505MF□-USF	DCET 11T302MF□-USF	<0.008																	○		●							
	DCGT 21502E□-U	DCGT 070201E□-U	0.004			○												○											
	DCGT 21505E□-U	DCGT 070202E□-U	0.008		○	○												○											
	DCGT 2151E□-U	DCGT 070204E□-U	1/64		○	○												○											
	DCGT 32502E□-U	DCGT 11T301E□-U	0.004																										
	DCGT 32505E□-U	DCGT 11T302E□-U	0.008		●	○			○									○											
Low Feed	DCGT 3251E□-U	DCGT 11T304E□-U	1/64		●	○			○									●											
	DCGT 21502ME□-U	DCGT 070201ME□-U	<0.004																	○									
	DCGT 21505ME□-U	DCGT 070202ME□-U	<0.008																	○									
	DCGT 2151ME□-U	DCGT 070204ME□-U	<1/64																	○									
	DCGT 32502ME□-U	DCGT 11T301ME□-U	<0.004																	○									
	DCGT 32505ME□-U	DCGT 11T302ME□-U	<0.008																	○									
Honed Edge	DCGT 3251ME□-U	DCGT 11T304ME□-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).

Applicable Chipbreaker Range



For new MEGACOAT NANO Grade PR1425 selection reference Page B58

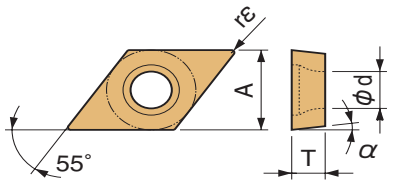
Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

(in)

Description	A	T	ød	α
DC_215_	1/4	3/32	0.110	7°
DC_325_	3/8	5/32	0.173	7°

55°Diamond / Positive with Hole



Classification of usage
- ✤: Interruption / 1st Choice
- ❃: Interruption / 2nd Choice
- ◓: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

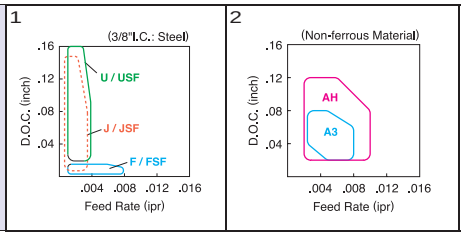
(In case hardness is under 45HRC)

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

Insert (Left-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Low Feed																													
	Sharp Edge	DCGT 32501F℞-J	DCGT 11T3003F℞-J	0.001														○											
		32502F℞-J	11T301F℞-J	0.004																									
		32505F℞-J	11T302F℞-J	0.008		○												○									○		
		DCGT 325013MF℞-J	DCGT 11T3005MF℞-J	<0.002																	●								
		32502MF℞-J	11T301MF℞-J	<0.004															○	○	●								
		32505MF℞-J	11T302MF℞-J	<0.008															○	○	●								
		3251MF℞-J	11T304MF℞-J	<1/64															○	○	●								
Low Feed	Super Fine																												
	Sharp Edge / Precision	DCET 32501F℞-JSF	DCET 11T3003F℞-JSF	0.001														○											
		32502F℞-JSF	11T301F℞-JSF	0.004		○												○											
		32505F℞-JSF	11T302F℞-JSF	0.008		○												○											
		DCET 325013MF℞-JSF	DCET 11T3005MF℞-JSF	<0.002																		●							1
		32502MF℞-JSF	11T301MF℞-JSF	<0.004																○		●							
		32505MF℞-JSF	11T302MF℞-JSF	<0.008																○		●							
Low Feed																													
	Honed Edge	DCGT 32501E℞-J	DCGT 11T3003E℞-J	0.001														○									○		
		32502E℞-J	11T301E℞-J	0.004		○																							
		32505E℞-J	11T302E℞-J	0.008		○												○									○		
		3251E℞-J	11T304E℞-J	1/64	○	○												○									○		
		DCGT 325013ME℞-J	DCGT 11T3005ME℞-J	<0.002																									
		32502ME℞-J	11T301ME℞-J	<0.004																	○								
		32505ME℞-J	11T302ME℞-J	<0.008																	○								
		3251ME℞-J	11T304ME℞-J	<1/64																	●								
Non-ferrous Metals	Finishing-Medium / Sharp Edge	DCGT 3251AH	DCGT 11T304AH	1/64																							●		E14 E22 ~ E25 F37 ~ F44
		3252AH	11T308AH	1/32																							●			2
Non-ferrous Metals	Finishing-Medium / Sharp Edge	DCGT 21505℞-A3	DCGT 070202℞-A3	0.008																							○			
		DCGT 32505℞-A3	DCGT 11T302℞-A3	0.008																							●			
		3251℞-A3	11T304℞-A3	1/64																							●			
Cast Iron	Without Chipbreaker	DCGW 21502	DCGW 070201	0.004																							○			
		21505	070202	0.008																							○			—
		DCGW 32502	DCGW 11T301	0.004																							○			
		32505	11T302	0.008																							○			
		3251	11T304	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).

Applicable Chipbreaker Range

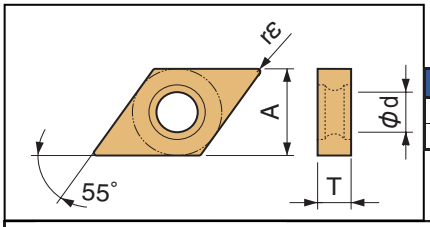


For new MEGACOAT NANO Grade PR1425 selection reference Page B58

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

55°Diamond / Positive with Hole

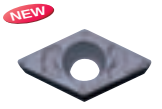
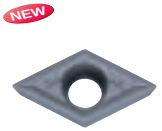


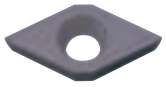
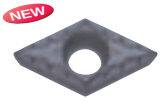
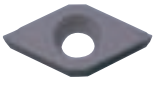
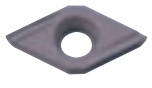
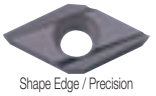
(in)

Description	A	T	ød	α
DC_215_	1/4	3/32	0.110	7°
DC_325_	3/8	5/32	0.173	7°

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)

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

Insert (Handed insert shows L-Hand)		Description (ANSI)		Dim. (in) rε	MEGACOAT NANO PR1425	Ref. Page for Toolholder
Micro-Finishing	NEW  Sharp Edge / Polished	DCGT	21502MP-CF	<0.004	●	E14 E22 ~ E25 F37 ~ F44
			21505MP-CF	<0.008	●	
		DCGT	32502MP-CF	<0.004	●	
			32505MP-CF	<0.008	●	
Finishing	NEW  Sharp Edge / Polished	DCGT	21502MFP-GF	<0.004	●	
			21505MFP-GF	<0.008	●	
			2151MFP-GF	<0.016	●	
		DCGT	32502MFP-GF	<0.004	●	
			32505MFP-GF	<0.008	●	
			3251MFP-GF	<0.016	●	
Finishing	NEW  Sharp Edge / Polished	DCGT	21502MP-CK	<0.004	●	
			21505MP-CK	<0.008	●	
		DCGT	32502MP-CK	<0.004	●	
			32505MP-CK	<0.008	●	
Finishing	NEW 	DCMT	21505GP	0.008	●	
			2151GP	0.016	●	
		DCMT	3251GP	0.016	●	
			3252GP	0.031	●	
Finishing-Medium	NEW  Sharp Edge / Polished	DCGT	21502MFP-GQ	<0.004	●	
			21505MFP-GQ	<0.008	●	
			2151MFP-GQ	<0.016	●	
		DCGT	32502MFP-GQ	<0.004	●	
			32505MFP-GQ	<0.008	●	
			3251MFP-GQ	<0.016	●	
Finishing-Medium	NEW 	DCMT	21505GK	0.008	●	
			2151GK	0.016	●	
			2152GK	0.031	●	
		DCMT	32505GK	0.008	●	
			3251GK	0.016	●	
			3252GK	0.031	●	
Finishing-Medium	NEW 	DCMT	21505HQ	0.008	●	
			2151HQ	0.016	●	
			2152HQ	0.031	●	
		DCMT	32505HQ	0.008	●	
			3251HQ	0.016	●	
			3252HQ	0.031	●	

Insert (Handed insert shows L-Hand)		Description (ANSI)		Dim. (in) rε	MEGACOAT NANO PR1425	Ref. Page for Toolholder
Medium Cutting	NEW  Sharp Edge (Standard Chipbreaker)	DCGT	215013MF	<0.002	●	E14 E22 ~ E25 F37 ~ F44
			21502MF	<0.004	●	
			21505MF	<0.008	●	
			2151MF	<0.016	●	
		DCGT	325013MF	<0.002	●	
			32502MF	<0.004	●	
			32505MF	<0.008	●	
			3251MF	<0.016	●	
Soft Steel	NEW 	DCMT	2151XP	0.016	●	
		DCMT	32505XP	0.008	●	
			3251XP	0.016	●	
			3252XP	0.031	●	
Finishing	NEW  Sharp Edge	DCET	215013M[R/L]-F	<0.002	R	
			21502M[R/L]-F	<0.004	●	
			21505M[R/L]-F	<0.008	●	
			2151M[R/L]-F	<0.016	●	
		DCET	325013M[R/L]-F	<0.002	R	
			32502M[R/L]-F	<0.004	●	
			32505M[R/L]-F	<0.008	●	
			3251M[R/L]-F	<0.016	●	
Low Feed	NEW  Sharp Edge	DCET	215013MF[R/L]-U	<0.002	R	
			21502MF[R/L]-U	<0.004	●	
			21505MF[R/L]-U	<0.008	●	
		DCET	325013MF[R/L]-U	<0.002	R	
			32502MF[R/L]-U	<0.004	●	
			32505MF[R/L]-U	<0.008	●	
			3251MF[R/L]-U	<0.016	R	
Low Feed	NEW  Shape Edge / Precision	DCET	215013MF[R/L]-J	<0.002	R	
			21502MF[R/L]-J	<0.004	●	
			21505MF[R/L]-J	<0.008	●	
		DCET	325013MF[R/L]-J	<0.002	R	
			32502MF[R/L]-J	<0.004	●	
			32505MF[R/L]-J	<0.008	●	
			3251MF[R/L]-J	<0.016	R	

For other grades and chipbreaker charts reference Page B52~57

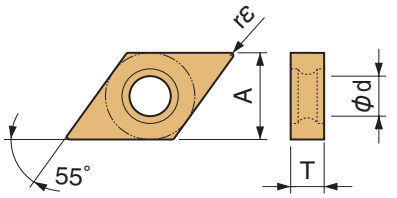
Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

(in)

Description	A	T	ød	α
DC_215_	1/4	3/32	0.110	7°
DC_325_	3/8	5/32	0.173	7°

55°Diamond / Positive with Hole



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)

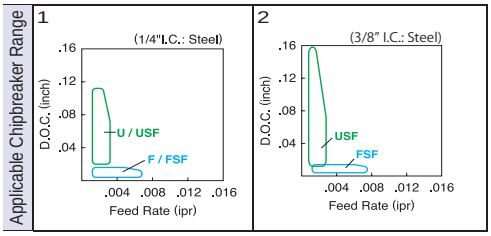
P	Free-Cutting Steel
	Carbon steel / Alloy steel
M	Stainless Steel
K	Gray Cast Iron
	Nodular Cast Iron
N	Non-ferrous Metals
S	Heat-Resistant Alloys
	Titanium Alloy
H	Hard materials

Insert (Handed insert shows L-Hand)		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing	Super Fine	DPET 21501R/L-FSF	DPET 0702003R/L-FSF	0.001															○											
		21502R/L-FSF	070201R/L-FSF	0.004			○												○											1
		21505R/L-FSF	070202R/L-FSF	0.008			○												○											
		DPET 32501R/L-FSF	DPET 11T3003R/L-FSF	0.001															○											
		32502R/L-FSF	11T301R/L-FSF	0.004			○												○											2
		32505R/L-FSF	11T302R/L-FSF	0.008			○												○											
		DPET 215013MR/L-FSF	DPET 0702005MR/L-FSF	<0.002																										
		21502MR/L-FSF	070201MR/L-FSF	<0.004																										1
		21505MR/L-FSF	070202MR/L-FSF	<0.008																	○									
		DPET 325013MR/L-FSF	DPET 11T3005MR/L-FSF	<0.002																										
		32502MR/L-FSF	11T301MR/L-FSF	<0.004																	○									2
	Sharp Edge / Precision	32505MR/L-FSF	11T302MR/L-FSF	<0.008																	○									
Low Feed	Super Fine	DPET 21501FR/L-USF	DPET 0702003FR/L-USF	0.001															○											
		21502FR/L-USF	070201FR/L-USF	0.004			○												○											1
		21505FR/L-USF	070202FR/L-USF	0.008			○												○											
		DPET 32501FR/L-USF	DPET 11T3003FR/L-USF	0.001															○											
		32502FR/L-USF	11T301FR/L-USF	0.004			○												○											2
		32505FR/L-USF	11T302FR/L-USF	0.008			○												○											
		DPET 215013MFR/L-USF	DPET 0702005MFR/L-USF	<0.002																										
		21502MFR/L-USF	070201MFR/L-USF	<0.004																	○									1
		21505MFR/L-USF	070202MFR/L-USF	<0.008																	○									
		DPET 325013MFR/L-USF	DPET 11T3005MFR/L-USF	<0.002																										
		32502MFR/L-USF	11T301MFR/L-USF	<0.004																	○									2
	Sharp Edge / Precision	32505MFR/L-USF	11T302MFR/L-USF	<0.008																	○									

E26

- 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).

Applicable Chipbreaker Range



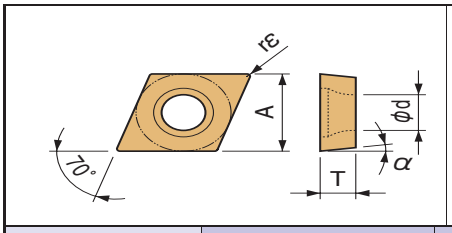
● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

(in)

Description	A	T	ød	α
JC_1109_	0.138	0.055	0.075	7°

70°Diamond / Positive with Hole



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)

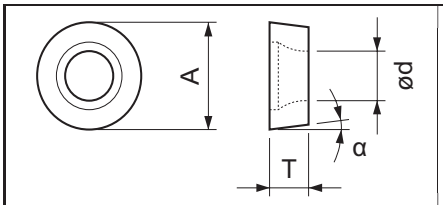
P: Free-cutting steel; Carbon Steel and Alloy Steel
M: Stainless Steel
K: Gray Cast Iron; Nodular Cast Iron
N: Non-ferrous Metals
S: Heat-resistant alloy; Titanium Alloy
H: Hard Materials

Insert (Left-Handed insert shown where applicable)		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1425	PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing	Sharp Edge	JCGT 110902R/L-F	JCGT 030101R/L-F	0.004			○												●									○		F45	1
		110905R/L-F	030102R/L-F	0.008			○												○									○			
		11091R/L-F	030104R/L-F	1/64			○												○									○			
		JCGT 110902MR/L-F	JCGT 030101MR/L-F	<0.004																	○										
		110905MR/L-F	030102MR/L-F	<0.008																	○										
		11091MR/L-F	030104MR/L-F	<1/64																											
Finishing	Sharp Edge	NEW JCET 110905MR/L-F	JCET 030102MR/L-F	0.008																			●								
		11091MR/L-F	030104MR/L-F	0.016																			R								
Finishing	Super Fine / Sharp Edge / Precision	JCET 110902R/L-FSF	JCET 030101R/L-FSF	0.004			○												○									○			
		110905R/L-FSF	030102R/L-FSF	0.008			●												○									○			
		11091R/L-FSF	030104R/L-FSF	1/64			○												○									○			
		JCET 110902MR/L-FSF	JCET 030101MR/L-FSF	<0.004																	○										
		110905MR/L-FSF	030102MR/L-FSF	<0.008																	○										
		11091MR/L-FSF	030104MR/L-FSF	<1/64																	○										

Round / Positive with Hole

(in)

Description	A	T	ød	α
RC_1003_	0.394	1/8	0.142	7°
RC_1204_	0.472	3/16	0.165	



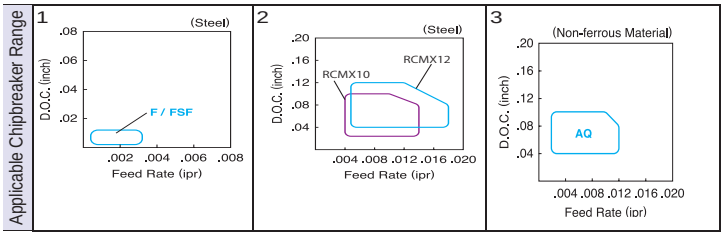
Classification of usage
- ✱: Interruption / 1st Choice
- ✱: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

(In case hardness is under 45HRC)

P: Free-cutting steel; Carbon Steel and Alloy Steel
M: Stainless Steel
K: Gray Cast Iron; Nodular Cast Iron
N: Non-ferrous Metals
S: Heat-resistant alloy; Titanium Alloy
H: Hard Materials

Insert		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Medium		RCMX 1003M0	RCMX 1003M0	-		●	○				○	○	●		○													D13	2
		RCMX 1204M0	RCMX 1204M0	-		●	○				○	○	●		○		○	○													
Non-ferrous Metals	Finishing-Medium	RCGX 1003M0-AQ	RCGX 1003M0-AQ	-																							●			3

Applicable Chipbreaker Range



Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

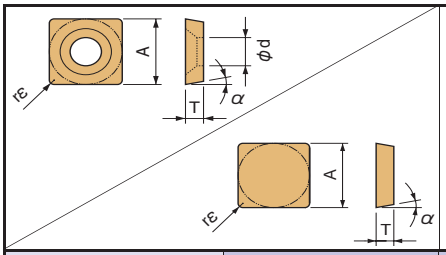
90°Square / Positive with Hole
90°Square / Positive without Hole

(in)

Description	A	T	ød	α
SC_325_	3/8	5/32	0.173	7°
SPGH32_	3/8	1/8	0.177	11°
SPGH42_	1/5		0.217	

(in)

Description	A	T	ød	α
SP_32_	3/8	1/8	-	11°
SP_42_	1/2			
SP_43_		3/16		

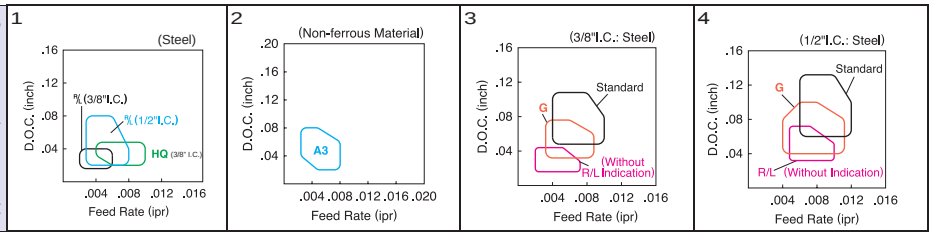


Classification of usage
✖: Interruption / 1st Choice
❁: Interruption / 2nd Choice
●: Light Interruption / 1st Choice
◔: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice
(In case hardness is under 45HRC)

P	●				●		○	●	✖	❁																	Free-cutting steel
																											Carbon Steel and Alloy Steel
M											●								◔								Stainless Steel
K				●			❁						●	✖											❁		Gray Cast Iron
							◔						●	✖													Nodular Cast Iron
N																									●		Non-ferrous Metals
S											◔								◔						●		Heat-resistant alloy
																											Titanium Alloy
H																											Hard Materials

Insert (Left-Handed insert shown where applicable)		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing-Medium		SCMT 3251HQ	SCMT 09T304HQ	1/64	○		●		●			●	●	●															-	1
		3252HQ	09T308HQ	1/32	○		●		●			●	●	●																
Non-ferrous Metals	Finishing-Medium / Sharp Edge	SCGT 3251R/L-A3	SCGT 09T304R/L-A3	1/64																						○		-	2
		3252R/L-A3	09T308R/L-A3	1/32																						○			
Finishing		SPGH 321R/L	SPGH 090304R/L	1/64		○																						F76	1
		322R/L	090308R/L	1/32		○																							
		SPGH 421R/L	SPGH 120304R/L	1/64		○																							
		422R/L	120308R/L	1/32		○																							
Medium		SPMR 321G	SPMR 090304G	1/64		●																							3
		322G	090308G	1/32		●																							
		SPMR 421G	SPMR 120304G	1/64		○																							4
		422G	120308G	1/32		●																							
Medium	Standard Chipbreaker	SPMR 321	SPMR 090304	1/64								●	●		●						●								3
		322	090308	1/32		●						●	●		●						●								
		SPMR 421	SPMR 120304	1/64								●	●		●						●								4
		422	120308	1/32								●	●		●						●								
Finishing		SPGR 321R/L	SPGR 090304R/L	1/64		●																							3
		322R/L	090308R/L	1/32		○	○																						
		SPGR 421R/L	SPGR 120304R/L	1/64		○																						F77	4
		422R/L	120308R/L	1/32		○	○																						
Cast Iron		SPG 321	SPGN 090304	1/64				○																					
		322	090308	1/32				○																					
		SPG 421	SPGN 120304	1/64				○																			○		
		422	120308	1/32			●	○																			●		
		SPM 421	SPMN 120304	1/64							●							○											-
		422	120308	1/32			○				●							○									○		
		423	120312	3/64			○																						
	Without Chipbreaker	SPM 432	SPMN 120408	1/32														○											
		433	120412	3/64														○											

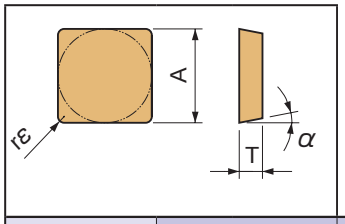
Applicable Chipbreaker Range



● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

90° Square / Positive without Hole



(in)

Description	A	T	ød
SP_32_	3/8	1/8	11°
SP_42_	1/2		
SP_43_		3/16	

Insert Handed insert shows L-Hand	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN30	PVD Coated Cermet PV30	PV60	PV90	PV7020	CVD Coated Carbide CA4010	CA4115	CA4120	PVD Coated Carbide PR915	PR905	Ref. Page for Toolholder
 Medium	SPMR 321G	SPMR 090304G	1/64				○							F77
	322G	090308G	1/32				○							
	SPMR 421G	SPMR 120304G	1/64				○							
	422G	120308G	1/32				○							
 Without Chipbreaker	SPM 322	SPMN 090308	1/32		○									
	SPM 421	SPMN 120304	1/64							●	●			
	422	120308	1/32		○					○	●			
	SPM 432	SPMN 120408	1/32							●	●		○	
	433	120412	3/64							●	●		○	

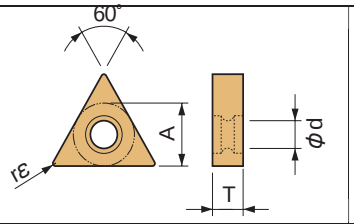
Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Description	A	T	ød	α (in)
TB_121_	5/32	1/16	0.091	5°
TC_1515_	3/16	3/32	0.091	7°
TC_1815_	7/32	3/32	0.094	

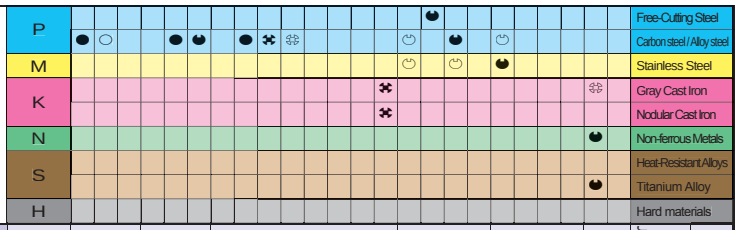
Descriptio	A	T	ød	α (in)
TC_215_	1/4	3/32	0.110	7°
TC_22_		1/8	0.110	
TC_325_	3/8	5/32	0.173	

60° Triangle / Positive with Hole



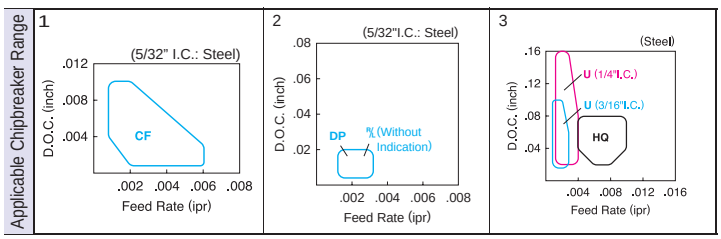
Classification of usage
- ✖: Interruption / 1st Choice
- ✖: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

(In case hardness is under 45HRC)



	Insert (Left-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Micro-Finishing	Sharp Edge	TBGT 12105CF	TBGT 060102CF	0.008															○										F47 F48 F49 F52 F56	1
		TBGT 12102M-CF	TBGT 060101M-CF	<0.004																○	○									
		12105M-CF	060102M-CF	<0.008																○	○									
Micro-Finishing	Sharp Edge / Polished	TBGT 12102MP-CF	TBGT 060101MP-CF	<0.004																	○		●							
		12105MP-CF	060102MP-CF	<0.008																	○		●							
Finishing		TBMT 12105DP	TBMT 060102DP	0.008	○	○	○		○	○		●	●																	
		1211DP	060104DP	1/64	○	○	○		○	○		●	●						○											2
Finishing		TBGT 12101ℝ	TBGT 0601003ℝ	0.001															○											
		12102ℝ	060101ℝ	0.004			○												○								○			
		12105ℝ	060102ℝ	0.008	L	L	○		L	L									○								○			
		1211ℝ	060104ℝ	1/64	L	L	○		L	L									○								○			
		TBGT 121013Mℝ	TBGT 0601005Mℝ	<0.002																○	○									
		12102Mℝ	060101Mℝ	<0.004																○	○									
		12105Mℝ	060102Mℝ	<0.008																○	○									
		1211Mℝ	060104Mℝ	<1/64																○	○									
Cast Iron	Without Chipbreaker	TBGW 12105	TBGW 060102	0.008			○																				○			-
		1211	060104	1/64			○																				○			
Finishing-Medium		TCMT 181505HQ	TCMT 090202HQ	0.008	○		●		●																				F27 F46	3
		18151HQ	090204HQ	1/64	○		●		●																					
		TCMT 21505HQ	TCMT 110202HQ	0.008	○		●		●	●																				
		2151HQ	110204HQ	1/64	○		●		●	●		●	●	●				○	●								●			
		2152HQ	110208HQ	1/32	○		●		●	●		●	●	●				●									●			
		TCMT 3251HQ	TCMT 16T304HQ	1/64			●			○		●	●														●			
		3252HQ	16T308HQ	1/32			●			●		●	●					●									●			
		3253HQ	16T312HQ	3/64									●					○												
Low Feed	Sharp Edge	TCGT 151501Fℝ-U	TCGT 0802003Fℝ-U	0.001															○											
		151502Fℝ-U	080201Fℝ-U	0.004			○												○								○			
		151505Fℝ-U	080202Fℝ-U	0.008		R	○												○								○			
		TCGT 2201Fℝ-U	TCGT 1103003Fℝ-U	0.001															○								R			
		2202Fℝ-U	110301Fℝ-U	0.004			●												○								○			
		2205Fℝ-U	110302Fℝ-U	0.008		R	○												○								○			
		TCGT 1515013MFℝU	TCGT 0802005MFℝ-U	<0.002																			●							
		151502MFℝ-U	080201MFℝ-U	<0.004																○	○		●							
		151505MFℝ-U	080202MFℝ-U	<0.008																●	○		●							
		TCGT 22013MFℝ-U	TCGT 1103005MFℝ-U	<0.002																			●							
		2202MFℝ-U	110301MFℝ-U	<0.004																○	○		●							
		2205MFℝ-U	110302MFℝ-U	<0.008																○	○		●							
		221MFℝ-U	110304MFℝ-U	<1/64																○	○		●							

Applicable Chipbreaker Range



For new MEGACOAT NANO Grade PR1425 selection reference Page ➡ B65

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

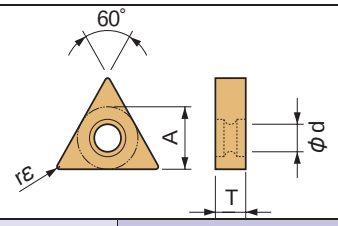
60°Triangle / Positive with Hole
60°Triangle / Positive without Hole

(in)

Description	A	T	ød	α
TC_121_	5/32	1/16	-	7°
TC_1515_	3/16	3/32	0.091	7°

(in)

Description	A	T	ød	α
TC_1815_	7/32	3/32	0.094	7°
TC_215_	1/4		0.110	7°
TC_22_		1/8		7°



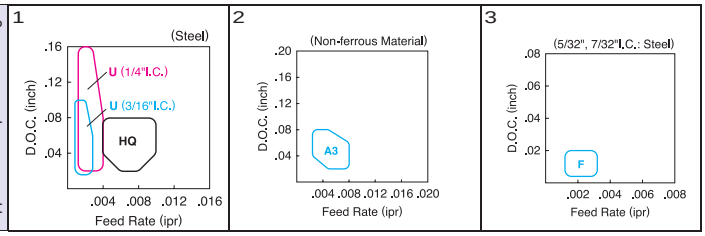
Classification of usage
✖: Interruption / 1st Choice
✖: Interruption / 2nd Choice
●: Light Interruption / 1st Choice
○: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice
(In case hardness is under 45HRC)

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

Insert (Left-Handed insert shown where applicable)		Description (ANSI)		Description (ISO)		Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Low Feed	Super Fine	TCET	151501F℞-USF	TCET	0802003F℞-USF	0.001															○											
			151502F℞-USF		080201F℞-USF	0.004			○												○											
			151505F℞-USF		080202F℞-USF	0.008			○												○											
		TCET	2201F℞-USF	TCET	1103003F℞-USF	0.001															○											
			2202F℞-USF		110301F℞-USF	0.004			○												○											
			2205F℞-USF		110302F℞-USF	0.008			○												○											
		TCET	1515013MF℞-USF	TCET	0802005MF℞-USF	<0.002																										
			151502MF℞-USF		080201MF℞-USF	<0.004																	○									
			151505MF℞-USF		080202MF℞-USF	<0.008																	○									
	Sharp Edge / Precision	TCET	22013MF℞-USF	TCET	1103005MF℞-USF	<0.002																										1
			2202MF℞-USF		110301MF℞-USF	<0.004																	○									
			2205MF℞-USF		110302MF℞-USF	<0.008																	○									
Low Feed		TCGT	151502E℞-U	TCGT	080201E℞-U	0.004			○												○											
			151505E℞-U		080202E℞-U	0.008			○												○											
		TCGT	2202E℞-U	TCGT	110301E℞-U	0.004		○	○												○											
			2205E℞-U		110302E℞-U	0.008		○	○												○											
			221E℞-U		110304E℞-U	1/64		○	○												○											
	Honed Edge	TCGT	151502ME℞-U	TCGT	080201ME℞-U	<0.004																	○									
			151505ME℞-U		080202ME℞-U	<0.008																	○									
		TCGT	2202ME℞-U	TCGT	110301ME℞-U	<0.004																	○									
			2205ME℞-U		110302ME℞-U	<0.008																	○									
			221ME℞-U		110304ME℞-U	<1/64																	○									
Finishing		TCGT	21502℞	TCGT	110201℞	0.004																										
			21505℞		110202℞	0.008			○																								-
			2151℞		110204℞	1/64			○																								
Non-ferrous Metals	Finishing-Medium / Sharp Edge	TCGT	2205℞-A3	TCGT	110302℞-A3	0.008																								○		
			221℞-A3		110304℞-A3	1/64																								○		2
Cast Iron	Without Chipbreaker	TCGW	151502	TCGW	080201	0.004																								○		
			151505		080202	0.008																								○		
		TCGW	2202	TCGW	110301	0.004																								○		
			2205		110302	0.008																								○		N/A
			221		110304	1/64																								○		
Finishing		TCGR	12105℞-F	TCGR	060102℞-F	0.008			L																							
			1211℞-F		060104℞-F	1/64			○																								3
Cast Iron	Without Chipbreaker	TCG	12105	TCGN	060102	0.008			○																					○		
			1211		060104	1/64			○																					○		N/A

・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).

Applicable Chipbreaker Range

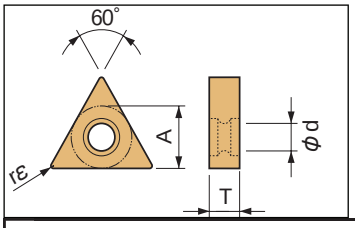


For new MEGACOAT NANO Grade PR1425 selection reference Page B65

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

60°Triangle / Positive with Hole



(in)

Description	A	T	ød	α
TB_121_	5/32	1/16	0.091	7°
TC_1515_	3/16	3/32	0.091	7°

(in)

Description	A	T	ød	α
TC_1815_	7/32	3/32	0.094	7°
TC_215_	1/4		0.110	7°
TC_22_		1/8		7°

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)

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

Insert		Description (ANSI)		Dim. (in) rε	MEGACOAT NANO PR1425	Ref. Page for Toolholder
Finishing	 Sharp Edge / Polished	TBET	121013M℞	<0.002	●	E27 F46
		NEW	12102M℞	<0.004	●	
			12105M℞	<0.008	●	
			1211M℞	<0.016	●	
Micro-Finishing	 Sharp Edge	TBGT	12102MP-CF	<0.004	●	
		NEW	12105MP-CF	<0.008	●	

• 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).

For other grades and chipbreaker charts reference page **B63~B64**

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

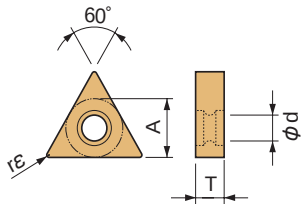
60°Triangle / Positive with Hole

(in)

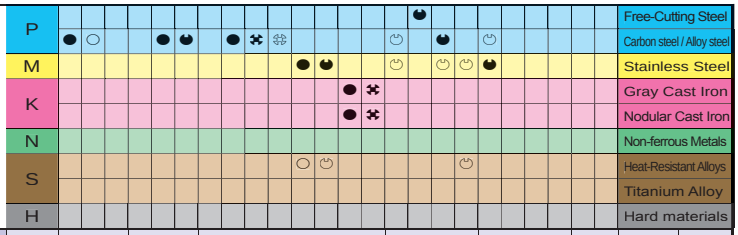
Description	A	T	ød	α
TP_1515_	3/16	3/32	0.095	11°
TPMT1815_	7/32		0.110	11°
TP_1815			0.118	11°
TP_215	1/4		0.138	11°

(in)

Description	A	T	ød	α
TP_22_	1/4	1/8	0.130	11°
TPMT32_	3/8		0.173	11°
TP_32_			0.177	11°
TP_33_		3/16	0.173	11°



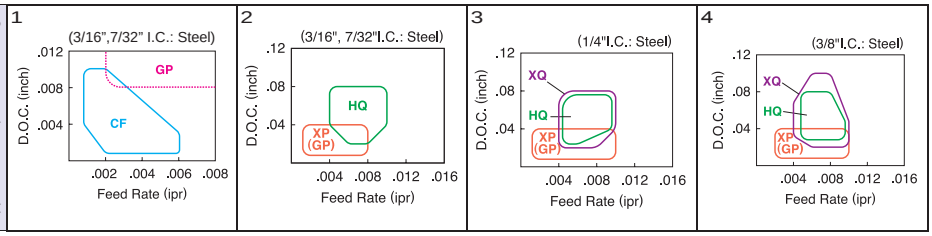
Classification of usage
✻: Interruption / 1st Choice
✻: Interruption / 2nd Choice
●: Light Interruption / 1st Choice
◔: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice
(In case hardness is under 45HRC)



Insert (Left-Handed insert shown where applicable)		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	MEGACOAT PR1005	MEGACOAT PR1025	MEGACOAT PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Micro-Finishing	 Sharp Edge	TPGT 151505CF	TPGT 080202CF	0.008															○										
		TPGT 181505CF	TPGT 090202CF	0.008															○										
		TPGT 151502M-CF	TPGT 080201M-CF	< 0.004																○									
		151505M-CF	080202M-CF	< 0.008																○	○								
		TPGT 181502M-CF	TPGT 090201M-CF	< 0.004																○									
		181505M-CF	090202M-CF	< 0.008																○	○								1
Micro-Finishing	 Sharp Edge / Polished	TPGT 151502MP-CF	TPGT 080201MP-CF	< 0.004																	○	●							
		151505MP-CF	080202MP-CF	< 0.008																	○	●							
		TPGT 181502MP-CF	TPGT 090201MP-CF	< 0.004																	○	●							
		181505MP-CF	090202MP-CF	< 0.008																	○	●							
Finishing		TPMT 181505GP	TPMT 090202GP	0.008	○	○	○		●	●									●		○								
		18151GP	090204GP	1/64	○	●	○		●	●		●	●						●		○								2
		TPMT 221GP	TPMT 110304GP	1/64	○	●	●		●	●		●	●						●		○								
		222GP	110308GP	1/32	○	●	●		●	●		●	●						●		○								3
		TPMT 321GP	TPMT 160304GP	1/64	○	○	●		●	●		●	●						●		○							E27 F47 ~ F57	4
Finishing-Medium		TPMT 181505HQ	TPMT 090202HQ	0.008	○	○	○		●	●		●	●						○		○								
		18151HQ	090204HQ	1/64	○	●	●		●	●		●	●	●	●	●			○		○	●							2
		TPMT 2205HQ	TPMT 110302HQ	0.008	○	○	○		●	●		●	●						●		○								
		221HQ	110304HQ	1/64	○	●	●		●	○		●	●	●	●	●		○	●		○	●							
		222HQ	110308HQ	1/32	○	●	●		●	○		●	●	●	●	●		○	●		○	●							3
		TPMT 3205HQ	TPMT 160302HQ	0.008			○												●		○								
		321HQ	160304HQ	1/64	○	○	●		●	●		●	●	●	●	●		○	●		○	●							
		322HQ	160308HQ	1/32	○		●		●			●	●	●	●	●		○	○		○	●							4
Low Carbon Steel	 Finishing	TPMT 18151XP	TPMT 090204XP	1/64		○			●	●		●	●						●		○								2
		TPMT 221XP	TPMT 110304XP	1/64		○			●	●		●	●						●		○								
		222XP	110308XP	1/32	○	○			●	●		●	●						●		○								3
		TPMT 321XP	TPMT 160304XP	1/64		○			●	●		●	●						●										
		322XP	160308XP	1/32		○			●	●		●	●						●										4
Low Carbon Steel	 Finishing-Medium	TPMT 221XQ	TPMT 110304XQ	1/64		○			●	●		●	●																
		222XQ	110308XQ	1/32	○	○			●	●		●	●																3
		TPMT 321XQ	TPMT 160304XQ	1/64		○			●	●		●	●																
		322XQ	160308XQ	1/32		●			●	●		●	●																4

• 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).

Applicable Chipbreaker Range



For new MEGACOAT NANO Grade PR1425 selection reference Page **B69**

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

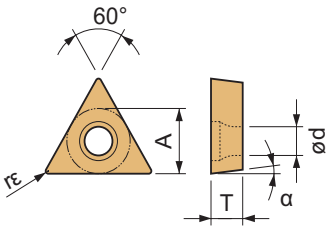
60° Triangle / Positive with Hole

(in)

Description	A	T	ød	α
TP_1515_	3/16	3/32	0.095	11°
TPMT1815_	7/32		0.110	11°
TP_1815			0.118	11°
TP_215	1/4		0.138	11°

(in)

Description	A	T	ød	α
TP_22_	1/4	1/8	0.130	11°
TPMT32_	3/8		0.173	11°
TP_32_			0.177	11°
TP_33_		3/16	0.173	11°



Classification of usage
- ✠: Interruption / 1st Choice
- ✠: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

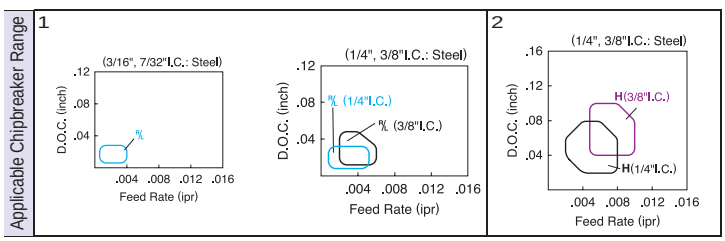
(In case hardness is under 45HRC)

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

Insert (Left-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	MEGACOAT PR1125	PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing	TPGH 151502R/L	TPGH 080201R/L	0.004			○												○								○		E27 F47 ~ F57	1
	TPGH 151505R/L	TPGH 080202R/L	0.008	L	●	●	○	L	○									○								○			
	TPGH 15151R/L	TPGH 080204R/L	1/64	L	●	●	○	L	○									○								○			
	TPGH 181502R/L	TPGH 090201R/L	0.004			○												○								○			
	TPGH 181505R/L	TPGH 090202R/L	0.008	L	●	●	○	L	○									○								○			
	TPGH 18151R/L	TPGH 090204R/L	1/64	L	●	●	○	L	○									●								○			
	TPGH 21505R/L	TPGH 110202R/L	0.008	L		○												○								○			
	2151R/L	110204R/L	1/64	L		○	○											●								○			
	TPGH 2205R/L	TPGH 110302R/L	0.008	L	●	●	○	L	○									○								○			
	221R/L	110304R/L	1/64	L	●	●	○	L	○									○								○			
	222R/L	110308R/L	1/32	L		○												○								○			
	TPGH 3205R/L	TPGH 160302R/L	0.008	L		○												○								○			
	321R/L	160304R/L	1/64	L	○	○	○	L	L									○								○			
	322R/L	160308R/L	1/32			○	○											○								○			
	TPGH 151502MR/L	TPGH 080201MR/L	< 0.004																○	○									
	151505MR/L	080202MR/L	< 0.008																○	○									
	15151MR/L	080204MR/L	<1/64																○	○									
	TPGH 181502MR/L	TPGH 090201MR/L	< 0.004																○	○									
	181505MR/L	090202MR/L	< 0.008																○	○									
	18151MR/L	090204MR/L	<1/64																○	○									
	TPGH 21505MR/L	TPGH 110202MR/L	< 0.008																○	○									
	2151MR/L	110204MR/L	<1/64																○	○									
	TPGH 2205MR/L	TPGH 110302MR/L	< 0.008																○	○									
	221MR/L	110304MR/L	<1/64																○	○									
	222MR/L	110308MR/L	<1/32																○	○									
	TPGH 3205MR/L	TPGH 160302MR/L	< 0.008																○	○									
	321MR/L	160304MR/L	<1/64																○	○									
	322MR/L	160308MR/L	<1/32																○	○									
Medium	TPGH 2205R/L-H	TPGH 110302R/L-H	0.008	L	L	○												○								○			2
	221R/L-H	110304R/L-H	1/64	L	○	●			○									○								○			
	222R/L-H	110308R/L-H	1/32	L	L	○												○								○			
	TPGH 321R/L-H	TPGH 160304R/L-H	1/64	L	L	○			○									○								○			
	322R/L-H	160308R/L-H	1/32			○												○								○			
	TPGT 3305R/L-H	TPGT 160402R/L-H	0.008			L																							
	331R/L-H	160404R/L-H	1/64			L																							
	332R/L-H	160408R/L-H	1/32			L																							
	TPGH 2205MR/L-H	TPGH 110302MR/L-H	< 0.008																	○									
	221MR/L-H	110304MR/L-H	<1/64																	○									
	222MR/L-H	110308MR/L-H	<1/32																	○									
	TPGH 321MR/L-H	TPGH 160304MR/L-H	<1/64																	○									
	322MR/L-H	160308MR/L-H	<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).

Applicable Chipbreaker Range



For new MEGACOAT NANO Grade PR1425 selection reference Page B69

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

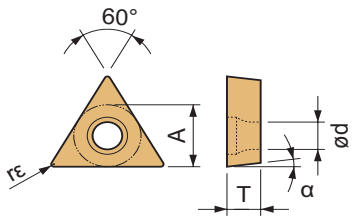
60°Triangle / Positive with Hole

(in)

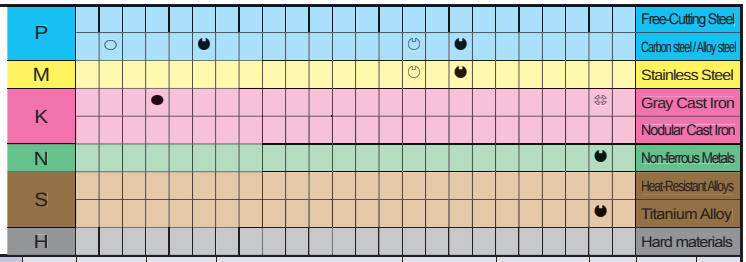
Description	A	T	ød	α
TP_1515_	3/16	3/32	0.095	11°
TP_1815	7/32		0.118	11°

(in)

Description	A	T	ød	α
TP_215	1/4	3/32	0.138	11°
TP_22_		1/8	0.130	11°
TP_32_	3/8		0.177	11°



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)



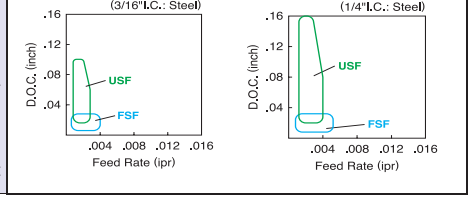
Insert (Left-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing	Super Fine	TPET 151501R/L-FSF	TPET 0802003R/L-FSF	0.001			○											●											
		TPET 151502R/L-FSF	TPET 080201R/L-FSF	0.004			○											●											
		TPET 151505R/L-FSF	TPET 080202R/L-FSF	0.008			○											●											
		TPET 2201R/L-FSF	TPET 1103003R/L-FSF	0.001														●											
		TPET 2202R/L-FSF	TPET 110301R/L-FSF	0.004			○											●											
		TPET 2205R/L-FSF	TPET 110302R/L-FSF	0.008			○											●											
		TPET 1515013MR/L-FSF	TPET 0802005MR/L-FSF	< 0.002																●									
		TPET 151502MR/L-FSF	TPET 080201MR/L-FSF	< 0.004																●									
		TPET 151505MR/L-FSF	TPET 080202MR/L-FSF	< 0.008																●									
		TPET 22013MR/L-FSF	TPET 1103005MR/L-FSF	< 0.002																									
		TPET 2202MR/L-FSF	TPET 110301MR/L-FSF	< 0.004																●									
		TPET 2205MR/L-FSF	TPET 110302MR/L-FSF	< 0.008																●									
	Sharp Edge / Precision																												
	Super Fine	TPET 151501FR/L-USF	TPET 0802003FR/L-USF	0.001			○											●											
		TPET 151502FR/L-USF	TPET 080201FR/L-USF	0.004			○											●											
		TPET 151505FR/L-USF	TPET 080202FR/L-USF	0.008			○											●											
		TPET 2201FR/L-USF	TPET 1103003FR/L-USF	0.001														●											
		TPET 2202FR/L-USF	TPET 110301FR/L-USF	0.004			○											●											
		TPET 2205FR/L-USF	TPET 110302FR/L-USF	0.008			○											●											
		TPET 1515013MFR/L-USF	TPET 0802005MFR/L-USF	< 0.002																●									
		TPET 151502MFR/L-USF	TPET 080201MFR/L-USF	< 0.004																●									
		TPET 151505MFR/L-USF	TPET 080202MFR/L-USF	< 0.008																●									
		TPET 22013MFR/L-USF	TPET 1103005MFR/L-USF	< 0.002																●									
		TPET 2202MFR/L-USF	TPET 110301MFR/L-USF	< 0.004																●									
		TPET 2205MFR/L-USF	TPET 110302MFR/L-USF	< 0.008																●									
	Sharp Edge / Precision																												
Cast Iron		TPGB 151505	TPGB 080202	0.008		○	●																			○			
		TPGB 15151	TPGB 080204	1/64		●	●			●																○			
		TPGB 15152	TPGB 080208	1/32			○																						
		TPGB 181505	TPGB 090202	0.008			●																			○			
		TPGB 18151	TPGB 090204	1/64		●	●	○		●																○			
		TPGB 215013	TPGB 1102005	0.002																									
		TPGB 21502	TPGB 110201	0.004			○																			○			
		TPGB 21505	TPGB 110202	0.008			●																			○			
		TPGB 2151	TPGB 110204	1/64			●																			○			
		TPGB 22013	TPGB 1103005	0.002																									
		TPGB 2202	TPGB 110301	0.004			○																						
		TPGB 2205	TPGB 110302	0.008		●	●			●																○			
		TPGB 221	TPGB 110304	1/64		●	●	○		●																○			
		TPGB 222	TPGB 110308	1/32		●	○	○		●																●			
		TPGB 321	TPGB 160304	1/64			○	○																		○			
		TPGB 322	TPGB 160308	1/32			○																			○			
	Without Chipbreaker																												

Ref. Page for Toolholder	Applicable Chipbreaker Range
E27 F47 ~ F57	1
	N/A

・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).

Applicable Chipbreaker Range

1

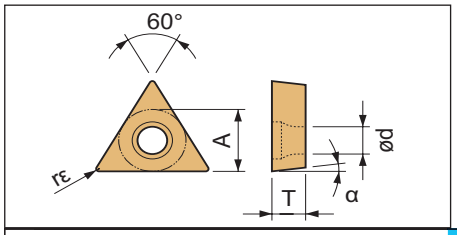


For new MEGACOAT NANO Grade PR1425 selection reference Page **B69**

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

60° Triangle / Positive with Hole



(in)

Description	A	T	ød	α
TP_1515_	3/16	3/32	0.095	11°
TP_1815	7/32		0.118	11°

(in)

Description	A	T	ød	α
TP_215	1/4	3/32	0.138	11°
TP_22_		1/8	0.130	11°
TP_32_	3/8		0.177	11°

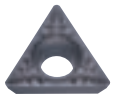
Classification of usage
✱: Interruption / 1st Choice
✲: Interruption / 2nd Choice
●: Light Interruption / 1st Choice
◔: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice
(In case hardness is under 45HRC)

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

Insert (Left-Handed insert shown where applicable)		Description (ANSI)	Dim. (in) rε	MEGACOAT NANO PR1425	Ref. Page for Toolholder
Finishing	NEW  Shape Edge	TPGH 151502R/L	0.004	●	E27 F47 ~ F57
		151505R/L	0.008	●	
		15151R/L	0.016	●	
		TPGH 181502R/L	0.004	●	
		181505R/L	0.008	●	
		18151R/L	0.016	●	
		TPGH 21505R/L	0.008	●	
		2151R/L	0.016	●	
		TPGH 2205R/L	0.008	●	
		221R/L	0.016	●	
		222R/L	0.031	●	
		TPGH 3205R/L	0.008	●	
		321R/L	0.016	●	
		322R/L	0.031	●	
Medium Cutting	NEW  Shape Edge	TPGH 2205R/L-H	0.008	●	
		221R/L-H	0.016	●	
		222R/L-H	0.031	●	
		TPGH 321R/L-H	0.016	●	
		322R/L-H	0.031	●	
Minute ap	NEW  Sharp Edge / Polished	TPGT 151502MP-CF	<0.004	●	
		151505MP-CF	<0.008	●	
		TPGT 181502MP-CF	<0.004	●	
		181505MP-CF	<0.008	●	

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)

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

Insert (Left-Handed insert shown where applicable)		Description (ANSI)	Dim. (in) rε	MEGACOAT NANO PR1425	Ref. Page for Toolholder
Finishing	NEW 	TPMT 181505GP	0.008	●	E27 F47 ~ F57
		18151GP	0.016	●	
		TPMT 221GP	0.016	●	
		222GP	0.031	●	
		TPMT 321GP	0.016	●	
Finishing-Medium	NEW 	TPMT 181505HQ	0.008	●	
		18151HQ	0.016	●	
		TPMT 2205HQ	0.008	●	
		221HQ	0.016	●	
		222HQ	0.031	●	
		TPMT 3205HQ	0.008	●	
		321HQ	0.016	●	
		322HQ	0.031	●	
Low Carbon Steel	NEW 	TPMT 18151XP	0.016	●	
		TPMT 221XP	0.016	●	
		222XP	0.031	●	
		TPMT 321XP	0.016	●	
		322XP	0.031	●	

• 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).

For other grades and chipbreaker charts reference page **B66~B68**

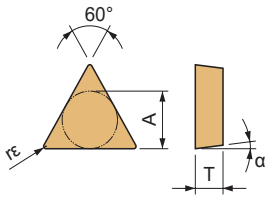
● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

(in)

Description	A	T	ød	α
TP_1815_	7/32	3/32	-	11°
TP_22_	1/4	1/8	-	11°
TP_32_	3/8		-	11°

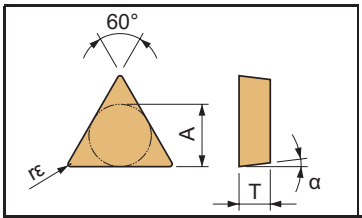
60°Triangle / Positive without Hole



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)

| | | |

60°Triangle / Positive without Hole



(in)

Description	A	T	α
TP_1815_	7/32	3/32	11°
TP_22_	1/4	1/8	
TP_32_	3/8		

Insert Left-Handed insert shown where applicable	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN30	PVD Coated Cermet PV30	PV60	PV90	PV7020	CVD Coated Carbide CA4010	CA4115	CA4120	PVD Coated Carbide PR915	PR905	Ref. Page for Toolholder
 Finishing	TPMR 221DP	TPMR 110304DP	1/64	○										
	TPMR 321DP	TPMR 160304DP	1/64	○										
 Finishing	TPMR 221GP	TPMR 110304GP	1/64				○	●						
	TPMR 321GP	TPMR 160304GP	1/64				○							
 Finishing-Medium	TPMR 221HQ	TPMR 110304HQ	1/64	○			●							
	222HQ	110308HQ	1/32	○										
	TPMR 321HQ	TPMR 160304HQ	1/64				○							
	322HQ	160308HQ	1/32				○							
 Medium	TPMR 221G	TPMR 110304G	1/64				○							E27 F47 ~ F57
	222G	110308G	1/32	○			○							
	TPMR 321G	TPMR 160304G	1/64						○	○	●			
	322G	160308G	1/32	○					○	○	●			
 Medium	TPMR 221	TPMR 110304	1/64	○					○	○				
	222	110308	1/32						○	●	●			
	TPMR 321	TPMR 160304	1/64	○										
	322	160308	1/32	○					○	○	●			
 -A: Finishing -B: Finishing-Medium -C: Medium	TPGR 2205R/L-A	TPGR 110302R/L-A	0.008						○	○	●			
	221R/L-A	110304R/L-A	1/64						○	○	●			
	TPGR 221R/L-B	TPGR 110304R/L-B	1/64	○										
	222R/L-B	110308R/L-B	1/32	○					○	○				
	TPGR 3205R/L-B	TPGR 160302R/L-B	0.008	○					○	●	●			
	321R/L-B	160304R/L-B	1/64	○					○	○				
	322R/L-B	160308R/L-B	1/32						○	●	●			
	TPGR 321R/L-C	TPGR 160304R/L-C	1/64	○										
	322R/L-C	160308R/L-C	1/32	○					○	○	●			

For other grades and chipbreaker charts reference Page B70

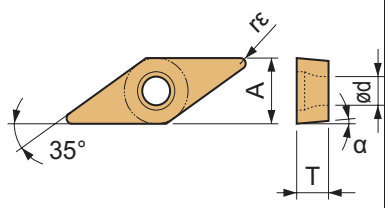
● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

(in)

Description	A	T	ød	α
VB_22_	1/4	1/8	0.110	5°
VB_33_	3/8	3/16	0.173	5°

35°Diamond / Positive with Hole



Classification of usage
- ✱: Interruption / 1st Choice
- ✲: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

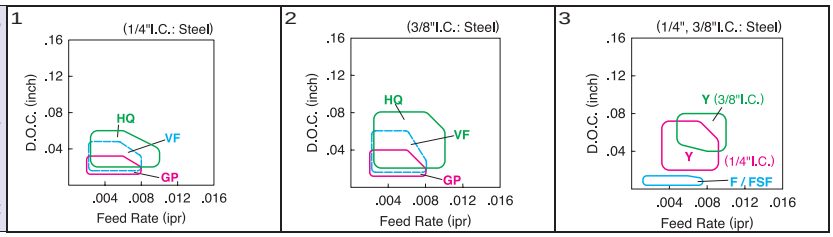
(In case hardness is under 45HRC)

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

Insert (Left-Handed insert shown where applicable)		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing		VBMT 221GP	VBMT 110304GP	1/64	○	●	●		●	●		●	●						●		○									1
		VBMT 331GP	VBMT 160404GP	1/64	○	●	●		●	●		●	●						●		○									2
		332GP	160408GP	1/32			○												●		○									
		VBMT 2205VF	VBMT 110302VF	0.008	○	○		●	●	○	○	○	○						●		●									1
		221VF	110304VF	1/64	○	○						●									○									
		222VF	110308VF	1/32															●		○									
		VBMT 3305VF	VBMT 160402VF	0.008	○	○		●	●	○	○	○	○						○		●									2
		331VF	160404VF	1/64															●											
		332VF	160408VF	1/32		○		●	●		●	●							●											
		333VF	160412VF	3/64		○		●				●							○		○									
Finishing-Medium		VBMT 221HQ	VBMT 110304HQ	1/64	○	●	●		●	●		●	●	●	●	●			●		○	●							E28 E29 F62 ~ F70	1
		222HQ	110308HQ	1/32	○	●	●		●	●		●	●	●	●	●			●		○	●								
		VBMT 331HQ	VBMT 160404HQ	1/64	○	●	●		●	●		●	●	●	●	●			○		○	●								2
		332HQ	160408HQ	1/32	○	●	●		●	●		●	●	●	●	●			○		○	●								
		333HQ	160412HQ	3/64	○	○			●	●		●	●	●					○		○									
Medium	 Sharp Edge	VBGT 2202FN-Z	VBGT 110301FN-Z	0.004			●												○											-
		2205FN-Z	110302FN-Z	0.008			○												○											
		221FN-Z	110304FN-Z	1/64			○												○											
		222FN-Z	110308FN-Z	1/32																										
Finishing		VBGT 2201R/L-F	VBGT 1103003R/L-F	0.001															●								○			3
		2202R/L-F	110301R/L-F	0.004			○												●								○			
		2205R/L-F	110302R/L-F	0.008	○	●	○		○										●								○			
		VBGT 22013MR/L-F	VBGT 1103005MR/L-F	< 0.002																			●							
		2202MR/L-F	110301MR/L-F	< 0.004																○	○		●							
		2205MR/L-F	110302MR/L-F	< 0.008																○	○		●							
	Super Fine  Sharp Edge / Precision	VBET 2201R/L-FSF	VBET 1103003R/L-FSF	0.001			○												●											
		2202R/L-FSF	110301R/L-FSF	0.004			○												●											
		2205R/L-FSF	110302R/L-FSF	0.008			○												●											
		VBET 22015MR/L-FSF	VBET 1103005MR/L-FSF	< 0.002																	○		●							
		2202MR/L-FSF	110301MR/L-FSF	< 0.004																	○		●							
		2205MR/L-FSF	110302MR/L-FSF	< 0.008																	○		●							

• 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).

Applicable Chipbreaker Range



For new MEGACOAT NANO Grade PR1425 selection reference Page **B74**

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

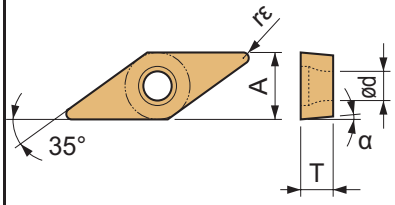
(in)

Description	A	T	ød	α
VB_22_	1/4	1/8	0.110	5°
VB_33_	3/8	3/16	0.173	5°

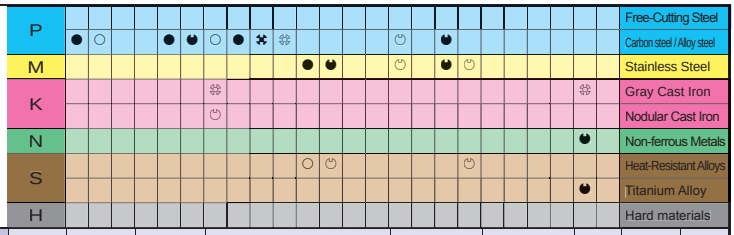
(in)

Description	A	T	ød	α
VC_1515_	3/16	3/32	0.091	7°
VC_33_	3/8	3/16	0.173	7°

35°Diamond / Positive with Hole



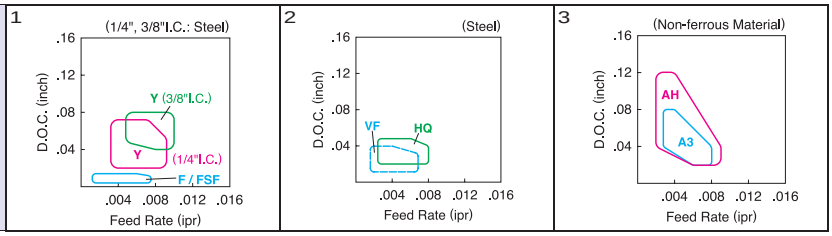
Classification of usage
✱: Interruption / 1st Choice
❋: Interruption / 2nd Choice
●: Light Interruption / 1st Choice
◔: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice
(In case hardness is under 45HRC)



Insert (Left-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing-Medium	VBGT 2201R/L-Y	VBGT 1103003R/L-Y	0.001															●								○			
	VBGT 2202R/L-Y	VBGT 110301R/L-Y	0.004			○												●								○			
	VBGT 2205R/L-Y	VBGT 110302R/L-Y	0.008	○	●	●			○									●								○			
	VBGT 221R/L-Y	VBGT 110304R/L-Y	1/64	○	●	●			○									●								●			
	VBGT 222R/L-Y	VBGT 110308R/L-Y	1/32			●												●								○			
	VBGT 3305R/L-Y	VBGT 160402R/L-Y	0.008	○		○												●								○			
	VBGT 331R/L-Y	VBGT 160404R/L-Y	1/64	○	●	○			○									●								○			
	VBGT 332R/L-Y	VBGT 160408R/L-Y	1/32			○												○								○			
	VBGT 22013MR/L-Y	VBGT 1103005MR/L-Y	< 0.002																			●							
	VBGT 2202MR/L-Y	VBGT 110301MR/L-Y	< 0.004			○												●				●				○			
	VBGT 2205MR/L-Y	VBGT 110302MR/L-Y	< 0.008	○	●	●			○									●				●				○			
	VBGT 221MR/L-Y	VBGT 110304MR/L-Y	< 1/64	○	●	●			○									●				●				●			
	VBGT 222MR/L-Y	VBGT 110308MR/L-Y	< 1/32			●												●				●				○			
	VBGT 3305MR/L-Y	VBGT 160402MR/L-Y	< 0.008																○	○		●							
	VBGT 331MR/L-Y	VBGT 160404MR/L-Y	< 1/64																○	○		●							
	VBGT 332MR/L-Y	VBGT 160408MR/L-Y	< 1/32																○	○		●							
Finishing	VCMT 151505VF	VCMT 080202VF	0.008	○	○		●	●	○	○	○							○		●									1
	15151VF	080204VF	1/64	○	○		●	●	○	○	○	○						○		○									
Finishing-Medium	VCMT 151505HQ	VCMT 080202HQ	0.008	○	○	○	●	●		●	●							●		○									
	15151HQ	080204HQ	1/64	○	○	○	●	●		●	●	●	●	●				●		○	●							E28 E29 F62 ~ F70	2
	VCMT 221HQ	VCMT 110304HQ	1/64			○				○	○																		
	VCMT 331HQ	VCMT 160404HQ	1/64			○					○																		
	332HQ	160408HQ	1/32			●						●			●													—
	VCGT 2202FN-Z	VCGT 110301FN-Z	0.004			○																							
	2205FN-Z	110302FN-Z	0.008			○																							
Medium / Sharp Edge	221FN-Z	110304FN-Z	1/64			○																							
Non-ferrous Metals	VCGT 331AH	VCGT 160404AH	1/64																							●			3
Finishing-Medium / Sharp Edge																													
Non-ferrous Metals	VCGT 331R/L-A3	VCGT 160404R/L-A3	1/64																							○			
Finishing-Medium / Sharp Edge	332R/L-A3	160408R/L-A3	1/32																							○			
Non-ferrous Material Medium-Roughing	VCGT 333	VCGT 160412	3/64																							○			—

• 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).

Applicable Chipbreaker Range

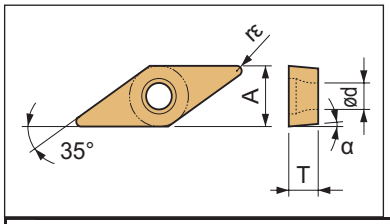


For new MEGACOAT NANO Grade PR1425 selection reference Page ➡ **B74**

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

35°Diamond / Positive with Hole



(in)

Description	A	T	ød	α
VB_22_	1/4	1/8	0.110	5°
VB_33_	3/8	3/16	0.173	5°

(in)

Description	A	T	ød	α
VP_1515_	3/16	3/32	0.091	11°
VP_22_	1/4	1/8	0.110	11°

(in)

Description	A	T	ød	α
VC_1515_	3/16	3/32	0.091	7°
VC_33_	3/8	3/16	0.173	7°

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)

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

Insert (Left-Handed insert shown where applicable)		Description (ANSI)	Dim. (in) rε	MEGACOAT NANO PR1425	Ref. Page for Toolholder
Finishing	NEW Sharp Edge	VBET 22013M$^{R}_{L}$-F	<0.002	●	E28 E29 E62 ~ E70
		2202M$^{R}_{L}$-F	<0.004	●	
		2205M$^{R}_{L}$-F	<0.008	●	
Finishing-Medium	NEW Sharp Edge	VBET 22013M$^{R}_{L}$-Y	<0.002	●	
		2202M$^{R}_{L}$-Y	<0.004	●	
		2205M$^{R}_{L}$-Y	<0.008	●	
		221M$^{R}_{L}$-Y	<0.016	●	
Finishing	NEW	VCMT 151505VF	0.008	●	
		15151VF	0.016	●	
Finishing	NEW	VCMT 151505HQ	0.008	●	
		15151HQ	0.016	●	
Minute ap	NEW Sharp Edge / Polished	VPGT 2202MP-CF	<0.004	●	E30 E31
		2205MP-CF	<0.008	●	
Finishing	NEW Sharp Edge / Polished	VPGT 2202MFP-GF	<0.004	●	
		2205MFP-GF	<0.008	●	
Finishing	NEW Sharp Edge / Polished	VPGT 151502MP-CK	<0.004	●	
		151505MP-CK	<0.008	●	
		VPGT 2202MP-CK	<0.004	●	
		2205MP-CK	<0.008	●	

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)

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

Insert (Left-Handed insert shown where applicable)		Description (ANSI)	Dim. (in) rε	MEGACOAT NANO PR1425	Ref. Page for Toolholder
Finishing	NEW Sharp Edge	VPET 151502M$^{R}_{L}$-F	<0.004	●	E30 E31
		151505M$^{R}_{L}$-F	<0.008	●	
		VPET 22013M$^{R}_{L}$-F	<0.002	R	
		2202M$^{R}_{L}$-F	<0.004	R	
		2205M$^{R}_{L}$-F	<0.008	●	
Low Feed	NEW Sharp Edge	VPET 151502MF$^{R}_{L}$-U	<0.004	●	
		151505MF$^{R}_{L}$-U	<0.008	●	
		VPET 22013MF$^{R}_{L}$-U	<0.002	●	
		2202MF$^{R}_{L}$-U	<0.004	●	
		2205MF$^{R}_{L}$-U	<0.008	●	
Low Carbon	NEW	VPET 22013MF$^{R}_{L}$-J	<0.002	R	
		2202MF$^{R}_{L}$-J	<0.004	●	
		2205MF$^{R}_{L}$-J	<0.008	●	
Finishing	NEW	VBMT 221GP	0.016	●	E28 E29 E62 ~ E70
Finishing	NEW	VBMT 2205VF	0.008	●	
		221VF	0.016	●	
		222VF	0.031	●	
Finishing-	NEW	VBMT 221HQ	0.016	●	
		222HQ	0.031	●	

・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).

For other grades and chipbreaker charts reference Page **B72,B73,B75,B76**

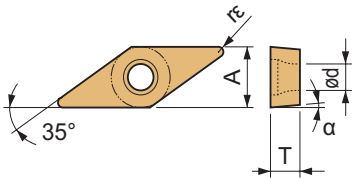
Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

(in)

Description	A	T	ød	α
VP_1515_	3/16	3/32	0.091	11°
VP_22_	1/4	1/8	0.110	11°

35°Diamond / Positive with Hole



Classification of usage
- ✱: Interruption / 1st Choice
- ✱: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

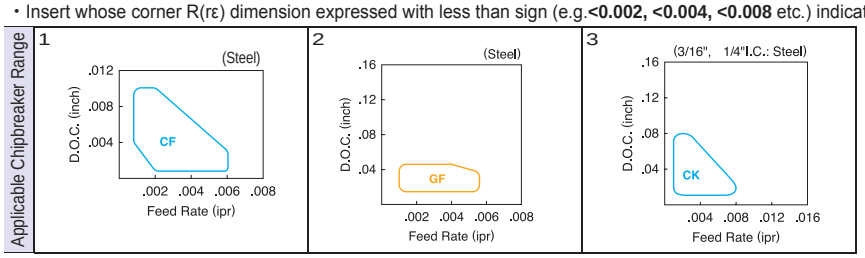
(In case hardness is under 45HRC)

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	

Insert (Left-Handed insert shown where applicable)		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Minute ap	 Sharp Edge	VPGT 2205CF	VPGT 110302CF	0.008															○											1
		VPGT 2202M-CF	VPGT 110301M-CF	< 0.004																○	○									
		2205M-CF	110302M-CF	< 0.008																○	○									
	 Sharp Edge / Polished	VPGT 2202MP-CF	VPGT 110301MP-CF	< 0.004																	○		●							
		2205MP-CF	110302MP-CF	< 0.008																	○		●							
Finishing	 Sharp Edge	VPGT 2202MF-GF	VPGT 110301MF-GF	< 0.004																	○									
		2205MF-GF	110302MF-GF	< 0.008																	○									
	 Sharp Edge / Polished	VPGT 2202MFP-GF	VPGT 110301MFP-GF	< 0.004																	○		●							2
		2205MFP-GF	110302MFP-GF	< 0.008																	○		●					E30 E31		
Finishing	 Honed Edge	VPGT 151502CK	VPGT 080201CK	0.004															○											
		151505CK	080202CK	0.008															●											
		VPGT 2202CK	VPGT 110301CK	0.004															●											
		2205CK	110302CK	0.008															●											
		VPGT 151502M-CK	VPGT 080201M-CK	< 0.004																○	○									
		151505M-CK	080202M-CK	< 0.008																○	○									
		VPGT 2202M-CK	VPGT 110301M-CK	< 0.004																○	○									3
		2205M-CK	110302M-CK	< 0.008																○	○									
Finishing	 Sharp Edge / Polished	VPGT 151502MP-CK	VPGT 080201MP-CK	< 0.004																	○		●							
		151505MP-CK	080202MP-CK	< 0.008																	○		●							
		VPGT 2202MP-CK	VPGT 110301MP-CK	< 0.004																	○		●							
		2205MP-CK	110302MP-CK	< 0.008																	○		●							

・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).

Applicable Chipbreaker Range



For new MEGACOAT NANO Grade PR1425 selection reference Page B74

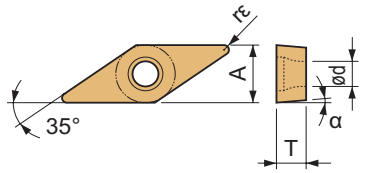
● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

35°Diamond / Positive with Hole

(in)

Description	A	T	ød	α
VP_1515_	3/16	3/32	0.091	11°
VP_22_	1/4	1/8	0.110	11°



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)

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

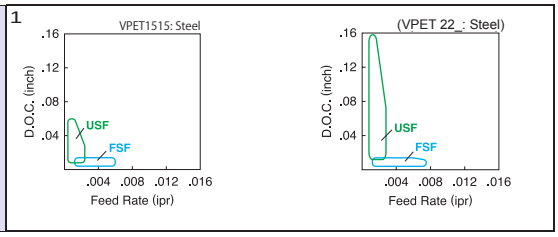
Insert (Left-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing — Super Fine	VPET 151502R/L-FSF	VPET 080201R/L-FSF	0.004			○												○										E30 E31	1
	151505R/L-FSF	080202R/L-FSF	0.008			○												○											
	VPET 2201R/L-FSF	VPET 1103003R/L-FSF	0.001															○											
	2202R/L-FSF	110301R/L-FSF	0.004			○												○											
	2205R/L-FSF	110302R/L-FSF	0.008			○												○											
	VPET 151502MR/L-FSF	VPET 080201MR/L-FSF	< 0.004																	○		●							
	151505MR/L-FSF	080202MR/L-FSF	< 0.008																	○		●							
	VPET 22013MR/L-FSF	VPET 1103005MR/L-FSF	< 0.002																			●							
	2202MR/L-FSF	110301MR/L-FSF	< 0.004																	○		●							
	2205MR/L-FSF	110302MR/L-FSF	< 0.008																	○		●							
Low Feed — Super Fine	VPET 151502FR/L-USF	VPET 080201FR/L-USF	0.004			○												○											
	151505FR/L-USF	080202FR/L-USF	0.008			○												○											
	VPET 2201FR/L-USF	VPET 1103003FR/L-USF	0.001															○											
	2202FR/L-USF	110301FR/L-USF	0.004			○												○											
	2205FR/L-USF	110302FR/L-USF	0.008			○												●											
	VPET 151502MFR/L-USF	VPET 080201MFR/L-USF	< 0.004																		○	●							
	151505MFR/L-USF	080202MFR/L-USF	< 0.008																		○	●							
	VPET 22013MFR/L-USF	VPET 1103005MFR/L-USF	< 0.002																			●							
	2202MFR/L-USF	110301MFR/L-USF	< 0.004																		○	●							
	2205MFR/L-USF	110302MFR/L-USF	< 0.008																		○	●							





• 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).

Applicable Chipbreaker Range



For new MEGACOAT NANO Grade PR1425 selection reference Page ➡ **B74**

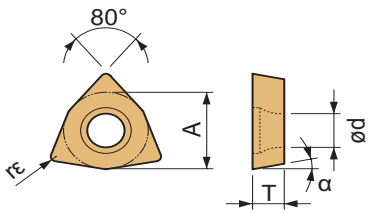
Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

(in)

Description	A	T	ød	α
WB_121_	5/32	1/16	0.091	5°
WB_1515_	3/16	3/32		5°
WC_0201_	5/32	1/16		7°

80°Trigon / Positive with Hole



Classification of usage
- ✕: Interruption / 1st Choice
- ✕: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ○: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

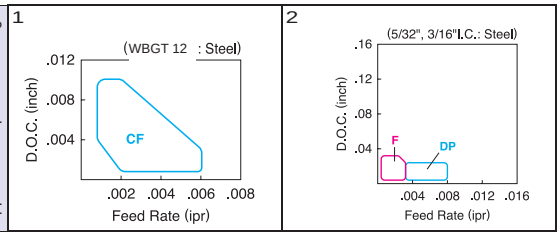
(In case hardness is under 45HRC)

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

Insert (Left-Handed insert shown where applicable)	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA4505	CA4515	PVD Coated Carbide PR930	PR1005	PR1025	PR1125	MEGACOAT PR1425	PR1225	PR1305	PR1310	PR1325	Carbide KW10	SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Micro-Finishing	WBGT 12102M-CF	WBGT 060101M-CF	< 0.004																○	○										1
Sharp Edge	12105M-CF	060102M-CF	< 0.008																○	○										
Micro-Finishing	WBGT 12102MP-CF	WBGT 060101MP-CF	< 0.004																	○			●							
Sharp Edge / Polished	12105MP-CF	060102MP-CF	< 0.008																	○			●							
Finishing	WBMT 12105-DP	WBMT 060102-DP	0.008	○	○	○		●	○		●	●						●		●										
	1211-DP	060104-DP	1/64	○	○	●		●	○		●	●						●		○										
	WBMT 151505-DP	WBMT 080202-DP	0.008	○	○	○		●	●		●	●						●		○										
	15151-DP	080204-DP	1/64	○	○	○		●	●		●	●						●		○										
Finishing	WBGT 12101-F	WBGT 0601003-F	0.001			○												○									○		F71 ~ F76	2
	12102-F	060101-F	0.004			●												○									○			
	12105-F	060102-F	0.008	○	●	●			○									●									●			
	1211-F	060104-F	1/64	○	●	●			○									●									●			
	WBGT 151501-F	WBGT 0802003-F	0.001															●												
	151502-F	080201-F	0.004			○												●									●			
	151505-F	080202-F	0.008	○	●	●			●									●									●			
	15151-F	080204-F	1/64	○	●	●			●									●									●			
	WBGT 121013M-F	WBGT 0601005M-F	< 0.002																											
	12102M-F	060101M-F	< 0.004																○	○										
	12105M-F	060102M-F	< 0.008																○	○										
	1211M-F	060104M-F	< 1/64																○	○										
	WBGT 1515013M-F	WBGT 0802005M-F	< 0.002																											
	151502M-F	080201M-F	< 0.004																○	○										
	151505M-F	080202M-F	< 0.008																○	○										
	15151M-F	080204M-F	< 1/64																○	○										
Cast Iron	WBGW 12105	WBGW 060102	0.008			○																					○			—
Without Chipbreaker	1211	060104	1/64			○																								
	WBGW 151502	WBGW 080202	0.008																											
	15151	080204	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).

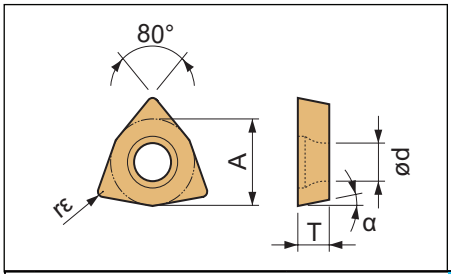
Applicable Chipbreaker Range



For new MEGACOAT NANO Grade PR1425 selection reference Page B74

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.



(in)

Description	A	T	ød	α
WB_121_	5/32	1/16	0.091	5°
WB_1515_	3/16	3/32		5°
WC_0201_	5/32	1/16		7°

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)

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

Insert		Description (ANSI)	Dim. (in) rε	MEGACOAT NANO PR1425	Ref. Page for Toolholder
Micro-Finishing	 NEW Sharp Edge / Polished	**WBGT 12102MP$^{R}_{L}$-CF**	<0.004	●	F71 ~ F76
		12105MP$^{R}_{L}$-CF	<0.008	●	
Finishing	 NEW	**WBMT 12105$^{R}_{L}$-DP**	0.008	●	
		1211$^{R}_{L}$-DP	0.016	●	
		WBMT 151505$^{R}_{L}$-DP	0.008	●	
		15151$^{R}_{L}$-DP	0.016	●	
Finishing	 NEW Sharp Edge	**WBET 121013M$^{R}_{L}$-F**	<0.002	L	
		12102M$^{R}_{L}$-F	<0.004	●	
		12105M$^{R}_{L}$-F	<0.008	●	
		1211M$^{R}_{L}$-F	<0.016	●	
		WBET 151502M$^{R}_{L}$-F	<0.004	L	
		151505M$^{R}_{L}$-F	<0.008	L	
		15151M$^{R}_{L}$-F	<0.016	●	

• 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).

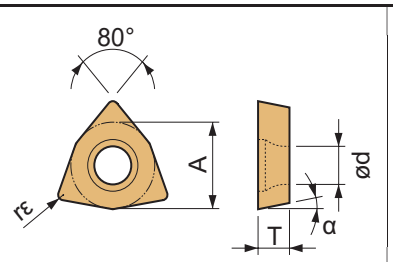
Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

(in)

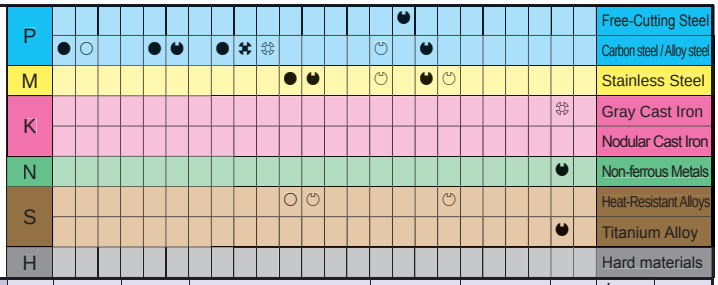
Description	A	T	ød	α
WP_215_	1/4	3/32	0.110	11°
WP_32_	3/8	1/8	0.173	11°

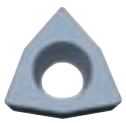
80°Trigon / Positive with Hole



Classification of usage
- ✱: Interruption / 1st Choice
- ✲: Interruption / 2nd Choice
- ◕: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

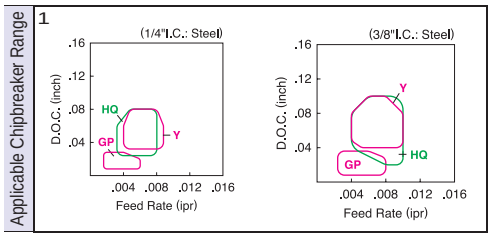
(In case hardness is under 45HRC)



Insert (Left-Handed insert shown where applicable)		Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN6010	Cermet TN6020	Cermet TN60	MEGACOAT Cermet PV7005	MEGACOAT Cermet PV7010	MEGACOAT Cermet PV7025	CVD Coated Carbide CA5505	CVD Coated Carbide CA5515	CVD Coated Carbide CA5525	CVD Coated Carbide CA5535	CVD Coated Carbide CA6515	CVD Coated Carbide CA6525	CVD Coated Carbide CA4505	CVD Coated Carbide CA4515	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	PVD Coated Carbide PR1125	MEGACOAT PR1225	MEGACOAT PR1305	MEGACOAT PR1310	MEGACOAT PR1325	Carbide KW10	Carbide SW05	Ref. Page for Toolholder	Applicable Chipbreaker Range
Finishing		WPMT 2151GP	WPMT 110204GP	1/64			○					●	●						●		○							F71 ~ F76	1
		WPMT 321GP	WPMT 160304GP	1/64			○					●	●						●		○								
Finishing-Medium		WPMT 21505HQ	WPMT 110202HQ	0.008			●					●	●						●		○								
		2151HQ	110204HQ	1/64	○	●	●		●	●		●	●	●	●	●			●		○	●							
		WPMT 321HQ	WPMT 160304HQ	1/64	○	●	○		●	●		●	●	●	●	●			●		○	●							
		322HQ	160308HQ	1/32	○	○	○		●	●		●	●	●	●	●			●		○	●							
Finishing-Medium		WPGT 21505R/L-Y	WPGT 110202R/L-Y	0.008			○												○								○		
		2151R/L-Y	110204R/L-Y	1/64		L	○												○								○		
		WPGT 321R/L-Y	WPGT 160304R/L-Y	1/64		L	○												○								○		
		322R/L-Y	160308R/L-Y	1/32			○												○								○		
		WPGT 21505MR/L-Y	WPGT 110202MR/L-Y	< 0.008																○	○								
		2151MR/L-Y	110204MR/L-Y	< 1/64																○	○								
		WPGT 321MR/L-Y	WPGT 160304MR/L-Y	< 1/64																●	○								
		322MR/L-Y	160308MR/L-Y	< 1/32																○	○								
Cast Iron	 Without Chipbreaker	WPGW 21505	WPGW 110202	0.008																							○		—
		2151	110204	1/64																							○		
		WPGW 321	WPGW 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).

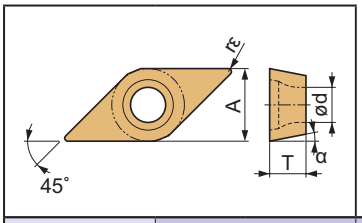
Applicable Chipbreaker Range



● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts are sold in 10 piece boxes.

45°Diamond / Positive with Hole

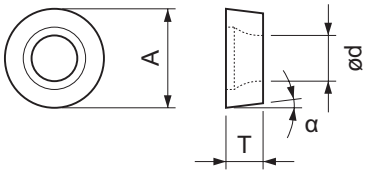
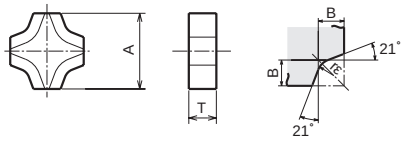


(in)

Description	A	T	ød	α
YP_0602_	3/16	3/32	0.091	11°

Insert Left-Handed insert shown where applicable	Description (ANSI)	Description (ISO)	Dim. (in) rε	Cermet TN30	PVD Coated Cermet PV30	PV60	PV90	PV7020	CVD Coated Carbide CA4010	CA4115	CA4120	PVD Coated Carbide PR915	PR905	Ref. Page for Toolholder
 Finishing	YPGT 151505R/L-F	YPGT 060202R/L-F	0.008									○	○	E32
 Low Feed / Sharp Edge	YPGT 151505FR/L-U	YPGT 060202FR/L-U	0.008									○	○	F77

Bearing Machining

Insert	Description	Dim. (inch) A	T	ød	rε	Angle (°) α	Cermet TN90	Ref. Page for Toolholder
• External / Boring / Facing  	RCMT 1204M0-BB	0.472	3/16	0.165	-	7°	○	D44
	1606M0-BB	0.630	1/4	0.217			○	
	RPMT 1203M0-BB	0.472	1/8	0.165	-	11°	○	F89
	1604M0-BB	0.630	3/16	0.217			○	
• R Chamfering  				B	rε			
	SNMF 120406-21	1/2	3/16	0.059	0.024	-	○	D45
	120410-21			0.118	0.040		○	
	120416-21			0.122	0.063		○	
	120421-21			0.126	0.083		○	
	120426-21			0.130	0.102		○	

Inserts are sold in 10 piece boxes.

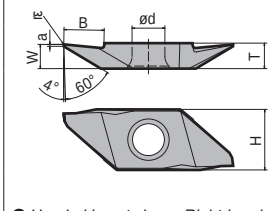
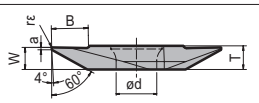
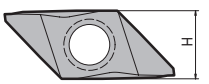
● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts for Back Turning (Small Tools)

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)

		MEGACOAT		PVD Coated Carbide	Carbide	Ref. Page for Toolholder
		NEW PR1425	PR1225	PR1025	KW10	
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					

For KTKF toolholder

Insert	Description (ANSI)	Dim. (mm) W	a	B	rε (inch)	T	H	ød	MEGACOAT NEW PR1425	PR1225	PVD Coated Carbide PR1025	Carbide KW10	Ref. Page for Toolholder
 Photo shows R-hand.	TKFB 12R15005M	1.5	0.25	2.6	<0.002	3.0	8.7	5.2	●	○	○	○	E12
	TKFB 12R28005M	2.8	0.3	4.6	<0.002				●	○	○	○	
	TKFB 12R28010M				<0.004				●	○	●	○	
 ● Handed insert shows Right-hand	TKFB 16R38005M	3.8	0.3	6.3	<0.002	4.0	9.5	5.2	●	○	○	○	
	TKFB 16R38010M				<0.004				●	○	○	○	
	TKFB 12L28005MR	2.8	0.3	4.6	<0.002	3.0	8.7	5.2		○			
	TKFB 12L28010MR				<0.004					○			
 ● Handed insert shows Left-hand	TKFB 16L38005MR	3.8	0.3	6.3	<0.002	4.0	9.5	5.2		○			
	TKFB 16L38010MR				<0.004					○			

• Insert whose corner R(rε) dimension expressed with less than sign (e.g.**<0.001, <0.002, <0.008** etc.) indicate models with minus tolerance for corner R (rε).

Insert Identification System (See Tables 1 and 2)

TKFB 12 R 15 005 M R

- TKFB: Insert type
- 12: Insert size
- R: Insert Hand (R : Right-Hand, L : Left-Hand)
- 15: Insert width
- 005: Corner-R (rε)
- M: Indicates the corner-R(rε) has a minus tolerance
- R: Hand of lead angle (R : Right-Hand, L : Left-Hand)

Table 1

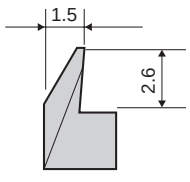
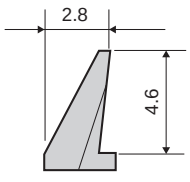
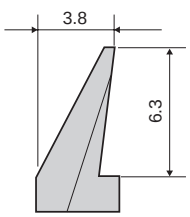
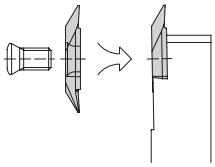
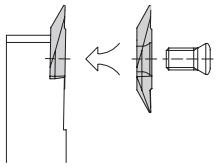
Small cutting	General use	Large cutting
 TKFB12R15..	 TKFB12R28..	 TKFB16R38..

Table 2

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

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

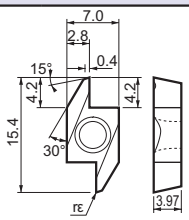
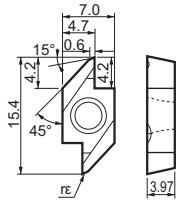
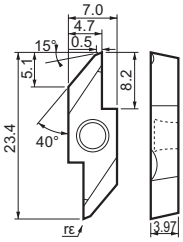
Inserts for Back Turning (Small Tools)

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)

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									

● For AABS / SABS / AABW / SABW toolholder

Insert		Description		Dim. (inch) rε	Cermet TC60	MEGACOAT NANO PR1425 (NEW)	MEGACOAT NANO PR1225	PVD Coated Carbide PR630	PVD Coated Carbide PR930	PVD Coated Carbide PR1005	PVD Coated Carbide PR1025	Carbide KW10	Ref. Page for Toolholder
		ABS	15R4005	0.002	●				●			●	E9
			15R4015	0.006	●				●			●	
		NEW ABS	15R4005M	<0.002		●	●			○	○		
			15R4015M	<0.006		●	●			○			
		ABW	15R4005	0.002	●			○	●	○	○	●	E10
			15R4015	0.006	●			○	●	○		●	
		NEW ABW	15R4005M	<0.002		●	●			○	○		
			15R4015M	<0.006		●	●			○	●		
		ABW	23R5005	0.002	●				●			●	E11
			23R5015	0.006	●				●			●	
		NEW ABW	23R5005M	<0.002		●	●			○	○		
			23R5015M	<0.006		●	●			○	●		

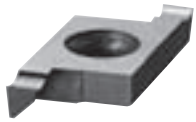
・Insert whose corner R(rε) dimension expressed with less than sign (e.g.**<0.002, <0.004, <0.008** etc.) indicate models with minus tolerance for corner R (rε).

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Micro Diameter/Solid Bars [Micro Boring / Face Grooving]

●Twin Bars

Micro Boring	Micro Face Grooving
TWB Twin-Bars **F14**	TWFG Twin-Bars **G66**
	
TWBT Twin-Bars **F14**	TWFGT Twin-Bars **G67**
	

●System Tip-bars & Tip-Bars

Micro Boring		Micro Back Boring
VNB-S/VNB Swiss IQ Bar **F16**	VNBX-S Swiss IQ Bar **F22**	VNBT Swiss IQ Bar **F17**
		
HPB 2-Edge Tip-Bar **F24**	-	HPBT 2-Edge Tip-Bar **F24**
	-	
PSB-S Tip-Bar **F26**	-	PSBT-S Tip-Bar **F26**
	-	

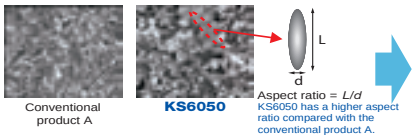
Solid Tip-bars [Grooving / Threading]

Micro Grooving	Micro Face Grooving	Micro Internal Threading
VNG Swiss IQ Bar Refer P.**G64**	VNFG Swiss IQ Bar Refer P.**G86**	VNT Swiss IQ Bar Refer P.**J28**
		
HPG 2-Edge Tip-Bar Refer P.**G66**	HPFG 2-Edge Tip-Bar Refer P.**G87**	HPT 2-Edge Tip-Bar Refer P.**J31**
		

High Speed Cutting of Cast Iron

- Improved fracture resistance
- Anti-chipping in scale processing and interrupted cutting
- High speed cutting of cast iron by controlling grain boundary phase (good wear resistance)

KS6050

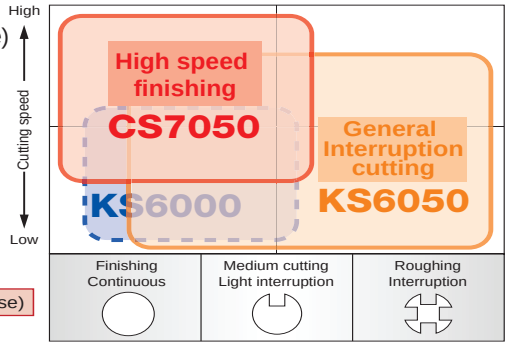


CS7050 (Coated Si_3N_4)

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



Application Map

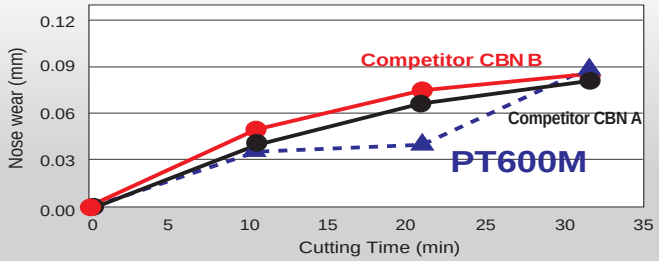


For Hard materials / Gray Cast Iron PT600M

New MEGACOAT ceramic achieves significantly longer tool life, approaching that of CBN

MEGACOAT

Wear comparison for cutting of hard materials



Cutting Conditions:
Vc=100m/min, ap=0.2mm,
f=0.1mm/rev, Wet
Workpiece Material: 15CrMo4(SCM415H)
(Hardened: 58~62HRC)

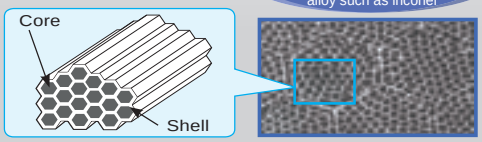
Wear resistance approaching that of competitor's CBN A and B for low speed cutting of hard materials

Heat-Resistant Alloys Cutting Cell Fiber Ceramic CF1

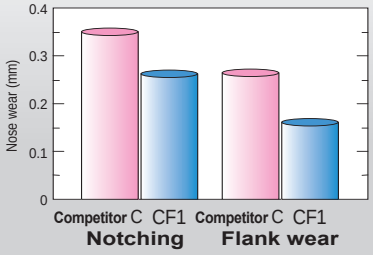
What is cell fiber?

Composite material consisting of high structure control composite core (grey part) and fibriform organization of shell (white part)

Prolonged tool life and acceleration of cutting of heat resistant alloy such as inconel



Comparison of Wear Resistance





<Cutting Conditions>
Workpiece Material Inconel 718,
Tool geometory; RNG120400
Vc =150m/min, ap =1mm
Feed Rate f =0.15mm/rev Wet Cutting

Ceramic Inserts Identification System

Identification System

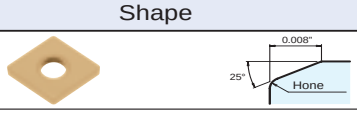
C	N	G	A	4	3	2	S00825

Turning Indexable Inserts Identification System See B2

Edge Preparation (See Table-1)

How to identify edge preparation

Table-1

Edge Preparation	Symbol	Cutting Edge Condition	Example		Shape
	S	Chamfered and Rounded Cutting Edge	S00825	0.008" X 25° Chamfered and Rounded Cutting Edge	
	T	Chamfered Cutting Edge	T00825	0.008" X 25° Chamfered Cutting Edge	

See page **B3** for insert color.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

80°Diamond / Negative

(in)

Description	A	T	ød
CN_A 43_	1/2	3/16	.203
CNGA 54_	5/8	1/4	.250
CN_ 43_	1/2	3/16	-

(in)

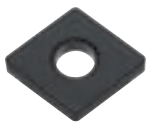
Description	A	T	ød
CN_ 45_	1/2	5/16	-
CNG 55_	5/8		-
CNGX 45_	1/2		-

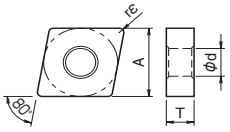
Edge Specification			
Symbol	Cutting Edge Condition	Example	
S	Chamfered and Honed Cutting Edge	S00825	0.008in X 25° Chamfered and Honed Cutting Edge
T	Chamfered Cutting Edge	T00825	0.008in X 25° Chamfered Cutting Edge

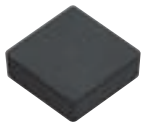
Classification of usage
- ✱: Interruption / 1st Choice
- ✱: Interruption / 2nd Choice
- ●: Light Interruption / 1st Choice
- ◔: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

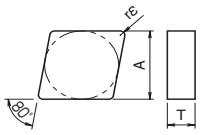
(In case hardness is under 45HRC)

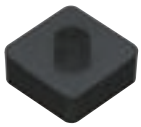
		Gray Cast Iron (With Scale)	Gray Cast Iron (Without Scale)	Nodular Cast Iron (With Scale)	Nodular Cast Iron (Without Scale)	Heat-Resistant Alloys	Hard materials
K		●	◔	◔	◔		
S						●	
H							○ ● ◔

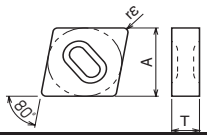












Insert	Description (ANSI)	Description (ISO)	Edge Preparation	Dim. (in) rε	Alumina Ceramic KA30	Alumina Ceramic A65	Alumina Ceramic	PVD Coated Ceramic A66N	MEGACOAT Ceramic PT600M	Silicon Nitride Ceramic KS6000	Silicon Nitride Ceramic KS6050	CVD Coated Silicon Nitride Ceramic CS7050	Cell Fiber CF1	Ref. Page for Toolholder
	CNGA 433T00425AA	CNGA 120412S01025	S00425	3/64	●									
	CNGA 431T00625AA	CNGA 120404S01525	S00625	1/64				●						
	CNGA 432T00625AA	120408S01525		1/32				●						
	CNGA 433T00625AA	120412S01525		3/64				○						
	CNGA 431S00825	CNGA 120404S02025	S00825	1/64					●					
	CNGA 432S00825	120408S02025		1/32					●					
	CNGA 433S00825	120412S02025		3/64					●					
	CNGA 431T01230AA	CNGA 120404S03030	S01230	1/64				●						
	CNGA 432T01230AA	120408S03030		1/32				●						
	CNGA 433T01230AA	120412S03030		3/64				●						D8
	CNGA 433T00220	CNGA 120412T00520	T00220	3/64	○									D9
	CNGA 431T00625	CNGA 120404T01525	T00625	1/64				●						F82
	CNGA 432T00625	120408T01525		1/32				●						
	CNGA 433T00625	120412T01525		3/64				●						
	CNGA 431T00825	CNGA 120404T02025	T00825	1/64		●	○		●					
	CNGA 432T00825	120408T02025		1/32		●			●	●	○	○		
	CNGA 433T00825	120412T02025		3/64		●	○		●	●	○	○		
	CNGA 543T00825	CNGA 160612T02025	T00825	3/64						●				
	CNMA 432T00625AA	CNMA 120408S01525	S00625	1/32				●						
	CNMA 432T01230AA	CNMA 120408S03030	S01230	1/32				○						
	CNMA 433T01230AA	120412S03030		3/64				○						
	CNG 432T00425AA	CNG 120408S01025	S00425	1/32	○									
	CNG 433T00425AA	120412S01025		3/64	○									
	CNG 434T00425AA	120416S01025		1/16	○									
	CNG 431T00220	CNG 120404T00520	T00220	1/64					●					
	CNG 432T00220	120408T00520		1/32					●					
	CNG 432T00420	CNG 120408T01020	T00420	1/32									○	
	CNG 433T00420	120412T01020		3/64									●	
	CNG 431T00825	CNG 120404T02025	T00825	1/64					●					
	CNG 432T00825	120408T02025		1/32		●			●		○	○		
	CNG 433T00825	120412T02025		3/64					○	○	○	○		
	CNG 434T00825	120416T02025		1/16		●								
	CNG 452T00625AA	CNG 120708S01525	S00625	1/32				○						D25
	CNG 453T00625AA	120712S01525		3/64				○						
	CNG 452T00420	CNG 120708T01020	T00420	1/32									●	
	CNG 453T00420	120712T01020		3/64									●	
	CNG 451T00825	CNG 120704T02025	T00825	1/64		○								
	CNG 452T00825	120708T02025		1/32		●								
	CNG 453T00825	120712T02025		3/64		○				○				
	CNG 454T00825	120716T02025		1/16		●								
	CNG 552T00825	CNG 160708T02025	T00825	1/32		○								
	CNG 553T00825	160712T02025		3/64		○								
	CNG 554T00825	160716T02025		1/16		○								
	CNM 452T00825	CNMN 120708T02025	T00825	1/32		○								
	CNM 453T00825	120712T02025		3/64		○								
	CNGX 452T00825	CNGX 120708T02025	T00825	1/32										D35
	CNGX 453T00825	120712T02025		3/64						○	○	○		
	CNGX 454T00825	120716T02025		1/16						●	○	○		

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

55°Diamond / Negative

(in)

Description	A	T	ød
DNGA 43_	1/2	3/16	0.203
44_		1/4	
DNG 43_		3/16	-
45_		5/16	

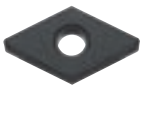
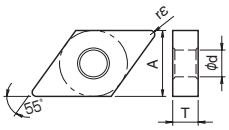
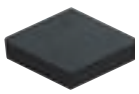
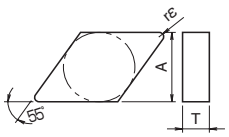
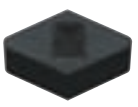
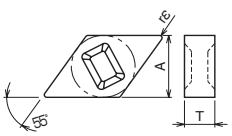
(in)

Description	A	T	ød
DNGX 35_	0.394	5/16	-
DNGX 45_	1/2		-

Edge Specification			
Symbol	Cutting Edge Condition	Example	
S	Chamfered and Honed Cutting Edge	S00825	0.008in X 25° Chamfered and Honed Cutting Edge
T	Chamfered Cutting Edge	T00825	0.008in X 25° Chamfered Cutting Edge

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)

K	Gray Cast Iron (With Scale)	● ✱
	Gray Cast Iron (Without Scale)	● ○ ●
	Nodular Cast Iron (With Scale)	
	Nodular Cast Iron (Without Scale)	
S	Heat-Resistant Alloys	
H	Hard materials	○ ●

Insert	Description (ANSI)	Description (ISO)	Edge Preparation	Dim. (in) rε	Alumina Ceramic KA30	Alumina Ceramic A65	Alumina Ceramic KT66	PVD Coated Ceramic A66N	MEGACOAT Ceramic PT600M	Silicon Nitride Ceramic KS6000	Silicon Nitride Ceramic KS6050	CVD Coated Silicon Nitride Ceramic CS7050	Cell Fiber CF1	Ref. Page for Toolholder
 	DNGA 432T00425AA	DNGA 150408S01025	S00425	1/32	○									D10 D11 D12
	DNGA 433T00425AA	DNGA 150412S01025		3/64	○									
	DNGA 431T00625AA	DNGA 150404S01525	S00625	1/64				○						
	DNGA 432T00625AA	DNGA 150408S01525		1/32				●						
	DNGA 431S00825	DNGA 150404S02025	S00825	1/64					●					
	DNGA 432S00825	DNGA 150408S02025		1/32					●					
	DNGA 432T01230AA	DNGA 150408S03030	S01230	1/32				○						
	DNGA 431T00825	DNGA 150404T02025	T00825	1/64										
	DNGA 432T00825	DNGA 150408T02025		1/32		●	○		●	●				
	DNGA 433T00825	DNGA 150412T02025		3/64		●	○		●					
	DNGA 434T00825	DNGA 150416T02025		1/16		●								
	DNGA 441T00625AA	DNGA 150604S01525	S00625	1/64										
	DNGA 442T00625AA	DNGA 150608S01525		1/32				○						
	DNGA 443T00625AA	DNGA 150612S01525		3/64				○						
	DNGA 444T00625AA	DNGA 150616S01525		1/16				○						
	DNGA 441T00825	DNGA 150604T02025	T00825	1/64		○	○		●					
	DNGA 442T00825	DNGA 150608T02025		1/32		○	○		●					
	DNGA 443T00825	DNGA 150612T02025		3/64		○	○		●		●			
 	DNG 431T00425AA	DNG 150404S01025	S00425	1/64	○									D26
	DNG 432T00425AA	DNG 150408S01025		1/32	○									
	DNG 433T00425AA	DNG 150412S01025		3/64	○									
	DNG 434T00425AA	DNG 150416S01025		1/16	○									
	DNG 432T00825	DNG 150408T02025	T00825	1/32					○					
	DNG 451T00625AA	DNG 150704S01525	S00625	1/64				○						
	DNG 452T00625AA	DNG 150708S01525		1/32				○						
	DNG 453T00625AA	DNG 150712S01525		3/64				●						
	DNG 451S00825	DNG 150704S02025	S00825	1/64					○					
	DNG 452S00825	DNG 150708S02025		1/32					○					
	DNG 453S00825	DNG 150712S02025		3/64					○					
	DNG 451T00825	DNG 150704T02025	T00825	1/64		●								
	DNG 452T00825	DNG 150708T02025		1/32		○								
	DNG 453T00825	DNG 150712T02025		3/64		○								
	DNG 454T00825	DNG 150716T02025		1/16		○								
 	DNGX 352T00825	DNGX 120708T02025	T00825	1/32										D36
	DNGX 353T00825	DNGX 120712T02025		3/64										
	DNGX 354T00825	DNGX 120716T02025		1/16										
	DNGX 452T00825	DNGX 150708T02025	T00825	1/32										
	DNGX 453T00825	DNGX 150712T02025		3/64										
	DNGX 454T00825	DNGX 150716T02025		1/16										

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

75°Diamond / Negative
Round / Negative

(in)

Description	A	T	ød
ENG 45_	1/2	5/16	-
RNG 32_	3/8	1/8	-
33_		3/16	

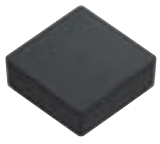
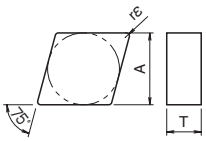
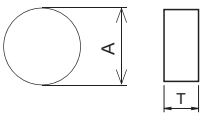
(in)

Description	A	T	ød
RNG 35_	3/8	5/16	-
RNG 43_	1/2	3/16	
45_		5/16	
RNG 55	5/8		

Edge Specification			
Symbol	Cutting Edge Condition	Example	
S	Chamfered and Honed Cutting Edge	S00825	0.008in X 25° Chamfered and Honed Cutting Edge
T	Chamfered Cutting Edge	T00825	0.008in X 25° Chamfered Cutting Edge

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)e

K	Gray Cast Iron (With Scale)						✲	✱	◔		
	Gray Cast Iron (Without Scale)			◔		◔		◔	●		
	Nodular Cast Iron (With Scale)								◔		
	Nodular Cast Iron (Without Scale)								◔		
S	Heat-Resistant Alloys										●
H	Hard materials				○	●				◔	

Insert		Description (ANSI)		Description (ISO)		*Edge Preparation	Dim. (in) rε	Alumina Ceramic KA30	Alumina Ceramic A65	Alumina Ceramic KT66	PVD Coated Ceramic MEGACOAT Ceramic A66N	Silicon Nitride Ceramic PT600M	Silicon Nitride Ceramic KS6000	CVD Coated Silicon Nitride Ceramic KS6050	CVD Coated Silicon Nitride Ceramic CS7050	Cell Fiber CF1	Ref. Page for Toolholder
		ENG	452T00625AA	ENG	130708S01525	S00625	1/32				○						-
			453T00625AA		130712S01525		3/64				○						
		ENG	452S00825	ENG	130708S02025	S00825	1/32					○					
			453S00825		130712S02025		3/64					○					
		ENG	451T00825	ENG	130704T02025	T00825	1/64		○			○					
			452T00825		130708T02025		1/32		○			○					
			453T00825		130712T02025		3/64		○			○					
			454T00825		130716T02025		1/16		○			○					
			455T00825		130720T02025		5/64		○			○					
			4575T00825		130730T02025		0.118					○					
		RNG	32T00625	RNG	090300T01525	T00625	-				●						D29 D40
		RNG	33T00625AA	RNG	090400S01525	S00625	-				○						
			33S00825		090400S02025	S00825	-					●					
			33T00420		090400T01020	T00420	-									●	
			33T00825		090400T02025	T00825	-		○			●					
			35T00420	RNG	090700T01020	T00420	-									●	
			43T00625AA	RNG	120400S01525	S00625	-				○						
			43S00825		120400S02025	S00825	-					●					
			43T00420		120400T01020	T00420	-									●	
			43T00625		120400T01525	T00625	-				●						
			43T00825		120400T02025	T00825	-		●	○		●	●	○	○		
		RNG	45K06015	RNG	120700K15015	K06015	-			○		●					
			45T00625AA		120700S01525	S00625	-				○						
			45S00825		120700S02025	S00825	-					●					
			45S00420		120700S03030	S00420	-										
			45T00420		120700T01020	T00420	-									●	
			45T00625		120700T01525	T00625	-				●						
			45T00825		120700T02025	T00825	-		●	○		●	○				
		RNG	55T00625AA	RNG	150700S01525	S00625	-				○						
			55S00825		150700S02025	S00825	-					●					
			55T00825		150700T02025	T00825	-		○			●					

* For cutting edge "K," please refer to the table below.

Edge Preparation			
Symbol	Cutting Edge Condition	Example	
K	Double Chamfered Cutting Edges	K06015	0.059in X 15° Chamfered Cutting Edge

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

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

90°Square / Negative

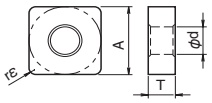
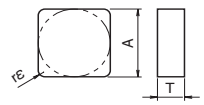
(in)

Description	A	T	ød
SN_A43_	1/2	3/16	0.203
SNG43_			-
SNG45_		5/16	

Edge Specification			
Symbol	Cutting Edge Condition	Example	
S	Chamfered and Honed Cutting Edge	S00825	0.008in X 25° Chamfered and Honed Cutting Edge
T	Chamfered Cutting Edge	T00825	0.008in X 25° Chamfered Cutting Edge

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)

K	Gray Cast Iron (With Scale)	✱ ✱ ◔
	Gray Cast Iron (Without Scale)	● ◔ ◔ ◔ ●
	Nodular Cast Iron (With Scale)	◔
	Nodular Cast Iron (Without Scale)	◔
S	Heat-Resistant Alloys	●
H	Hard materials	○ ● ◔

Insert		Description (ANSI)		Description (ISO)		Edge Preparation	Dim. (in) rε	Alumina Ceramic KA30	Alumina Ceramic A65	Alumina Ceramic KT66	PVD Coated Ceramic A66N	MEGACOAT Ceramic PT600M	Silicon Nitride Ceramic KS6050	Silicon Nitride Ceramic KS6050	O/D Coated Silicon Nitride Ceramic CS7050	Cell Fiber CF1	Ref. Page for Toolholder
		SNGA	432T00625AA	SNGA	120408S01525	S00625	1/32				○						D14 D15
			433T00625AA		120412S01525		3/64				○						
		SNGA	432S00825	SNGA	120408S02025	S00825	1/32					●					
			433S00825		120412S02025		3/64					●					
		SNGA	432T00625	SNGA	120408T01525	T00625	1/32				●						
			433T00625		120412T01525		3/64				○						
		SNGA	432T00825	SNGA	120408T02025	T00825	1/32		●	○		●	○				
			433T00825		120412T02025		3/64		○	○		●		○	○		
			434T00825		120416T02025		1/16			○		●	●	○	○		
		SNMA	432T01230AA	SNMA	120408S03030	S01230	1/32				○						
		SNG	431T00425AA	SNG	120404S01025	S00425	1/64	○									D30 D31 D32 D33 D42
			432T00425AA		120408S01025		1/32	●									
			433T00425AA		120412S01025		3/64	●									
			434T00425AA		120416S01025		1/16	●									
			435T00425AA		120420S01025		5/64	○									
		SNG	432T00625AA	SNG	120408S01525	S00625	1/32				○						
			433T00625AA		120412S01525		3/64				○						
			434T00625AA		120416S01525		1/16				○						
		SNG	432S00825	SNG	120408S02025	S00825	1/32					●					
			433S00825		120412S02025		3/64					●					
			434S00825		120416S02025		1/16					●					
		SNG	434T01230AA	SNG	120416S03030	S01230	1/16				○						
		SNG	432T00220	SNG	120408T00520	T00220	1/32	○	○								
			433T00220		120412T00520		3/64	○									
			434T00220		120416T00520		1/16										
		SNG	432T00420	SNG	120408T01020	T00420	1/32									●	
			433T00420		120412T01020		3/64									●	
			434T00420		120416T01020		1/16									●	
			435T00420		120420T01020		5/64									●	
		SNG	431T00825	SNG	120404T02025	T00825	1/64		●			●					
			432T00825		120408T02025		1/32		●			●					
			433T00825		120412T02025		3/64		●			●	●	○	○		
			434T00825		120416T02025		1/16		●			●	●	○	○		
			435T00825		120420T02025		5/64		○			●	○	○	○		
		SNG	451T00425AA	SNG	120704S01025	S00425	1/64	○									
			452T00425AA		120708S01025		1/32	●									
			453T00425AA		120712S01025		3/64	○									
			454T00425AA		120716S01025		1/16	●									
		SNG	451T00625AA	SNG	120704S01525	S00625	1/64	○			○						
			452T00625AA		120708S01525		1/32	●			●						
			453T00625AA		120712S01525		3/64	○			○						
			454T00625AA		120716S01525		1/16	●			●						
			455T00625AA		120720S01525		5/64				○						

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

90°Square / Negative

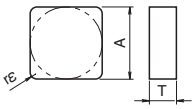
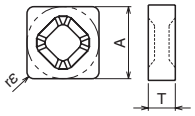
(in)

Description	A	T	ød
SNM45_	1/2	5/16	-
SNG45_	5/8		
SNG55_	1/2	5/16	
SNGX55_	5/8	5/16	

Edge Specification			
Symbol	Cutting Edge Condition	Example	
S	Chamfered and Honed Cutting Edge	S00825	0.008in X 25° Chamfered and Honed Cutting Edge
T	Chamfered Cutting Edge	T00825	0.008in X 25° Chamfered Cutting Edge

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)

K	Gray Cast Iron (With Scale)	❄ ✖ ◔
	Gray Cast Iron (Without Scale)	◔ ◔ ●
	Nodular Cast Iron (With Scale)	◔
	Nodular Cast Iron (Without Scale)	◔
S	Heat-Resistant Alloys	●
H	Hard materials	● ◔

Insert		Description (ANSI)	Description (ISO)	Edge Preparation	Dim. (in) rε	Alumina Ceramic KA30	A65	KT66	PVD Coated Ceramic A66N	MEGACOAT Ceramic PT600M	Silicon Nitride Ceramic KS6000	KS6050	CVD Coated Silicon Nitride Ceramic CS7050	Cell Fiber CF1	Ref. Page for Toolholder
		SNG 451S00825	SNG 120704S02025	S00825	1/64					●					D30 D31 D32 D33 D42
		SNG 452S00825	SNG 120708S02025		1/32					●					
		SNG 453S00825	SNG 120712S02025		3/64					●					
		SNG 454S00825	SNG 120716S02025		1/16					●					
		SNG 455S00825	SNG 120720S02025		5/64					●					
		SNG 452T00420	SNG 120708T01020	T00420	1/32									●	
		SNG 453T00420	SNG 120712T01020		3/64									●	
		SNG 454T00420	SNG 120716T01020		1/16									●	
		SNG 455T00420	SNG 120720T01020		5/64									●	
		SNG 451T00825	SNG 120704T02025	T00825	1/64		○			●					
		SNG 452T00825	SNG 120708T02025		1/32		○			●					
		SNG 453T00825	SNG 120712T02025		3/64		●			●					
		SNG 454T00825	SNG 120716T02025		1/16		●			●	●	○	○		
		SNG 455T00825	SNG 120720T02025		5/64		○			●					
		SNM 454T00825	SNMN 120716T02025	T00825	1/16		○								
		SNG 553T00825	SNG 150712T02025	T00825	3/64		○			●					
		SNG 554T00825	SNG 150716T02025		1/16		○			●	○				
		SNGX 452T00825	SNGX 120708T02025	T00825	1/32										D37
		SNGX 453T00825	SNGX 120712T02025		3/64							○	○		
		SNGX 454T00825	SNGX 120716T02025		1/16						●	○	○		
		SNGX 455T00825	SNGX 120720T02025		5/64										
		SNGX 552T00825	SNGX 150708T02025	T00825	1/32										
		SNGX 553T00825	SNGX 150712T02025		3/64						●				
		SNGX 554T00825	SNGX 150716T02025		1/16						○				
		SNGX 555T00825	SNGX 150720T02025		5/64										
		SNGX 553T01230	SNGX 150712T03030	T01230	3/64										
		SNGX 554T01230	SNGX 150716T03030		1/16										
		SNGX 555T01230	SNGX 150720T03030		5/64										

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

(in)

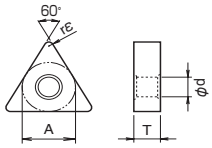
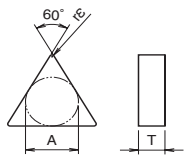
Description	A	T	ød
TNGA 33_	3/8	3/16	0.150
TNG 22_	1/4	1/8	-
TNG 33_	3/8	3/16	-

60°Triangle / Negative

Edge Specification			
Symbol	Cutting Edge Condition	Example	
S	Chamfered and Honed Cutting Edge	S00825	0.008in X 25° Chamfered and Honed Cutting Edge
T	Chamfered Cutting Edge	T00825	0.008in X 25° Chamfered Cutting Edge

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)

K	Gray Cast Iron (With Scale)					●	✱				
	Gray Cast Iron (Without Scale)	●		○		●					
	Nodular Cast Iron (With Scale)										
	Nodular Cast Iron (Without Scale)										
S	Heat-Resistant Alloys										
H	Hard materials				○	●					

Insert		Description (ANSI)		Description (ISO)		Edge Preparation	Dim. (in)	Alumina Ceramic			PVD Coated Ceramic	MEGACOAT Ceramic	Silicon Nitride Ceramic		CVD Coated Silicon Nitride Ceramic	Cell Fiber	Ref. Page for Toolholder
							rε	KA30	A65	KT66	A66N	PT600M	KS6000	KS6050	CS7050	CF1	
		TNGA	332T00425AA	TNGA	160408S01025	S00425	1/32	○									D16 D18 D19 F84
		TNGA	331T00625AA	TNGA	160404S01525		1/64				○						
			332T00625AA		160408S01525	S00625	1/32				○						
			333T00625AA		160412S01525		3/64				○						
		TNGA	331S00825	TNGA	160404S02025		1/64					●					
			332S00825		160408S02025	S00825	1/32					●					
			333S00825		160412S02025		3/64					○					
		TNGA	332T01230AA	TNGA	160408S03030	S01230	1/32				○						
			333T01230AA		160412S03030		3/64				○						
		TNGA	332T00220	TNGA	160408T00520	T00220	1/32	○									
		TNGA	331T00625	TNGA	160404T01525		1/64				○						
			332T00625		160408T01525	T00625	1/32				●						
			333T00625		160412T01525		3/64				○						
		TNGA	331T00825	TNGA	160404T02025		1/64		○	○		●					
			332T00825		160408T02025	T00825	1/32		●	○		●	○				
			333T00825		160412T02025		3/64			○		●					
		TNG	221T00220	TNG	110304T00520		1/64		○			●					D34 D43
			222T00220		110308T00520	T00220	1/32		○		○	●					
			223T00220		110312T00520		3/64					●					
		TNG	221T00625	TNG	110304T01525		1/64				○						
			222T00625		110308T01525	T00625	1/32										
			223T00625		110312T01525		3/64										
		TNG	331T00425AA	TNG	160404S01025		1/64	○									
			332T00425AA		160408S01025		1/32	●									
			333T00425AA		160412S01025	S00425	3/64	●									
			334T00425AA		160416S01025		1/16	●									
			335T00425AA		160420S01025		5/64	○									
		TNG	331T00625AA	TNG	160404S01525		1/64				○						
			332T00625AA		160408S01525	S00625	1/32				○						
			333T00625AA		160412S01525		3/64				○						
		TNG	331S00825	TNG	160404S02025		1/64					●					
			332S00825		160408S02025	S00825	1/32					●					
			333S00825		160412S02025		3/64					●					
		TNG	331T00220	TNG	160404T00520		1/64	○	○								
			332T00220		160408T00520		1/32	○	○								
			333T00220		160412T00520	T00220	3/64	○									
			334T00220		160416T00520		1/16	○									
			335T00220		160420T00520		5/64	○									
		TNG	331T00825	TNG	160404T02025		1/64		○			●					
			332T00825		160408T02025	T00825	1/32		●			●	○				
			333T00825		160412T02025		3/64		●			●	○				

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

60°Triangle/ Negative
35°Diamond / Negative
80°Trigon / Negative

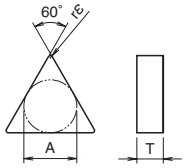
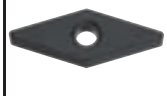
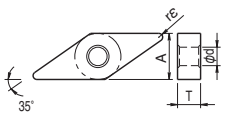
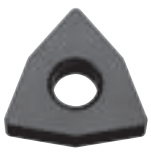
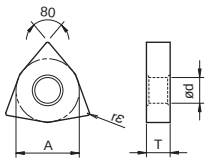
(in)

Description	A	T	ød
TNG 35_	3/8	5/16	-
TNG 43_	1/2	3/16	-
VN_A 33_	3/8	3/16	0.150
WNGA 43_	1/2	3/16	0.203

Edge Specification			
Symbol	Cutting Edge Condition	Example	
S	Chamfered and Honed Cutting Edge	S00825	0.008in X 25° Chamfered and Honed Cutting Edge
T	Chamfered Cutting Edge	T00825	0.008in X 25° Chamfered Cutting Edge

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)

		Alumina Ceramic			PVD Coated Ceramic	MEGACOAT Ceramic	Silicon Nitride Ceramic		CVD Coated Silicon Nitride Ceramic	Cell Fiber	
		KA30	A65	KT66	A66N	PT600M	KS6000	KS6050	CS7050	CF1	
K	Gray Cast Iron (With Scale)					◕	✖				
	Gray Cast Iron (Without Scale)	●		◔		◕					
	Nodular Cast Iron (With Scale)										
	Nodular Cast Iron (Without Scale)										
S	Heat-Resistant Alloys										
H	Hard materials				○	●					

Insert	Description (ANSI)	Description (ISO)	Edge Preparation	Dim. (in) rε	KA30	A65	KT66	A66N	PT600M	KS6000	KS6050	CS7050	CF1	Ref. Page for Toolholder
 	TNG 352T00625AA	TNG 160708S01525	S00625	1/32				○						D34 D43
	TNG 352S00825	TNG 160708S02025	S00825	1/32					●					
	TNG 351T00825	TNG 160704T02025	T00825	1/64		○			●					
	352T00825	160708T02025		1/32		○			●					
	353T00825	160712T02025		3/64		○			●					
	354T00825	160716T02025		1/16		○								
	355T00825	160720T02025		5/64		○								
	TNG 432T00825	TNG 220408T02025	T00825	1/32		●								
	433T00825	220412T02025		3/64		●				●				
	434T00825	220416T02025		1/16		●				●				
 	VNGA 331T00625AA	VNGA 160404S01525	S00625	1/64				●						D20 D21 D22
	332T00625AA	160408S01525		1/32				○						
	VNGA 331S00825	VNGA 160404S02025	S00825	1/64					●					
	332S00825	160408S02025		1/32					●					
	VNGA 331T00825	VNGA 160404T02025	T00825	1/64		●	○		●					
	332T00825	160408T02025		1/32		●	○		●					
	333T00825	160412T02025		3/64		○	○		●					
	VNMA 332T00625AA	VNMA 160408S01525	S00625	1/32				●						
 	WNGA 432T00625AA	WNGA 080408S01525	S00625	1/32				●						D23 D24 F85
	WNGA 431T00625	WNGA 080404T01525	T00625	1/64										
	432T00625	080408T01525		1/32				●						
	433T00625	080412T01525		3/64				○						
	WNGA 433T00825	WNGA 080412T02025	T00825	3/64		●								

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Positive

(in)

Description	A	T	øα
SPG 32_	3/8	1/8	11°
SPG 42_	1/2		

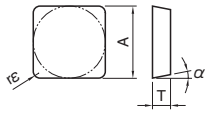
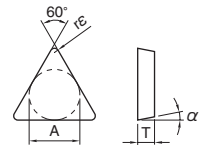
(in)

Description	A	T	øα
TBG 121_	5/32	1/16	5°
TCG 33_	3/8	3/16	7°
TPG 1815_	7/32	3/32	11°
22_	1/4	1/8	
32_	3/8		

Edge Specification			
Symbol	Cutting Edge Condition	Example	
S	Chamfered and Honed Cutting Edge	S00825	0.008in X 25° Chamfered and Honed Cutting Edge
T	Chamfered Cutting Edge	T00825	0.008in X 25° Chamfered Cutting Edge

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)

		KA30	A65	KT66	A66N	PT600M	KS6000	KS6050	CS7050	CF1	Ref. Page for Toolholder
K	Gray Cast Iron (With Scale)				○						
	Gray Cast Iron (Without Scale)			○		●					
	Nodular Cast Iron (With Scale)										
	Nodular Cast Iron (Without Scale)										
S	Heat-Resistant Alloys										
H	Hard materials				○	●					

Insert	Description (ANSI)	Description (ISO)	Edge Preparation	Dim. (in) rε	KA30	A65	KT66	A66N	PT600M	KS6000	KS6050	CS7050	CF1	Ref. Page for Toolholder
 	SPG 322T00320AA	SPG 090308S00820	S00320	1/32				○						E36 F76
	SPG 322T00320	SPG 090308T00820	T00320	1/32		○			●					
	SPG 422T00320AA	SPG 120308S00820	S00320	1/32										
	SPG 422T00320	SPG 120308T00820		1/32		○	○		●					
	423T00320	120312T00820	T00320	3/64		○	○		○					
	424T00320	120316T00820		1/16					○					
 	TBG 12105T00320AA	TBG 060102S00820		0.008				○						
	1211T00320AA	060104S00820	S00320	1/64				○						
	1212T00320AA	060108S00820		1/32				○						
	TBG 12105T00320	TBG 060102T00820		0.008				○						
	1211T00320	060104T00820	T00320	1/64			○		○					
	1212T00320	060108T00820		1/32			○		○					
	TCG 331T00320	TCG 160404T00820	T00320	1/64		○								F86
	332T00320	160408T00820		1/32		○								
	TPG 18151T00320	TPG 090204T00820	T00320	1/64			○		●					
	18152T00320	090208T00820		1/32			○		●					
	TPG 2205T00320AA	TPG 110302S00820		0.008				●						
	221T00320AA	110304S00820	S00320	1/64				○						
	222T00320AA	110308S00820		1/32				○						
	TPG 222T00320	110308T00820	T00320	1/32		●	○	●	●					E37 F86
	TPG 321T00320AA	TPG 160304S00820		1/64				○						
	322T00320AA	160308S00820	S00320	1/32				○						
	323T00320AA	160312S00820		3/64				○						
	TPG 3205T00320	TPG 160302T00820		0.008		●								
	321T00320	160304T00820	T00320	1/64		●		●	●					
	322T00320	160308T00820		1/32		●	○	●	●	●				
	323T00320	160312T00820		3/64		○		●	●					

Inserts are sold in 10 piece boxes.

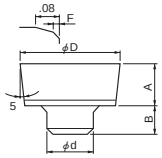
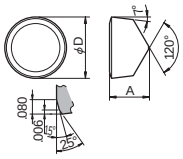
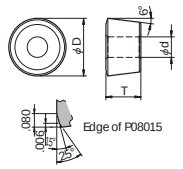
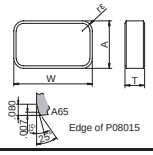
● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Inserts for Roll Machining

Edge Specification			
Symbol	Cutting Edge Condition	Example	
S	Chamfered and Honed Cutting Edge	S00825	0.008in X 25° Chamfered and Honed Cutting Edge
T	Chamfered Cutting Edge	T00825	0.008in X 25° Chamfered Cutting Edge

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)

K	Gray Cast Iron (With Scale)					✤	✤															
	Gray Cast Iron (Without Scale)					✤	✤															
	Nodular Cast Iron (With Scale)					✤	✤															
	Nodular Cast Iron (Without Scale)					✤	✤															
S	Heat-Resistant Alloys					✤	✤															
H	Hard materials					○	●															

Shape		Description (ANSI)		Std. Edge Prep. (inch)	Description (ISO)		Dimension					Alumina Ceramic			PVD Ceramic	MEGACOAT Ceramic		Silicon Nitride Ceramic	Cellfiber Ceramic		Ref. Page for Toolholder
							ϕD	ϕd	T	B	F	KA30	A65	KT66	A66N	PT600M		KS6000	CF1		
		RBG	16W	K08003	RBG	16W	0.630	0.315	0.315	0.197	0.008		○								—
			20W	K08003		20W	0.787	0.394	0.394		0.012		○								
			12K2003	K20003		12K2003	12mm	6mm	6mm	3mm	0.2mm					○					
			16K2003	K20003		16K2003	16mm	8mm	8mm	5mm	0.2mm					○					
			20K2003	K20003		20K2003	20mm	10mm	10mm	5mm	0.3mm					○					
	 Edge of P08015	RCGX	102T04015	T04015	RCGX	060400	1/4	-	0.180	-	-				●						D28
			102H315T04015			060700			0.315				●		●						
			103T08015/625AA	P08015		090700	3/8						●		●	●					
			104T08015/625AA			120700	1/2						●		●	●					
			106T08015/625AA			191000	3/4		0.394				●		●						
	 Edge of P08015	RCMA	66T08015/625AA	P08015	RCMA	190900	3/4	0.250	3/8	-	-		●		●						—
			88T08015/625AA			251200	1	0.266	1/2				●								
			812T08015/625AA			215800			3/4						●						
			106T08015/625AA			310900	1-1/4	0.390	3/8				●								
			1012T08015/625AA			311800			3/4				●								
	 Edge of P08015	LNU	6688T08015/625A	P08015	LNUN	381232	A	T	W	rε	-										—
							3/4	1/2	1½	1/8	-		●								

* For cutting edge "**K**" and "**P**," please refer to the table below.

Edge Preparation			
Symbol	Cutting Edge Condition	Example	
K	Double Chamfered Cutting Edges	K20003	0.079in X 3° Chamfered Cutting Edge
P	Double Chamfered + Honed Cutting Edge	P20015	0.079in X 15° Chamfered + Honed Cutting Edge
• Note: Symbol "K" and "P" describe only the largest chamfer width and its angle.			

Inserts are sold in 10 piece boxes.

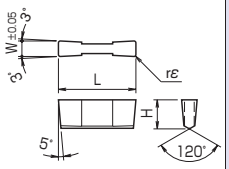
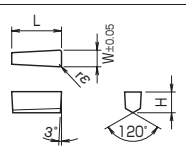
● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

Grooving Inserts

Edge Specification			
Symbol	Cutting Edge Condition	Example	
S	Chamfered and Honed Cutting Edge	S00825	0.008in X 25° Chamfered and Honed Cutting Edge
T	Chamfered Cutting Edge	T00825	0.008in X 25° Chamfered Cutting Edge

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)

		Alumina Ceramic			PVD Coated Ceramic	MEGACOAT Ceramic	Silicon Nitride Ceramic		CVD Coated Silicon Nitride Ceramic	Cell Fiber	
		KA30	A65	KT66	A66N	PT600M	KS6000	KS6050	CS7050	CF1	Ref. Page for Toolholder
K	Gray Cast Iron (With Scale)										
K	Gray Cast Iron (Without Scale)		○			●					
K	Nodular Cast Iron (With Scale)										
K	Nodular Cast Iron (Without Scale)										
S	Heat-Resistant Alloys										
H	Hard materials				○	●					

Insert	Description (ANSI)	Description (ISO)	Edge Preparation	Dim.(mm) W	rε	L	H	KA30	A65	KT66	A66N	PT600M	KS6000	KS6050	CS7050	CF1	Ref. Page for Toolholder
																	
	GH 4020-05	GH 4020-05	S00420	4.0	0.5	20	7.5				○	○					G53 G81
	4020-05	4020-05	T00420						○			○					
	5020-05	5020-05	S00420	5.0							○						
	5020-05	5020-05	T00420						○			○					
	6020-05	6020-05	T00420	6.0					○			○					
	7020-05	7020-05	T00420	7.0					○			○					
																	
	GS 91-5	GS 91-5	T00420	5.0	0.5	15	7.5										–
	91-6	91-6	T00420	6.0	0.8												
	91-7	91-7	T00420	7.0													
	91-8	91-8	T00420	8.0													

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only L : L-hand Only

CBN & PCD Tools



C

C1~C29

MEGACOAT CBN (MEGACOAT) C2~C3

Application Map C2
Recommended Cutting Conditions C3

CBN & PCD Tools Identification System C4



CBN Tools C5~C16

Turning negative Inserts C5~C8
Negative Inserts (Solid) C10
Turning Positive Inserts C11~C16
Grooving Inserts C17
Tip-Bars C17



PCD Tools C18~C28

Turning Negative Inserts C18
Turning Positive Inserts C19~C24
Grooving Inserts C25~C26
For Aluminum Wheel Machining C26
System Tip-Bars C27
Tip-Bars C27
Milling Inserts C28
PCD Grades and Features C29
Recommended Cutting Conditions C29



Extended Tool Life | Stability | High Speed availability

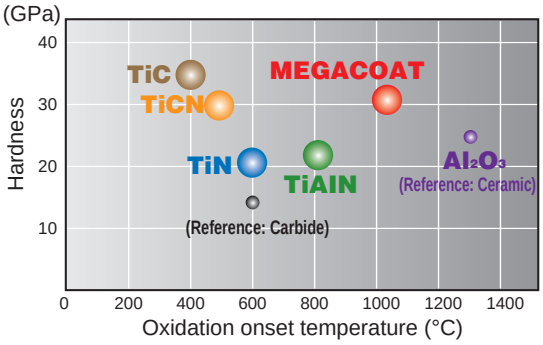
Kyocera's new innovative CBN tools.

CBN Variation and Features See page A15.

Eight MEGACOAT CBN grades that exhibit superior features compared to our popular KBN-series

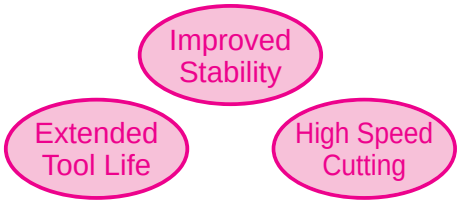
MEGACOAT CBN

Properties of PVD coated layer



Advantages of MEGACOAT

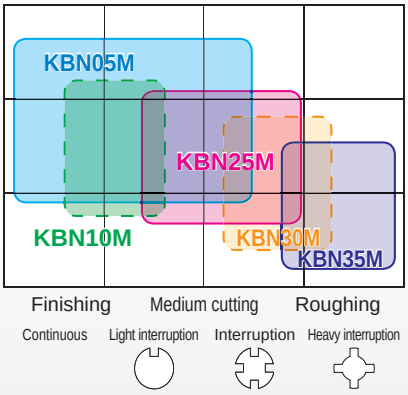




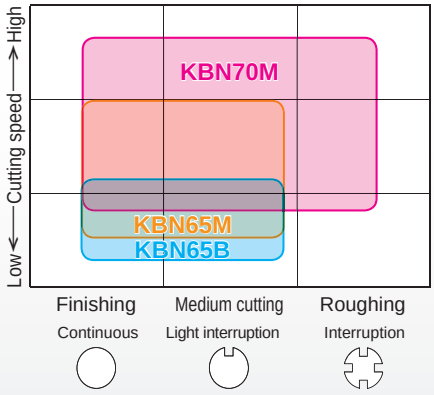
- Long tool life and stable cutting due to superior heat-resistance and hardness.
- Improvement of crater wear resistance.

Application Map

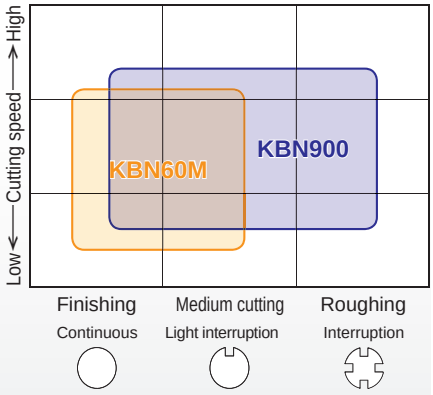
Hardened Materials



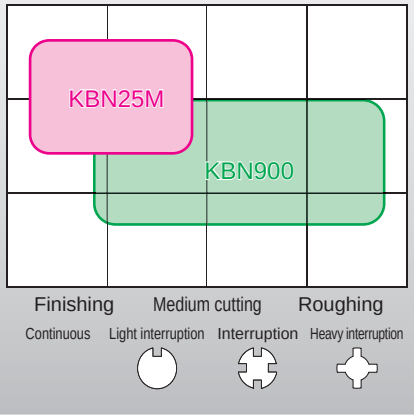
Sintered Steel



Cast Iron



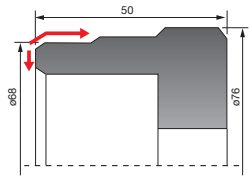
Roll Materials (Chilled Cast Iron)



Case Studies

17Cr3 (SCr420H) (58HRC)

- Gear
- External and Face machining and Chamfering
- Vc=425 sfm
- d.o.c.=0.024"
- f=0.005 ipr
- WET
- CNGA432S00525ME (KBN05M)



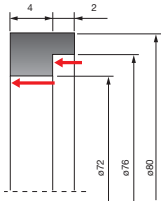
KBN05M	300 pcs/edge
Competitor A	200 pcs/edge

•KBN05M achieved 1.5 times longer tool life than Competitor A.
⇒Its longer tool life contributes to cost-cutting.

(Evaluation by the user)

15CrMo4 (SCM415) (55HRC)

- Stator
- Internal machining
- Vc=550 sfm
- d.o.c.=0.016"
- f=0.004 ipr
- WET
- CNGA432S00525ME (KBN05M)



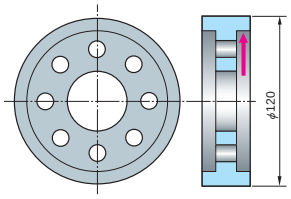
KBN05M	600 pcs/edge
Competitor B	300 pcs/edge

•KBN05M achieved twice longer tool life than Competitor B.
⇒Its longer tool life contributes to cost-cutting.

(Evaluation by the user)

25CrMo4 (SCM420) (60HRC)

- Gear Parts
- Interrupted face machining
- Vc=300 sfm
- d.o.c.=0.02"
- f=0.005 ipr
- Wet⇨Dry
- CNGA433S000525ME (KBN25M)



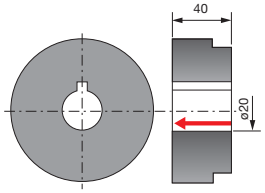
KBN25M	70 pcs/edge
Competitor C (CBN tool)	30 pcs/edge (Unstable)

KBN25M improved tool life up to 70 pieces/edge than is two times more than competitor's (CBN tool) B. Also, KBN25M has increased its tool life up to 250 pieces/edge by changing from wet machining to dry machining.

(Evaluation by the user)

25CrMo4 (SCM420) (58HRC)

- Sleeve
- Internal machining (Heavy interrupted)
- Vc=325 sfm
- d.o.c.=0.02"
- f=0.004 ipr
- Wet
- TPGB222S00435MET (KBN35M)



KBN35M	115 pcs/edge
Competitor D	100 pcs/edge

•KBN35M achieved 15% longer tool life in heavy interrupted machining compared with Competitor D.
•Furthermore it still keeps the insert tip in a good condition and so provides stable machining result.
⇒Its longer tool life and capability of providing stable result can contribute to cost-cutting and improved efficiency in machining.

(Evaluation by the user)

Recommended Cutting Conditions

Workpiece Material	Hardness	Application		Insert Grade	Cutting Conditions		
					Vc (sfm)	ap (in)	f (ipr)
Heat Treated Steel	Over 55HRC	General Finishing	Continuous~ Light interruption	KBN05M	330 - **490** - 660	0.002 - **0.012** - 0.020	0.002 - **0.003** - 0.004
		High Efficient Stable Cutting	Continuous~ Interruption	KBN25M	260 - **390** - 520	0.002 - **0.012** - 0.020	0.002 - **0.003** - 0.004
		Interrupted (Small ap)	Interrupted~ Heavy interruption	KBN35M	200 - **330** - 490	0.002 - **0.008** - 0.016	0.002 - **0.003** - 0.004
		Heavy Cutting	Continuous~ Interruption	KBN900	230 - **300** - 360	0.020 - **0.039** - 0.079	0.002 - **0.004** - 0.008
	Under 55HRC	Finishing	Continuous	PT600M	200 - **260** - 390	0.008 - **0.020** - 0.028	0.002 - **0.004** - 0.006
Gray Cast Iron	Under 250HB	Finishing	Continuous~ Light interruption	KBN60M	980 -**1970**-2620	0.002 - **0.008** - 0.020	0.001 - **0.002** - 0.004
		High Efficient Finishing	Continuous~ Light interruption	KBN900	1640-**2950**-3940	0.004 - **0.020** - 0.039	0.002 - **0.004** - 0.008
		Heavy Cutting	Continuous~ Interruption	KBN900	1640-**2300**-2950	0.020 - **0.059** - 0.118	0.004 - **0.012** - 0.02
Roll Materials (Chilled Cast Iron)	Over 55HRC	Finishing	Continuous~ Interruption	KBN25M	260 - **390** - 520	0.002 - **0.012** - 0.020	0.002 - **0.003** - 0.004
		Heavy Cutting	Continuous~ Interruption	KBN900	230 - **300** - 360	0.012 - **0.028** - 0.039	0.002 - **0.004** - 0.006
Sintered steel	Under 35HRC	Finishing	Continuous~ Light interruption	KBN65M	160 - **490** - 660	0.002 - **0.008** - 0.012	0.002 - **0.004** - 0.008
	Over 35HRC	Finishing	Continuous~ Interruption	KBN70M	330 - **660** - 820	0.002 - **0.008** - 0.012	0.002 - **0.004** - 0.008

Turning Insert

Identification System

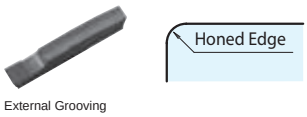
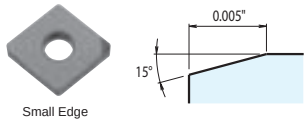
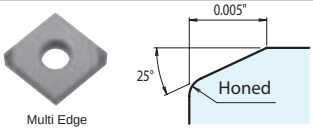
C	N	G	A	4	3	1	S00525	ME

Turning Indexable Inserts Identification System See Page B2 for Details

Insert Type	Example of type	Edge Prep.	Manufacturer's Option	Feature of insert		No. of Edge
				Length of edge	Strengthening of edge	
Negative	CNGA431S00525	S00525	Without Indication	Long	Standard specification (Specification is different from materials)	1
	CNGA431T00515	T00515				1
	CNM432S00820	S00820	Without Indication (Only KBN900)		Standard specification	4
	CNGA431S00525SE	S00525	SE	Short (Small Edge)		1
	CNGA431S00525ME	S00525	ME			2
	CNGA431S00730SET	S00730	SET		Tough Edge	1
	CNGA431S00730MET	S00730	MET		Tough Edge	2
	CNGM431S00325BB1 CNGM431S00525BB2 CNGM431S00625BB3	S00325 S00525 S00625	BB1 BB2 BB3		With chipbreaker (Specification is different from chipbreaker)	1
Positive	CPGB321T00315	T00315	Without Indication	Long	Standard specification	1
	CPGB321T00315SE	T00315	SE	Short (Small Edge)		1
	CPGB321T00315ME	T00315	ME			2
	CPGB321S00435SET	S00435	SET		Tough Edge	1
	CPGB321S00435MET	S00435	MET		Tough Edge	2

●See **B5** for insert color

How to identify edge specification

Edge Preparation				
Symbol	Cutting Edge Spec.	Example		Shape
E	Honed Cutting Edge	E003	0.003" Hone	
T	Chamfered Cutting Edge	T00515	0.005" X 15° Chamfered Cutting Edge	
S	Chamfered + Honed Cutting Edge	S00525	0.005" X 25° Chamfered + Honed Cutting Edge	

80° Diamond / Negative

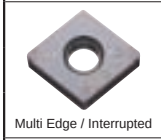
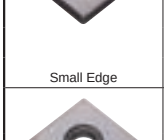
(inch)

Description	I.C.(A)	T	ϕd
CNGA43_ CNGM43_	1/2	3/16	0.203

Classification of usage

- : Interruption / 1st Choice
- : Interruption / 2nd Choice
- : Light Interruption / 1st Choice
- : Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

K	Gray Cast Iron (With Scale)	
	Gray Cast Iron (Without Scale)	
	Nodular Cast Iron (Without Scale)	
	Sintered Metal	
H	Hardened Material (Roughing)	
	Hardened Material (Finishing)	
	Hardened Material (Chip Control)	

Shape	Description (ANSI)	Std. Edge Prep. (inch)	Description (ISO)	Dimension (inch) rε	Dimension (inch) S	No. of Edge	MEGACOAT CBN KBN05M (NEW)	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	PVD Coated CBN KBN10C	KBN25C	Ref. Page for Toolholder
 Multi Edge with Wiper Edge	CNGA 431S00515MEW	S00515	CNGA 120404S01215MEW	1/64	0.102		●	●	●	○					●	●	D8 D9 F78 F82
	432S00515MEW		120408S01215MEW	1/32	0.098	2	●	●	●	○	●				●	●	
	433S00515MEW		120412S01215MEW	3/64	0.098		●	●	●	○	●				●	●	
 Multi Edge	CNGA 4305S00525ME	S00525	CNGA 120402S01225ME	0.008	0.102		●	●	●		○	●			●	●	
	431S00525ME		120404S01225ME	1/64	0.098		●	●	●	○	●	●			●	●	
	432S00525ME		120408S01225ME	1/32	0.102		●	●	●	○	●	●			●	●	
	433S00525ME		120412S01225ME	3/64	0.098	2	●	●	●	○	●	●			●	●	
	CNGA 431T00515ME	T00515	CNGA 120404T01215ME	1/64	0.098								○	●			
	432T00515ME		120408T01215ME	1/32	0.102								○	●			
	433T00515ME		120412T01215ME	3/64	0.098								○	●			
 Multi Edge / Interrupted	CNGA 431S01630MEH	S01630	CNGA 120404S04030MEH	1/64	0.098		○										
	432S01630MEH		120408S04030MEH	1/32	0.102	2	○										
	433S01630MEH		120412S04030MEH	3/64	0.098		○										
 Multi Edge / Finishing	CNGA 431S00245MEP	S00425	CNGA 120404S00545MEP	1/64	0.098		○										
	432S00245MEP		120408S00545MEP	1/32	0.102	2	○										
	433S00245MEP		120412S00545MEP	3/64	0.098		○										
 Multi Edge / Tough	CNGA 431S00730MET	S00730	CNGA 120404S01730MET	1/64	0.098			○	●	○	●					●	
	432S00730MET		120408S01730MET	1/32	0.102	2		○	●	○	●				○		
	433S00730MET		120412S01730MET	3/64	0.098			○	●	○	●				○	●	
 Small Edge	CNGA 4305S00525SE	S00525	CNGA 120402S01225SE	0.008	0.102			●	●						●	●	
	431S00525SE		120404S01225SE	1/64	0.098			●	●						●	●	
	432S00525SE		120408S01225SE	1/32	0.102			●	●						●	●	
	433S00525SE		120412S01225SE	3/64	0.098	1		●	●						●	●	
	CNGA 431T00515SE	T00515	CNGA 120404T01215SE	1/64	0.098		●										
	432T00515SE		120408T01215SE	1/32	0.102		●										
	433T00515SE		120412T01215SE	3/64	0.098		●										
 Small Edge / Tough	CNGA 431S00730SET	S00730	CNGA 120404S01730SET	1/64	0.102				●							●	
	432S00730SET		120408S01730SET	1/32	0.102	1			●							●	
	433S00730SET		120412S01730SET	3/64	0.098				●							●	
 Standard Edge	CNGA 431S00525	S00525	CNGA 120404S01225	1/64	0.146			●	●						●	●	
	432S00525		120408S01225	1/32	0.142			●	●						●	●	
	433S00525		120412S01225	3/64	0.142	1		●	●						●	●	
	CNGA 431T00515	T00515	CNGA 120404T01215	1/64	0.146												
	432T00515		120408T01215	1/32	0.142												
	433T00515		120412T01215	3/64	0.142												

CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Stock ○ : World Express

80° Diamond / Negative with Hole
55° Diamond • Negative with Hole

(inch)

Description	I.C.(A)	T	ϕd
DNGA43	1/2	3/16	0.203
DNGA44		1/4	

(inch)

Description	I.C.(A)	T	ϕd
DNGM43_	1/2	3/16	0.203

Classification of usage

: Interruption / 1st Choice
: Interruption / 2nd Choice
: Light Interruption / 1st Choice
: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice

		MEGACOAT CBN							PVD Coated CBN	
		KBN05M NEW	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN10C	KBN25C
K	Gray Cast Iron (With Scale)										
	Gray Cast Iron (Without Scale)						●				
	Nodular Cast Iron (Without Scale)										
	Sintered Metal							●	✖		
H	Hardened Material (Roughing)				✲	✖					
	Hardened Material (Finishing)		●	◔						○	◔
	Hardened Material (Chip Control)		●	◔							

Shape	Description (ANSI)	Std. Edge Prep. (inch)	Description (ISO)	Dimension (inch) rε	Dimension (inch) S	No. of Edge	Ref. Page for Toolholder
With Chipbreaker	CNGM 431S00325BB1	S00325	CNGM 120404S00825BB1	1/64	0.071	1	D8 D9 F78 F82
	CNGM 432S00325BB1		CNGM 120408S00825BB1	1/32	0.079		
	CNGM 433S00325BB1		CNGM 120412S00825BB1	3/64	0.087		
	CNGM 431S00525BB2	S00525	CNGM 120404S01225BB2	1/64	0.087		
	CNGM 432S00525BB2		CNGM 120408S01225BB2	1/32	0.094		
	CNGM 433S00525BB2		CNGM 120412S01225BB2	3/64	0.102		
	CNGM 431S00625BB3	S00625	CNGM 120404S01625BB3	1/64	0.102		
	CNGM 432S00625BB3		CNGM 120408S01625BB3	1/32	0.110		
	CNGM 433S00625BB3		CNGM 120412S01625BB3	3/64	0.118		
Multi Edge	DNGA 4302S00525ME	S00525	DNGA 150401S01225ME	0.004	0.087	2	
	DNGA 4305S00525ME		DNGA 150402S01225ME	0.008	0.098		
	DNGA 431S00525ME		DNGA 150404S01225ME	1/64	0.091		
	DNGA 432S00525ME		DNGA 150408S01225ME	1/32	0.075		
	DNGA 433S00525ME		DNGA 150412S01225ME	3/64	0.075		
	DNGA 431T00515ME	T00515	DNGA 150404T01215ME	1/64	0.091		
	DNGA 432T00515ME		DNGA 150408T01215ME	1/32	0.075		
	DNGA 433T00515ME		DNGA 150412T01215ME	3/64	0.075		
	DNGA 441S00525ME	S00525	DNGA 150604S01225ME	1/64	0.091		
	DNGA 442S00525ME		DNGA 150608S01225ME	1/32	0.075		
	DNGA 443S00525ME		DNGA 150612S01225ME	3/64	0.075		
	DNGA 441T00515ME	T00515	DNGA 150604T01215ME	1/64	0.091		
	DNGA 442T00515ME		DNGA 150608T01215ME	1/32	0.075		
	DNGA 443T00515ME		DNGA 150612T01215ME	3/64	0.075		
Multi Edge / Interrupted	DNGA 431S01630MEH	S01630	DNGA 150404S04030MEH	1/64	0.091	2	D10 D11 D12 F79
	DNGA 432S01630MEH		DNGA 150408S04030MEH	1/32	0.075		
	DNGA 433S01630MEH		DNGA 150412S04030MEH	3/64	0.075		
Multi Edge / Finishing	DNGA 431S00245MEP	S00245	DNGA 150404S00545MEP	1/64	0.091	2	
	DNGA 432S00245MEP		DNGA 150408S00545MEP	1/32	0.075		
	DNGA 433S00245MEP		DNGA 150412S00545MEP	3/64	0.075		
Multi Edge / Tough	DNGA 431S00730MET	S00730	DNGA 150404S01730MET	1/64	0.091	2	
	DNGA 432S00730MET		DNGA 150408S01730MET	1/32	0.075		
	DNGA 433S00730MET		DNGA 150412S01730MET	3/64	0.075		
	DNGA 441S00730MET	S00730	DNGA 150604S01730MET	1/64	0.091		
	DNGA 442S00730MET		DNGA 150608S01730MET	1/32	0.075		
	DNGA 443S00730MET		DNGA 150612S01730MET	3/64	0.075		
Small Edge	DNGA 4302S00525SE	S00525	DNGA 150401S01225SE	0.004	0.087	1	
	DNGA 4305S00525SE		DNGA 150402S01225SE	0.008	0.098		
	DNGA 431S00525SE		DNGA 150404S01225SE	1/64	0.091		
	DNGA 432S00525SE		DNGA 150408S01225SE	1/32	0.075		
	DNGA 433S00525SE		DNGA 150412S01225SE	3/64	0.075		
	DNGA 431T00515SE	T00515	DNGA 150404T01215SE	1/64	0.091		
	DNGA 432T00515SE		DNGA 150408T01215SE	1/32	0.075		
	DNGA 441S00525SE	S00525	DNGA 150604S01225SE	1/64	0.091		
	DNGA 442S00525SE		DNGA 150608S01225SE	1/32	0.075		
	DNGA 443S00525SE		DNGA 150612S01225SE	3/64	0.075		

CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Stock ○ : World Express

90°Square • Negative with Hole
60°Triangle • Negative with Hole

(inch)

Description	I.C.(A)	T	ϕd
SNGA43_	1/2	3/16	0.203

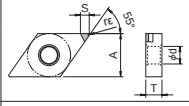
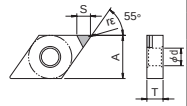
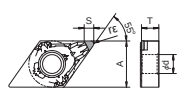
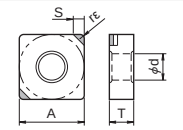
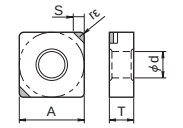
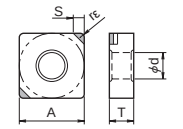
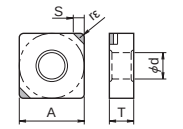
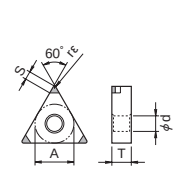
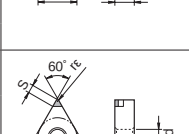
(inch)

Description	I.C.(A)	T	ϕd
TNGA33_ TNGM33_	3/8	3/16	0.150

Classification of usage

- : Interruption / 1st Choice
- : Interruption / 2nd Choice
- : Light Interruption / 1st Choice
- : Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

		KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN10C	KBN25C
K	Gray Cast Iron (With Scale)										
	Gray Cast Iron (Without Scale)						○				
	Nodular Cast Iron (Without Scale)										
	Sintered Metal							●	✖		
H	Hardened Material (Roughing)				✥	✖					
	Hardened Material (Finishing)		○	●						○	↻
	Hardened Material (Chip Control)		○	●							

Shape		Description (ANSI)	Std. Edge Prep. (inch)	Description (ISO)	Dimension (inch) rε	Dimension (inch) S	No. of Edge	MEGACOAT CBN KBN05M (NEW)	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	PVD Coated CBN KBN10C	KBN25C	Ref. Page for Toolholder
Small Edge / Tough		DNGA 431S00730SET	S00730	DNGA 150404S01730SET	1/64	0.091	1			●							●	
		DNGA 432S00730SET		DNGA 150408S01730SET	1/32	0.075				●							●	
		DNGA 433S00730SET		DNGA 150412S01730SET	3/64	0.075				●							●	
Standard Edge		DNGA 431S00525	S00525	DNGA 150404S01225	1/64	0.228			●	●						●	●	
		DNGA 432S00525		DNGA 150408S01225	1/32	0.217			●	●						●	●	
		DNGA 431T00515	T00515	DNGA 150404T01215	1/64	0.228	1											D10
		DNGA 432T00515		DNGA 150408T01215	1/32	0.217												D11
With Chipbreaker		DNGM 431S00325BB1	S00325	DNGM 150404S00825BB1	1/64	0.063	1		○	○								D12
		DNGM 432S00325BB1		DNGM 150408S00825BB1	1/32	0.063			○	○								F79
		DNGM 433S00325BB1		DNGM 150412S00825BB1	3/64	0.071			○	○								
		DNGM 431S00525BB2	S00525	DNGM 150404S01225BB2	1/64	0.071			○	○								
		DNGM 432S00525BB2		DNGM 150408S01225BB2	1/32	0.079			○	●								
		DNGM 433S00525BB2		DNGM 150412S01225BB2	3/64	0.083			○	○								
		DNGM 431S00625BB3	S00625	DNGM 150404S01625BB3	1/64	0.087			○	○								
		DNGM 432S00625BB3		DNGM 150408S01625BB3	1/32	0.098			○	○								
		DNGM 433S00625BB3		DNGM 150412S01625BB3	3/64	0.098			○	○								
Multi Edge		SNGA 431S00525ME	S00525	SNGA 120404S01225ME	1/64	0.071	2	●	●	●			○			●		
		SNGA 432S00525ME		SNGA 120408S01225ME	1/32	0.071		●	●	●	○	●	○			●	●	
		SNGA 431T00515ME	T00515	SNGA 120404T01215ME	1/64	0.071								○	●			
		SNGA 432T00515ME		SNGA 120408T01215ME	1/32	0.071								○	●			
		SNGA 433T00515ME		SNGA 120412T01215ME	3/64	0.087								○	●			
Multi Edge / Interrupted		SNGA 432S01630MEH	S01630	SNGA 120404S04030MEH	1/64	0.071	2	○										
		SNGA 433S01630MEH		SNGA 120408S04030MEH	1/32	0.071		○										D14
Multi Edge / Finishing		SNGA 432S00245MEP	S00245	SNGA 120404S00545MEP	1/64	0.071	2	○										D15
		SNGA 433S00245MEP		SNGA 120408S00545MEP	1/32	0.071		○										
Multi Edge / Tough		SNGA 431S00730MET	S00730	SNGA 120404S01730MET	1/64	0.071	2	●	○	●						○	●	
		SNGA 432S00730MET		SNGA 120408S01730MET	1/32	0.071		●	○	●	○	○				○	●	
		SNGA 433S00730MET		SNGA 120412S01730MET	3/64	0.087		●	○	●	○	○				○	●	
Multi Edge		TNGA 3302S00525ME	S00525	TNGA 160401S01225ME	0.004	0.102	3	○	○	○			●					
		TNGA 3305S00525ME		TNGA 160402S01225ME	0.008	0.098		●	●	●		○	●			●	●	
		TNGA 331S00525ME	S00525	TNGA 160404S01225ME	1/64	0.094		●	●	●	○	●	●			○	●	
		TNGA 332S00525ME		TNGA 160408S01225ME	1/32	0.094		●	●	●	○	●	●			●	●	
		TNGA 333S00525ME		TNGA 160412S01225ME	3/64	0.083		●	●	●	○	●	●			●	●	D16
		TNGA 331T00515ME	T00515	TNGA 160404T01215ME	1/64	0.094								○	●			D17
		TNGA 332T00515ME		TNGA 160408T01215ME	1/32	0.094								○	●			D18
		TNGA 333T00515ME		TNGA 160412T01215ME	3/64	0.083								○	●			D19
Multi Edge / Interrupted		TNGA 331S01630MEH	S01630	TNGA 160404S04030MEH	1/64	0.094	3	○										F84
		TNGA 332S01630MEH		TNGA 160408S04030MEH	1/32	0.094		○										
		TNGA 333S01630MEH		TNGA 160412S04030MEH	3/64	0.083		○										

CBN & PCD Inserts are sold in 1 piece boxes.

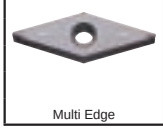
● : Std. Stock ○ : World Express

60°Triangle • Negative with Hole
35°Diamond • Negative with Hole

Classification of usage

- : Interruption / 1st Choice
- : Interruption / 2nd Choice
- : Light Interruption / 1st Choice
- : Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

		MEGACOAT CBN							PVD Coated CBN		
		KBN05M (NEW)	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN10C	KBN25C
K	Gray Cast Iron (With Scale)										
	Gray Cast Iron (Without Scale)						○				
	Nodular Cast Iron (Without Scale)										
	Sintered Metal							●	◓		
H	Hardened Material (Roughing)				◓	◓					
	Hardened Material (Finishing)		○	●						○	◔
	Hardened Material (Chip Control)		○	●							

Shape	Description (ANSI)	Std. Edge Prep. (inch)	Description (ISO)	Dimension (inch) rε	Dimension (inch) S	No. of Edge	Ref. Page for Toolholder
 Multi Edge / Finishing	TNGA 331S00245MEP	S00245	TNGA 160404S00545MEP	1/64	0.094		
	332S00245MEP		160408S00545MEP	1/32	0.094	3	
	333S00245MEP		160412S00545MEP	3/64	0.083		
 Multi Edge / Tough	TNGA 331S00730MET	S00730	TNGA 160404S01730MET	1/64	0.094		
	332S00730MET		160408S01730MET	1/32	0.094	3	
	333S00730MET		160412S01730MET	3/64	0.083		
 Small Edge	TNGA 3302S00525SE	S00525	TNGA 160401S01225SE	0.004	0.102		
	3305S00525SE		160402S01225SE	0.008	0.114		
	331S00525SE		160404S01225SE	1/64	0.106		
	332S00525SE		160408S01225SE	1/32	0.094	1	
	333S00525SE		160412S01225SE	3/64	0.083		
	TNGA 331T00515SE	T00515	TNGA 160404T01215SE	1/64	0.094		D16
	333T00515SE		160412T01215SE	1/32	0.087		D17
 Small Edge / Tough	TNGA 331S00730SET	S00730	TNGA 160404S01730SET	1/64	0.106		D18
	332S00730SET		160408S01730SET	1/32	0.094	1	D19
	333S00730SET		160412S01730SET	3/64	0.083		F84
 Standard Edge	TNGA 331S00525	S00525	TNGA 160404S01225	1/64	0.150		
	332S00525		160408S01225	1/32	0.138		
	TNGA 331T00515	T00515	TNGA 160404T01215	1/64	0.150	1	
	332T00515		160408T01215	1/32	0.138		
 With Chipbreaker	TNGM 331S00325BB1	S00325	TNGM 160404S00825BB1	1/64	0.059		
	332S00325BB1		160408S00825BB1	1/32	0.067		
	333S00325BB1		160412S00825BB1	3/64	0.075		
	TNGM 331S00525BB2	S00525	TNGM 160404S01225BB2	1/64	0.075		
	332S00525BB2		160408S01225BB2	1/32	0.083	1	
	333S00525BB2		160412S01225BB2	3/64	0.087		
	TNGM 331S00625BB3	S00625	TNGM 160404S01625BB3	1/64	0.087		
	332S00625BB3		160408S01625BB3	1/32	0.094		
	333S00625BB3		160412S01625BB3	3/64	0.102		
 Multi Edge	VNGA 3302S00525ME	S00525	VNGA 160401S01225ME	0.004	0.102		
	3305S00525ME		160402S01225ME	0.008	0.091		D20
	331S00525ME		160404S01225ME	1/64	0.079	2	D21
	332S00525ME		160408S01225ME	1/32	0.071		D22
	VNGA 331T00515ME	T00515	VNGA 160404T01215ME	1/64	0.079		
	332T00515ME		160408T01215ME	1/32	0.071		

CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Stock ○ : World Express

35°Diamond • Negative with Hole
80°Trigon • Negative with Hole

(inch)

Description	I.C.(A)	T	ϕd
VNGA33_	3/8	3/16	0.15

(inch)

Description	I.C.(A)	T	ϕd
WNGA43_	1/2	3/16	0.203

Classification of usage

- : Interruption / 1st Choice
- : Interruption / 2nd Choice
- : Light Interruption / 1st Choice
- : Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

		KBN05M (NEW)	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN10C	KBN25C
K	Gray Cast Iron (With Scale)										
K	Gray Cast Iron (Without Scale)						○				
K	Nodular Cast Iron (Without Scale)										
K	Sintered Metal							●	✠		
H	Hardened Material (Roughing)			✠	✠						
H	Hardened Material (Finishing)	○	●							●	◔
H	Hardened Material (Chip Control)	○	●								

Shape	Description (ANSI)	Std. Edge Prep. (inch)	Description (ISO)	Dimension (inch) rε	Dimension (inch) S	No. of Edge	KBN05M (NEW)	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN10C	KBN25C	Ref. Page for Toolholder
Multi Edge / Interrupted	VNGA 331S01630MEH	S01630	VNGA 160404S04030MEH	1/64	0.079	2	○										
	332S01630MEH		160408S04030MEH	1/32	0.071		○										
Multi Edge / Finishing	VNGA 331S00245MEP	S00245	VNGA 160404S00545MEP	1/64	0.079	2	○										
	332S00245MEP		160408S00545MEP	1/32	0.071		○										
Multi Edge / Tough	VNGA 331S00730MET	S00730	VNGA 160404S01730MET	1/64	0.079	2	●	○	●	○	●					●	
	332S00730MET		160408S01730MET	1/32	0.071		●	○	●	○	●				○		
Small Edge	VNGA 3302S00525SE	S00525	VNGA 160401S01225SE	0.004	0.102	1			●							●	D20
	3305S00525SE		160402S01225SE	0.008	0.091			●	●						●	●	D21
	331S00525SE		160404S01225SE	1/64	0.106			●	●						●	●	D22
	332S00525SE		160408S01225SE	1/32	0.075			●	●						●	●	
	VNGA 331T00515SE	T00515	VNGA 160404T01215SE	1/64	0.075												
	332T00515SE		160408T01215SE	1/32	0.063												
Small Edge / Tough	VNGA 331S00730SET	S00730	VNGA 160404S01730SET	1/64	0.075	1			●							●	
	332S00730SET		160408S01730SET	1/32	0.106				●							●	
Standard Edge	VNGA 331S00525	S00525	VNGA 160404S01225	1/64	0.193	1		●	●						●	●	
	332S00525		160408S01225	1/32	0.157			●	●						●	●	
	VNGA 331T00515	T00515	VNGA 160404T01215	1/64	0.193												
	332T00515		160408T01215	1/32	0.157												
Multi Edge	WNGA 431S00525ME	S00525	WNGA 080404S01225ME	1/64	0.079	3	●	●		○	○	●			○	●	
	432S00525ME		080408S01225ME	1/32	0.102		●		○	○	○	●			●	●	
	433S00525ME		080412S01225ME	3/64	0.098		○	○	○	○	○	●			○		
	WNGA 431T00515ME	T00515	WNGA 080404T01215ME	1/64	0.079								○	●			
	432T00515ME		080408T01215ME	1/32	0.102								○				
	433T00515ME		080412T01215ME	3/64	0.098								○	●			
Multi Edge / Tough	WNGA 431S00730MET	S00730	WNGA 080404S01730MET	1/64	0.079	3		○	○	○	○				○		D23
	432S00730MET		080408S01730MET	1/32	0.102			○	○	○	○				○		D24
	433S00730MET		080412S01730MET	3/64	0.098			○	○	○	○				○		F85
Small Edge	WNGA 431S00525SE	S00525	WNGA 080404S01225SE	1/64	0.079	1		●	●						●	●	
	432S00525SE		080408S01225SE	1/32	0.075			●	●						●	●	
Small Edge / Tough	WNGA 431S00730SET	S00730	WNGA 080404S01730SET	1/64	0.079	1			●							●	
	432S00730SET		080408S01730SET	1/32	0.075				●							●	

CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Stock ○ : World Express

Negative Inserts (Solid)

(inch)

Description	I.C.(A)	T
CNM32_	3/8	1/8
CNM43_	1/2	3/16
RNM22_	1/4	1/8
RNM32_	3/8	
RNM42_	1/2	
RNM43_		3/16

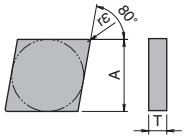
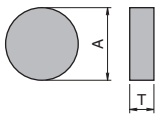
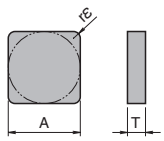
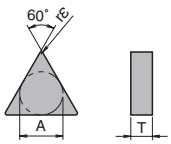
(inch)

Description	I.C.(A)	T
SNM32_	3/8	1/8
SNM42_	1/2	
SNM43_		3/16
TNM22_	1/4	1/8
TNM33_	3/8	3/16

Classification of usage

- : Interruption / 1st Choice
- : Interruption / 2nd Choice
- : Light Interruption / 1st Choice
- : Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

K	Gray Cast Iron (With Scale)	
	Gray Cast Iron (Without Scale)	
	Nodular Cast Iron (Without Scale)	
	Sintered Metal	
H	Hardened Material (Roughing)	
	Hardened Material (Finishing)	●
	Hardened Material (Chip Control)	

Shape	Description (ANSI)	Std. Edge Prep. (inch)	Description (ISO)	Dimension (inch) rε	No. of Edge	PVD Coated CBN KBN900	Ref. Page for Toolholder
 	CNM 322S00820	S00820	CNMN 090308S02020	1/32	4	●	D39 F88
	CNM 323S00820		CNMN 090312S02020	3/64		○	
	CNM 432S00820	S00820	CNMN 120408S02020	1/32	4	●	D25 D39
	CNM 433S00820		CNMN 120412S02020	3/64		●	
	CNM 434S00820		CNMN 120416S02020	1/16		○	
 	RNM 22S00820	S00820	RNMN 060300S02020	-	-	●	-
	RNM 32S00820		RNMN 090300S02020			●	D40
	RNM 42S00820		RNMN 120300S02020			●	
	RNM 43S00820		RNMN 120400S02020			●	D29 D40
 	SNM 322S00820	S00820	SNMN 090308S02020	1/32	8	●	D30 F88
	SNM 323S00820		SNMN 090312S02020	3/64		●	
	SNM 422S00820	S00820	SNMN 120308S02020	1/32		○	D30
	SNM 423S00820		SNMN 120312S02020	3/64		●	
	SNM 432S00820	S00820	SNMN 120408S02020	1/32		●	D30 D31 D32 D33 D42 F88
	SNM 433S00820		SNMN 120412S02020	3/64		●	
	SNM 434S00820		SNMN 120416S02020	1/16		○	
	SNM 435S00820		SNMN 120420S02020	5/64		○	
 	TNM 222S00820	S00820	TNMN 110308S02020	1/32	6	●	D34 F88
	TNM 223S00820		TNMN 110312S02020	3/64		○	
	TNM 332S00820	S00820	TNMN 160408S02020	1/32		○	D34
	TNM 333S00820		TNMN 160412S02020	3/64		●	
	TNM 334S00820		TNMN 160416S02020	1/16		○	
	TNM 335S00820		TNMN 160420S02020	5/64		○	

CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Stock ○ : World Express

80°Diamond • Positive with Hole

(inch)

Description	I.C.(A)	T	ϕd	α
CCMW1109_	0.138	0.055	0.075	7°
CCMW1411_	0.169	0.071	0.091	
CCMW215_	1/4	3/32	0.110	
CCMW325_	3/8	5/32	0.173	

(inch)

Description	I.C.(A)	T	ϕd	α
CPGB2515_	5/16	3/32	0.138	11°
CPGB32_	3/8	1/8	0.177	

Classification of usage

- : Interruption / 1st Choice
- : Interruption / 2nd Choice
- : Light Interruption / 1st Choice
- : Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

		MEGACOAT CBN								PVD Coated CBN		
		KBN05M (NEW)	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN10C	KBN25C	
K	Gray Cast Iron (With Scale)											
	Gray Cast Iron (Without Scale)						○					
	Nodular Cast Iron (Without Scale)											
	Sintered Metal							●	✖			
H	Hardened Material (Roughing)			✱	✖							
	Hardened Material (Finishing)	○	●							○	◔	
	Hardened Material (Chip Control)	○	●									

Shape	Description (ANSI)	Std. Edge Prep. (inch)	Description (ISO)	Dimension (inch) rε	Dimension (inch) S	No. of Edge	KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN10C	KBN25C	Ref. Page for Toolholder
 Multi Edge	CCMW 21505T00315ME	T00315	CCMW 060202T00815ME	0.008	0.079	2	○	○	○		○	●					E20 E21 F28 F29
	CCMW 2151T00315ME		CCMW 060204T00815ME	1/64	0.075		○	○	●		●	●					
	CCMW 2152T00315ME		CCMW 060208T00815ME	1/32	0.071		○	○	●		●	●					
	CCMW 32505T00315ME	T00315	CCMW 09T302T00815ME	0.008	0.079		○	○	○		●	●					
	CCMW 3251T00315ME		CCMW 09T304T00815ME	1/64	0.075		○	○	●	○	●	●	○	●			
	CCMW 3252T00315ME		CCMW 09T308T00815ME	1/32	0.071		○	○	○	○	●	●	○	●			
 Multi Edge / General Purpose	CCMW 3251S00525MES	S00525	CCMW 09T304S01225MES	1/64	0.075		●										
	CCMW 3252S00525MES		CCMW 09T308S01225MES	1/32	0.071	2	●										
 Multi Edge / Tough	CCMW 3251S00435MET	S00435	CCMW 09T304S01035MET	1/64	0.075		●	○	●		●						
	CCMW 3252S00435MET		CCMW 09T308S01035MET	1/32	0.071		●	○	○		●						
 Small Edge	CCMW 110905T00315SE	T00315	CCMW 030102T00815SE	0.008	0.055	1		○	○								F32 ~ F36 F80
	CCMW 11091T00315SE		CCMW 030104T00815SE	1/64	0.055			○	○								
	CCMW 141105T00315SE	T00315	CCMW 040102T00815SE	0.008	0.055			○	○								
	CCMW 14111T00315SE		CCMW 040104T00815SE	1/64	0.055			○	○								
	CCMW 21505T00315SE	T00315	CCMW 060202T00815SE	0.008	0.079												
	CCMW 2151T00315SE		CCMW 060204T00815SE	1/64	0.075				○								
	CCMW 32505T00315SE	T00315	CCMW 09T302T00815SE	0.008	0.079			○									
	CCMW 3251T00315SE		CCMW 09T304T00815SE	1/64	0.075			○									
 Small Edge / Tough	CCMW 110905S00435SET	S00435	CCMW 030102S01035SET	0.008	0.055	1		○	○								
	CCMW 11091S00435SET		CCMW 030104S01035SET	1/64	0.055			○	○								
	CCMW 141105S00435SET	S00435	CCMW 040102S01035SET	0.008	0.055			○	○								
	CCMW 14111S00435SET		CCMW 040104S01035SET	1/64	0.055			○	○								
	CCMW 2151S00435SET	S00435	CCMW 060204S01035SET	1/64	0.075												
	CCMW 3251S00435SET	S00435	CCMW 09T304S01035SET	1/64	0.075												
 Multi Edge	CPGB 25151T00315ME	T00315	CPGB 080204T00815ME	1/64	0.075		○	○	○		●	●					F30 ~ F36
	CPGB 3205T00315ME	T00315	CPGB 090302T00815ME	0.008	0.075	2	○	○	○		●	●					
	CPGB 321T00315ME		CPGB 090304T00815ME	1/64	0.075		○	○	○		●	●					
 Multi Edge / General Purpose	CPGB 321S00525MES	S00525	CPGB 090304S01225MES	1/64	0.075		●										
	CPGB 321S00525MES		CPGB 090308S01225MES	1/32	0.098	2	●										
 Multi Edge / Tough	CPGB 25151S00435MET	S00435	CPGB 080204S01035MET	1/64	0.075			○	○		●						
	CPGB 25152S00435MET		CPGB 080208S01035MET	1/32	0.087			○	○		●						
	CPGB 321S00435MET	S00435	CPGB 090304S01035MET	1/64	0.075		●	○	○		●						
	CPGB 322S00435MET		CPGB 090308S01035MET	1/32	0.098		●	○	○		●						
 Small Edge	CPGB 251505T00315SE	T00315	CPGB 080202T00815SE	0.008	0.075	1											
	CPGB 25151T00315SE		CPGB 080204T00815SE	1/64	0.075												
	CPGB 3205T00315SE	T00315	CPGB 090302T00815SE	0.008	0.075												
	CPGB 321T00315SE		CPGB 090304T00815SE	1/64	0.075			○									

CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Stock ○ : World Express

80°Diamond • Positive with Hole
55°Diamond • Positive with Hole

(inch)

Description	I.C.(A)	T	ϕd	α
DCMW215_	1/4	3/32	0.11	7°
DCMW325_	3/8	5/32	0.177	

Classification of usage

- : Interruption / 1st Choice
- : Interruption / 2nd Choice
- : Light Interruption / 1st Choice
- : Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

		MEGACOAT CBN								PVD Coated CBN		
		KBN05M (NEW)	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN10C	KBN25C	
K	Gray Cast Iron (With Scale)											
	Gray Cast Iron (Without Scale)						○					
	Nodular Cast Iron (Without Scale)											
	Sintered Metal							●	✖			
H	Hardened Material (Roughing)			✱	✖							
	Hardened Material (Finishing)	○	●							○	↻	
	Hardened Material (Chip Control)	○	●									

Shape	Description (ANSI)	Std. Edge Prep. (inch)	Description (ISO)	Dimension (inch) rε	Dimension (inch) S	No. of Edge	MEGACOAT CBN + PVD Coated CBN	Ref. Page for Toolholder
Small Edge / Tough	CPGB 25151S00435SET	S00435	CPGB 080204S01035SET	1/64	0.075	1	○ in KBN25M	F30 ~ F36
	CPGB 321S00435SET	S00435	CPGB 090304S01035SET	1/64	0.075	1		
Standard Edge	CPGB 321T00315	T00315	CPGB 090304T00815	1/64	0.146	1		
	322T00315		090308T00815	1/32	0.142	1		
Multi Edge	DCMW 21505T00315ME	T00315	DCMW 070202T00815ME	0.008	0.075	2	○ ○ ○ ○ ●	F30 ~ F36
	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	○ ○ ○ ○ ● ●	
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	○ ○ ○	E22 ~ E25, F37, F38, F80
	2151S00435MET		070204S01035MET	1/64	0.067	2	○ ● ●	
	2152S00435MET		070208S01035MET	1/32	0.075	2	○ ○ ●	
	DCMW 32505S00435MET	S00435	DCMW 11T302S010135MET	0.008	0.075	2	● ○ ○ ●	
	3251S00435MET		11T304S010135MET	1/64	0.067	2	● ○ ● ●	
	3252S00435MET		11T308S010135MET	1/32	0.075	2	○ ● ●	
	3253S00435MET		11T312S010135MET	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 11T302S010135SET	0.008	0.075	1		
	3251S00435SET		11T304S010135SET	1/64	0.067	1		
	3252S00435SET		11T308S010135SET	1/32	0.075	1		
Standard Edge	DCMW 32505T00315	T00315	DCMW 11T302T00815	0.008	0.146	1		
	3251T00315		11T304T00815	1/64	0.138	1		
	3252T00315		11T308T00815	1/32	0.122	1		

CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Stock ○ : World Express

60°Triangle • Positive with Hole

(inch)

Description	I.C.(A)	T	ϕd	α
TPGB1515_	3/16	3/32	0.091	11°
TPGB1815_	7/32		0.118	

(inch)

Description	I.C.(A)	T	ϕd	α
TPGB22_	1/4	1/8	0.138	11°
TPGB32_	3/8		0.177	

Classification of usage

- ✱ : Interruption / 1st Choice
- ✱ : Interruption / 2nd Choice
- ● : Light Interruption / 1st Choice
- ◔ : Light Interruption / 2nd Choice
- ● : Continuous / 1st Choice
- ○ : Continuous / 2nd Choice

		KBN05M (NEW)	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN10C	KBN25C
K	Gray Cast Iron (With Scale)										
	Gray Cast Iron (Without Scale)						○				
	Nodular Cast Iron (Without Scale)										
	Sintered Metal										
H	Hardened Material (Roughing)					✱					
	Hardened Material (Finishing)		○	●							
	Hardened Material (Chip Control)		○	●							

Shape	Description (ANSI)	Std. Edge Prep. (inch)	Description (ISO)	Dimension (inch) rε	Dimension (inch) S	No. of Edge	MEGACOAT CBN	PVD Coated CBN	Ref. Page for Toolholder
Multi Edge	TPGB 2205T00315ME	T00315	TPGB 110302T00815ME	0.008	0.091		○ ○ ○ ○ ○ ●		
	TPGB 221T00315ME		TPGB 110304T00815ME	1/64	0.083		○ ○ ○ ○ ● ●		
	TPGB 222T00315ME		TPGB 110308T00815ME	1/32	0.071	3	○ ○ ○ ○ ● ●		
	TPGB 321T00315ME	T00315	TPGB 160304T00815ME	1/64	0.071		○ ○ ○ ○ ● ●		
	TPGB 322T00315ME		TPGB 160308T00815ME	1/32	0.059		○ ○ ○ ○ ● ●		
Multi Edge / General Purpose	TPGB 221S00525MES	S00525	TPGB 110304S01225MES	1/64	0.071		●		
	222S00525MES		110308S01225MES	1/32	0.059	3	●		
Multi Edge / Tough	TPGB 2205S00435MET	S00435	TPGB 110302S01035MET	0.008	0.091		○ ○ ○ ○		
	TPGB 221S00435MET		TPGB 110304S01035MET	1/64	0.083		● ○ ○ ○ ●		
	TPGB 222S00435MET		TPGB 110308S01035MET	1/32	0.071	3	● ○ ○ ○ ●		
	TPGB 321S00435MET	S00435	TPGB 160304S01035MET	1/64	0.071		○ ○ ○ ●		
	TPGB 322S00435MET		TPGB 160308S01035MET	1/32	0.059		○ ○ ○ ●		
Small Edge	TPGB 151505T00315SE	T00315	TPGB 080202T00815SE	0.008	0.071		○ ○		
	TPGB 15151T00315SE		TPGB 080204T00815SE	1/64	0.063		○ ○		
	TPGB 181505T00315SE	T00315	TPGB 090202T00815SE	0.008	0.071		○ ○		
	TPGB 18151T00315SE		TPGB 090204T00815SE	1/64	0.063		○ ○		
	TPGB 2205T00315SE	T00315	TPGB 110302T00815SE	0.008	0.075	1	○		E27
	TPGB 221T00315SE		TPGB 110304T00815SE	1/64	0.071		○		F47 ~ F57
	TPGB 222T00315SE		TPGB 110308T00815SE	1/32	0.059				
	TPGB 3205T00315SE	T00315	TPGB 160302T00815SE	0.008	0.075		○		
	TPGB 321T00315SE		TPGB 160304T00815SE	1/64	0.071		○		
Small Edge / Tough	TPGB 151505S00435SET	S00435	TPGB 080202S01035SET	0.008	0.071		○ ○		
	TPGB 15151S00435SET		TPGB 080204S01035SET	1/64	0.063		○ ○		
	TPGB 181505S00435SET	S00435	TPGB 090202S01035SET	0.008	0.071		○ ○		
	TPGB 18151S00435SET		TPGB 090204S01035SET	1/64	0.063		○ ○		
	TPGB 221S00435SET	S00435	TPGB 110304S01035SET	1/64	0.071	1			
	TPGB 222S00435SET		TPGB 110308S01035SET	1/32	0.059				
	TPGB 321S00435SET	S00435	TPGB 160304S01035SET	1/64	0.071				
	TPGB 322S00435SET		TPGB 160308S01035SET	1/32	0.059				
Standard Edge	TPGB 151505T00315	T00315	TPGB 080202T00815	0.008	0.094				
	TPGB 15151T00315		TPGB 080204T00815	1/64	0.091				
	TPGB 181505T00315	T00315	TPGB 090202T00815	0.008	0.114				
	TPGB 18151T00315		TPGB 090204T00815	1/64	0.110				
	TPGB 2205T00315	T00315	TPGB 110302T00815	0.008	0.154				
	TPGB 221T00315		TPGB 110304T00815	1/64	0.150	1			
	TPGB 222T00315		TPGB 110308T00815	1/32	0.138				
	TPGB 3205T00315	T00315	TPGB 160302T00815	0.008	0.157				
	TPGB 321T00315		TPGB 160304T00815	1/64	0.150				
	TPGB 322T00315		TPGB 160308T00815	1/32	0.138				

CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Stock ○ : World Express

60° Triangle • Positive with Hole

(inch)

Description	I.C.(A)	T	ϕd	α
TPGW33_	3/8	3/16	0.173	11°

Classification of usage

:Interruption / 1st Choice
:Interruption / 2nd Choice
:Light Interruption / 1st Choice
:Light Interruption / 2nd Choice
: Continuous / 1st Choice
: Continuous / 2nd Choice

		KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN10C	KBN25C
K	Gray Cast Iron (With Scale)										
	Gray Cast Iron (Without Scale)										
	Nodular Cast Iron (Without Scale)										
	Sintered Metal										
H	Hardened Material (Roughing)										
	Hardened Material (Finishing)		●	◔							
	Hardened Material (Chip Control)		●	◔							

Shape	Description (ANSI)	Std. Edge Prep. (inch)	Description (ISO)	Dimension (inch) rε	Dimension (inch) S	No. of Edge	KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN10C	KBN25C	Ref. Page for Toolholder
Multi Edge	TPGW 331T00315ME	T00315	TPGW 160404T00815ME	1/64	0.071	3			○								-
	332T00315ME		160408T00815ME	1/32	0.059				○								
Multi Edge / Tough	TPGW 331S00435MET	S00435	TPGW 160404S01035MET	1/64	0.071	3		○	○								
	332S00435MET		160408S01035MET	1/32	0.059			○	○								
Small Edge	TPGW 331T00315SE	T00315	TPGW 160404T00815SE	1/64	0.071	1											
	332T00315SE		160408T00815SE	1/32	0.059				○								
Small Edge / Tough	TPGW 331S00435SET	S00435	TPGW 160404S01035SET	1/64	0.075	1											
	332S00435SET		160408S01035SET	1/32	0.071												

CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Stock ○ : World Express

35°Diamond • Positive with Hole

(inch)

Description	I.C.(A)	T	ϕd	α
VBGW22_	1/4	1/8	0.110	5°
VBGW33_	3/8	3/16	0.173	

(inch)

Description	I.C.(A)	T	ϕd	α
VCGW1515_	3/16	3/32	0.091	7°

Classification of usage

- ✱ : Interruption / 1st Choice
- ✱ : Interruption / 2nd Choice
- ● : Light Interruption / 1st Choice
- ◔ : Light Interruption / 2nd Choice
- ● : Continuous / 1st Choice
- ○ : Continuous / 2nd Choice

		MEGACOAT CBN							PVD Coated CBN	
		KBN05M (NEW)	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN10C	KBN25C
K	Gray Cast Iron (With Scale)										
	Gray Cast Iron (Without Scale)						●				
	Nodular Cast Iron (Without Scale)										
	Sintered Metal						◔	✱			
H	Hardened Material (Roughing)				✱	✱					
	Hardened Material (Finishing)	●	◔								
	Hardened Material (Chip Control)	●	◔								

Shape	Description (ANSI)	Std. Edge Prep. (inch)	Description (ISO)	Dimension (inch) rε	Dimension (inch) S	No. of Edge	MEGACOAT CBN KBN05M (NEW)	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	PVD Coated CBN KBN10C	KBN25C	Ref. Page for Toolholder
Multi Edge	VBGW 2205T00315ME	T00315	VBGW 110302T00815ME	0.008	0.094	2	○	○	○		○	●					E28 E29 F62 ~ F70
	VBGW 221T00315ME		VBGW 110304T00815ME	1/64	0.079		○	○	●	○	●	●	○	●			
	VBGW 222T00315ME		VBGW 110308T00815ME	1/32	0.067		○	○	●	○	●	●	○	●			
	VBGW 3305T00315ME	T00315	VBGW 160402T00815ME	0.008	0.094		○	○	○		●	●					
	VBGW 331T00315ME		VBGW 160404T00815ME	1/64	0.079		○	○	●	○	●	●	○	●			
	VBGW 332T00315ME		VBGW 160408T00815ME	1/32	0.067		○	○	●	○	●	●	○	●			
Multi Edge / General Purpose	VBGW 221S00525MES	S00525	VBGW 110304S01225MES	1/64	0.079	2	●										
	VBGW 331S00525MES	S00525	VBGW 160404S01225MES	1/64	0.079		●										
Multi Edge / Tough	VBGW 2205S00435MET	S00435	VBGW 110302S01035MET	0.008	0.094	2		○	○		○						
	VBGW 221S00435MET		VBGW 110304S01035MET	1/64	0.079		●	○	○		●						
	VBGW 222S00435MET		VBGW 110308S01035MET	1/32	0.067			○	○		●						
	VBGW 3305S00435MET	S00435	VBGW 160402S01035MET	0.008	0.094			○	○		●						
	VBGW 331S00435MET		VBGW 160404S01035MET	1/64	0.079		●	○	○		●						
	VBGW 332S00435MET		VBGW 160408S01035MET	1/32	0.067			○	○		●						
Small Edge	VBGW 2205T00315SE	T00315	VBGW 110302T00815SE	0.008	0.110	1		○	○								
	VBGW 221T00315SE		VBGW 110304T00815SE	1/64	0.094			○	○								
	VBGW 222T00315SE		VBGW 110308T00815SE	1/32	0.067			○	○								
	VBGW 3305T00315SE	T00315	VBGW 160402T00815SE	0.008	0.094												
	VBGW 331T00315SE		VBGW 160404T00815SE	1/64	0.079			○									
	VBGW 332T00315SE		VBGW 160408T00815SE	1/32	0.067												
Small Edge / Tough	VBGW 221S00435SET	S00435	VBGW 110304S01035SET	1/64	0.079	1											
	VBGW 222S00435SET		VBGW 110308S01035SET	1/32	0.067				○								
	VBGW 331S00435SET	S00435	VBGW 160404S01035SET	1/64	0.079												
	VBGW 332S00435SET		VBGW 160408S01035SET	1/32	0.067												
Multi Edge	VCGW 151505T00315ME	T00315	VCGW 080202T00815ME	0.008	0.079	2		○	○			●	●				
	15151T00315ME		080204T00815ME	1/64	0.079			○	○			●	●				
	15152T00315ME		080208T00815ME	1/32	0.067			○	○			●	●				
Multi Edge / Tough	VCGW 151505S00435MET	S00435	VCGW 080202S01035MET	0.008	0.079	2		○	○			●					
	15151S00435MET		080204S01035MET	1/64	0.079			○	○			●					
	15152S00435MET		080208S01035MET	1/32	0.067			○	○			●					
Small Edge	VCGW 151505T00315SE	T00315	VCGW 080202T00815SE	0.008	0.094	1		○	○								
	15151T00315SE		080204T00815SE	1/64	0.079			○									
Small Edge / Tough	VCGW 15151S00435SET	S00435	VCGW 080204S01035SET	1/64	0.079	1											
	15152S00435SET		080208S01035SET	1/32	0.071				○								

CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Stock ○ : World Express

■ 80°Trigon • Negative with Hole
60°Triangle • Positive with Hole

(inch)

Description	I.C.(A)	T	ϕd	α
WBGW121_	5/32	1/16	0.091	5°
WBGW1515_	3/16	3/32		

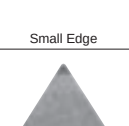
(inch)

Description	I.C.(A)	T	ϕd	α
TBG121_	5/32	3/32	-	5°
TPG22_	1/4	1/8		11°
TPG32_	3/8			

Classification of usage

:Interruption / 1st Choice
:Interruption / 2nd Choice
:Light Interruption / 1st Choice
:Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice

		KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN10C	KBN25C
K	Gray Cast Iron (With Scale)										
	Gray Cast Iron (Without Scale)										
	Nodular Cast Iron (Without Scale)										
	Sintered Metal										
H	Hardened Material (Roughing)										
	Hardened Material (Finishing)		●	●							
	Hardened Material (Chip Control)		●	●							

Shape (Left-Hand insert shown where applicable)	Description (ANSI)	Std. Edge Prep. (inch)	Description (ISO)	Dimension (inch) rε	Dimension (inch) S	No. of Edge	MEGACOAT CBN / PVD Coated CBN	Ref. Page for Toolholder
 Small Edge	WBGW 12105T00315℞SE	T00315	WBGW 060102T00815℞SE	0.008	0.075	1	○ ○	F71 ~ F77
	WBGW 1211T00315℞SE		060104T00815℞SE	1/64	0.075		○ ○	
	WBGW 151505T00315℞SE	T00315	WBGW 080202T00815℞SE	0.008	0.091	1	○ ○	
	WBGW 15151T00315℞SE		080204T00815℞SE	1/64	0.091		○ ○	
 Small Edge / Tough	WBGW 12105S00435℞SET	S00435	WBGW 060102S01035℞SET	0.008	0.075	1	○ ○	
	WBGW 1211S00435℞SET		060104S01035℞SET	1/64	0.075		○ ○	
	WBGW 151505S00435℞SET	S00435	WBGW 080202S01035℞SET	0.008	0.091	1	○ ○	
	WBGW 15151S00435℞SET		080204S01035℞SET	1/64	0.091		○ ○	
 Full-Top CBN	TBG 12105T00315	T00315	TBGN 060102T00815	0.008	-	3	●	
	TBG 1211T00315		060104T00815	1/64	-		●	
	TBG 1212T00315		060108T00815	1/32	-		●	
 Multi Edge	TPG 2205T00315ME	T00315	TPGN 110302T00815ME	0.008	0.102	3		
	TPG 221T00315ME		110304T00815ME	1/64	0.098			
	TPG 222T00315ME		110308T00815ME	1/32	0.094			
 Small Edge	TPG 2205T00315SE	T00315	TPGN 110302T00815SE	0.008	0.102	1		E26 E37 F57
	TPG 221T00315SE		110304T00815SE	1/64	0.098			
	TPG 222T00315SE		110308T00815SE	1/32	0.094			
	TPG 3205T00315SE	T00315	TPGN 160302T00815SE	0.008	0.102			
	TPG 321T00315SE		160304T00815SE	1/64	0.094			
	TPG 322T00315SE		160308T00815SE	1/32	0.083			
 Small Edge / Tough	TPG 221S00435SET	S00435	TPGN 110304S01035SET	1/64	0.098	1		
	TPG 222S00435SET		110308S01035SET	1/32	0.094			
	TPG 321S00435SET	S00435	TPGN 160304S01035SET	1/64	0.094			
	TPG 322S00435SET		160308S01035SET	1/32	0.083			
 Standard Edge	TPG 221T00315	T00315	TPGN 110304T00815	1/64	0.150			
	TPG 222T00315		110308T00815	1/32	0.138			
	TPG 321T00315	T00315	TPGN 160304T00815	1/64	0.154	1		
	TPG 322T00315		160308T00815	1/32	0.142			
	TPG 323T00315		160312T00815	3/64	0.130			

CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Stock ○ : World Express

Grooving (1-Edge)

Classification of usage

:Interruption / 1st Choice
:Interruption / 2nd Choice
:Light Interruption / 1st Choice
:Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice

		KBN510	KBN525
K	Gray Cast Iron (With Scale)		
	Gray Cast Iron (Without Scale)		
	Nodular Cast Iron (Without Scale)		
	Sintered Metal		
H	Hardened Material (Roughing)		
	Hardened Material (Finishing)	○	●
	Hardened Material (Chip Control)		

Shape (Right-Hand Shown)	Description	(Old Description)	Std. Edge Prep. (inch)	Unit	Dimension W±0.0012 (inch)	Dimension W±0.03 (mm)	B	rε	A	T	φd	S	No. of Edge	CBN KBN510	CBN KBN525	Ref. Page for Toolholder
 External / Internal Grooving	GBA43R/L 125-020	GBA43R/L 125	E003	mm	0.049	1.25	2.0	0.2	12.7	4.76	5.5	1.9	1	○	○	G15 ~ G17
	GBA43R/L 150-020	GBA43R/L 150			0.059	1.50	3.5							○	●	
	GBA43R/L 200-020	GBA43R/L 200			0.079	2.00								○	○	
	GBA43R/L 250-020	GBA43R/L 250			0.098	2.50	4.0							○	○	
	GBA43R/L 300-020	GBA43R/L 300			0.118	3.00								○	○	

Deep Grooving (1-Edge)

Classification of usage

:Interruption / 1st Choice
:Interruption / 2nd Choice
:Light Interruption / 1st Choice
:Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice

		KBN510	KBN525
K	Gray Cast Iron (With Scale)		
	Gray Cast Iron (Without Scale)		
	Nodular Cast Iron (Without Scale)		
	Sintered Metal		
H	Hardened Material (Roughing)		
	Hardened Material (Finishing)	○	●
	Hardened Material (Chip Control)		

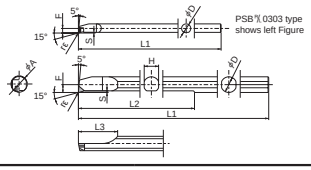
Shape	Description	(Old Description)	Std. Edge Prep. (inch)	Unit	Dimension W±0.002 (inch)	Dimension W±0.05 (mm)	rε	L	H	M	S	No. of Edge	CBN KBN510	CBN KBN525	Ref. Page for Toolholder
 External Grooving	GMN 2	-	E003	mm	0.079	2.0	0.2	20	4.3	1.8	2.9	1	○	○	G56 ~ G58
	GMN 3				0.118	3.0	0.4			2.3			○	●	
	GMN 4				0.157	4.0				3.3			○	○	
	GMN 5				0.197	5.0				4.2			○	○	
	GMN 6				0.236	6.0				5.2			○	○	

Solid Micro-Bar (1-Edge)

Classification of usage

:Interruption / 1st Choice
:Interruption / 2nd Choice
:Light Interruption / 1st Choice
:Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice

		KBN510	KBN525
K	Gray Cast Iron (With Scale)		
	Gray Cast Iron (Without Scale)		
	Nodular Cast Iron (Without Scale)		
	Sintered Metal		
H	Hardened Material (Roughing)		
	Hardened Material (Finishing)	○	●
	Hardened Material (Chip Control)		

Shape (Right-Hand Shown)	Description	(Old Description)	Std. Edge Prep. (inch)	Unit	φA	φD	H	L1	L2	L3	F	rε	No. of Edge	CBN KBN510	CBN KBN525	Ref. Page for Toolholder
 PSBR/L 0303 type shows left Figure	PSBR 0303-50NBS	-	T00315	mm	3	2.8	-	50	25	7	1.4	0.05	1	○	○	F26
	PSBR 0404-60NBS				4	3.8	3.6	60	30	10	1.9			○	○	
	PSBR 0505-70NBS				5	4.8	4.4	70	40	12	2.4			○	○	
	PSBR 0606-70NBS				6	5.8	5.2	70	45	12	2.9			○	○	
	PSBR 0707-80NBS				7	6.8	6.2	80	50	12	3.4			○	○	

CBN & PCD Inserts are sold in 1 piece boxes.

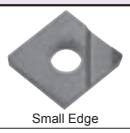
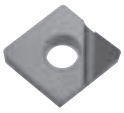
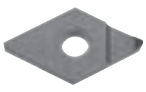
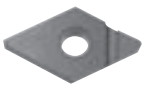
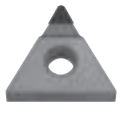
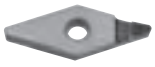
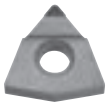
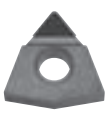
● : Std. Stock ○ : World Express

Negative

Edge Prep.
All PCD Items Have a Sharp Edge

Classification of usage
: Light Interruption / 1st choice
: Light Interruption / 2nd choice
: Continuous / 1st choice
: Continuous / 2nd choice

N	Non-ferrous Material (with interruption)	◕
	Non-ferrous Material (without interruption)	●
S	Titanium alloy (with interruption)	◕
	Titanium alloy (without interruption)	●

Shape	Description (ANSI)	Description (ISO)	Dimension (inch) A	T	ød	rε	S	Angle (°) α	No. of Edge	PCD KPD001	PCD KPD010	Ref. Page for Toolholder
 Small Edge	CNMM 4305MSE	CNMM 120402M-SE	1/2	3/16	0.203	0.008	0.110	-	1	○	○	
	431MSE	120404M-SE				1/64	0.110			●	●	
	432MSE	120408M-SE				1/32	0.106			●	●	
	CNMM 4305MNE	CNMM 120402M-NE	1/2	3/16	0.203	0.008	0.201	-	1	○		D8 D9 F78 F82
	431MNE	120404M-NE				1/64	0.197			○		
	432MNE	120408M-NE				1/32	0.193			○		
	CNMM 4305M	CNMM 120402M				0.008	0.228			○	○	
	431M	120404M				1/64	0.228			●	●	
	432M	120408M				1/32	0.224			○	●	
	433M	120412M				3/64	0.220			○	○	
 Small Edge	DNMM 4305MSE	DNMM 150402M-SE	1/2	3/16	0.203	0.008	0.110	-	1	○	○	
	431MSE	150404M-SE				1/64	0.102					
	432MSE	150408M-SE				1/32	0.087			●	●	
	DNMM 4305MNE	DNMM 150402M-NE	1/2	3/16	0.203	0.008	0.205	-	1	○		D10 D11 D12 F79
	431MNE	150404M-NE				1/64	0.197			○		
	432MNE	150408M-NE				1/32	0.181			○		
	DNMM 4305M	DNMM 150402M				0.008	0.232			○	○	
	431M	150404M				1/64	0.228			○	●	
	432M	150408M				1/32	0.213			○	●	
	433M	150412M				3/64	0.197			○	○	
 Small Edge	TNMM 3305MSE	TNMM 160402M-SE	3/8	3/16	0.150	0.008	0.106	-	1	○	○	
	331MSE	160404M-SE				1/64	0.102			●	●	
	332MSE	160408M-SE				1/32	0.091			●	●	
	TNMM 3305MNE	TNMM 160402M-NE	3/8	3/16	0.150	0.008	0.126	-	1	○		D16 D17 D18 D19 F84
	331MNE	160404M-NE				1/64	0.122			○		
	332MNE	160408M-NE				1/32	0.110			○		
	TNMM 3305M	TNMM 160402M				0.008	0.150			○	○	
	331M	160404M				1/64	0.142			○	●	
	332M	160408M				1/32	0.130			○	●	
	333M	160412M				3/64	0.118				○	
 Small Edge	VNMM 3305MSE	VNMM 160402M-SE	3/8	3/16	0.150	0.008	0.114	-	1	○	○	
	331MSE	160404M-SE				1/64	0.098			●	●	
	332MSE	160408M-SE				1/32	0.063			●	●	
	VNMM 3305MNE	VNMM 160402M-NE	3/8	3/16	0.150	0.008	0.185	-	1	○		D20 D21 D22
	331MNE	160404M-NE				1/64	0.165			○		
	332MNE	160408M-NE				1/32	0.134			○		
	VNMM 3305M	VNMM 160402M				0.008	0.209			○	○	
	331M	160404M				1/64	0.189			○	●	
	332M	160408M				1/32	0.157			○	●	
	333M	160412M				3/64	0.122				○	
 Small Edge	WNMM 4305MSE	WNMM 080402M-SE	1/2	3/16	0.203	0.008	0.110	-	1		○	
	431MSE	080404M-SE				1/64	0.110				●	
	432MSE	080408M-SE				1/32	0.106				●	D23 D24 F85
	WNMM 4305MNE	WNMM 080402M-NE	1/2	3/16	0.203	0.008	0.197	-	1	○		
	431MNE	080404M-NE				1/64	0.197			○		
	WNMM 4305M	WNMM 080402M				0.008	0.228				○	
	431M	080404M				1/64	0.228				○	

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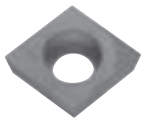
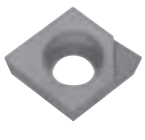
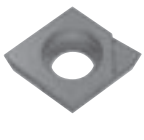
●Std. Stock ○World Express

Positive

Edge Prep.
All PCD Items Have a Sharp Edge

Classification of usage
◕ : Light Interruption / 1st choice
◔ : Light Interruption / 2nd choice
● : Continuous / 1st choice
○ : Continuous / 2nd choice

N	Non-ferrous Material (with interruption)	◕
	Non-ferrous Material (without interruption)	●
S	Titanium alloy (with interruption)	◕
	Titanium alloy (without interruption)	●

Shape	Description (ANSI)	Description (ISO)	Dimension (inch) A	T	ød	rε	S	Angle (°) α	No. of Edge	PCD KPD001	PCD KPD010	Ref. Page for Toolholder
	CCGW 141102NE	CCGW 040101NE	0.169	0.071	0.091	0.004	0.067	7°	1	○		
	141105NE	040102NE				0.008	0.063			○		
	14111NE	040104NE				1/64	0.063			○		
	CCGW 141102	CCGW 040101				0.004	0.075			○	○	
	141105	040102				0.008	0.075			○	○	
	14111	040104				1/64	0.075			○	○	
	CCGW 21502NE	CCGW 060201NE	1/4	3/32	0.110	0.004	0.122			○		
	21505NE	060202NE				0.008	0.118			○		
	2151NE	060204NE				1/64	0.118			○		
	CCGW 21502	CCGW 060201				0.004	0.138				○	
	21505	060202				0.008	0.138				○	
	2151	060204				1/64	0.138				○	
	CCGW 32502NE	CCGW 09T301NE	3/8	5/32	0.173	0.004	0.134			○		
	32505NE	09T302NE				0.008	0.134			○		
	3251NE	09T304NE				1/64	0.134			○		
	3252NE	09T308NE				1/32	0.130			○		
	CCGW 32502	CCGW 09T301				0.004	0.150			○	○	
	32505	09T302				0.008	0.150			○	○	
	3251	09T304				1/64	0.146			○	○	
	3252	09T308				1/32	0.142				○	
	CCMT 21502NE	CCMT 060201NE	1/4	3/32	0.110	0.004	0.110	7°	1	○		E20 E21 F28 F29 F80
	21505NE	060202NE				0.008	0.110			○		
	2151NE	060204NE				1/64	0.110			○		
	CCMT 21502	CCMT 060201				0.004	0.130			○	○	
	21505	060202				0.008	0.130			●	●	
	2151	060204				1/64	0.126			●	●	
	CCMT 32502NE	CCMT 09T301NE	3/8	5/32	0.173	0.004	0.134			○		
	32505NE	09T302NE				0.008	0.134			○		
	3251NE	09T304NE				1/64	0.134			○		
	3252NE	09T308NE				1/32	0.130					
	CCMT 32502	CCMT 09T301				0.004	0.154			○	○	
	32505	09T302				0.008	0.154			●	●	
	3251	09T304				1/64	0.154			●	●	
	3252	09T308				1/32	0.150				●	
	CPMH 251502NE	CPMH 080201NE	5/16	3/32	0.138	0.004	0.126	11°	1	○		
	251505NE	080202NE				0.008	0.126			○		
	25151NE	080204NE				1/64	0.126			○		
	25152NE	080208NE				1/32	0.126			○		
	CPMH 251502	CPMH 080201				0.004	0.146			○	○	
	251505	080202				0.008	0.146			●	●	
	25151	080204				1/64	0.146			●	●	
	25152	080208				1/32	0.138				●	
	CPMH 3202NE	CPMH 090301NE	3/8	1/8	0.177	0.004	0.134			○		
	3205NE	090302NE				0.008	0.134			○		
	321NE	090304NE				1/64	0.134			○		
	322NE	090308NE				1/32	0.130			○		
	CPMH 3202	CPMH 090301				0.004	0.157			○	○	
	3205	090302				0.008	0.154			○	●	
	321	090304				1/64	0.154			○	●	
	322	090308				1/32	0.150				●	

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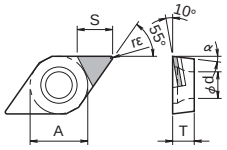
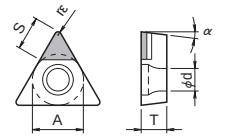
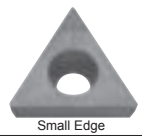
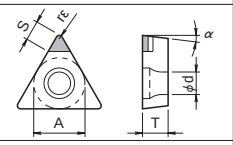
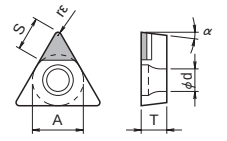
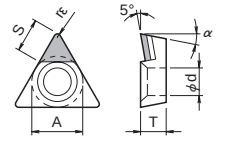
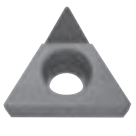
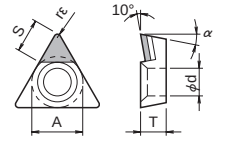
● : Std. Stock ○ : World Express

Positive

Edge Prep.
All PCD Items Have a Sharp Edge

Classification of usage
● : Light Interruption / 1st choice
◔ : Light Interruption / 2nd choice
● : Continuous / 1st choice
○ : Continuous / 2nd choice

N	Non-ferrous Material (with interruption)	◔
	Non-ferrous Material (without interruption)	●
S	Titanium alloy (with interruption)	◔
	Titanium alloy (without interruption)	●

Shape (Handed Insert shows Left-hand)	Description (ANSI)	Description (ISO)	Dimension (inch) A	T	ød	rε	S	Angle (°) α	No. of Edge	PCD KPD001	PCD KPD010	Ref. Page for Toolholder
 	DCMT 21502NE	DCMT 070201NE	1/4	3/32	0.110	0.004	0.134	7°	1	○		E22 ~ E25 F37 F38 F80
	DCMT 21505NE	DCMT 070202NE				0.008	0.134			○		
	DCMT 2151NE	DCMT 070204NE				1/64	0.126			○		
	DCMT 21502	DCMT 070201				0.004	0.157			○	○	
	DCMT 21505	DCMT 070202				0.008	0.154			●	●	
	DCMT 2151	DCMT 070204				1/64	0.146			●	●	
	DCMT 32502NE	DCMT 11T301NE	3/8	5/32	0.173	0.004	0.134			○		
	DCMT 32505NE	DCMT 11T302NE				0.008	0.130			○		
	DCMT 3251NE	DCMT 11T304NE				1/64	0.126			○		
	DCMT 3252NE	DCMT 11T308NE				1/32	0.110			○		
	DCMT 32502	DCMT 11T301				0.004	0.157			○	○	
	DCMT 32505	DCMT 11T302				0.008	0.154			●	●	
	DCMT 3251	DCMT 11T304				1/64	0.146			●	●	
	DCMT 3252	DCMT 11T308				1/32	0.130			●	●	
 	TBGW 12105NE	TBGW 060102NE	5/32	1/16	0.091	0.008	0.083	5°	1	○		
	TBGW 1211NE	TBGW 060104NE				1/64	0.075			○		
	TBGW 12105	TBGW 060102				0.008	0.094			○	○	
	TBGW 1211	TBGW 060104				1/64	0.087			○	○	
 Small Edge 	TCGW 2205SE	TCGW 110302SE	1/4	1/8	0.110	0.008	0.098	7°	1		○	
	TCGW 221SE	TCGW 110304SE				1/64	0.094				○	
 	TCGW 2205NE	TCGW 110302NE				0.008	0.130			○		
	TCGW 221NE	TCGW 110304NE				1/64	0.126			○		
	TCGW 222NE	TCGW 110308NE				1/32	0.114			○		
	TCGW 2205	TCGW 110302				0.008	0.154				○	
	TCGW 221	TCGW 110304				1/64	0.146				○	
	TCGW 222	TCGW 110308				1/32	0.134				○	E27
 	TBMT 12102NE	TBMT 060101NE	5/32	1/16	0.091	0.004	0.087	5°	1	○		
	TBMT 12105NE	TBMT 060102NE				0.008	0.083					
	TBMT 1211NE	TBMT 060104NE				1/64	0.079			○		
	TBMT 1212NE	TBMT 060108NE				1/32	0.067			○		
	TBMT 12102	TBMT 060101				0.004	0.102					
	TBMT 12105	TBMT 060102				0.008	0.098			○	○	
	TBMT 1211	TBMT 060104				1/64	0.091			○	○	
	TBMT 1212	TBMT 060108				1/32	0.079			○	○	
 	TCMT 151505NE	TCMT 080202NE	3/16	3/32	0.091	0.008	0.083	7°	1	○		
	TCMT 15151NE	TCMT 080204NE				1/64	0.079			○		
	TCMT 15152NE	TCMT 080208NE				1/32	0.067			○		
	TCMT 151505	TCMT 080202				0.008	0.094				○	
	TCMT 15151	TCMT 080204				1/64	0.087				○	
	TCMT 15152	TCMT 080208				1/32	0.075				○	

CBN & PCD Inserts are sold in 1 piece boxes.

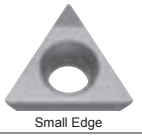
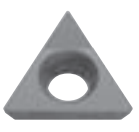
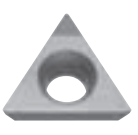
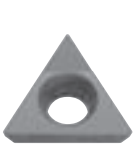
●Std. Stock ○World Express

Positive

Edge Prep.
All PCD Items Have a Sharp Edge

Classification of usage
●: Light Interruption / 1st choice
◔: Light Interruption / 2nd choice
●: Continuous / 1st choice
○: Continuous / 2nd choice

N	Non-ferrous Material (with interruption)	◔
	Non-ferrous Material (without interruption)	●
S	Titanium alloy (with interruption)	◔
	Titanium alloy (without interruption)	●

Shape (Handed Insert shows Left-hand)	Description (ANSI)	Description (ISO)	Dimension (inch) A	T	ød	rε	S	Angle (°) α	No. of Edge	PCD KPD001	PCD KPD010	Ref. Page for Toolholder
 Small Edge	TCMT 2202SE	TCMT 110301SE	1/4	1/8	0.110	0.004	0.102	7°	1		○	E27
	2205SE	110302SE				0.008	0.098				○	
	221SE	110304SE				1/64	0.094				○	
	TCMT 2205NE	TCMT 110302NE				0.008	0.134			○		
	221NE	110304NE				1/64	0.130			○		
	222NE	110308NE				1/32	0.118			○		
	TCMT 2205	TCMT 110302				0.008	0.154				○	
	221	110304				1/64	0.146				○	
	222	110308				1/32	0.134				○	
	TPGB 151505NE	TPGB 080202NE	3/16	3/32	0.091	0.008	0.087	11°	1	○		E27 F47 ~ F57
	15151NE	080204NE				1/64	0.083			○		
	15152NE	080208NE				1/32	0.071			○		
	TPGB 151505	TPGB 080202				0.008	0.102			○	○	
	15151	080204				1/64	0.094			○	○	
	15152	080208				1/32	0.087				○	
	TPGB 181505NE	TPGB 090202NE	7/32	3/32	0.118	0.008	0.106			○		
	18151NE	090204NE				1/64	0.102			○		
	18152NE	090208NE				1/32	0.091			○		
	TPGB 181505	TPGB 090202				0.008	0.126			○	○	
	18151	090204				1/64	0.118			○	○	
	18152	090208				1/32	0.106				○	
 Small Edge	TPGB 2202SE	TPGB 110301SE	1/4	1/8	0.138	0.004	0.106			○	○	
	2205SE	110302SE				0.008	0.102			○	○	
	221SE	110304SE				1/64	0.098			○	○	
	TPGB 2205NE	TPGB 110302NE				0.008	0.134			○		
	221NE	110304NE				1/64	0.130			○		
	222NE	110308NE				1/32	0.118			○		
	TPGB 2205	TPGB 110302				0.008	0.154			○	○	
	221	110304				1/64	0.146			○	○	
	222	110308				1/32	0.134			○	●	
 Small Edge	TPGB 3202SE	TPGB 160301SE	3/8	1/8	0.177	0.004	0.102				○	
	3205SE	160302SE				0.008	0.102			○	○	
	321SE	160304SE				1/64	0.094			○	○	
	TPGB 3205NE	TPGB 160302NE				0.008	0.130			○		
	321NE	160304NE				1/64	0.126			○		
	322NE	160308NE				1/32	0.114			○		
	TPGB 3205	TPGB 160302				0.008	0.154			○	○	
	321	160304				1/64	0.146			○	○	
	322	160308				1/32	0.134			○	●	

CBN & PCD Inserts are sold in 1 piece boxes.

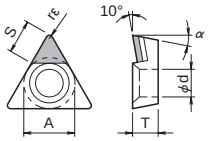
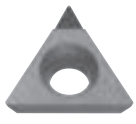
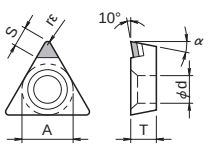
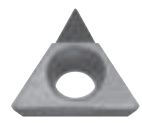
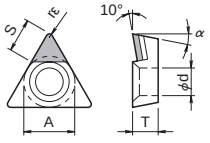
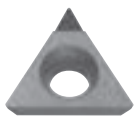
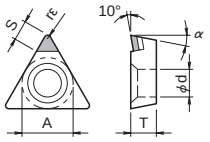
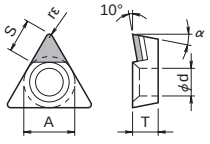
● : Std. Stock ○ : World Express

Positive

Edge Prep.
All PCD Items Have a Sharp Edge

Classification of usage
: Light Interruption / 1st choice
: Light Interruption / 2nd choice
: Continuous / 1st choice
: Continuous / 2nd choice

N	Non-ferrous Material (with interruption)	◕
	Non-ferrous Material (without interruption)	●
S	Titanium alloy (with interruption)	◕
	Titanium alloy (without interruption)	●

Shape (Handed Insert shows Left-hand)	Description (ANSI)	Description (ISO)	Dimension (inch) A	T	ød	rε	S	Angle (°) α	No. of Edge	PCD KPD001	PCD KPD010	Ref. Page for Toolholder
 	TPMH 151502NE	TPMH 080201NE	3/16	3/32	0.091	0.004	0.091	11°	1	○		E27 F47 ~ F57
	151505NE	080202NE				0.008	0.087			○		
	15151NE	080204NE				1/64	0.083			○		
	15152NE	080208NE				1/32	0.071			○		
	TPMH 151502	TPMH 080201				0.004	0.102				○	
	151505	080202				0.008	0.098			○	○	
	15151	080204				1/64	0.091			○	○	
	15152	080208				1/32	0.079			○	○	
	TPMH 181502NE	TPMH 090201NE	7/32	3/32	0.118	0.004	0.106			○		
	181505NE	090202NE				0.008	0.102			○		
	18151NE	090204NE				1/64	0.098			○		
	18152NE	090208NE				1/32	0.087			○		
	TPMH 181502	TPMH 090201				0.004	0.118			○	○	
	181505	090202				0.008	0.114			○	○	
	18151	090204				1/64	0.110			○	○	
	18152	090208				1/32	0.098			○	○	
 Small Edge	TPMH 2202SE	TPMH 110301SE	1/4	1/8	0.138	0.004	0.106			○	○	
	2205SE	110302SE				0.008	0.102			○	○	
	221SE	110304SE				1/64	0.098			○	○	
	TPMH 2202NE	TPMH 110301NE				0.004	0.134			○		
	2205NE	110302NE				0.008	0.130			○		
	221NE	110304NE				1/64	0.126			○		
	222NE	110308NE				1/32	0.114			○		
	TPMH 2202	TPMH 110301				0.004	0.154			○	○	
	2205	110302				0.008	0.154			○	●	
	221	110304				1/64	0.146			○	●	
	222	110308				1/32	0.134			○	○	
 Small Edge	TPMH 320SE	TPMH 160301SE	3/8	1/8	0.177	0.004	0.102				○	
	3205SE	160302SE				0.008	0.102			○	○	
	321SE	160304SE				1/64	0.094			○	○	
	TPMH 3202NE	TPMH 160301NE				0.004	0.138			○		
	3205NE	160302NE				0.008	0.134			○		
	321NE	160304NE				1/64	0.130			○		
	322NE	160308NE				1/32	0.118			○		
	TPMH 3202	TPMH 160301				0.004	0.161				○	
	3205	160302				0.008	0.157			○	●	
	321	160304				1/64	0.150			○	●	
	322	160308				1/32	0.142				○	

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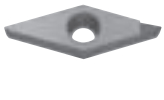
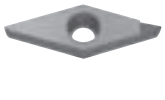
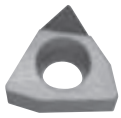
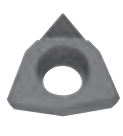
●Std. Stock ○World Express

Positive

Edge Prep.
All PCD Items Have a Sharp Edge

Classification of usage
● : Light Interruption / 1st choice
◔ : Light Interruption / 2nd choice
● : Continuous / 1st choice
○ : Continuous / 2nd choice

N	Non-ferrous Material (with interruption)	◔
	Non-ferrous Material (without interruption)	●
S	Titanium alloy (with interruption)	◔
	Titanium alloy (without interruption)	●

Shape (Handed Insert shows Left-hand)	Description (ANSI)	Description (ISO)	Dimension (inch) A	T	ød	rε	S	Angle (°) α	No. of Edge	PCD KPD001	PCD KPD010	Ref. Page for Toolholder
	VBMT 2202NE	VBMT 110301NE	1/4	1/8	0.110	0.004	0.102	5°	1	○		E28 E29 F59 ~ F70
	2205NE	110302NE				0.008	0.094			○		
	221NE	110304NE				1/64	0.079			○		
	222NE	110308NE				1/32	0.122			○		
	VBMT 2202	VBMT 110301				0.004	0.118			○	○	
	2205	110302				0.008	0.110			○	○	
	221	110304				1/64	0.094			●	●	
	222	110308				1/32	0.138			○	○	
	VBMT 3302NE	VBMT 160401NE	3/8	3/16	0.173	0.004	0.110			○		
	3305NE	160402NE				0.008	0.102			○		
	331NE	160404NE				1/64	0.087			○		
	332NE	160408NE				1/32	0.118			○		
	VBMT 3302	VBMT 160401				0.004	0.126			○	○	
	3305	160402				0.008	0.118			●	●	
	331	160404				1/64	0.102			●	●	
	332	160408				1/32	0.138			●	●	
	VCMT 151502NE	VCMT 080201NE	3/16	3/32	0.091	0.004	0.067	7°	1	○		
	151505NE	080202NE				0.008	0.067			○		
	15151NE	080204NE				1/64	0.071			○		
	15152NE	080208NE				1/32	0.075			○		
	VCMT 151502	VCMT 080201				0.004	0.079			○	○	
	151505	080202				0.008	0.079			○	○	
	15151	080204				1/64	0.083			○	○	
	15152	080208				1/32	0.087			○	○	
	WBMT 12102LNE	WBMT 060101L-NE	5/32	1/16	0.091	0.004	0.067	5°	1			F71 ~ F73 F77
	12105LNE	060102L-NE				0.008	0.063					
	1211LNE	060104L-NE				1/64	0.063					
	WBMT 12102L	WBMT 060101L				0.004	0.075			○	○	
	12105L	060102L				0.008	0.075			○	○	
	1211L	060104L				1/64	0.075			○	○	
	WBMT 151505LNE	WBMT 080202L-NE	3/16	3/32	0.091	0.008	0.083					
	15151LNE	080204L-NE				1/64	0.083					
	WBMT 151505L	WBMT 080202L				0.008	0.094			○	○	
	15151L	080204L				1/64	0.091			○	○	
	WPMT 21502NE	WPMT 110201NE	1/4	3/32	0.110	0.004	0.106	11°	1	○		
	21505NE	110202NE				0.008	0.106			○		
	2151NE	110204NE				1/64	0.106			○		
	WPMT 21502	WPMT 110201				0.004	0.118					
	21505	110202				0.008	0.122				●	
	2151	110204				1/64	0.122				●	

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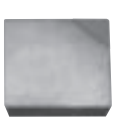
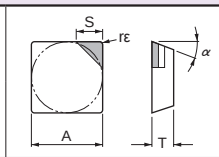
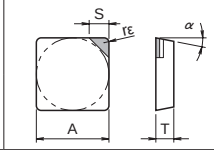
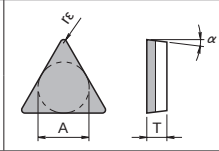
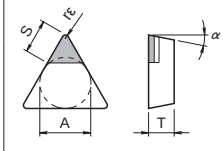
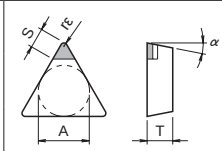
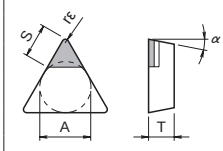
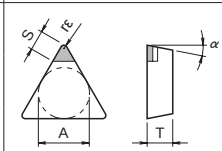
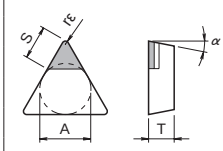
● : Std. Stock ○ : World Express

Positive

Edge Prep.
All PCD Items Have a Sharp Edge

Classification of usage
● : Light Interruption / 1st choice
◔ : Light Interruption / 2nd choice
● : Continuous / 1st choice
○ : Continuous / 2nd choice

N	Non-ferrous Material (with interruption)	◔
	Non-ferrous Material (without interruption)	●
S	Titanium alloy (with interruption)	◔
	Titanium alloy (without interruption)	●

Shape	Description (ANSI)	Description (ISO)	Dimension (inch) A	T	ød	rε	S	Angle (°) α	No. of Edge	PCD KPD001	PCD KPD010	Ref. Page for Toolholder
 	SEG 421NE	SEGN 120304NE	1/2	1/8	-	1/64	0.142	20°	1			-
	421	120304					0.165				○	
 	SPG 421NE	SPGN 120304NE	1/2	1/8	-	1/64	0.142	11°	1	○		-
	421	120304					0.165				○	
 Full-Top PCD 	TBG 12105	TBGN 060102	5/32	1/16	-	0.008	-	5°	3		○	
	1211	060104				1/64					○	
 	TPG 181505NE	TPGN 090202NE	7/32	3/32	0.118	0.008	0.130	11°	1	○		
	18151NE	090204NE				1/64	0.126			○		
	18152NE	090208NE				1/32	0.114			○		
	TPG 181505	TPGN 090202				0.008	0.154				○	
	18151	090204				1/64	0.146				○	
	18152	090208				1/32	0.134				○	
 Small Edge 	TPG 2202SE	TPGN 110301SE	1/4	1/8	0.138	0.004	0.102	11°	1	○	○	F57
	2205SE	110302SE				0.008	0.098			○	○	
	221SE	110304SE				1/64	0.094			○	○	
 	TPG 2205NE	TPGN 110302NE				0.008	0.134			○		
	221NE	110304NE				1/64	0.126			○		
	222NE	110308NE				1/32	0.114			○		
	TPG 2205	TPGN 110302				0.008	0.154			○	○	
	221	110304				1/64	0.146			○	●	
	222	110308				1/32	0.134				●	
 Small Edge 	TPG 3202SE	TPGN 160301SE	3/8	1/8	0.177	0.004	0.102				○	
	3205SE	160302SE				0.008	0.102			○	○	
	321SE	160304SE				1/64	0.094			○	○	
 	TPG 3205NE	TPGN 160302NE	3/8	1/8	0.177	0.008	0.130			○		
	321NE	160304NE				1/64	0.126			○		
	322NE	160308NE				1/32	0.114			○		
	TPG 3205	TPGN 160302				0.008	0.154			○	○	
	321	160304				1/64	0.146			○	●	
	322	160308				1/32	0.134				●	

CBN & PCD Inserts are sold in 1 piece boxes.

●Std. Stock ○World Express

Grooving (1-Edge)

Classification of usage
● : Light Interruption / 1st choice
↻ : Light Interruption / 2nd choice
◯ : Continuous / 1st choice
◯ : Continuous / 2nd choice

		KPD001		KPD010	
		R	L	R	L
N	Non-ferrous Material (with interruption)	●			
	Non-ferrous Material (without interruption)	◯			
S	Titanium alloy (with interruption)	●			
	Titanium alloy (without interruption)	◯			

Edge Prep.
All PCD Items Have a Sharp Edge

Shape (Handed Insert shows Right-hand)	Description	(Old Description)	Unit	Dimension W±0.0012 (inch)	Dimension W±0.03 (mm)	B	rε	A	T	ød	S	No. of Edge	PCD KPD001 R	PCD KPD001 L	PCD KPD010 R	PCD KPD010 L	Ref. Page for Toolholder
 External / Internal Grooving	GBA32R/L 125-010	GBA32R/L 125	mm	0.049	1.25	2.0	0.1	9.525	3.18	4.4	1.7	1			◯		G15
	150-010	150		0.059	1.50								◯		◯		
	GBA43R/L 125-010	GBA43R/L 125		0.049	1.25	2.0	0.1	12.70	4.76	5.5	1.9	1			◯	◯	
	150-010	150		0.059	1.50	3.5							◯	◯	◯	◯	
	200-010	200		0.079	2.00								◯	◯	◯	◯	
	250-010	250		0.098	2.50	4.0							◯	◯	◯	◯	
	030-010	300		0.118	3.00								◯	◯	◯	◯	
 External Grooving	GB43R/L 125	-		0.049	1.25	2.0	0.1	12.70	4.76	-	1.9	1			◯	◯	G17
	150			0.059	1.50	3.5							◯	◯	◯	◯	
	200			0.079	2.00								◯	◯	◯	◯	
	250			0.098	2.50	4.0							◯	◯	◯	◯	
	300			0.118	3.00								◯	◯	◯	◯	
 External Grooving	TGF32R/L 125-010	-		0.049	1.25	2.0	0.1	9.525	3.18	4.5	1.7	1	◯				G51
	150-010			0.059	1.50								◯				
	200-010			0.079	2.00	2.5					1.9		◯				

Shape (Handed Insert shows Right-hand)	Description	(Old Description)	Unit	Dimension W±0.0012 (inch)	Dimension W±0.03 (mm)	B	rε	A	L	H	No. of Edge	PCD KPD001 R	PCD KPD001 L	PCD KPD010 R	PCD KPD010 L	Ref. Page for Toolholder
 Internal Grooving	GVR/L 145-020A	GVR/L 145A	mm	0.057	1.45	2.3	0.2	4.0	12	5.0	1			◯		G79
	200-020A	200A		0.079	2.00									◯		
	GVR/L 200-020B	GVR/L 200B		0.079	2.00	3.2	0.2	4.5	15	5.5				◯		
	250-020B	250B		0.098	2.50									◯		
	300-020B	300B		0.118	3.00	4.2								◯		
 Face Grooving	GVFR/L 250-020B	GVFR/L 250B		0.098	2.50	4.8	0.2	5.8	20	5.0				◯	◯	G89
	300-020B	300B		0.118	3.00									◯	◯	
	GVFR/L 350-040C	GVFR/L 350C		0.138	3.50	6.8	0.4	7.0	27	7.0	1			◯		

Shape	Description (ANSI)	Description	Unit	Dimension W±0.0012 (inch)	Dimension W±0.03 (mm)	rε	L	H	M	S	No. of Edge	PCD KPD001	PCD KPD010	Ref. Page for Toolholder
 External Deep Grooving S=2.9	GMN 2	-	mm	0.079	2.0	0.2	20	4.3	1.8	2.9	1			G56
	3			0.118	3.0	0.4			2.3					
	4			0.157	4.0				3.3					
	5			0.197	5.0				4.2					
	6			0.236	6.0				5.2					

CBN & PCD Inserts are sold in 1 piece boxes.

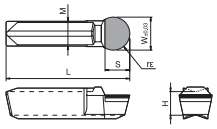
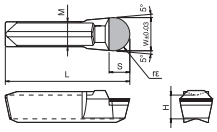
● : Std. Stock ◯ : World Express

Grooving for Aluminum Wheel (1 Edge)

Classification of usage
● : Light Interruption / 1st choice
◔ : Light Interruption / 2nd choice
● : Continuous / 1st choice
○ : Continuous / 2nd choice

N	Non-ferrous Material (with interruption)	◔
	Non-ferrous Material (without interruption)	●
S	Titanium alloy (with interruption)	◔
	Titanium alloy (without interruption)	●

Edge Prep.
All PCD Items Have a Sharp Edge

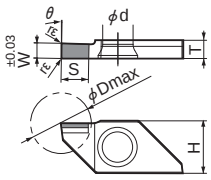
Shape	Description		Unit	Dimension W±0.0012 (inch)	Dimension W±0.03 (mm)	Dimension rε	Dimension L	Dimension H	Dimension M	Dimension S	No. of Edge	PCD KPD001	PCD KPD010	Ref. Page for Toolholder
		**GMGW 6030-30R**	mm	0.236	6	3	30	5.5	5	4.5	1	○		-
		8030-40R		0.315	8	4			6	6		○		
		**GMGW 8030-40R-HR**		0.315	8	4	30	5.5	6	5		○		

Grooving / Cut-off (1-Edge)

Classification of usage
● : Light Interruption / 1st choice
◔ : Light Interruption / 2nd choice
● : Continuous / 1st choice
○ : Continuous / 2nd choice

N	Non-ferrous Material (with interruption)	◔
	Non-ferrous Material (without interruption)	●
S	Titanium alloy (with interruption)	◔
	Titanium alloy (without interruption)	●

Edge Prep.
All PCD Items Have a Sharp Edge

Shape (Handed Insert shows Right-hand)	Description		Unit	Dimension W±0.0012 (inch)	Dimension W±0.03 (mm)	Dimension øD max	Dimension rε	Dimension T	Dimension H	Dimension ød	Dimension S	Angle (°) w°	No. of Edge	PCD KPD001 R	PCD KPD001 L	PCD KPD010 R	PCD KPD010 L	Ref. Page for Toolholder
 External Grooving (traversing)		**TKF12R/L 150-NB**	mm	0.059	1.5	7	0.1	3	8.7	5	2.0	0°	1	○	○			**H8**
		200-NB		0.079	2.0	8					3.0			○	○			
		250-NB		0.098	2.5	8					3.0			○	○			
		250-NB4.5		0.098	2.5	10					4.5			○	○			

W indicates the front cutting edge angle when placed in a toolholder

● : Std. Stock ○ : World Express

CBN & PCD Inserts are sold in 1 piece boxes.

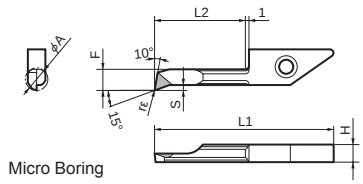
●Std. Stock ○World Express

System Tip-Bars

Edge Prep.
All PCD Items Have a Sharp Edge

Classification of usage
● : Light Interruption / 1st Choice
◔ : Light Interruption / 2st Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

N	Non-ferrous Mat'l (with interruption)	◔	
	Non-ferrous Mat'l (without interruption)	●	
S	Titanium alloy (with interruption)	◔	
	Titanium alloy (without interruption)	●	

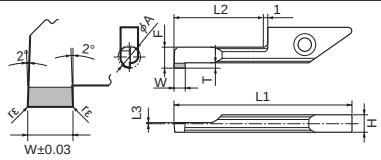
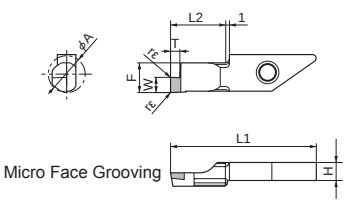
Insert	Description	Min.Bore Dia.	Dimension (mm)							No. of Edge	PCD		Ref. Page for Toolholder
		øA	H	L1	L2	F	S	rε			KPD001	KPD010	
 Micro Boring	VNBR 0411-02NB	4	3.9	30.8	11	3.5	0.5	0.2		1	○	○	F18
	0420-02NB			39.8	20						○	○	
	VNBR 0511-02NB	5	3.9	30.8	11	4.5	0.7	0.2			○	○	
	0520-02NB			39.8	20						○	○	
	VNBR 0620-02NB	6	3.9	39.8	20	5.3	1.0	0.2			○	○	
	0630-02NB			49.8	30						○	○	
	VNBR 0720-02NB	7	3.9	39.8	20	6.2	1.0	0.2			○	○	
	0730-02NB			49.8	30						○	○	

System Tip-Bars

Edge Prep.
All PCD Items Have a Sharp Edge

Classification of usage
● : Light Interruption / 1st Choice
◔ : Light Interruption / 2st Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

N	Non-ferrous Mat'l (with interruption)	◔	
	Non-ferrous Mat'l (without interruption)	●	
S	Titanium alloy (with interruption)	◔	
	Titanium alloy (without interruption)	●	

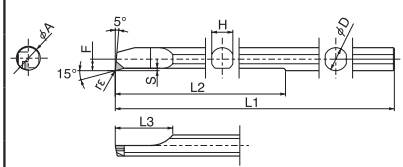
Insert	Description	Min.Bore Dia.	Dimension (mm)									No. of Edge	PCD		Ref. Page for Toolholder
		ϕA	W	rε	H	L1	L2	L3	F	T			KPD001	KPD010	
 Micro Grooving	VNGR 0410-11NB	4	1.0	0.05	3.9	30.8	11	0.1	3.5	0.8		1	○		F18
	0420-11NB		2.0	0.10									○		
	VNGR 0510-11NB	5	1.0	0.05	3.9	30.8	11	0.1	4.4	1.0			○		
	0520-11NB		2.0	0.10									○		
	VNGR 0610-20NB	6	1.0	0.05	3.9	39.8	20	0.3	5.2	1.8			○		
	0620-20NB		2.0	0.10									○		
	VNGR 0710-20NB	7	1.0	0.05	3.9	39.8	20	0.3	6.2	2.0			○		
	0720-20NB		2.0	0.10									○		
 Micro Face Grooving	VNFGR 0820-10NB	8	2.0	0.05	3.9	39.8	10	-	7.3	2.0		1	○		
	0830-10NB	8	3.0							3.0			○		

Micro-Bars

Edge Prep.
All PCD Items Have a Sharp Edge

Classification of usage
● : Light Interruption / 1st Choice
◔ : Light Interruption / 2st Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

N	Non-ferrous Mat'l (with interruption)	◔	
	Non-ferrous Mat'l (without interruption)	●	
S	Titanium alloy (with interruption)	◔	
	Titanium alloy (without interruption)	●	

Insert	Description	Min.Bore Dia.	Dimension (mm)								No. of Edge	PCD		Ref. Page for Toolholder
		ϕA	ϕD	H	L1	L2	L3	F	S	rε		KPD001	KPD010	
	PSBR 0404-60NBS	4	3.8	3.6	60	30	10	1.9	0.3			○	○	
	0505-70NBS	5	4.8	4.4	70	40	12	2.4	0.5	0.05	1	○	○	F26
	0606-70NBS	6	5.8	5.2		45	12	2.9				○	○	
	0707-80NBS	7	6.8	6.2	80	50	12	3.4				○	○	

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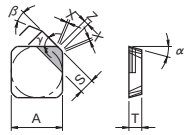
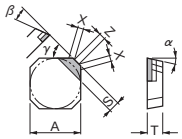
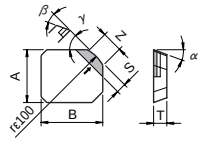
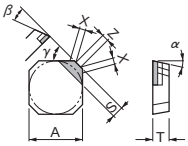
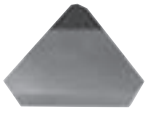
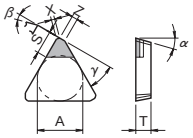
● : Std. Stock ○ : World Express

Milling Inserts

Edge Prep.
All PCD Items Have a Sharp Edge

Classification of usage
●: Light Interruption / 1st choice
◷: Light Interruption / 2nd choice

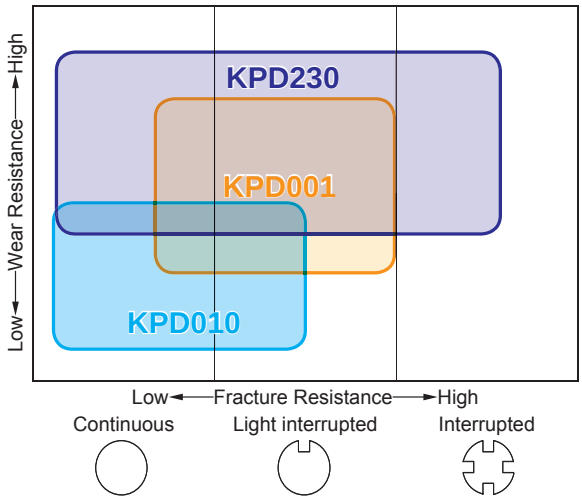
N	Non-ferrous Material (with interruption)	◷	●
S	Titanium alloy (with interruption)	◷	●

Shape	Description (ANSI)	Description (ISO)	Dimension (inch) A	T	X	Z	S	B	Angle (°) α	β	γ	No. of Edge	PCD KPD001	KPD010	KPD230	Ref. Page for Toolholder
 	SDK 42AUFNNE	SDKN 1203AUFN-NE	1/2	1/8	0.020	0.047	0.122	-	15°	23°	45°	1	○			
	42AUFN	1203AUFN	1/2	1/8	0.020	0.047	0.142	-				1	○	○		
 	SEEN 42AFFNNE	SEEN 1203AFFN-NE	1/2	1/8	0.020	0.055	0.118	-	20°	25°	45°	1	○			
	42AFFN	1203AFFN	1/2	1/8	0.020	0.055	0.138	-				1	●	●		
 With Wiper Edge 	SEEN 42AFFRW	SEEN 1203AFFR-W	0.492	1/8	0.020	0.055	0.067	0.573	20°	25°	45°	1	○			-
 	SOKN 13T3AXFNNE	SOKN 13T3AXFN-NE	0.531	5/32	0.020	0.043	0.118	-	27°	32°	45°	1			○	
 	TEEN 32PTFRNE	TEEN 1603PTFR-NE	3/8	1/8	0.024	0.055	0.161	-	20°	22°	30°	1	○			
	32PTFR	1603PTFR					0.185					1	●	●		
	TEKN 43PTFRNE	TEKN 2204PTFR-NE	1/2	3/16	0.028	0.071	0.165	-	20°	22°	30°	1	○			
	43PTFR	2204PTFR					0.189					1	○	●		

CBN & PCD Inserts are sold in 1 piece boxes.

●Std. Stock ○World Express

PCD Area Map



Advantages of PCD

Material	Symbol	Av. grain size (μm)	Advantages
N Non-ferrous metal	KPD001	0.5	• Super Micro-Grain PCD features cutting edge strength, wear resistance, fracture resistance, good edge-sharpening performance and long, stable tool life. • Application: 1st choice for high speed cutting of aluminum alloys, brass, non-ferrous metals and non-metals including
	KPD010	10	• 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	• 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

Recommended Cutting Conditions

Workpiece Material	Insert Grade		Cutting Conditions				Remarks
	KPD001	KPD010	Cutting Speed Vc (SFM)	D.O.C. (inch)		Feed Rate f (ipr)	
				Small edge (SE) and Positive Insert	Negative (except SE) Insert		
Aluminium Alloy Zinc Alloy	★	☆	990～3300	～0.0394	～0.0787	0.0012～0.0197	Both Dry and Wet Cutting available
Copper, Brass, Bronze	★	☆	990～3300	～0.0394	～0.0787	0.0012～0.0197	
Magnesium Alloy	★	☆	1320～3960	～0.0394	～0.0787	0.0012～0.0197	
SIntered Carbide	★	☆	30～100	～0.0118	～0.0118	0.0012～0.0039	
Titanium Alloy	★	☆	330～660	～0.0394	～0.0787	0.0020～0.0079	Wet Cutting
Reinforced Fiberglass Carbon Fiber Plastics	★	☆	330～1980	～0.0394	～0.0787	0.0020～0.0197	Dry Cutting
Silica Filling Plastic Particle Board	★	☆	1320～2640	～0.0394	～0.0787	0.0020～0.0197	

★: 1st Recommendtion ☆: 2nd Recommendtion

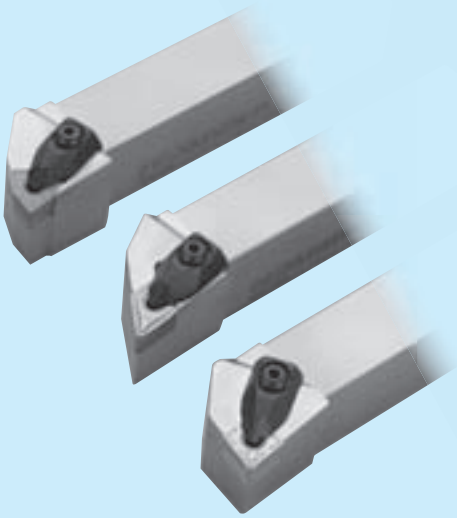
External Turning Toolholders



D

D1~D47

Turning Toolholders Identification System		D3
Product Lineup		D4~D5
Clamping system		D6~D7
Toolholders for General Purpose		D8~D24
CN □□ Insert	DCLN / PCLN	D8
DN □□ Insert	DDJN / MDJN	D10
	PDJN / PDHN	D11
DN / RN □□ Insert	DDHN / PRGN	D12
RC □□ Insert	PRGC / PRXC	D13
SN □□ Insert	MSSN	D14
	PSBN/PSDN/PSKN/PSSN	D15
TN □□ Insert	DTGN	D16
	MTGN/PTGN	D17
	PTFN/PTGN	D18
	WTEN/WTJN/WTKN	D19
VN □□ Insert	DVLN/DVJN/DVPN/DVNN	D20
	MVJN/MNLN/PVLN	D21
	PVPN / MVVN / PVVN	D22
WN □□ Insert	DWLN / MWLN	D23
	PWLN / WWLN	D24
Toolholders for Ceramic Tools		D25~D38
CN □□ Insert	CCLN / HCLN	D25
DN □□ Insert	CDJN / HDJN	D26
EN □□ Insert	CELN	D27
RCGX Insert	CRDCN	D28
RN □□ Insert	CRDN / CRSN /HRSN	D29
SN □□ Insert	CSDNN / HSDNN	D30
SN □□ Insert	CSKN /CS-N	D31
	CSRN / HSRN	D32
	CSSN / CSYN	D33
TN □□ Insert	CTJN / CTUN	D34
CNGX Insert	CCLN	D35
DNGX Insert	CDHN /CDJN	D36
SNGX Insert	CSRN /CSDN / CSSN	D37
	CSRN / CSKN /CSYN	D38
Toolholders for Solid CBN Tools		D39~D43
Toolholders for Bearing Machining		D44~D45
Technical Information		D46~D47

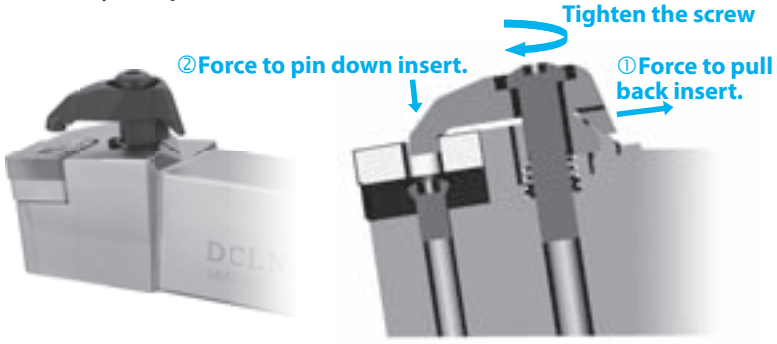


Double Clamp Series

Securely clamps the insert with a single action

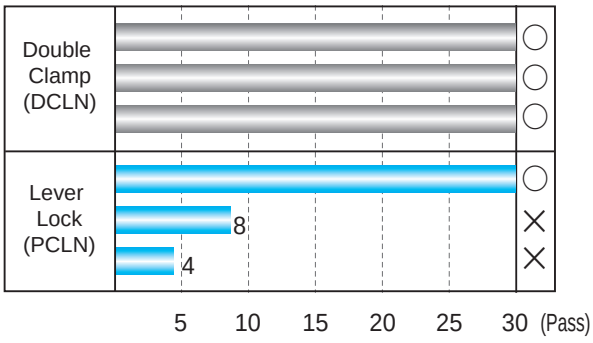
Improved Clamping Rigidity

Firmly clamp the insert in two directions with one action.



Achieves Long Insert Life

The double-clamp design firmly clamps the insert in two directions, which maintains good contact between the shim and the insert even during high feed rate machining. Along with improving the accuracy of the insert position, greater insert life is attained.



<Cutting Conditions>
SCM435, Vc=150m/min, ap=1mm, f=0.4mm/rev
(4137, Vc=500SFM, D.O.C=.039in, f=.016ipr)
CNMG432PS, 30 pass interrupted machining

Comparison of shim and insert contact

Coating material is applied to the shim side of the insert, which is installed on the tool holder. Compare the shim contact surface after tightening.

PS Chipbreaker	Shim contact surface of double clamp	Shim contact surface of lever lock
	Cutting edge side 	Cutting edge side 
	The shape of the insert breaker is transferred indicating a high level of contact.	Only a part of the shape of the insert breaker is transferred indicating a low level of contact.

Convenient Marking Design



The spare part descriptions and the screw tightening torque are conveniently located on the toolholder body.

Screw	Tightening Torque
CS-2D	1.7N·m(1.25lb.ft)
CS-3D	3.9N·m(2.88lb.ft)
CS-5D	3.0N·m(2.21lb.ft)

A: Anchor Pin Style
C: Clamp Only
D: Double Clamp
M: Clamp and Lock Pin
P: Lock Pin Only (or Lever Lock)
S: Screw Only
W: Wedge Lock

Clamping System

R : Round
S : 90° Square
T : 60° Triangle
C : 80° Diamond
D : 55° Diamond
V : 35° Diamond
W: 80° Trigon

Insert Shape

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

Toolholder Shank Size

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

Insert Size I.C.

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

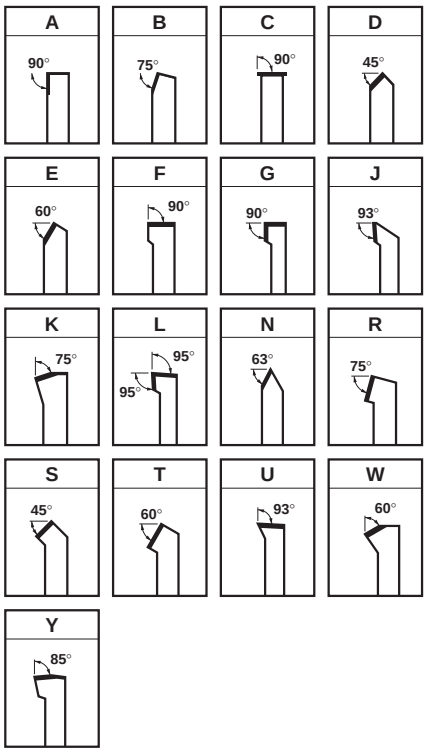
* NOTE: All qualified dimensions are given to a tolerance of .003 over a master gauge insert radius based on the standard shown.

Insert I.C.	Radius
1/4-5/16	.015
3/8-1/2	.031
5/8-3/4	.047
1"	.062

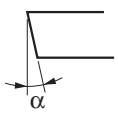
Qualified Control

ANSI	**P**	**C**	**L**	**N**	**R**	**16**	–	**4**	**D**		
ISO	**P**	**C**	**L**	**N**	**R**	**20**	**20**	**K**	–	**12**	

Cutting Edge Angle



Insert Relief Angle



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

Hand of Tool

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

Shank Height

Shank Height (mm)

Shank Width

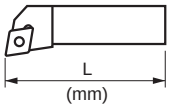
Shank Width (mm)

Others

Optional Code

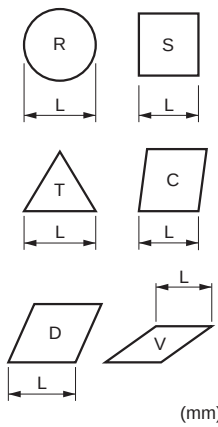
Optional Mark or Number

Toolholder Length



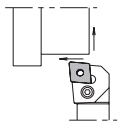
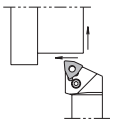
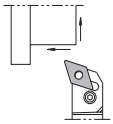
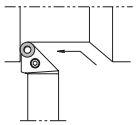
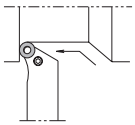
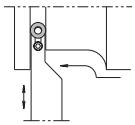
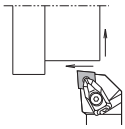
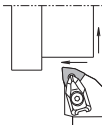
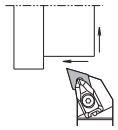
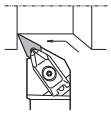
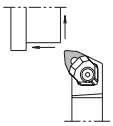
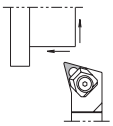
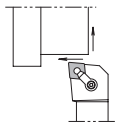
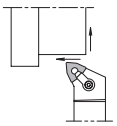
A : 32	**J** : 110	**S** : 250
B : 40	**K** : 125	**T** : 300
C : 50	**L** : 140	**U** : 350
D : 60	**M** : 150	**V** : 400
E : 70	**N** : 160	**W** : 450
F : 80	**P** : 170	**Y** : 500
G : 90	**Q** : 180	**X** : Special
H : 100	**R** : 200	

Insert Size

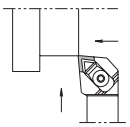
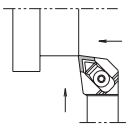
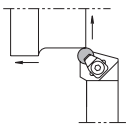
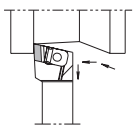
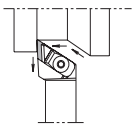
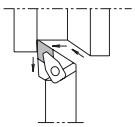
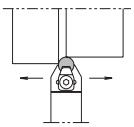
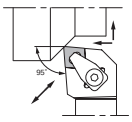
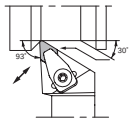
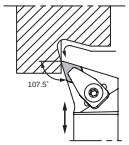


Specifications may change without prior notice.

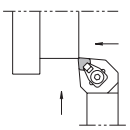
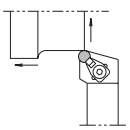
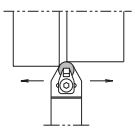
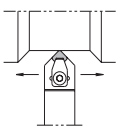
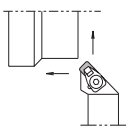
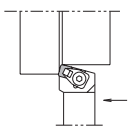
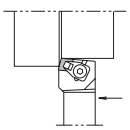
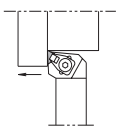
General Purpose Turning Toolholders

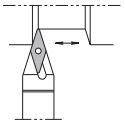
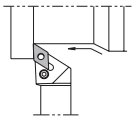
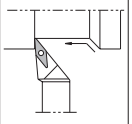
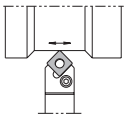
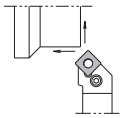
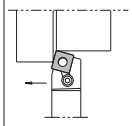
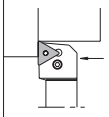
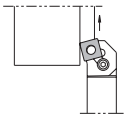
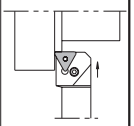
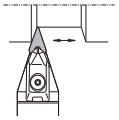
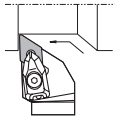
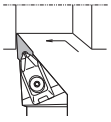
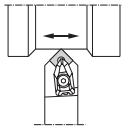
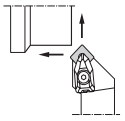
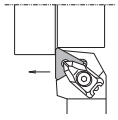
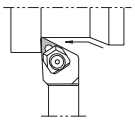
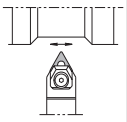
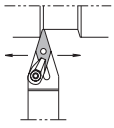
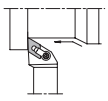
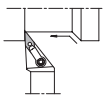
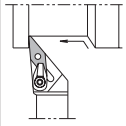
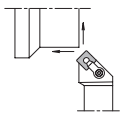
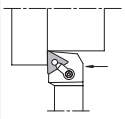
Application	External/Facing		External/Facing/Copying				External/Facing/ Copying/Undercutting	
Cutting Edge Angle	95°		105°	107.5°	Special			117.5°
Lever Lock / Pin Lock	 PCLN	 PWLN		 PDHN	 PRGN	 PRGC	 PRXC	 PVPN
Ref. Page	D9	D24		D11	D12	D13	D13	D22
Double Clamp	 DCLN	 DWLN		 DDHN				 DVPN
Ref. Page	D8	D23		D12				D20
Wedge Lock		 WWLN	 WTKN-N					
Ref. Page		D24	D19					
Multi-Lock	 MCLN	 MWLN						
Ref. Page	D8	D24						

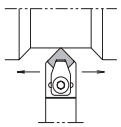
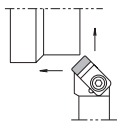
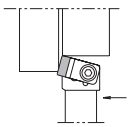
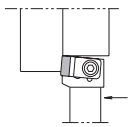
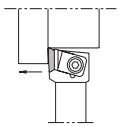
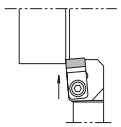
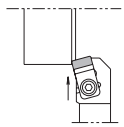
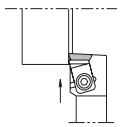
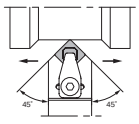
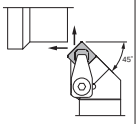
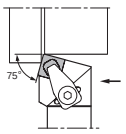
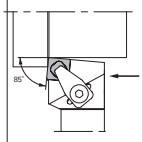
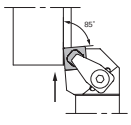
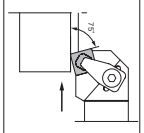
Toolholders for Ceramic Tools

Application	External/Facing			External/Copying				
Cutting Edge Angle	95°	97.5°	Special	93°			107.5°	Special
Top Clamp	 CCLN/HCLN	 CELN	 CRSN/HRSN	 CEJN	 CDJN/HDJN	 CDJN-X		 CRDN/CRDC
Ref. Page	D25	D27	D29	D27	D26	D26		D29/D28
With dimple Top Clamp	 CCLN-GX					 CDJN-GX	 CDHN-GX	
Ref. Page	D35					D36	D36	

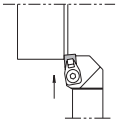
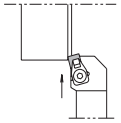
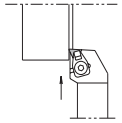
Toolholders for Solid CBN Tools

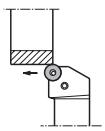
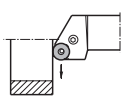
Application	External/Facing		External/Copying	External/Chamfering	External/Facing/ Chamfering	External		
Cutting Edge Angle	95°	Special	Special	45°	45°	75°		93°
Top Clamp	 CCLN-A	 CRSN-A	 CRDN-A	 CSDN-A	 CSSN-A	 CSRN-A	 CCRN-A	 CTJN-A
Ref. Page	D39	D40	D40	D41	D42	D41	D39	D43

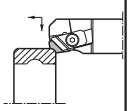
External/Copying			External/Chamfering		External/Facing /Chamfering	External		Facing	
72.5°	93°	95°	45°	60°	45°	75°	91°	15°	-1°
									
PVVN	PDJN	PVLN	PSDN		PSSN	PSBN	PTGN	PSKN	PTFN
D22	D11	D21	D15		D15	D15	D17	D15	D18
									
DVVN	DDJN	DVLN	DSDN		DSSN		DTGN		
D20	D10	D20	D14		D14		D16		
									
	WTJN-N			WTEN-N					
	D19			D19					
	 								
MVVN	MDJN MVJN	MVLN			MSSN		MTGN		
D22	D10 D21	D21			D14		D17		

External/Chamfering	External/Facing/ Chamfering	External			Facing		
45°	45°	75°	85°	93°	5°	15°	-3°
							
CSDN/HSDN	CSSN	CSRN/HSRN	CS-N	CTJN	CSYN	CSKN	CTUN
D30	D33	D32	D31	D34	D33	D31	D34
							
CSDN-GX	CSSN-GX	CSRN-GX	CS-N-GX		CSYN-GX	CSKN-GX	
D37	D37	D37	D38		D38	D38	

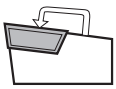
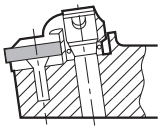
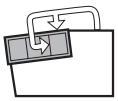
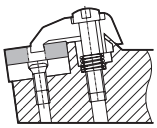
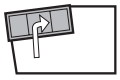
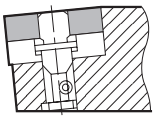
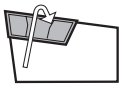
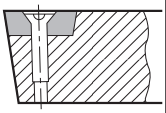
Toolholders for Bearing Machining

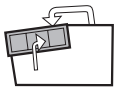
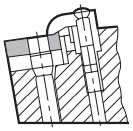
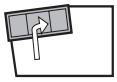
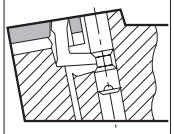
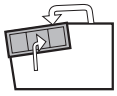
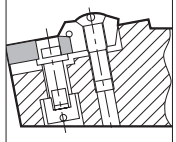
Facing		
5°	15°	-3°
		
CSYN-A	CSKN-A	CTUN-A
D41	D41	D43

Application	External	Facing
Cutting Edge Angle	Special	Special
Lever Lock		
	PRGC-BE	PRGC-BF
Ref. Page	D44	D44

Application	External Round Chamfering
Cutting Edge Angle	Special
Top Clamp	
	CBSN
Ref. Page	D45

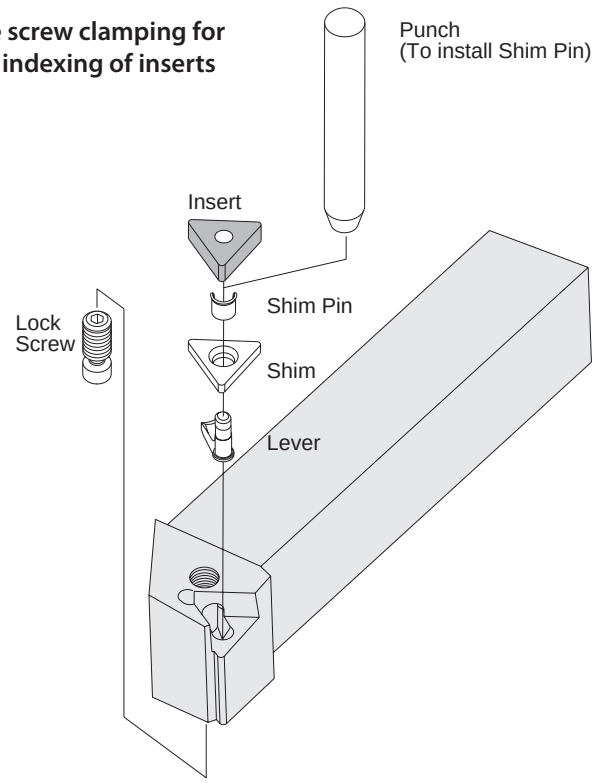
Clamping System

Name	Mechanism		Feature
Top Clamp (C)			· Rigid Clamping · Negative Insert: Medium to Heavy Cutting (Mainly for Ceramic Insert) · Positive Insert: Low Cutting Resistance
Double Clamp (D)			· Firmly clamp the insert in two directions with one action.
Pin Lock (P)			· Firm Clamping · High Precision · Easy Insert Replacement
Screw Clamp (S)			· Simple Mechanism · Fewer Parts · Finishing to Medium Cutting

Name	Mechanism		Feature
Multi Lock (M)			· Combination of Top Clamp and Pin Lock · Rigid Clamping · Heavy Cutting
Lever Lock (P)			· Firm Clamping · High Precision · Easy Insert Replacement · For General Use
Wedge Lock (W)			· Rigid Clamping · Heavy Cutting

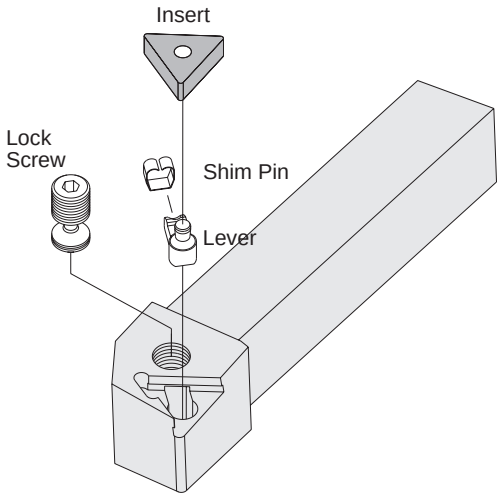
● Lever Lock

One screw clamping for fast indexing of inserts



With Shim

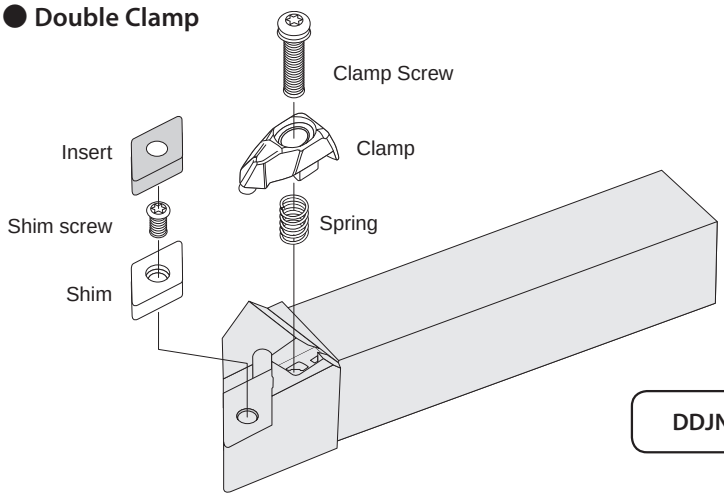
PCLN
PDHN / PDJN
PRGN / PRGC / PRXC
PSBN / PSDN / PSKN / PSSN
PTFN / PTGN / PVLN / PVVN
PWLN



Without Shim

PTGN-11 / PTFN-11

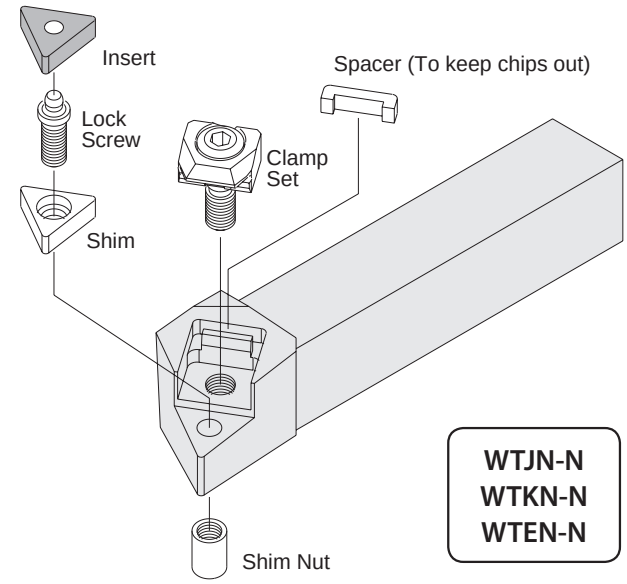
● Double Clamp



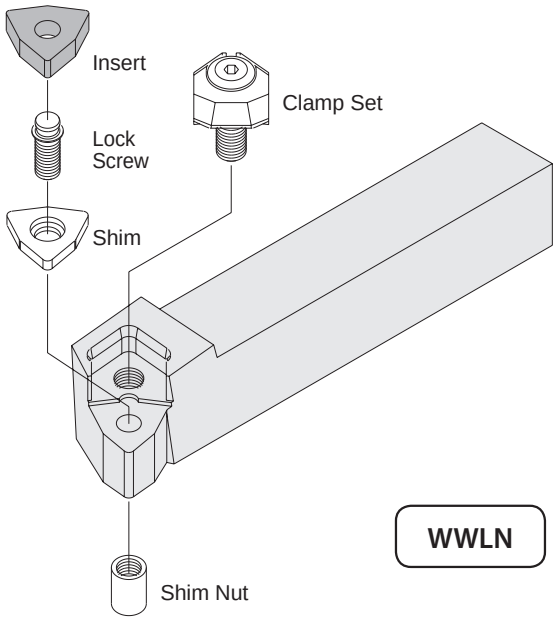
DCLN
DDJN / DDHN
DSDN / DSSN
DTGN
DVLN / DVPN / DVVN
DWLN

DDJN

● Wedge Lock

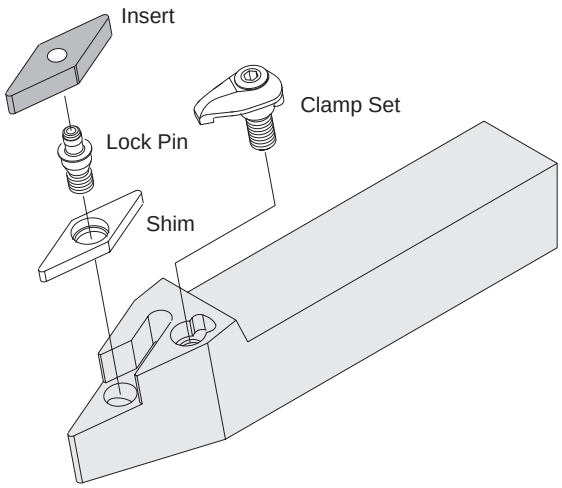


WTJN-N
WTKN-N
WTEN-N



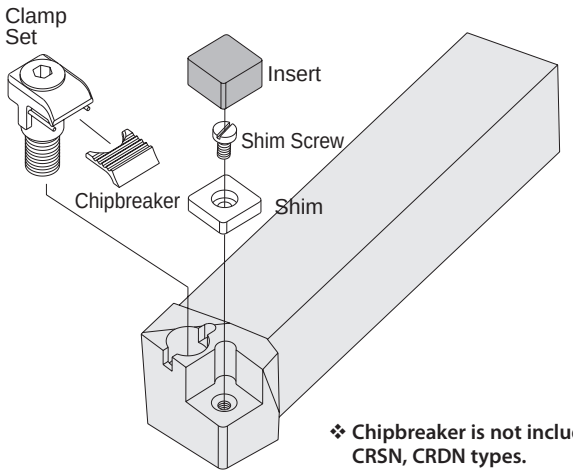
WWLN

● Multi-Lock



MCLN
MDJN
MSSN
MTGN
MVJN
MVVN
MWLN

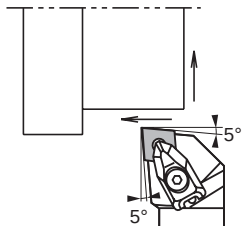
● Top Clamp

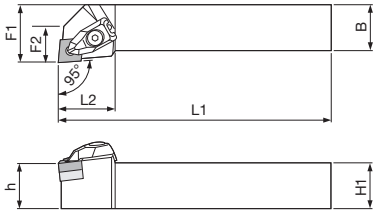


❖ **Chipbreaker is not included with CRSN, CRDN types.**

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

DCLN (External / Facing)

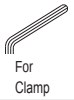




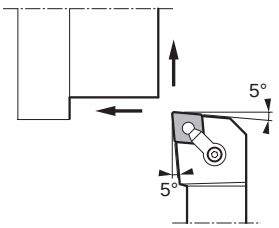
Side Rake Angle:-6°
Angle of Inclination:-6°

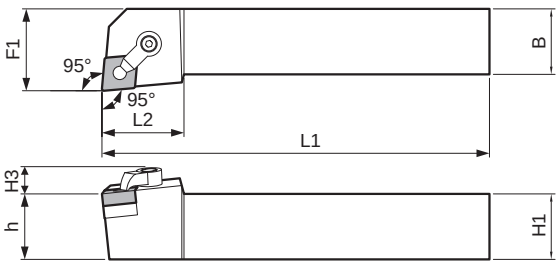
•Right-hand Shown

Toolholder Dimensions

Description		Stock R	Stock L	Unit	Applicable Insert	Dimension H1=h	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts Clamp	Screw	Spring	Shim	Shim Screw	Wrench	Wrench (Optional)
																			
DCLN$^{R}_{L}$	124B	●	●	inch	CNGA CNGG CNMA CNMG CNMM CNMP 43_	0.75	0.75	4.50		1.00		1/32	CP-3D	CS-3D	SP-3D	DC-44	SB-4085TR	LW-3	FT-15
	164D	●	●			1.00	1.00	6.00		1.25									
DCLN$^{R}_{L}$	2020K-12	○	○	mm		20	20	125	33	25	20	0.8	CP-3D	CS-3D	SP-3D	DC-44	SB-4085TR	LW-3	FT-15
	2525M-12	○	○			25	25	150		32									

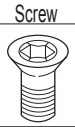
MCLN (External / Facing)





•Right-hand Shown

Toolholder Dimensions

Description		Stock R	Stock L	Unit	Applicable Insert	Dimension H1=h	H3	B	L1	L2	F1	Std.Corner-R(rε)	Spare Parts Clamp	Clamp Screw	Wrench	Shim	Shim Screw	Lock Pin	Wrench
																			
MCLN$^{R}_{L}$	12-4B	●	●	inch	CNGA CNGG CNMA CNMG CNMM CNMP 43_ 54_ 64_	0.75	.440	0.75	4.00	1.19	1.00	1/32	CL-20	XNS-48	LW-125	ICSN433	S-46	NL46	LW-094
	16-4D	●	●			1.00		1.00	6.00	1.26	1.25								
	16-5D	●	●			1.00		1.00		1.375	1.25		CL-12	XNS-510	LW-156	ICSN533	S-58	NL58	LW-125
	20-5D	●	●			1.25		1.25			1.50								
	20-6D	●				1.25		1.25		1.50	1.50		CL-12	XNS-510	LW-156	ICSN633	S-68	NL68	LW-125

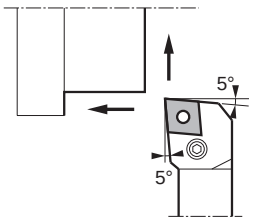
Applicable Inserts

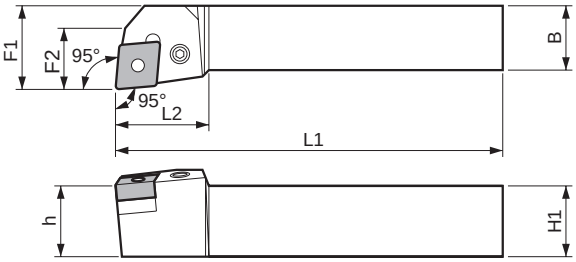
Insert Type	Reference Pages Cermet/Carbide	Ceramic	CBN	PCD
CN_	B14-B19	B85	C5-C6	C18

Recommended Cutting Conditions D46~D47

● : Std. Stock ○ : World Express

PCLN (External / Facing)





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

•Right-hand Shown

● Toolholder Dimensions

Description		Stock R	Stock L	Unit	Applicable Insert	H1=h	B	L1	L2	F1	F2	Std.Corner-R(rε)	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PCLN$^{R}_{L}$	12-3B	●		inch	CNGG CNMG 33_	0.75	0.75	4.50	0.87	1.00	0.61	1/32	LL-1N	LS-1N	LC-32N	LSP-1	PC-1	FH-2.5
	16-3D					1.00	1.00	6.00	0.87	1.25	0.70							
	12-4B	●		inch	CNGA CNGG CNGM CNMA CNMG CNMM CNMP 43_	0.75	0.75	4.50	1.06	1.00	0.80	1/32	LL-2N	LS-2N	LC-42N	LSP-2	PC-2	LW-3
	16-4D	●				1.00	1.00	6.00	1.06	1.25	0.78							
PCLN$^{R}_{L}$	1616H-09	○	○	mm	CNGG CNMG 33_	16	16	100		20	14	0.8	LL-1N	LS-1N	LC-32N	LSP-1	PC-1	FH-2.5
	2020K-09	○	○			20	20	125	22	25	15							
	2525M-09	○	○			25	25	150		32	18							
	1616H-12	○			CNGA CNGG CNGM CNMA CNMG CNMM CNMP 43_	16	16	100		20	17	0.8	LL-2N	LS-2N	LC-42N	LSP-2	PC-2	FH-2.5
	2020H-12					20	20	100		25	20							
	2020K-12	○	○			20	20	125	27	25	20							
	2525M-12	○	○			25	25	150		32	20							
	3225P-12	○	○			32	25	170		32	20							
	2525M-16	○	○		CNGA CNMG CNMA CNMM 54_	25	25	150	32	32	25	0.8	LL-5N	LS-4N	LC-53N	LSP-3	-	LW-3
	3232P-16	○	○			32	32	170		40								
	3232P-19				CNGA CNMG CNMA CNMM 64_	32	32	170	40	40	27	0.8	LL-6	LS-5	LC-63	LSP-4	-	LW-4

Applicable Inserts

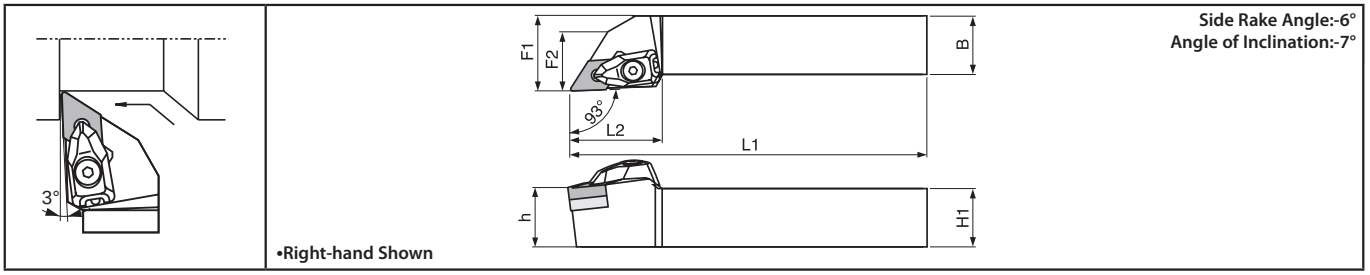
Insert Type	Reference Page			
	Cermet/Carbide	Ceramic	CBN	PCD
CN_	B14-B19	B85	C5-C6	C18

Recommended Cutting Conditions D46~D47

● : Std. Stock ○ : World Express

External Toolholders [DN□□ Insert]

DDJN (External / Copying)



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

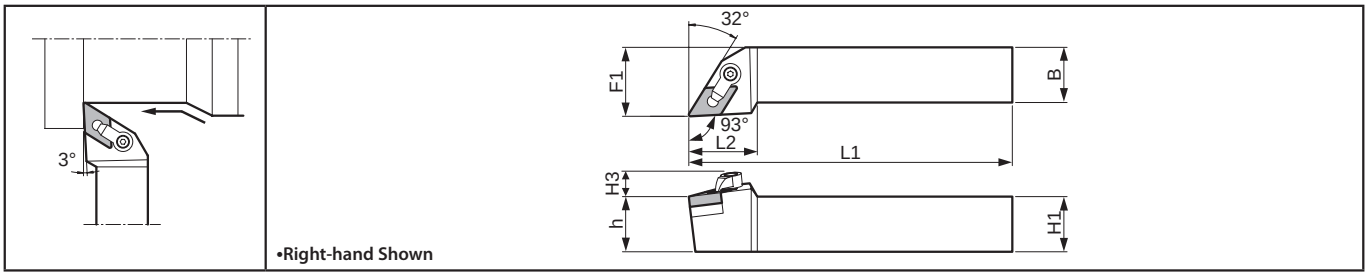
•Right-hand Shown

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Dimension H1=h	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts Clamp	Screw	Spring	Shim	Shim Screw	Wrench	Wrench (Optional)
																	 For Clamp	 For Shim
DDJN$^{R}_{L}$ 124B	●	●	inch	DNGA DNGG DNMA DNMG 43_ DNMM DNMP DNMX	0.75	0.75	4.50	1.54	1.00	-	1/32	CP-3D	CS-3D	SP-3D	DD-44 (DD-43)	SB-4085TR	LW-3	FT-15
164D	●	●			1.00	1.00	6.00	1.54	1.25	0.97								
DDJN$^{R}_{L}$ 2020K-1504	○	○	mm		20	20	125	39	25	-	0.8							
2525M-1504	○	○			25	25	150		32	25								
DDJN$^{R}_{L}$ 2020K-1506	○	○		DNMG DNGA 44_	20	20	125		25	-					DD-43 (DD-44)			
2525M-1506	○	○			25	25	150		32	25								

The shims inside ( ) do not come with holders. In the case of changing the insert thickness size, please purchase this separately.

MDJN (External / Copying)



•Right-hand Shown

● Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	H3	B	L1	L2	F1	Std.Corner-R(rε)	Spare Parts Clamp	Clamp Screw	Wrench	Shim	Shim Screw	Lock Pin	Wrench
																			
MDJN$^{R}_{L}$ 12-4B	●		●	inch	DNGA DNGG DNMA DNMG 43_ DNMM DNMP DNMX	0.75	0.47	0.75	4.50	1.25	1.00	1/32	CL-20	XNS-48	LW-125	IDSN443	S-46	NL46	LW-094
16-4D	●		●			1.00	0.46	1.00	6.00	1.25	1.25								

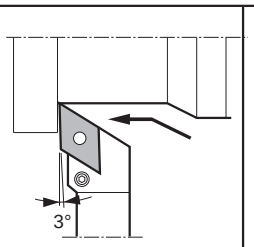
Applicable Inserts

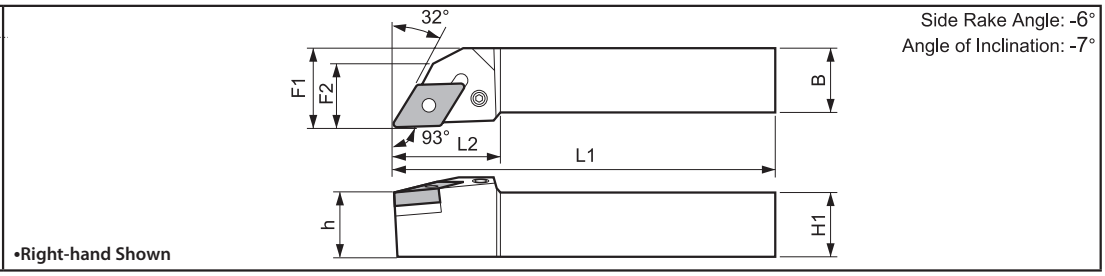
Insert Type	Reference Pages Cermet/Carbide	Ceramic	CBN	PCD
DN_	B20-B24	B86	C6-C7	C18

Recommended Cutting Conditions ➔ D46~D47

● : Std. Stock ○ : World Express

PDJN (External / Copying)

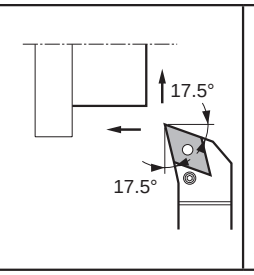


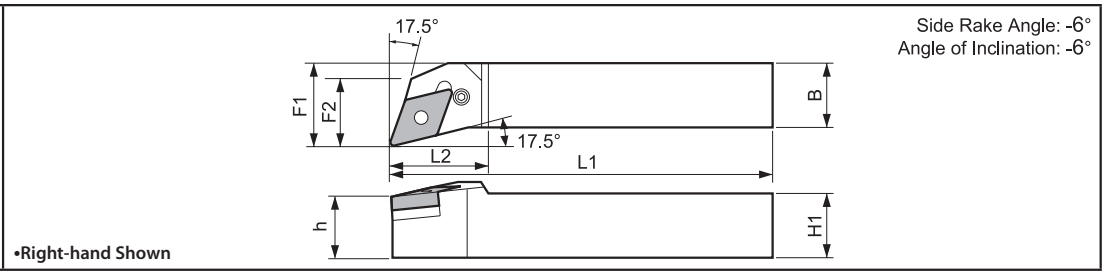


Side Rake Angle: -6°
Angle of Inclination: -7°

•Right-hand Shown

PDHN (External / Facing / Copying)





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

•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	H1=h	B	L1	L2	F1	F2	Std.Corner-R(rε)	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PDJN$^{R}_{L}$ 12-3B	●		inch	DNMG 33_	0.75	0.75	4.50	1.10	1.00	-	1/64	LL-1DN	LS-1N	LD-32N	LSP-1	PC-1	FH-2.5
16-3D	●	●			1.00	1.00	6.00		1.25	1.05							
16-4D	●	●		DNGA DNGG DNMA DNMG DNMM DNMP DNMX 43_	1.00	1.00	6.00	1.37	1.25	0.97	1/32	LL-3N	LS-2N	LD-42 •LD-42-20	LSP-2	PC-2	LW-3
PDJN$^{R}_{L}$ 1616H - 11	○	○	mm	DNMG 33_	16	16	100	28	20	-	0.4	LL-1DN	LS-1N	LD-32N	LSP-1	PC-1	FH-2.5
2020K - 11	○	○			20	20	125		25	-							
2525M - 11	○	○			25	25	150		32	27							
2020H - 15	○			DNGA DNGG DNMA DNMG DNMM DNMP DNMX 43_	20	20	100	36	25	-	0.8	LL-3N	LS-2N	LD-42 •LD-42-20	LSP-2	PC-2	LW-3
2020K - 15	○	○			20	20	125		25	-							
2525M - 15	○	○			25	25	150		32	25							
3225P - 15	○	○			32	25	170		32	25							
2525M - 15U	○	○		DNMG 44_ (DNMG) (43_)	25	25	150	34	32	24	0.8	LL-4	LS-3	LD-42 •LD-42-20 (LD-43) (•LD-43-20)	LSP-2	PC-2	LW-3
3232P - 15U	○	○			32	32	170	36	40	28							
PDHN$^{R}_{L}$ 2020K - 15	○	○		DNGA DNGG DNMA DNMG DNMM DNMP DNMX 43_	20	20	125	34	25	22	0.8	LL-4	LS-3	LD-43 •LD-43-20 (LD-42) (•LD-42-20)	LSP-2	PC-2	LW-3
2525M - 15	○	○			25	25	150		32	24							

• Shim: PDJN$^{R}_{L}$-15U...LD-42 is attached to PDJN$^{R}_{L}$-15U. When using DN_43 insert, prepare LD-43 separately.
PDHN ...LD-43 is attached to PDHN. When using DN_44 Insert, prepare LD-42 separately.
• When using inserts whose corner R(rε) is greater than 1.6mm(1/16"), please purchase a shim with ■ mark and use it in order to prevent work piece and shim from interfering with each other.

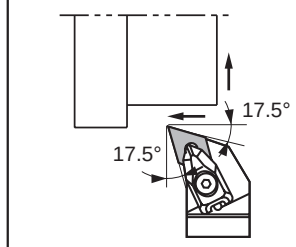
Applicable Inserts

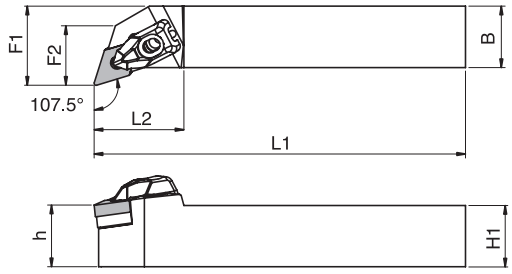
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
DN_	B20-B24	B86	C6-C7	C18

Recommended Cutting Conditions ➔ D46~D47

● : Std. Stock ○ : World Express

DDHN (External / Facing / Copying)





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

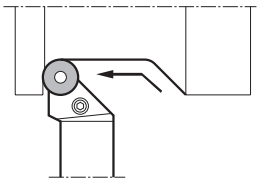
•Right-hand Shown

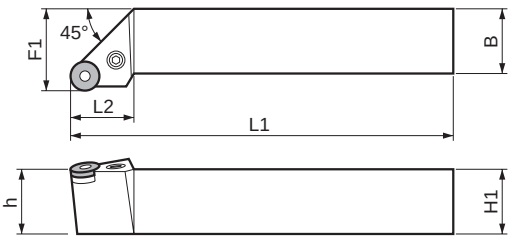
● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Dimension H1=h	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts: Clamp	Screw	Spring	Shim	Shim Screw	Wrench	Wrench (Optional)
DDHN R/L 2020K-1504	○	○	mm	DNGA DNGG DNMA DNMG 43_ DNMM DNMP DNMX	20	20	125	37	25	22	0.8	CP-3D	CS-3D	SP-3D	DD-44 (DD-43)	SB-4085TR	LW-3	FT-15
2525M-1504	○	○			25	25	150		32									
DDHN R/L 2020K-1506	○	○		DNMG 44_ (DNMG) (43_)	20	20	125		25	22					DD-43 (DD-44)			
2525M-1506	○	○			25	25	150		32									

The shims inside ( ) do not come with holders. In the case of changing the insert thickness size, please purchase this separately.

PRGN (External / Facing / Copying)





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

•Right-hand Shown

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Dimension H1=h	B	L1	L2	F1	Std.Corner-R(rε)	Spare Parts: Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PRGN R/L 2020K-09	○	○	mm	RNMA RNMG 32_	20	20	125	19	25	-	LL-1N	LS-1N	LR-80	LSP-1	PC-1	FH-2.5
2525M-12	○	○		RNMA RNMG 43_	25	25	150	19	32		LL-2N	LS-2N	LR-81	LSP-2	PC-2	LW-3

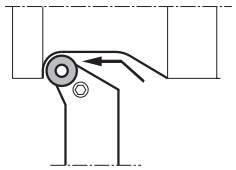
Applicable Inserts

Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
DN_	B20-B24	B86	C6-C7	C18
RN_	B25		-	-

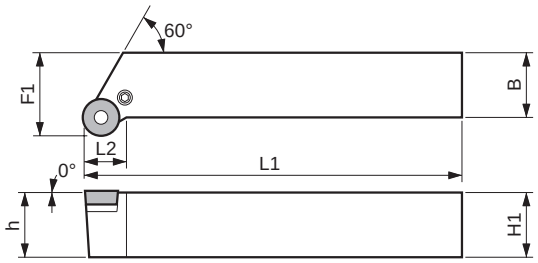
Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

PRGC (External / Facing / Copying)

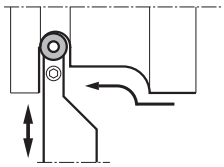


Side Rake Angle : 0°
Angle of Inclination : 0°

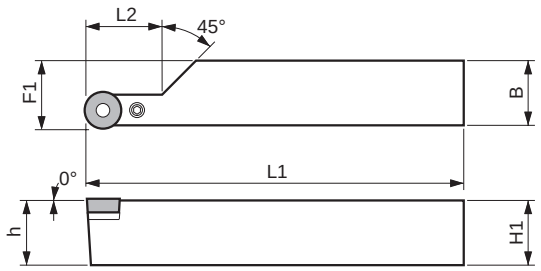


•Right-hand Shown

PRXC (External / Facing / Copying)



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



•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	H1=h	B	L1	L2	F1	Std.Corner-R(rε)	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PRGC$^{R}_{L}$ 2020K -10	○	○	mm	RCGX 10_ RCMX	20	20	125	15	25	-	LL-05C	LS-05	LR-10C	LSP-1	PC-1	FH-2
2525M -10	○	○			25	25	150	15	32							
2020K -12	○	○		RCMX 12_	20	20	125	14	25	-	LL-1CN	LS-1N	LR-12C			FH-2.5
2525M -12	○	○			25	25	150	17	32							
PRGC$^{R}_{L}$ 12-10MC	●	●	inch	RCGX 10_ RCMX	.750	.750	5.00	0.60	1.00	-	LL-05C	LS-05	LR-10C	LSP-1	PC-1	FH-2
16-10MD	●	●			1.00	1.00	6.00		1.25							
12-12MC	●	●		RCMX 12_	.750	.750	100	0.60	1.00	-	LL-1CN	LS-1N	LR-12C			FH-2.5
16-12MD	●	●			1.00	1.00	125		1.25							
PRXC$^{R}_{L}$ 2020K - 10	○	○	mm	RCGX 10_ RCMX	20	20	125	25	20.5	-	LL-05C	LS-05	LR-10C	LSP-1	PC-1	FH-2
2525M - 10	○	○			25	25	150	30	25.5							
2525Q - 10	○	○			25	25	180	30	25.5							
2525M - 12	○	○		RCMX 12_	25	25	150	30	25.7		LL-1CN	LS-1N	LR-12C			FH-2.5
PRXC$^{R}_{L}$ 12-10MC	●	●	inch	RCGX 10_ RCMX	.750	.750	5.00	1.0	0.77		LL-05C	LX-05	LR-10C	LSP-1	PC-1	FH-2
16-10MD	●	●			1.00	1.00	6.00		1.02							
12-12MC	●	●		RCMX 12_	.750	.750	5.00	1.0	0.77		LL-1CN	LS-1N	LR-12C			FH-2.5
16-12MD	●	●			1.00	1.00	6.00		1.02							

Applicable Inserts

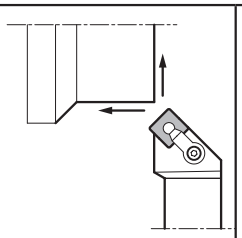
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
RC_	B60	-	-	-

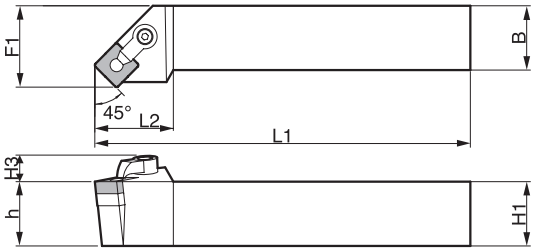
Recommended Cutting Conditions D46~D47

● : Std. Stock ○ : World Express

External Toolholders [SN□□ Insert]

MSSN (External / Facing / Chamfering)





•Right-hand Shown

● Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	Dimension H3	Dimension B	Dimension L1	Dimension L2	Dimension F1	Std.Corner-R(rε)	Spare Parts Clamp	Spare Parts Clamp Screw	Spare Parts Wrench	Spare Parts Shim	Spare Parts Shim Screw	Spare Parts Lock Pin	Spare Parts Wrench
MSSN$^{R}_{L}$ 12-4B	●			inch	SNGA SNGG SNMA SNMG SNMP (SNG) (SNM) (SNU) 43_ (43_)	0.75	0.54	0.75	4.5	1.23	0.675	1/32	CL-9	XNS59	LW-156	ISSN433	S-46	NL46	LW-094
16-4D	●					1.00	0.54	1.00	6.0	1.23	0.925								

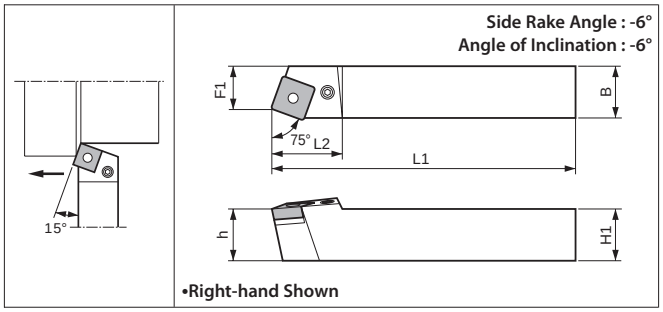
Applicable Inserts

Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
SN_	B26-B29	B88	C7	-

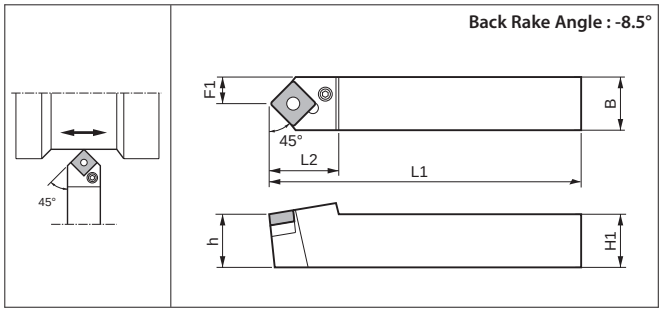
Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

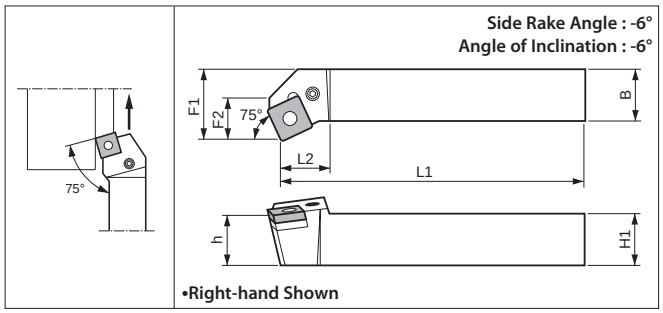
PSBN (External)



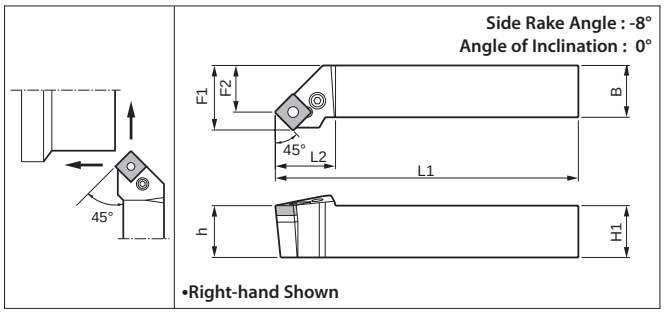
PSDN (External / Chamfering)



PSKN (Facing)



PSSN (External / Facing / Chamfering)



Toolholder Dimensions

Description			Stock R	Stock N	Stock L	Unit	Applicable Insert		Dimension H1=h	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PSBN$^{R}_{L}$	1616H	-09	○		○	mm	SNGA SNMG	33_	16	16	100	21	13	-	0.8	LL-1N	LS-1N	LS-32	LSP-1	PC-1	FH-2.5
	2020K	-12	○		○		SNGA SNGG SNMA SNMG SNMP	43_	20	20	125	21	17	-		LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
	2525M	-12	○		○				25	25	150	24	22	-							
PSDNN	1616H	-09		○			SNGA SNMG	33_	16	16	100	21	13	-		LL-1N	LS-1N	LS-32	LSP-1	PC-1	FH-2.5
	2020K	-12		○			SNGA SNGG SNMA SNMG SNMP	43_	20	20	125	30	10	-		LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
	2525M	-12		○					25	25	150		12.5	-							
PSKN$^{R}_{L}$	1616H	- 09	○		○		SNGA SNMG	33_	16	16	100	19	20	12.7		LL-1N	LS-1N	LS-32	LSP-1	PC-1	FH-2.5
	2020K	- 12	○		○		SNGA SNGG SNMA SNMG SNMP	43_	20	20	125	22.5	25	17		LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
	2525M	- 12	○		○				25	25	150		32	19							
PSSN$^{R}_{L}$	1616H	- 09	○		○		SNGA SNMG	33_	16	16	100	22	20	13.6		LL-1N	LS-1N	LS-32	LSP-1	PC-1	FH-2.5
	2020K	- 12	○		○		SNGA SNGG SNMA SNMG SNMP	43_	20	20	125	27	25	16.4		LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
	2525M	- 12	○		○				25	25	150		32	23.4							

Applicable Inserts

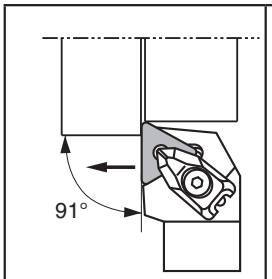
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
SN_	B26-B29	B88	C7	-

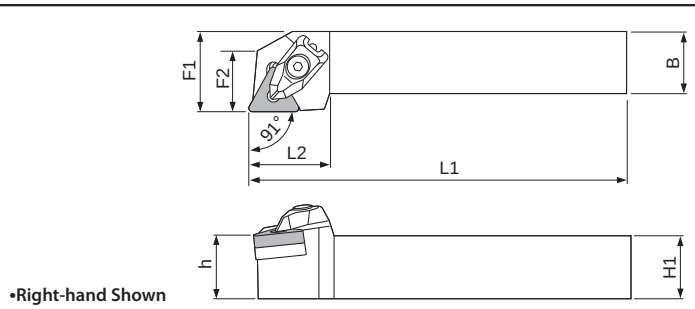
Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

External Toolholders [TN□□ Insert]

DTGN (External)





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

•Right-hand Shown

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Dimension H1=h	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts Clamp	Screw	Spring	Shim	Shim Screw	Wrench	Wrench (Optional)
																	 For Clamp	 For Shim
DTGN$^{R}_{L}$ 2020K-16	○	○	mm	TNGA TNGG TNGM TNMA TNMG TNMM TNMP 33_	20	20	125	25	25	20	0.8	CP-2D	CS-2D	SP-2D	DT-32	SB-3080TR	LW-2.5	FT-10
2525M-16	○	○			25	25	150		32									

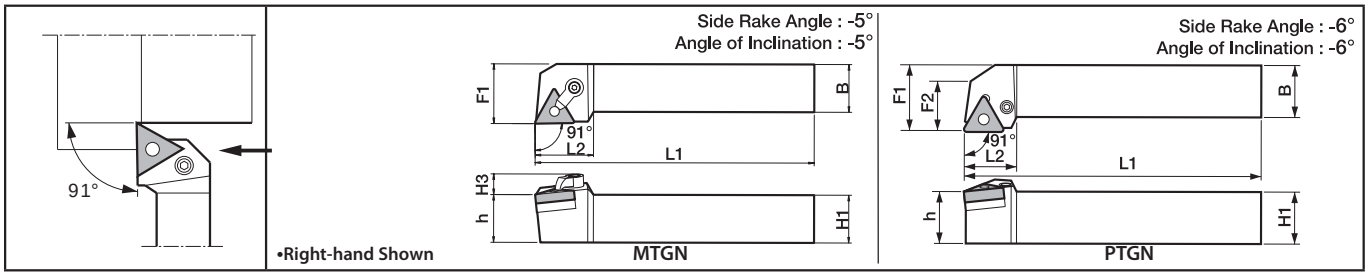
Applicable Inserts

Insert Type	Reference Pages Cermet/Carbide	Ceramic	CBN	PCD
TN_	B30-B35	B90	C7-C8	C18

Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

MTGN/PTGN (External)



Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Dimension H1=h	H3	B	L1	L2	F1	Std.Corner-R(rε)	Spare Parts Clamp	Clamp Screw	Wrench	Shim	Shim Screw	Lock Pin	Wrench
MTGN$^{R}_{L}$ 12-3B	●	●	Inch	TNGG TNMA TNMG (TNGA) (TNGG) (TNMA) (TNMG) (TNMP) 32_ (33_)	0.75	0.35	0.75	4.5	0.94	1.00	1/64	CL-6	XNS36	LW-094	ITSN333 (ITSN323)	S-34	NL34L	(564 Hex)
16-3D	●	●			1.00	0.35	1.00	6.0	0.94	1.25								
16-4D	●	●		TNGA TNGG TNGM TNMA TNMG TNMP TNMM 43_	1.00	0.48	1.00	6.0	1.19	1.25	1/32	CL-9	XNS510	LW-156	ITSN432	S-46	NL46	LW0

· Insert sizes shown in parenthesis ( ) can be used when also purchasing spare parts in parenthesis ( ).

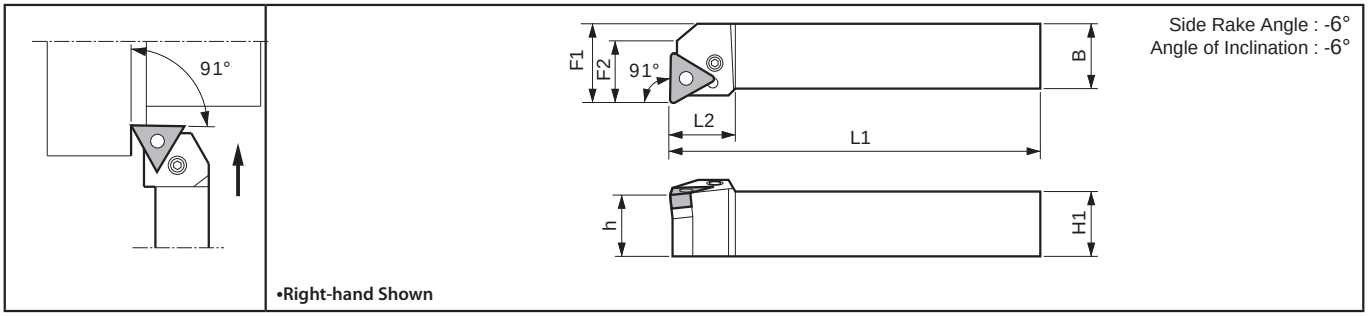
Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PTGN$^{R}_{L}$ 12-3B	●			Inch	TNGA TNGG TNGM TNMA TNMG TNMM TNMP 33_	0.75	0.75	4.5	0.96	1.00	0.80	1/32	LL-1N	LS-1N	LT-32N ❖LT-32N-20	LSP-1	PC-1	LW-2.5
PTGN$^{R}_{L}$ 1212F -11	○		○	mm	TNGA TNGG TNMA 22_	12	12	80	18	16	12	0.8	LL-03N	LS-03N	-	P-03	-	FH-2
1616H -11	○		○		TNGG TNMG 23_	16	16	100	22	20	14	0.8	LL-03TN	LS-03SN	-	P-03S	-	FH-2.5
2020K -11	○		○			20	20	125	22	25	20							
2525M -11	○		○			25	25	150	22	32	22							
1616H -16	○		○		TNGA TNGG TNGM TNMA TNMG TNMM TNMP 33_	16	16	100	24	20	17	0.8	LL-1N	LS-1N	LT-32N ❖LT-32N-20	LSP-1	PC-1	FH-2.5
2020H -16	○																	
2020H -16	○		○			20	20	125	24	25	20							
2525M -16	○		○			25	25	100	24	32	20							
2525M -22	○		○		TNGA TNGG TNMA TNMG TNMP 43_	25	25	100	29	32	24	0.8	LL-2N	LS-2N	LT-42N ❖LT-42N-20	LSP-2	PC-2	LW-3
3225P -22						32	25	100	29	32	24							

• When using inserts whose corner R(r_ε) is greater than 1.6mm(1/16"), please purchase a shim with ❖ mark and use it in order to prevent work piece and shim from interfering with each other.

● : Std. Stock ○ : World Express

PTFN (Facing)



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

•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock	Stock L	Unit	Applicable Insert	H1=h	B	L1	L2	F1	F2	Std.Corner-R(rε)	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PTFN R/L 12-3C	●		●	Inch	TNGA TNGG TNMA TNMG TNMP 33_	0.75	0.75	5.00	0.88	1.00	0.83	1/32	LL-1N	LS-1N	LT-32N ❖LT-32N-20	LSP-1	PC-1	FH-2.5
16-3D	●		●			1.00	1.00	6.00	0.88	1.25	0.88	1/32						
16-4D	●				43_	1.00	1.00	6.00	1.10	1.25	0.97	1/32	LL-2N	LS-2N	LT-42N ❖LT-42N-20	LSP-2	PC-2	LW-3

❖ When using inserts whose corner R(r_E) is greater than 1.6mm(1/16″), please purchase a shim with ❖ mark and use it in order to prevent work piece and shim from interfering with each other.

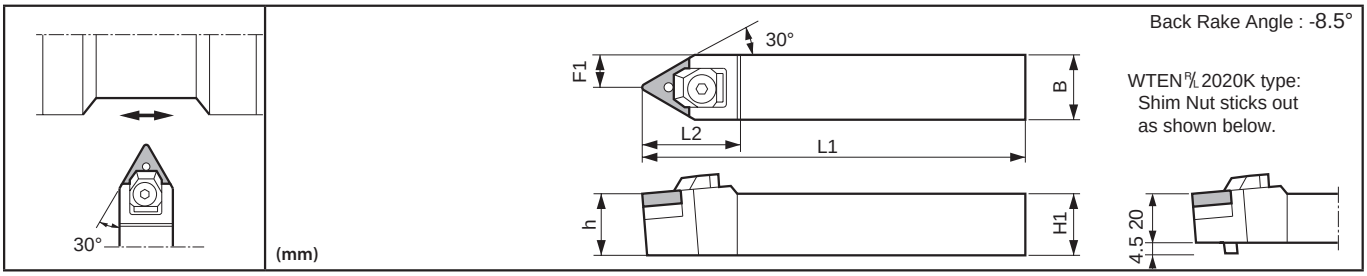
Applicable Inserts

Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
TN_	B30-B35	B90	C7-C8	C18

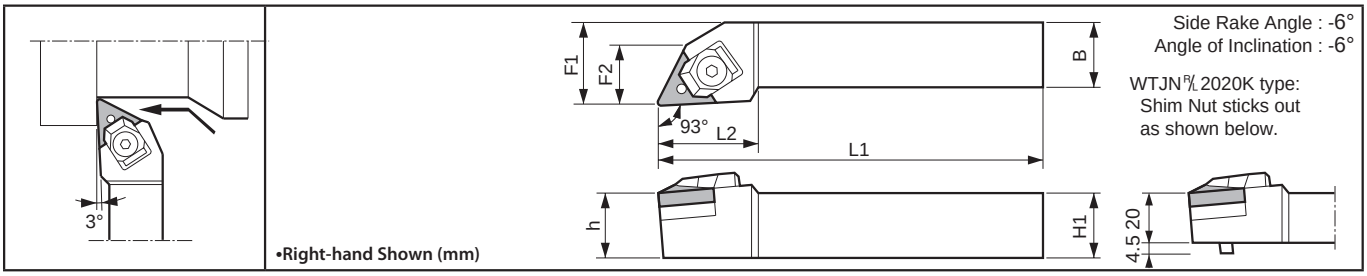
Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

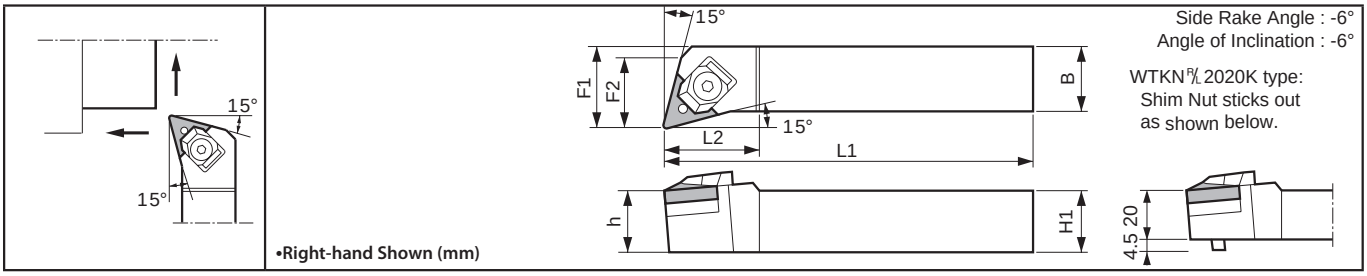
WTEN-N (External / Chamfering)



WTJN-N (External / Chamfering)



WTKN-N (External / Facing / Chamfering)



Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	H1=h	B	L1	L2	F1	F2	Std.Corner-R(rε)	Clamp Set	Shim	Shim Pin	Shim Nut	Wrench	Spacer
WTENN 12-3C		●		Inch	TNGA TNGG TNGM TNMA TNMG TNMP TNMM 33_	0.75	0.75	5.00	1.26	.38	-	1/32	WCS-1N	WTN-33 ❖WTN-33-20	WP-1S	WN-1	LW-3	WSP-1
16-3D		●				1.00	1.00	6.00	1.26	.78	-							
WTJN R/L 12-3D	●		●			0.75	0.75	5.00	1.26	1.0	0.96	1/32						
16-3D	●		●			1.00	1.00	6.00	1.26	1.25	0.94							
WTKN R/L 12-3C	●		●			0.75	0.75	5.00	1.26	1.0	-	1/32						
16-3D	●		●			1.00	1.00	6.00	1.26	1.25	1.17							
WTKN R/L 2020K -16N		○		mm		20	20	125	32	10	-	0.8	WCS-1N	WTN-33 ❖WTN-33-20	WP-1S	WN-1	LW-3	WSP-1
2525M -16N		○				25	25	150	32	12.5	-							
WTKN R/L 2020K -16N	○		○			20	20	125	30	25	-	0.8						
2525M -16N	○		○			25	25	150	32	32	30							
WTKN R/L 2020K -16N	○		○			20	20	125	31	25	23	0.8						
2525M -16N	○		○			25	25	150	33	32	2524							

❖ When using inserts whose corner R(r_ε) is greater than 1.6mm(1/16"), please purchase a shim with ❖ mark and use it in order to prevent work piece and shim from interfering with each other.

Applicable Inserts

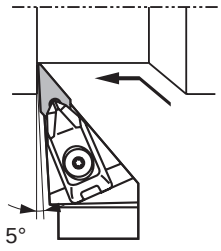
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
TN_	B30-B35	B90	C7-C8	C18

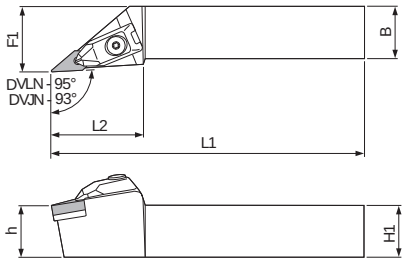
Recommended Cutting Conditions D46~D47

● : Std. Stock ○ : World Express

External Toolholders [VN□□ Insert]

DVLN / DVJN (External / Copying)

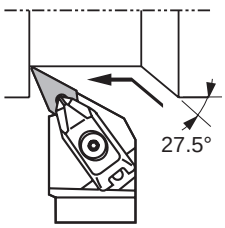


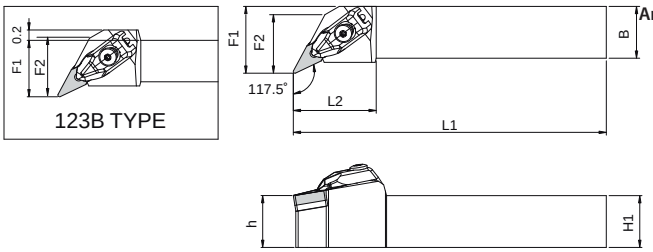


Side Rake Angle:-6°
Angle of Inclination:-9°

•Right-hand Shown

DVPN (External / Facing / Copying / Undercutting)

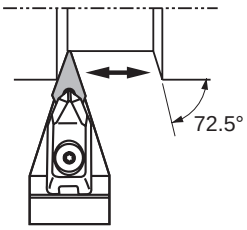


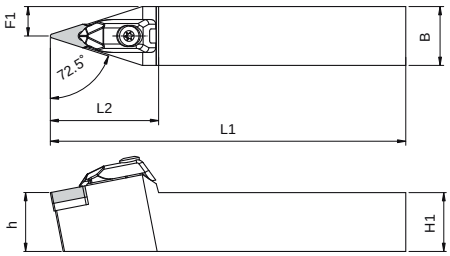


Side Rake Angle:-13°
Angle of Inclination:-10°

•Right-hand Shown

DVPN (External / Facing / Copying / Undercutting)





Back Rake Angle:-11°

● Applicable Inserts

Description		Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts: Clamp	Screw	Spring	Shim	Shim Screw	Wrench	Wrench (Optional)
DVJN$^{R}_{L}$	123B	●		●	inch	VNGA VNGG VNMA VNMG VNMM VNMX 33_	0.75	0.75	4.50	1.77	1.00	-	1/32	CP-5D	CS-5D	SP-5D	DV-33	SB4085TR	LW-3 (For Clamp)	FT-15 (For Shim)
	163B	●		●			1.00	1.00	6.00		1.25									
DVPN$^{R}_{L}$	123B	●		●			0.75	0.75	4.50	1.58	1.00	1.10	1/32							
	163B	●		●			1.00	1.00	6.00		1.25									
DVVNN$^{R}_{L}$	123B		●				0.75	0.75	4.50	1.81	0.40	-	1/32							
	163B		●				1.00	1.00	6.00		0.52									
DVLN$^{R}_{L}$	2020K -16	○		○	mm		20	20	125	45	25	-	0.8	CP-5D	CS-5D	SP-5D	DV-33	SB4085TR	LW-3	FT-15
	2525M -16	○		○			25	25	150		32									
DVPN$^{R}_{L}$	2020K -16	○		○			20	20	125	40	27	28								
	2525M -16	○		○			25	25	150		32									
DVVNN	2020K -16		○				20	20	125	46	10	-								
	2525M -16		○				25	25	150		12.5									

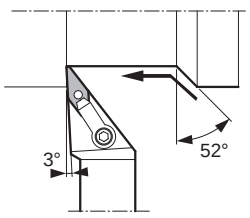
Applicable Inserts

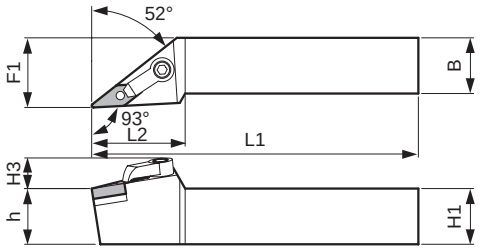
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
VN_	B36-B37	B91	C8-C9	C18

Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

MVJN





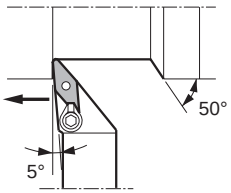
•Right-hand Shown

Toolholder Dimensions

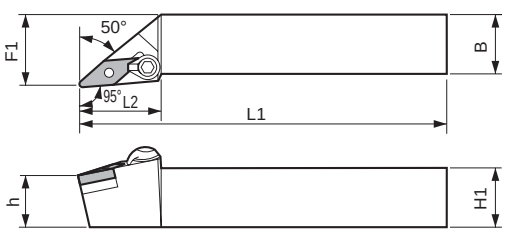
Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	H3	B	L1	L2	F1	Std.Corner-R(rε)	Spare Parts: Clamp	Clamp Screw	Wrench	Shim	Shim Screw	Lock Pin	Wrench
MVJN$^{R}_{L}$ 12-3B	●		●	Inch	VNGA VNGG VNMA 33_ VNMM VNMX	0.75	0.59	0.75	4.5	1.69	1.00	1/64	CL-30	XNS510	LX-156	IVSN322	S-34	NL34L	(5/64 hex)
16-3C	●		●			1.00	0.60	1.00	5.0	1.69	1.25								

❖ When using inserts whose corner R($r_ε$) is greater than 1.6mm(1/16"), please purchase a shim with ❖ mark and use it in order to prevent work piece and shim from interfering with each other.

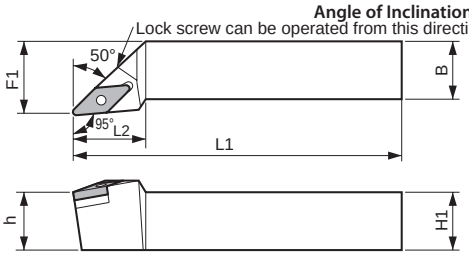
MVLN / PVLN (External / Copying)



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



MVLN



PVLN

•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	B	L1	L2	F1	Std.Corner-R(rε)	Spare Parts: Clamp Set	Shim	Shim Pin	Shim Nut	Wrench	Spacer
MVLN$^{R}_{L}$ 2020K -16	○		○	mm	VNGA VNGG VNMA 33_ VNMM VNMX	20	20	125	37	25	0.8	CPS-5$^{R}_{L}$	FH-2.5	MVN-32	TS-35	FH-2	-
2525M -16	○		○			25	25	150		32							
PVLN$^{R}_{L}$ 2525M -16Q	○		○			25	25	150	37	32	0.8	-	-	KVN-32	LP-6S	LW-3	LS-15

❖ When using inserts whose corner R($r_ε$) is greater than 1.6mm(1/16"), please purchase a shim with ❖ mark and use it in order to prevent work piece and shim from interfering with each other.

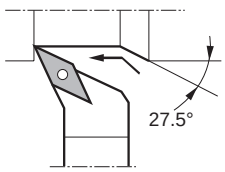
Applicable Inserts

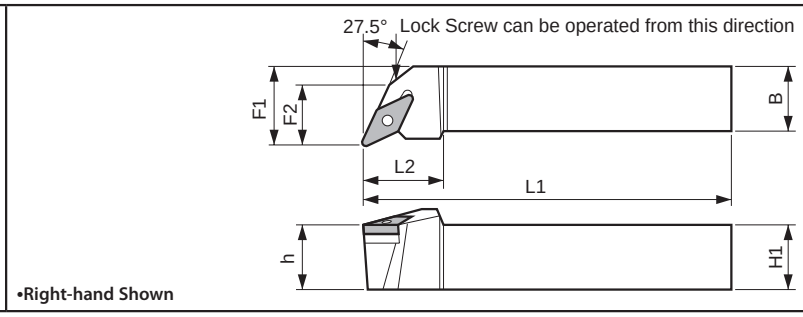
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
VN_	B36-B37	B91	C8	C18

Recommended Cutting Conditions D46~D47

● : Std. Stock ○ : World Express

PVPN (External / Facing / Copying / Undercutting)





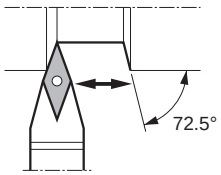
Side Rake Angle : -13°
Angle of Inclination : -10°

•Right-hand Shown

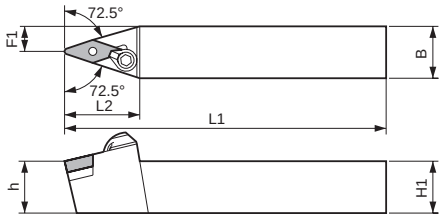
Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts Lock Pin	Lock Screw	Shim	Wrench
PVPN$^{R}_{L}$ 2020K -16Q	○		○	mm	VNGA, VNGG, VNMA, VNMG, VNMM, VNMX 33_	20	20	125	30	25	22	0.8	LP-2S, LP-6S	LS-11	KVN-32	LW-3
2525M -16Q	○		○	mm	VNGA, VNGG, VNMA, VNMG, VNMM, VNMX 33_	25	25	150	30	32	28	0.8	LP-2S, LP-6S	LS-11	KVN-32	LW-3

MVVN / PVVN (External / Copying)

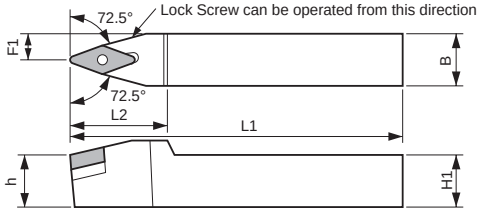


Back Rake Angle : -13°



•Right-hand Shown MVVN

Back Rake Angle : -11°



PVVN

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts Lock Pin	Lock Screw	Shim	Wrench	Clamp Set	Wrench	Clamp	Clamp Screw
MVVNN 12-3B		●		Inch	VNGA, VNGG, VNMA, VNMG, VNMM, VNMX 33_	0.75	0.75	4.50	1.67	.375	-	1/32	NL34L	-	MNS322	(5/64 hex)	CPS-5R	LW-156	CL-12	XNS510
16-3D		●		Inch	VNGA, VNGG, VNMA, VNMG, VNMM, VNMX 33_	1.00	1.0	6.00	1.67	1.67	.500	1/32	NL34L	-	MNS322	(5/64 hex)	CPS-5R	LW-156	CL-12	XNS510
MVVNN 2020K -16		○		mm	VNGA, VNGG, VNMA, VNMG, VNMM, VNMX 33_	20	20	125	39	10	-	0.8	TX-35	-	MVN-32	FH-2.5	CPS-5R	FH-2	-	-
2020K -16		○		mm	VNGA, VNGG, VNMA, VNMG, VNMM, VNMX 33_	25	25	150	39	12.5	-	0.8	TX-35	-	MVN-32	FH-2.5	CPS-5R	FH-2	-	-
PVVNN 2020K -16Q		○		mm	VNGA, VNGG, VNMA, VNMG, VNMM, VNMX 33_	20	20	125	35	10	-	0.8	LP-2S, LP-6S	LS-15	KVN-32	LW-3	-	-	-	-
2525M -16Q		○		mm	VNGA, VNGG, VNMA, VNMG, VNMM, VNMX 33_	25	25	150	40	12.5	-	0.8	LP-2S, LP-6S	LS-15	KVN-32	LW-3	-	-	-	-

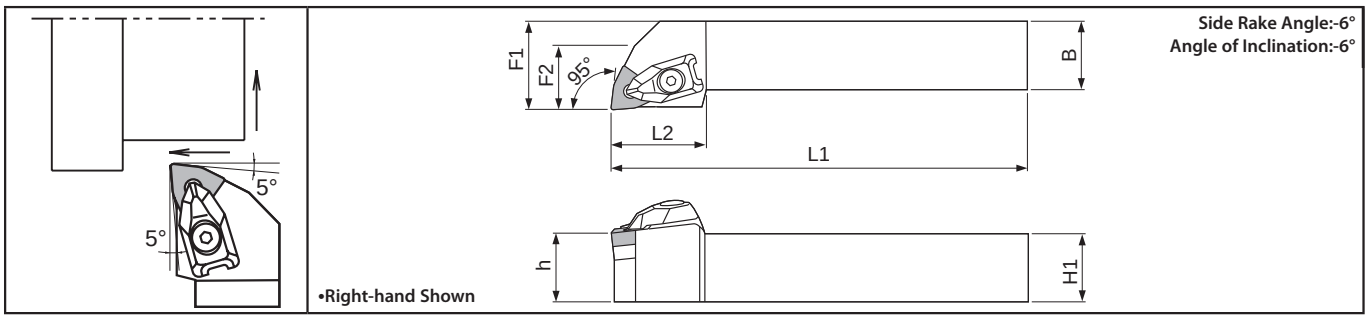
Applicable Inserts

Insert Type	Reference Pages Cermet/Carbide	Ceramic	CBN	PCD
VN_	B36-B37	B91	C8-C9	C18

Recommended Cutting Conditions D46~D47

● : Std. Stock ○ : World Express

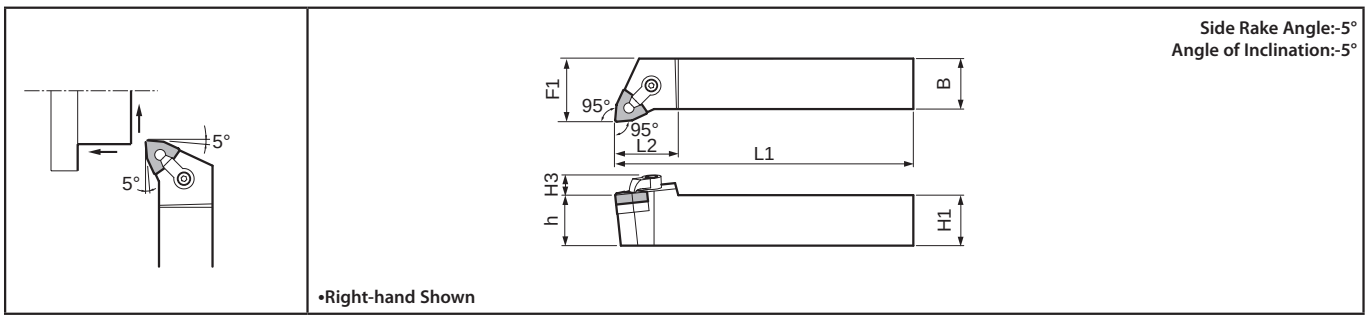
DWLN (External / Facing)



Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Dimension H1=h	B	L1	L2	F1	F2	Std.Corner-R(rε)	Clamp	Screw	Spring	Shim	Shim Screw	Wrench	Wrench (Optional)
																	 For Clamp	 For Shim
DWLN$^{R}_{L}$ 123B	●	●	inch	WNGG WNMG 33_	0.75	0.75	4.50	1.06	1.00	0.80	1/32	CP-2D	CS-2D	SP-2D	DW-32	SB-3080TR	LW-2.5	FT-10
163D	●	●			1.00	1.00	6.00	1.06	1.25	0.78		CP-2D	CS-2D	SP-2D	DW-32	SB-3080TR	LW-2.5	FT-10
124B	●	●		WNGA WNGG WNMA WNMG WNMP WNMM WNMX 43_	0.75	0.75	4.50	1.34	1.25	0.80		CP-3D	CS-3D	SP-3D	DW-44	SB-4085TR	LW-3	FT-15
164D	●	●			1.00	1.00	6.00	1.34	1.25	0.78		CP-3D	CS-3D	SP-3D	DW-44	SB-4085TR	LW-3	FT-15
DWLN$^{R}_{L}$ 2020K-08	○	○	mm		20	20	125	34	25	20	0.8	CP-3D	CS-3D	SP-3D	DW-44	SB-4085TR	LW-3	FT-15
2525M-08	○	○			25	25	150		32			CP-3D	CS-3D	SP-3D	DW-44	SB-4085TR	LW-3	FT-15

MWLN (External / Facing)



Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Dimension H1=h	H3	B	L1	L2	F1	Std.Corner-R(rε)	Clamp	Clamp Screw	Wrench	Shim	Shim Screw	Lock Pin	Wrench
																		
MWLN$^{R}_{L}$ 12-4B	●		inch	WNGA WNGG WNMA WNMG WNMP WNMM WNMX 43_	0.75	0.45	0.75	4.5	1.19	1.00	1/32	CL-9	XNS510	LW-156	IWSN432	S-46	NL46	LW-094
16-4D	●	●			1.00	0.48	1.00	6.00	1.19	1.25		CL-9	XNS510	LW-156	IWSN432	S-46	NL46	LW-094

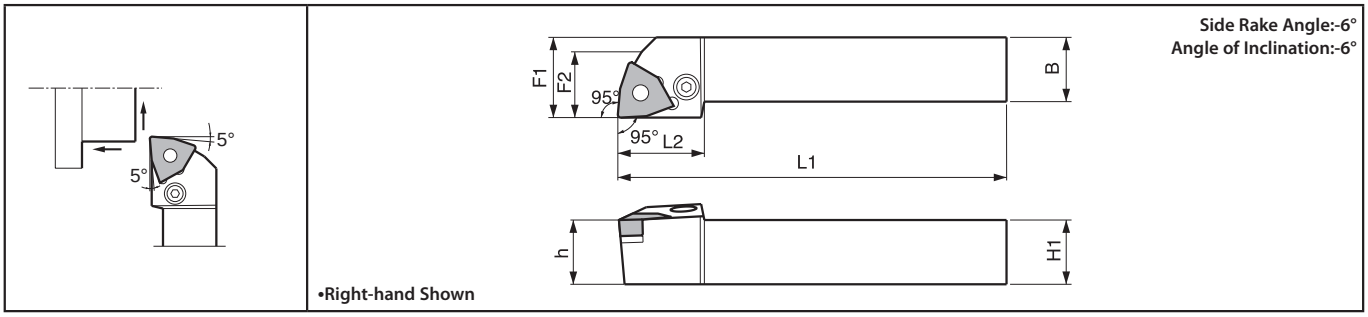
Applicable Inserts

Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
WN_	B38-B41	B91	C9	C18

Recommended Cutting Conditions D46~D47

● : Std. Stock ○ : World Express

PWLN (External / Facing)



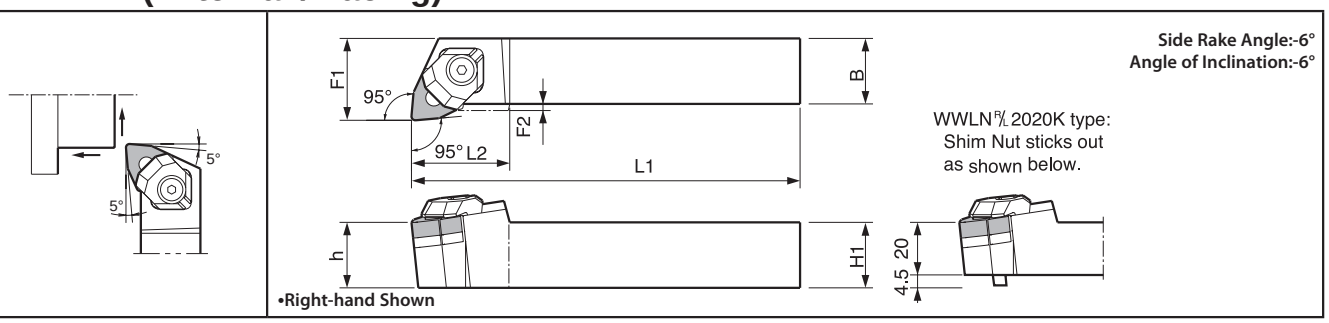
Side Rake Angle:-6°
Angle of Inclination:-6°

•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts: Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PWLN$^{R}_{L}$ 12-3B	●			inch	WNGG WNMG 33_	0.75	0.75	4.5	0.87	1.00	-	1/32	LL-1N	LS-1N	LW-32N	LSP-1	PC-1	FH-2.5
16-3D	●					1.00	1.00	6.00		1.25	-							
PWLN$^{R}_{L}$ 1616H -06	○		○	mm		16	16	100		20		0.8	LL-1N	LS-1N	LW-32N	LSP-1	PC-1	FH-2.5
2020K -06	○		○			20	20	125	22	25	-							
2525M -06	○		○			25	25	150		32								
2020K -08	○		○		WNGA WNGG WNMG WNMM WNMP WNMX 43_	20	20	125	26	25	-	0.8	LL-2N	LS-2N	LW-42N	LSP-2	PC-2	LW-3
2525M -08	○		○			25	25	150		32	23							

WWLN (External / Facing)



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

•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	B	L1	L2	F1	Std.Corner-R(rε)	Spare Parts: Clamp Set	Shim	Shim Pin	Shim Nut	Wrench
WWLN$^{R}_{L}$ 2020K -08	○		○	mm	WNGA WNGG WNMG WNMM WNMP WNMX 43_	20	20	125	30	25	1.2	WCS-8	WWN-42	WP5X15	WN-1	LW-3
2525M -08	○		○			25	25	150		32						

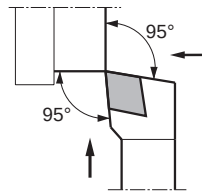
Applicable Inserts

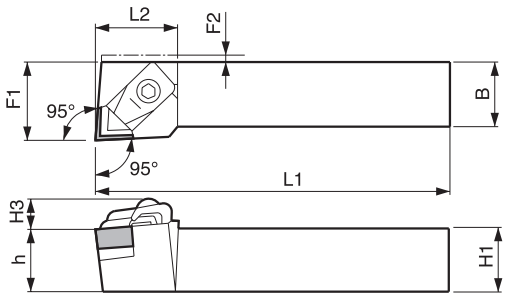
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
WN_	B38-B41	B91	C9	C18

Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

CCLN / HCLN (External / Facing)





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

•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	H3	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts Chip-breaker	Clamp Set	Wrench	Shim	Shim Screw	Lock Pin	Wrench
CCLN$^{R}_{L}$ 2020K -12	○		○	mm	CNG 45_ CNM (43_)	20	14	20	125	32	27	5	0.8	CB-16	CE-010	LW-4	SP-441 (SP-443)	M3X8	-	-
2525M -12	○		○			25	14	25	150		32	-								
2525M -16	○		○		CNG 55_	25	14	25	150	35	32	-	0.8	CB-17	CE-220	LW-4	SP-454	M4X10	-	-
322M -16	○		○			32	14	25	170			-								
HCLN$^{R}_{L}$ 16-4D	●			inch	CNGA CNMG CNGG CNMA CNMP 45_ (43_)	1.00	0.535	1.00	6.00	1.26	1.25	-	1/32	HCB318	HCL008	LW-4	ICSN433 (ICSN453)	S-46	NL46L	LW-094

· Insert sizes shown in parenthesis ( ) can be used when also purchasing spare parts in parenthesis ( ).

Applicable Inserts

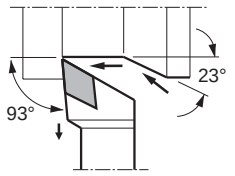
Insert Type	Reference Pages Cermet/Carbide	Ceramic	CBN	PCD
CN_	-	B85	-	-

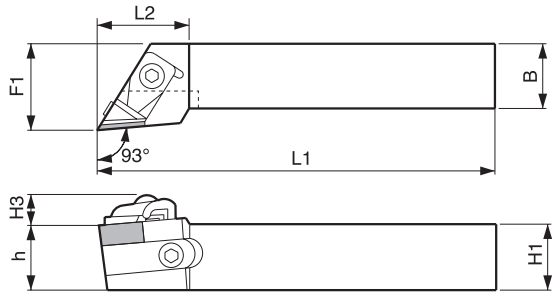
Recommended Cutting Conditions D46~D47

● : Std. Stock ○ : World Express

Toolholders for Ceramic Inserts [DN□□ Insert]

CDJN / CDJN-X / HDJN (External / Copying)





Side Rake Angle : -5°
Angle of Inclination : -8°

•Right-hand Shown

● Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	Dimension H3	Dimension B	Dimension L1	Dimension L2	Dimension F1	Std.Corner-R(rε)	Spare Parts: Chip-breaker	Spare Parts: Clamp Set	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw	Spare Parts: Lock Pin	Spare Parts: Wrench
CDJN$^{R}_{L}$ 2525M -15	○		○	mm	DNG 45_	25	16	25	150	32	32	0.8	CB-14/15	CE-010	LW-4	556C$^{R}_{L}$	HH5X16	-	-
3225P -15	○		○			32			170										
CDJN$^{R}_{L}$ 2525M -12X	○		○		DNMX 35_	25	16	25	150	32	32	0.8	-	CE-050	LW-4	SP-521	M3X8	-	-
HDJN$^{R}_{L}$ 16-4	●			inch	DNG (DNG) DNGA DNMG DNMA DNMP 43_ (45_)	1.00	0.60	1.00	6.00	1.25	1.25	1/32	HCB314315	HCL008	LW-4	IDSN453 (IDSN433)	S-46	NL46L	LW-094

· Insert sizes shown in parenthesis ( ) can be used when also purchasing spare parts in parenthesis ( ).
· Chipbreaker : CB-14 for R-hand Toolholder, CB-15 for L-hand Toolholder
· Shim : 556CR for R-hand Toolholder, 556CL for L-hand Toolholder
· Chipbreaker : HCB-314 for R-hand Toolholder, HCB-315 for L-hand Toolholder

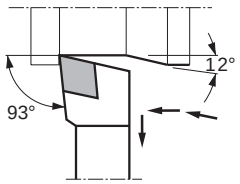
Applicable Inserts

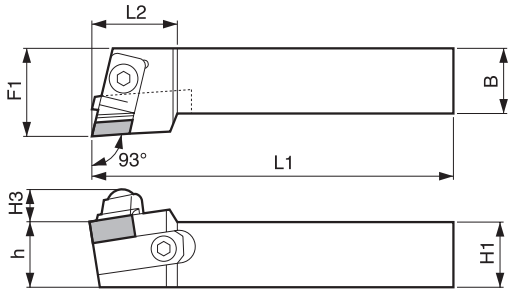
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
DN_	-	B86	-	-

Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

CEJN (External / Copying)

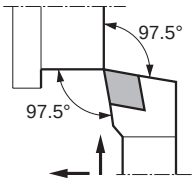


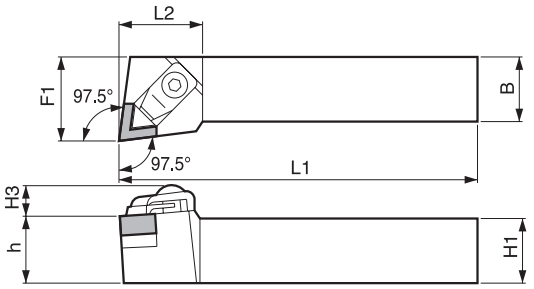


Side Rake Angle : -5°
Angle of Inclination : -8°

•Right-hand Shown

CELN (External / Facing)

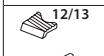




Side Rake Angle : -6°
Angle of Inclination : -6°

•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	Dimension H3	Dimension B	Dimension L1	Dimension L2	Dimension F1	Std. Corner-R(rε)	Spare Parts Chipbreaker	Spare Parts Clamp Set	Spare Parts Wrench	Spare Parts Shim	Spare Parts Shim Screw
																	
CEJN$^{R}_{L}$ 2525M -13				mm	ENG 45_	25	16	25	150	30	32	0.8	CB-12/13	CE-320	LW-4	346C$^{R}_{L}$	HH5X16
CELN$^{R}_{L}$ 2525M -13	○		○			25	15	25	150	32	32	0.8	CB-16	CE-010	LW-4	SP-342	M3X8

· CEJN(Chipbreaker) : CB-12 for R-hand Toolholder, CB-13 for L-hand Toolholder
· CEJN (Shim) : 346CR for R-hand Toolholder, 346CL for L-hand Toolholder

Applicable Inserts

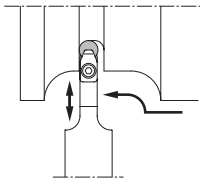
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
EN_	-	B87	-	-

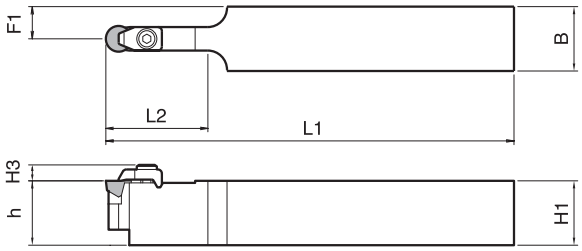
Recommended Cutting Conditions D46~D47

● : Std. Stock ○ : World Express

Toolholders for Ceramic Inserts [RCGX Insert]

CRDC (External / Copying)





Toolholder Dimensions

Description			Stock			Unit	Applicable Insert		Dimension						Std.Corner-R(rε)	Spare Parts		
			R	N	L				H1=h	H3	B	L1	L2	F1		Clamp Set	Shim	Wrench
CRDCN	16	-2		●		inch	RCGX	102T04015	1.00	0.20	1.00	8.00	1.00	0.50	-	HCL-017C	HSH665A	LW-2
	16	-3		●					1.00	-	1.00	-	-	0.50	-			
	20	-3		●				103	1.25	0.27	1.25	8.00	1.50	0.625	-	HCL-016	HSH655	LW-3
	24	-3		●					1.50	-	1.50	-	-	0.75	-			
	20	-4		●				104	1.25	0.41	1.25	8.00	2.00	0.625	-	HCL-007	HSH657	LW-4
	20	-6		●				106	1.25	0.41	1.25	8.00	2.00	0.625	-	HCL-013	HSH661	LW-4

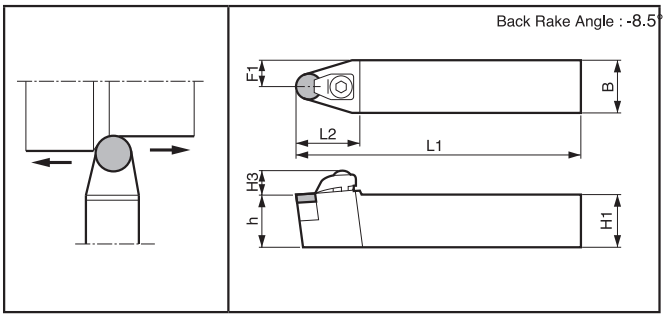
Applicable Inserts

Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
RCGX_	-	B93	-	-

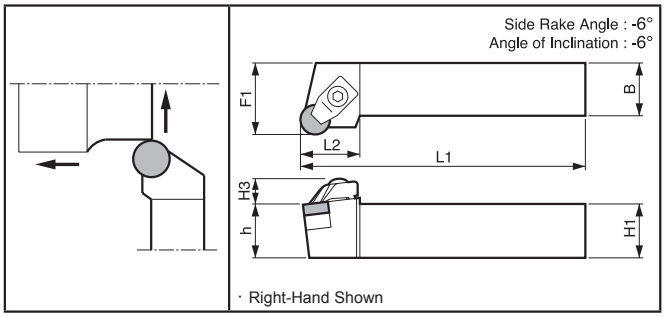
Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

CRDN (External / Copying)



CRSN (External / Facing)



● Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	Dimension H3	Dimension B	Dimension L1	Dimension L2	Dimension F1	Std.Corner-R(rε)	Spare Parts: Clamp Set	Wrench	Shim	Shim Screw	Lock Pin	Wrench
CRDNN 2020K -12		○		mm	RNG (RNG) (RNM) 45 (43)	20	11	20	125	29	10.0	-	CE-030	LW-4	SP-841 (SP-843)	M3X8 (M3X12)	-	-
2525M -12		○				25		25	150		12.5							
3225P -12		○				32		25	170		16.0							
3232P -15		○			RNG 55	32	11	32	170	36	16.0	-	CE-040	LW-4	SP-861	M4X10	-	-
4040R -15		○				40		40	200		20.0							
CRDNN 16-4D		●		inch	RNG (RNG) (RNM) 45 (43)	1.00	.433	1.00	6.0	1.13	.500		CE-030	LW-4	SP-841 (SP-843)	M3X8		
20-4E		●				1.25		1.25	7.0	1.13	.625							
CRSN$^{R}_{L}$ 2020K -12	○		○	mm	RNG (RNG) (RNM) 45 (43)	20	11	20	125	26	25	-	CE-030	LW-4	SP-841 (SP-843)	M3X8 (M3X12)		
2525M -12	○		○			25		25	150		32							
3225P -12	○		○			32		25	170		32							
HRSN$^{R}_{L}$ 16-4D	●			inch	RNG (RNG) (RNM) (RNMA) (RNMG) 45 (43) (43_)	1.00	0.58	1.00	6.00	1.03	1.25	-	HCL-001	LW-4	IRSN43 (IRSN45)	S-46	NL46L	LW-094
20-4D	●					1.25		1.25		1.03	1.50							

· Insert sizes shown in parenthesis ( ) can be used when also purchasing spare parts shown in parenthesis ( ).

Applicable Inserts

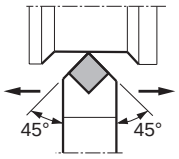
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
RN_	-	B87	-	-

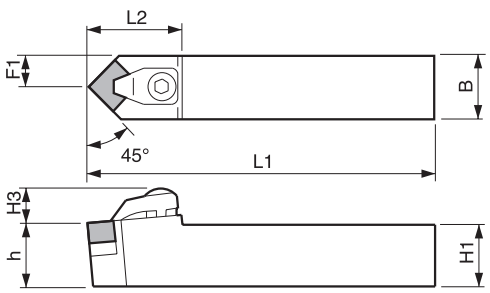
Recommended Cutting Conditions D46~D47

● : Std. Stock ○ : World Express

Toolholders for Ceramic Inserts [SN□□ Insert]

CSDN / HRDN (External / Chamfering)





Back Rake Angle : -8.5°

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	Dimension H3	Dimension B	Dimension L1	Dimension L2	Dimension F1	Std.Corner-R(rε)	Spare Parts: Chipbreaker	Spare Parts: Clamp Set	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw
CSDNN 2020K -12		○		mm	SNG SNM (SNG) (SNM) (SNU) 45 (43_)	20		20	125		10.0						
2525M -12		○				25	13	25	150	33	12.5	0.8	-	CE-040	LW-4	SP-141 (SP-143)	M3X8 (M3X12)
3225P -12		○				32		25	170		12.5						

· Shim & Shim Screw : When using SN__43_ insert, please purchase spare parts in ( ) separately

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	Dimension H3	Dimension B	Dimension L1	Dimension L2	Dimension F1	Std.Corner-R(rε)	Spare Parts: Clamp Set	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw	Spare Parts: Lock Pin	Spare Parts: Wrench
HSDNN 16-4D		●		inch	SNG SNM 45_ SNU (SNGA) (SNGG) (43_) (SNMA) (SNMG)	1.00	0.45	1.00	6.00	1.30	0.50	1/32	HCL-002	LW-4	ISSN433 (ISSN453)	S-46	NL46L	LW-094
20-4D		●				1.25		1.25			0.625							

· Insert sizes shown in parenthesis ( ) can be used when also purchasing spare parts in parenthesis ( ).

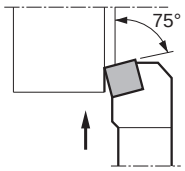
Applicable Inserts

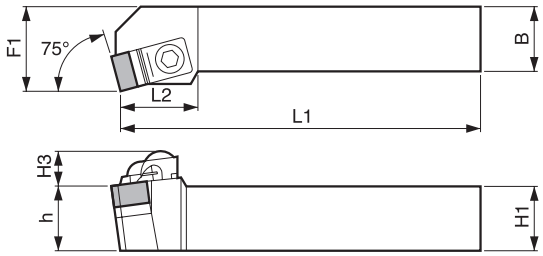
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
SN_	-	B88-B89	-	-

Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

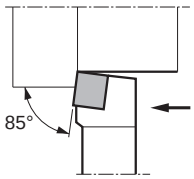
CSKN (Facing)

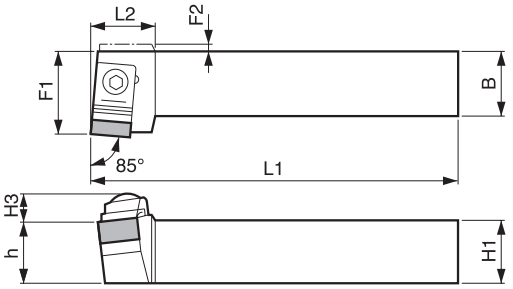




Side Rake Angle : -6°
Angle of Inclination : -4°

CS-N (External)





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

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	H1=h	H3	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts: Clamp Set	Wrench	Shim	Shim Screw	Lock Pin
CSKN$^{R}_{L}$ 2020K -12	○		○	mm	SNG SNM (SNG) (SNM) (SNU) 45_ (43_)	20	11	20	125	27	25	-	0.8	CB-11	CE-020	LW-4	SP-141 (SP-143)	M3X8 (M3X12)
2525M -12	○		○			25		25	150		32	-						
3225P -15	○				SNG 55_	32	15	25	170	37	32	-	0.8	CB-51	CE-220	LW-4	SP-162	M4X10
CS-N$^{R}_{L}$ 2020K -12	○		○	mm	SNG SNM (SNG) (SNM) (SNU 45_ (43_)	20	11	20	125	20	25	2	0.8	CB-11	CE-020	LW-4	SP-141 (SP-143)	M3X8 (M3X12)
2525M -12	○		○			25		25	150		32	-						

· Insert sizes shown in parenthesis ( ) can be used when also purchasing spare parts in parenthesis ( ).

Applicable Inserts

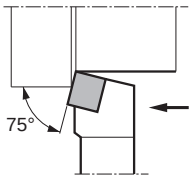
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
SN_	-	B88-B89	-	-

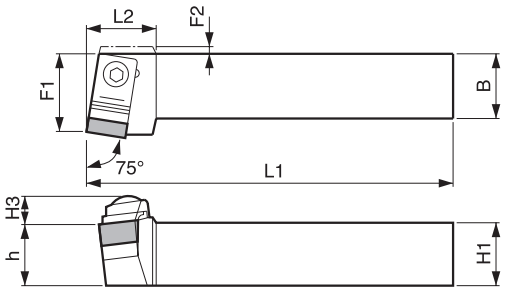
Recommended Cutting Conditions D46~D47

● : Std. Stock ○ : World Express

Toolholders for Ceramic Inserts [SN□□ Insert]

CSRN/HSRN (External)





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

•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	H3	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts: Chip-breaker	Clamp Set	Wrench	Shim	Shim Screw	Lock Pin	Wrench
CSRN$^{R}_{L}$ 2020K -12	○		○	mm	SNG SNM (SNG) (SNM) (SNU) 45_ (43_)	20		20	125		22	2	0.8	CB-11	CE-020	LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
2525M -12	○		○			25	11	25	150	22	27	-								
3225P -12	○		○			32		25	170		27	-								
3225P -15	○				SNG (SNGA) 55_ (43_)	32	15	25	170		32	-	0.8	CB-51	CE-220	LW-4	SP-162	M4X10	-	-
4040R -15	○		○			40		40	200	30	43	-								
CSRN$^{R}_{L}$ 20-4E	●		●	inch	SNG SNM (SNG) (SNM) (SNU) 45_ (43_)	1.25	0.433	1.25	7.00	0.88	1.50	-	1/32	CB-11	CE-020	LW-4	SP-141	M3X8		
HSRN$^{R}_{L}$ 16-4D	●		●			1.00	0.433	1.00	6.00	0.87	1.13	-		HCB300	HCL-000 (HCL-001)	LW-4	SSN433 (SSN453)	S-46	NL46L	LW-094

· Insert sizes shown in parenthesis ( ) can be used when also purchasing spare parts in parenthesis ( ).

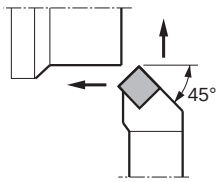
Applicable Inserts

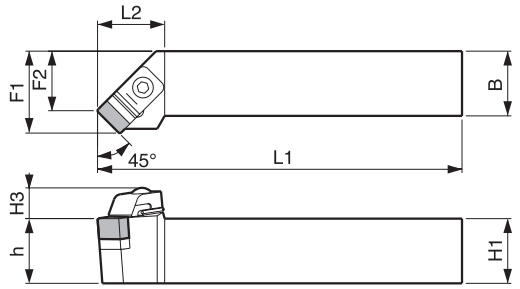
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
SN_	-	B88-B89	-	-

Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

CSSN (External / Facing / Chamfering)

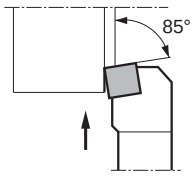


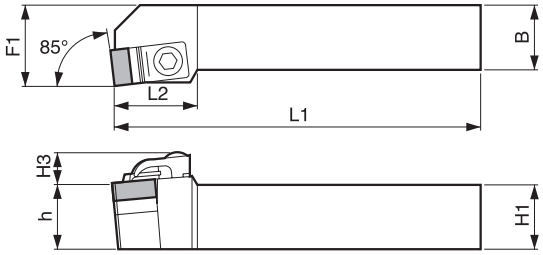


Side Rake Angle : -6°
Angle of Inclination : 0°

•Right-hand Shown

CSYN (Facing)





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

•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	H3	B	L1	L2	F1	F2	Std. Corner R(rε)	Spare Parts Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
CSSN$^{R}_{L}$ 2020K -12	○		○	mm	SNG SNM (SNG) (SNM) (SNU) 45_ (43_)	20	11	20	125	26	25	16	0.8	CB-11	CE-020	LW-4	SP-141	M3X8
2525M -12	○		○			25		25	150		32	23					(SP-143)	(M3X12)
CSSN$^{R}_{L}$ 16-4D	●		●	inch		1.00	.433	1.00	6.00	1.0	1.25	.90	1/32	CB-11	CE-020	LW-4	SP-141	M3X8
																	(SP-143)	(M3X12)
CSYN$^{R}_{L}$ 2020K -12	○		○	mm		20	11	20	125	27	25	-	0.8	CB-11	CE-020	LW-4	SP-141	M3X8
2525M -12	○		○			25		25	150		32	-					(SP-143)	(M3X12)

· Insert sizes shown in parenthesis ( ) can be used when also purchasing spare parts in parenthesis ( ).

Applicable Inserts

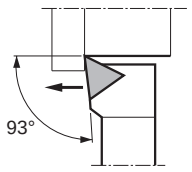
Insert Type	Reference Pages Cermet/Carbide	Ceramic	CBN	PCD
SN_	-	B88-B89	-	-

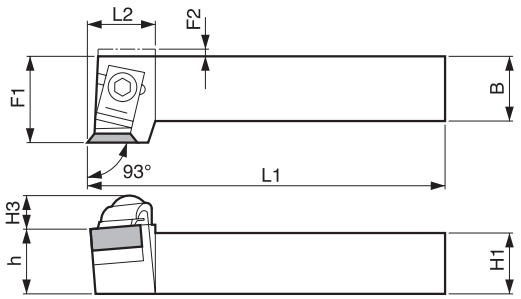
Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

Toolholders for Ceramic Inserts [TN□□ Insert]

CTJN (External)

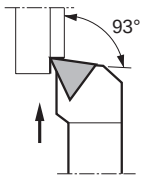


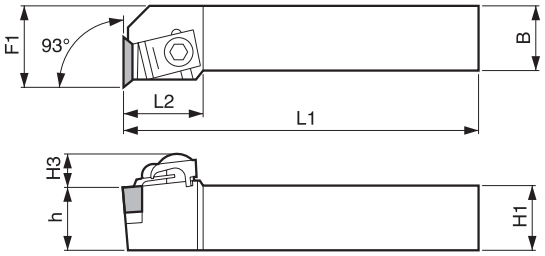


Side Rake Angle : -6°
Angle of Inclination : -4°

•Right-hand Shown

CTUN (Facing)





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

•Right-hand Shown

● Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	H3	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts: Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
CTJN$^{R}_{L}$ 2020K -16	○		○	mm	TNG (TNG) (TNM) 35_ (33_)	20	11	20	125	21	25	2	0.8	CB-12/13	CE-020	LW-4	SP-221 (SP-223)	M3X8 (M3X12)
2525M -16	○		○			25		25	150		32	-						
CTJN$^{R}_{L}$ 16-3D	●		●	inch	TNG TNMA 43_	1.00	.433	1.00	6.00	0.88	1.25	-	1/32	CB-12/13	CE-020	LW-4	SP-221 (SP-223)	M3X8 (M3X12)
16-4D	●		●															
CTUN$^{R}_{L}$ 2020K -16	○		○	mm	TNG (TNG) (TNM) 45_ (43_)	20	11	20	125	27	25	-	1/32	CB-12/13	CE-020	LW-4	SP-221 (SP-223)	M3X8 (M3X12)
2525K -16	○		○			25		25	150		32							

Chipbreaker : CTJN … CB12 for R-hand Toolholder, CB13 for L-hand Toolholder
CTUN … CB13 for R-hand Toolholder, CB12 for L-hand Toolholder
· Insert sizes shown in parenthesis ( ) can be used when also purchasing spare parts in parenthesis ( ).

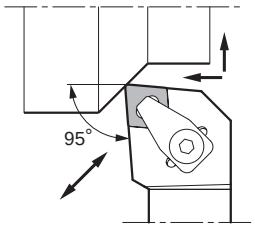
Applicable Inserts

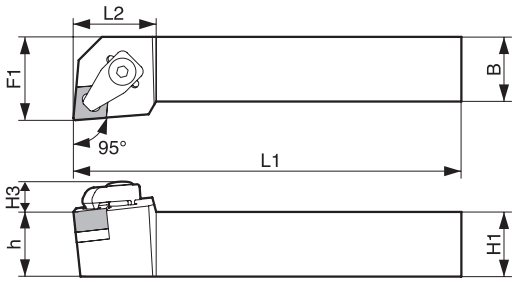
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
TN_	-	B90-B91	-	-

Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

CCLN-GX (External / Facing / Back Turning)





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

•Right-hand Shown

Toolholder Dimension

Description	Stock		Dimension (mm)							Std. Corner-R(rε)	Spare Parts				
	R	L	H1=h	H3	B	L1	L2	F1			Clamp Set	Wrench	Shim	Shim Screw	
CCLN$^{R}_{L}$ 2525M -12GX	○	○	25	13	25	150	30	32		1.2	CE-410	LW-4	SP-441	M3X8	

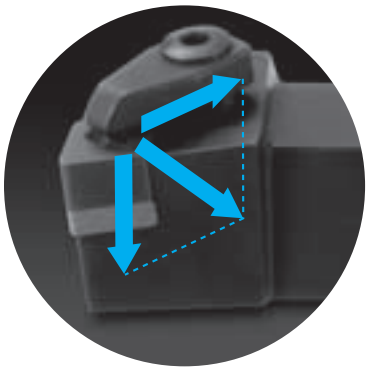
Applicable Insert

Application	Cast Iron
Ref. Page	B85
Insert / Toolholder	Ceramic 
CCLN$^{R}_{L}$...12GX	CNGX45..(CNGX43..) *

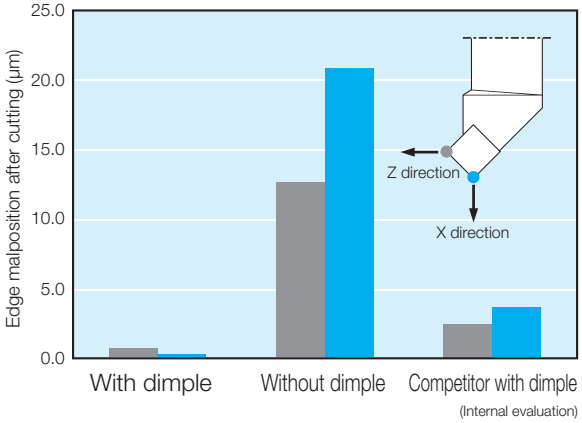
* When using CNGX43_ use shim SP-443

Recommended Cutting Conditions D46~D47

New Dimple Design Creates Improved Clamping Stability and Machining Stability

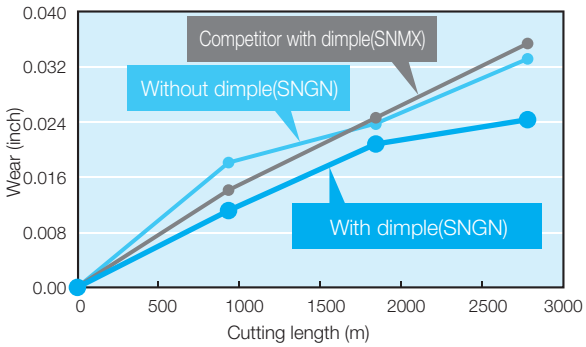


• Edge displacement



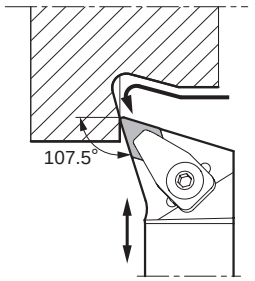
(Internal evaluation)

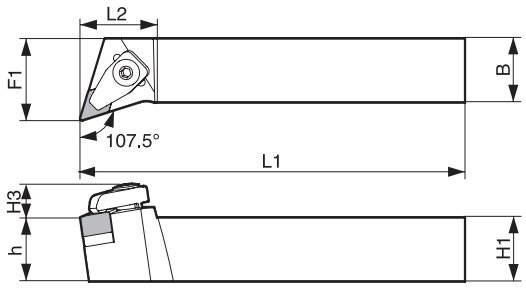
• Cutting Capability



Vc=2600 sfm, doc=0.06~0.08", f=0.024 ipr
Cast iron with scale, Dry

CDHN-GX (External / Copying)

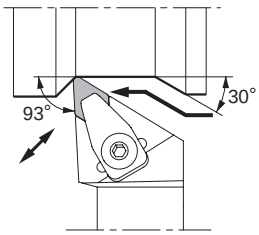


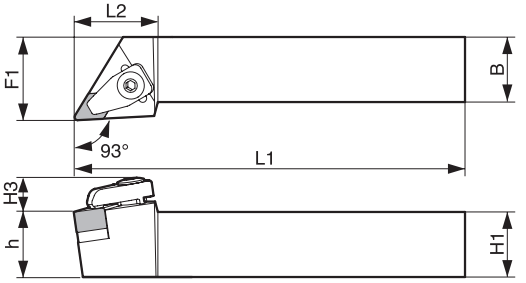


Side Rake Angle: -5°
Angle of Inclination: -8°

•Right-hand Shown

CDJN-GX (External / Copying)





Side Rake Angle: -5°
Angle of Inclination: -8°

•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	H1=h	H3	B	L1	L2	F1	Std.Comer-R(rε)	Clamp Set	Wrench	Shim	Shim Screw
CDHN$^{R}_{L}$ 2525M -12GX	○		○	mm	DNGX 35_	25	14	25	150	30	32	1.2	CE-410	LW-4	SP-521	M3X8
2525M -15GX	○		○		DNGX 45_	25	15	25	150	33	32	1.2	CE-430	LW-4	SP-541	M3X8
CDJN$^{R}_{L}$ 2525M -12GX	○		○		DNGX 35_	25	14	25	150	32	32	1.2	CE-410	LW-4	SP-521	M3X8
2525M -15GX	○		○		DNGX 45_	25	15	25	150	38	32	1.2	CE-410	LW-4	SP-541	M3X8

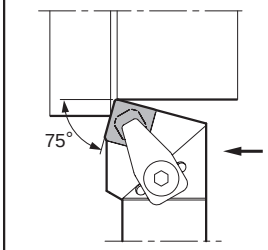
Applicable Inserts

Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
DNGX	-	B86	-	-

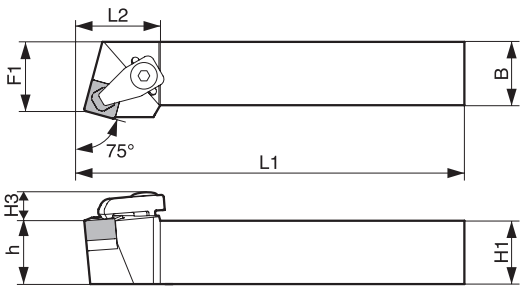
Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

CSRN-GX (External)

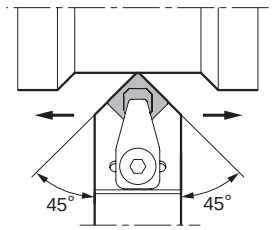


Side Rake Angle: -6°
Angle of Inclination: -4°

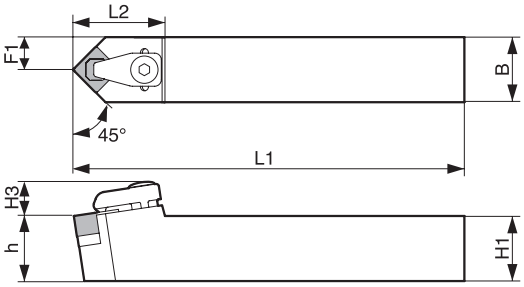


•Right-hand Shown

CSDN-GX (External / Chamfering)

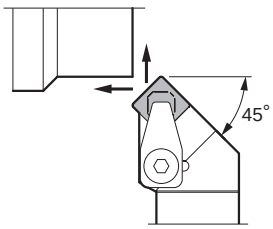


Back Rake Angle: -8.5°

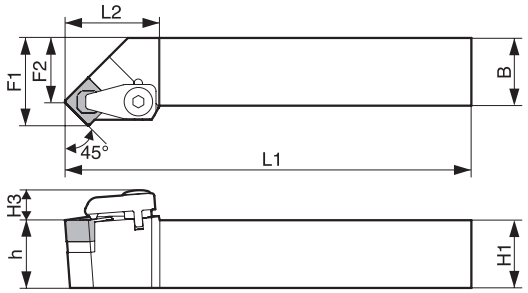


•Right-hand Shown

CSSN-GX (External / Facing / Chamfering)



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



•Right-hand Shown

● Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	H1=h	H3	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts: Clamp Set	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw
CSRN$^{R}_{L}$ 2525M -12GX	○		○	mm	SNGX 45_	25	12	25	150	30	27	-	1.2	CE-410	LW-4	SP-141	M3X8
2525M -15GX	○		○		SNGX 55_		12			35						SP-162	M4X10
CSDNN$^{R}_{L}$ 2525M -12GX		○			SNGX 45_	25	13	25	150	35	12.5	-	1.2	CE-410	LW-4	SP-141	M3X8
2525M -15GX		○			SNGX 55_		14			40						SP-162	M4X10
CSSN$^{R}_{L}$ 2525M -12GX	○		○		SNGX 45_	25	12	25	150	35	32	23	1.2	CE-410	LW-4	SP-141	M3X8
2525M -15GX	○		○		SNGX 55_		13			40		21				SP-162	M4X10

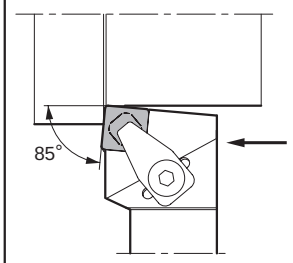
Applicable Inserts

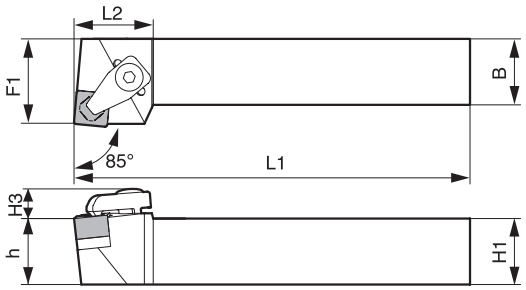
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
SNGX	-	B89	-	-

Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

CS-N-GX (External)

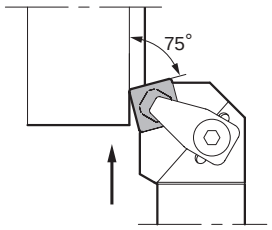


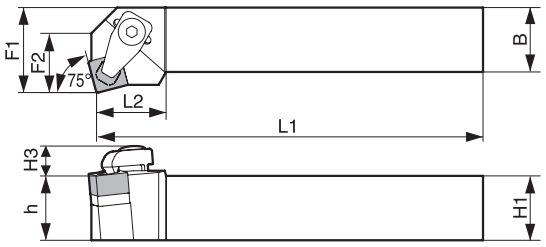


Side Rake Angle: -6°
Angle of Inclination: -4°

•Right-hand Shown

CSKN-GX (Facing)

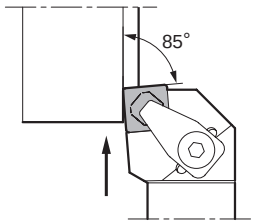


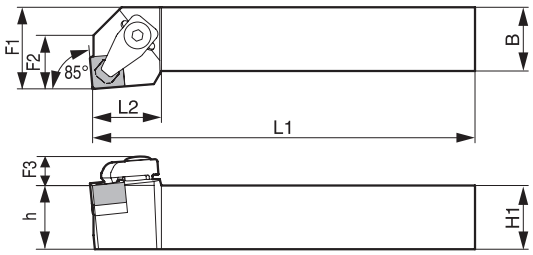


Side Rake Angle: -6°
Angle of Inclination: -4°

•Right-hand Shown

CSYN-GX (Facing)





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

•Right-hand Shown

● Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	H1=h	H3	B	L1	L2	F1	F2	Std.Corner-R(rε)	Spare Parts: Clamp Set	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw
CS-N$^{R}_{L}$ 2525M -12GX	○		○	mm	SNGX 45_	25	12	25	150	30	32	-	1.2	CE-410	LW-4	SP-141	M3X8
2525M -15GX	○		○		SNGX 55_	25	13	25	150	30	32	-	1.2	CE-410	LW-4	SP-162	M4X10
CSKN$^{R}_{L}$ 2525M -12GX	○		○		SNGX 45_	25	12	25	150	27	32	23	1.2	CE-410	LW-4	SP-141	M3X8
2525M -15GX	○		○		SNGX 55_	25	13	25	150	28	32	23	1.2	CE-410	LW-4	SP-162	M4X10
CSYN$^{R}_{L}$ 2525M -12GX	○		○		SNGX 45_	25	12	25	150	27	32	21	1.2	CE-410	LW-4	SP-141	M3X8
2525M -15GX	○		○		SNGX 55_	25	13	25	150	29	32	23	1.2	CE-410	LW-4	SP-162	M4X10

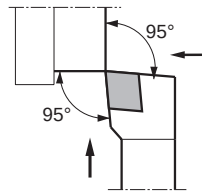
Applicable Inserts

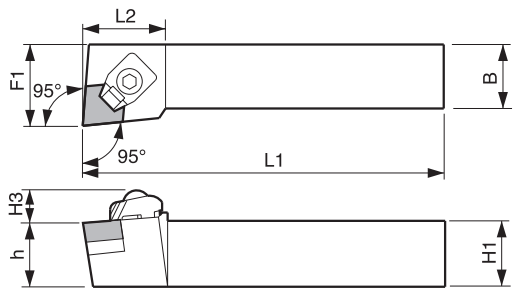
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
SNGX	-	B89	-	-

Recommended Cutting Conditions ➔ D46~D47

● : Std. Stock ○ : World Express

CCLN-A (External / Facing)

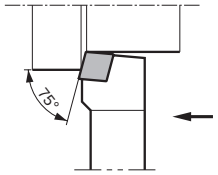


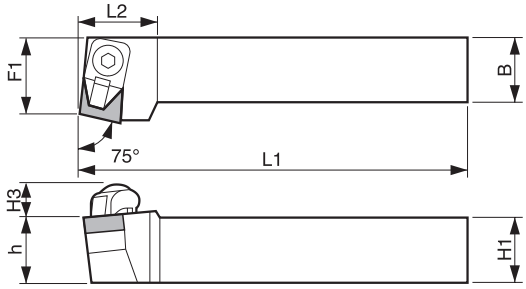


Side Rake Angle: -5°
Angle of Inclination: -5°

•Right-hand Shown

CCRN-A (External)





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

•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	Dimension H3	Dimension B	Dimension L1	Dimension L2	Dimension F1	Std.Corner-R(rε)	Spare Parts: Clamp Set	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw
CCLN$^{R}_{L}$ 2525M -09A	○		○	mm	CNM 32_	25	11	25	150	35	32	0.8	CE-030A	LW-4	SP-429	HH3X12
3225P -09A	○		○			32			170							
CCRN$^{R}_{L}$ 2525M -09A	○		○			25	11	25	150	27	27	0.8	CE-030A	LW-4	SP-429	HH3X12

Applicable Inserts

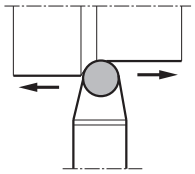
Insert Type	Reference Pages: Cermet/ Carbide	Ceramic	CBN	PCD
CN_	-	-	C10	-

Recommended Cutting Conditions ➡ D46~D47

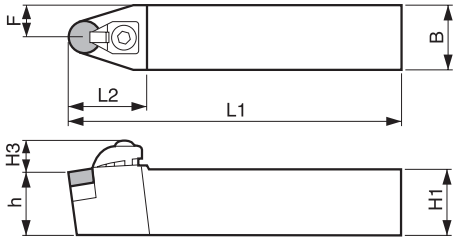
● : Std. Stock ○ : World Express

Toolholders for Solid CBN Inserts [RN□□ Insert]

CRDN-A (External / Copying)

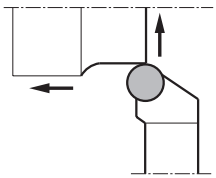


Back Rake Angle: -8.5°

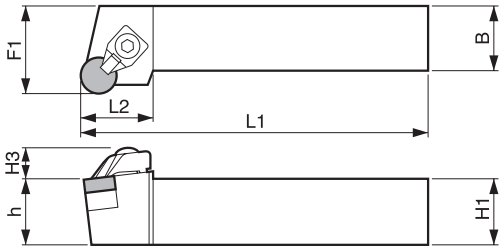


•Right-hand Shown

CRSN-A (External / Facing)



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



•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	H3	B	L1	L2	F1	Std.Corner-R(rε)	Spare Parts: Clamp Set	Wrench	Shim		Shim Screw
CRDNN 2525M -09A		○		mm	RNG RNM (RNG) 32 (33)	25	11	25	150	29	12.5	-	CE-030A	LW-4	SP-829	(SP-826)	HH3X12
3225P -09A		○				32			170								
2525M -12A		○			RNG RNM (RNG) (RNM) 42 (43) (45)	25	11	25	150	29	12.5					SP-849 (SP-843) (SP-841)	BH3X12 (M3X12) (M3X8)
3225P -12A		○				32			170								
CRSN$^{R}_{L}$ 2525M -09A	○		○		RNG RNM (RNM) 32 (33)	25	11	25	150	26	32	-	CE-030A	LW-4	SP-829	(SP-826)	HH3X12
3225P -09A	○		○			32			170								
2525M -12A	○		○		RNG RNM (RNG) (RNM) 42 (43)	25	11	25	150	26	32					SP-849 (SP-843) (SP-841)	BH3X12 (M3X12) (M3X8)
3225P -12A	○		○			32			170								

· Insert sizes shown in parenthesis ( ) can be used when also purchasing spare parts in parenthesis ( ).
· Spare Parts of -09A type Toolholder : When using RN__33_ insert, purchase SP-826 separately
· Spare Parts of -12A type Toolholder : When using RN__43_ insert, purchase SP-843 and M3X12 separately
When using RN__45_ insert, purchase SP-841 and M3X8 separately

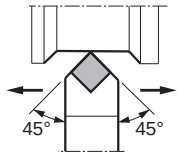
Applicable Inserts

Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
RN_	-	B87	C10	-

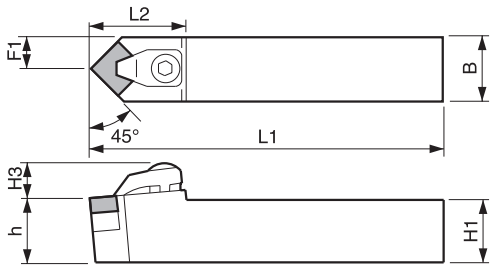
Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

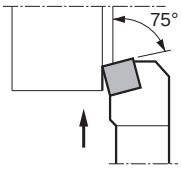
CSDN-A (External / Chamfering)



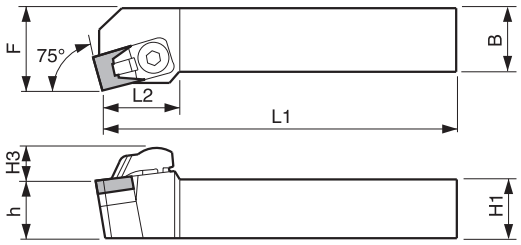
Back Rake Angle: -8.5°



CSKN-A (Facing)

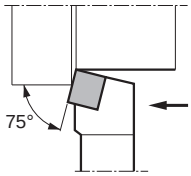


Side Rake Angle: -6°
Angle of Inclination: -4°

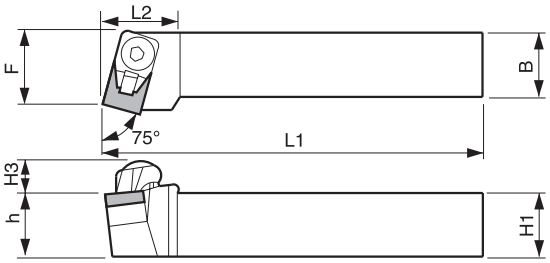


•Right-hand Shown

CSRN-A (External)



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



•Right-hand Shown

● Toolholder Dimensions

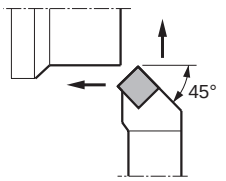
Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	H3	B	L1	L2	F1	Std.Corner-R(rε)	Spare Parts: Clamp Set	Wrench	Shim		Shim Screw
CSDNN 2525M -09A		○		mm	SNM 32	25	13	25	150	33	12.5	0.8	CE-040	LW-4	SP-129	-	HH3X12
3225P -09A			○			32			170	33							
2525M -12A		○			SNM (SNM) (SNG) (SNM) (SNU) 42_ (43_) (45_)	25	11	25	150	33	12.5					SP-148 (SP-143) (SP-141)	BH3X12 (M3X12) (M3X8)
CSKN$^{R}_{L}$ 2525M -09A	○				SNM 32_	25	11	25	150	27	32	0.8	CE-030A	LW-4	SP-129	-	HH3X12
2525M -12A	○				SNM (SNM) (SNG) (SNM) (SNU) 42_ (43_) (45_)	32	11	25	170	27	32					SP-148 (SP-143) (SP-141)	BH3X12 (M3X12) (M3X8)
CSRN$^{R}_{L}$ 2525M -09A	○		○		SNM 32_	25	11	25	150	22	27		CE-030A	LW-4	SP-129	-	HH3X12
2525M -12A	○		○		SNM (SNM) (SNG) (SNM) (SNU) 42_ (43_) (45_)	25	11	25	150	22	27					SP-148 (SP-143) (SP-141)	BH3X12 (M3X12) (M3X8)

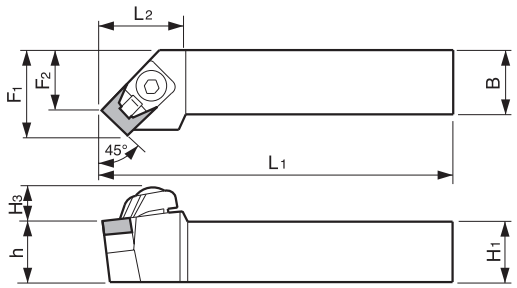
· Insert sizes shown in parenthesis ( ) can be used when also purchasing spare parts in parenthesis ( ).
· Spare Parts of -09A type Toolholder : When using RN__33_ insert, purchase SP-826 separately
· Spare Parts of -12A type Toolholder : When using RN__43_ insert, purchase SP-143 and M3X12 separately
When using RN__45_ insert, purchase SP-141 and M3X8 separately

● : Std. Stock ○ : World Express

Toolholders for Solid CBN Inserts [SN□□ Insert]

CSSN-A (External / Facing / Chamfering)

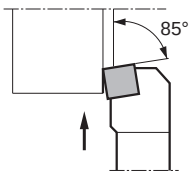


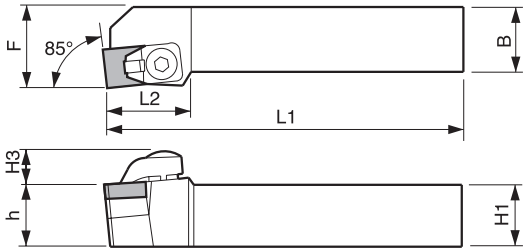


Side Rake Angle: -6°
Angle of Inclination: 0°

•Right-hand Shown

CSYN-A (Facing)





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

•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	H3	B	L1	L2	F1	F2	Std. Corner-R(rε)	Spare Parts: Clamp Set	Wrench	Shim	Shim	Shim Screw
CSSN$^{R}_{L}$ 2525M -09A	○		○	mm	SNM 32	25	11	25	150	27	32	25	0.8	CE-030A	LW-4	SP-129	-	HH3X12
2525M -12A	○		○						150	27	32	23					SP-148 (SP-143) (SP-141)	BH3X12 (M3X12) (M3X8)
CSYN$^{R}_{L}$ 2525M -09A	○		○		SNM 32_											SP-129	-	HH3X12
2525M -12A	○		○		SNM (SNM) 42_ (SNG) (43_) (SNM) (45_) (SNU)	25	11	25	150	26	32	-	0.8	CE-030A	LW-4		SP-148 (SP-143) (SP-141)	BH3X12 (M3X12) (M3X8)

· Insert sizes shown in parenthesis ( ) can be used when also purchasing spare parts in parenthesis ( ).
· Spare Parts of -09A type Toolholder : When using RN__33_ insert, purchase SP-826 separately
· Spare Parts of -12A type Toolholder : When using RN__43_ insert, purchase SP-143 and M3X12 separately
When using RN__45_ insert, purchase SP-141 and M3X8 separately

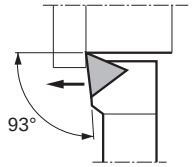
Applicable Inserts

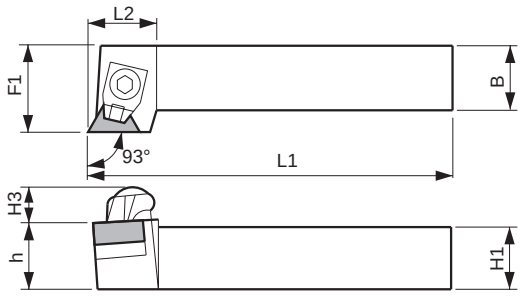
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
SN_	-	B88-B89	C10	-

Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

CTJN-A (External)

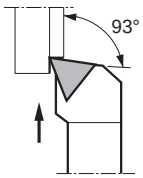


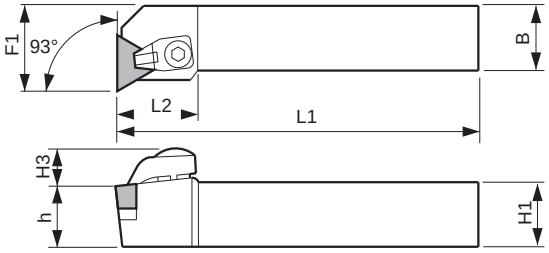


Side Rake Angle: -6°
Angle of Inclination: -4°

•Right-hand Shown

CTUN-A (Facing)





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

•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	Dimension H3	Dimension B	Dimension L1	Dimension L2	Dimension F1	Std.Corner-R(rε)	Spare Parts Clamp Set	Spare Parts Wrench	Spare Parts Shim	Spare Parts Shim Screw
CTJN$^{R}_{L}$ 2525M -11A	○		○	mm	TNG TNM 22_	25	11	25	150	22	32	0.8	CE-030A	LW-4	SP-219	HH3X12
CTUN$^{R}_{L}$ 2525M -11A	○		○	mm	TNG TNM 22_	25	11	25	150	26	32	0.8	CE-030A	LW-4	SP-219	HH3X12
3225P -11A	○			mm	TNG TNM 22_	32	11	25	170	26	32	0.8	CE-030A	LW-4	SP-219	HH3X12

Applicable Inserts

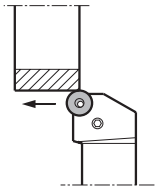
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
TN_	-	B90-B91	C10	-

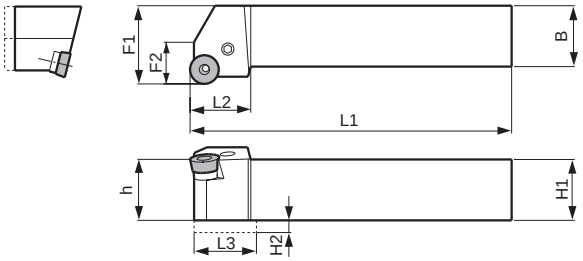
Recommended Cutting Conditions D46~D47

● : Std. Stock ○ : World Express

Toolholders for Bearing Machining [RCMT Insert]

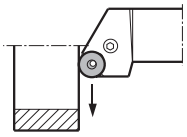
PRGC-BE (External)

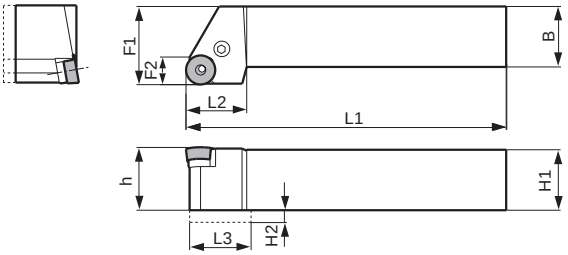




•Right-hand Shown

PRGC-BF (Facing)





•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	H3	B	L1	L2	L3	F1	F2	Std.Corner-R(rε)	Spare Parts: Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PRGC$^{R}_{L}$ 2020K -12BE	○		○	mm	RCMT12404M0-BB	20	-	20	125	22	-	25	15	-	LL-1CN (LL-1C)	LS-1N (LS-1)	LR-12C	LSP-1	PC-1	FH-2.5
2525M -12BE	○		○			25		25	150	25		32	17							
2020K -16BE	○		○		RCMT1606M0-BB	20	5	20	125	27	25.6	29	21		LL-2C	LS-1T	LR-16C	LSP-2	PC-2	FH-2.5
2525M -16BE	○		○			25	-	25	150		-	32	22							
PRGC$^{R}_{L}$ 2020K -12BF	○		○		RCMT12404M0-BB	20	-	20	125	22	-	25	10	-	LL-1CN (LL-1C)	LS-1N (LS-1)	LR-12C	LSP-1	PC-1	FH-2.5
2525M -12BF	○		○			25		25	150	25		32	11							
2020K -16BF	○		○		RCMT1606M0-BB	20	5	20	125	27	25.3	25	17		LL-2C	LS-1T	LR-16C	LSP-2	PC-2	FH-2.5
2525M -16BF	○		○			25	-	24	150		-	32								

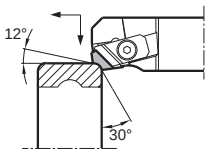
Applicable Inserts

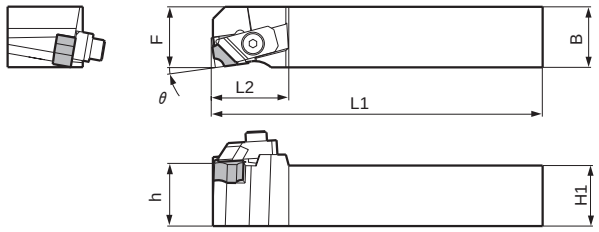
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
RCMT_	B80	-	-	-

Recommended Cutting Conditions ➡ D46~D47

● : Std. Stock ○ : World Express

CBSN (External Round Chamfering)



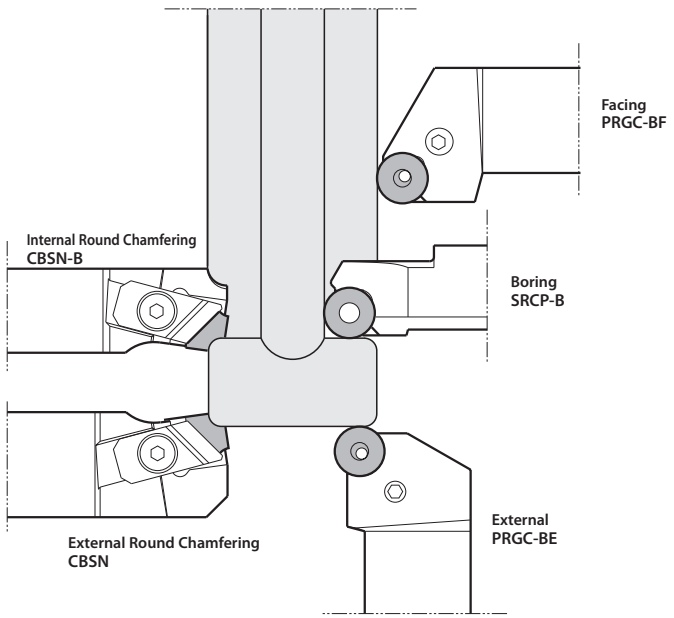


•Right-hand Shown

● Toolholder Dimensions

Description	Stock R	Stock N	Stock L	Unit	Applicable Insert	Dimension H1=h	Dimension B	Dimension L1	Dimension L2	Dimension F1	θ	Spare Parts: Clamp Set	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Screw
CBSN$^{R}_{L}$ 2020K -12	○		○	mm	SNMF1204__	20	20	125	30	20	9°	CP-RC$^{R}_{L}$	LW-3	SP-RC	SP3x8
2525M -12	○		○			25	25	150	30	25					

◆ Tooling for Bearing Machining



Applicable Inserts

Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
SNMF_	B80	-	-	-

Recommended Cutting Conditions D46~D47

● : Std. Stock ○ : World Express

Recommended Cutting Conditions - External Turning (Negative Insert)

ISO Classfication	Work Material (Hardness)		Cutting Range	Application	Recommended Chipbreaker	Recommended Grade	Corner-R (rε)	Lower Limit - Recommendation - Upper Limit		
								Cutting Speed (SFM)	D.O.C.(inch)	Feed Rate (ipr)
P	Low-cabon Steel Low-cabon Alloy 1010,4115 5015 etc.	HB ≦ 300	Finishing (Gloss Oriented)	Continuous	XP	TN6020	1/64	830 - 1060 - 1250	.0079 - .0197 - .0276	.0028 - .0047 - .0079
				Interrupted	XP	TN6020	1/64	660 - 920 - 1060	.0079 - .0197 - .0276	.0028 - .0047 - .0079
			Finishing (Life Oriented)	Continuous	XP	PV7010	1/64	830 - 990 - 1160	.0079 - .0197 - .0276	.0028 - .0047 - .0079
				Interrupted	XP	PV7025	1/64	660 - 860 - 990	.0079 - .0197 - .0276	.0028 - .0047 - .0079
			Finishing-Medium (Finish Oriented)	Continuous	XQ	TN6020	1/64	830 - 990 - 1160	.0197 - .0394 - .0591	.0067 - .0098 - .0118
				Interrupted		TN6020	1/32	590 - 790 - 990	.0197 - .0394 - .0591	.0067 - .0098 - .0118
			Finishing-Medium (Life Oriented)	Continuous	XQ	PV7010	1/32	830 - 990 - 1160	.0197 - .0394 - .0591	.0067 - .0098 - .0118
				Interrupted		PV7025	1/32	530 - 730 - 920	.0197 - .0394 - .0591	.0067 - .0098 - .0118
			Medium-Roughing	Continuous	XS	PV7025	1/32	660 - 830 - 990	.0315 - .0591 - .0787	.0098 - .0118 - .0157
				Interrupted		CA5515	1/32	530 - 690 - 860	.0315 - .0591 - .0787	.0098 - .0118 - .0157
			Roughing	Continuous	PS	CA5515	1/32	590 - 730 - 860	.0394 - .0984 - .1378	.0079 - .0118 - .0157
				Interrupted		CA5525	3/64	500 - 660 - 790	.0394 - .0984 - .1378	.0079 - .0118 - .0157
			Medium-Roughing (High Feed)	Continuous	PT	CA5515	1/32	500 - 660 - 790	.0591 - .1181 - .1772	.0098 - .0138 - .0177
				Interrupted		CA5525	3/64	400 - 590 - 730	.0591 - .1181 - .1772	.0098 - .0138 - .0177
			Roughing (High Feed)	Continuous	PH	CA5515	3/64	500 - 660 - 790	.0787 - .1969 - .3150	.0157 - .0236 - .0315
				Interrupted		CA5525	1/16	400 - 590 - 730	.0787 - .1969 - .3150	.0118 - .0197 - .0276
			Roughing (Low Cutting Force)	Continuous	PX (Single Sided)	CA5515	3/64	500 - 660 - 790	.0787 - .1969 - .3150	.0157 - .0236 - .0315
				Interrupted		CA5525	1/16	400 - 590 - 730	.0787 - .1969 - .3150	.0118 - .0197 - .0276
	Medium-cabon Steel Medium-cabon Alloy 1045,4135 etc.	HB ≦ 300	Finishing (Time Oriented)	Continuous	WP (Wiper)	PV7010	1/32	660 - 830 - 990	.0118 - .0197 - .0394	.0079 - .0118 - .0157
				Interrupted		CA5515	1/32	530 - 730 - 920	.0118 - .0197 - .0394	.0079 - .0118 - .0157
			Finishing-Medium (Time Oriented)	Continuous	WQ (Wiper)	PV7010	1/32	590 - 730 - 860	.0394 - .0787 - .1181	.0079 - .0118 - .0157
				Interrupted		CA5525	1/32	430 - 590 - 790	.0394 - .0787 - .1181	.0079 - .0118 - .0157
			Finishing (Finish Oriented)	Continuous	GP	TN6010	1/64	660 - 830 - 990	.0118 - .0197 - .0394	.0020 - .0039 - .0079
				Interrupted		TN6010	1/32	590 - 760 - 920	.0118 - .0197 - .0394	.0020 - .0039 - .0079
			Finishing (Life Oriented)	Continuous	GP	PV7010	1/64	660 - 830 - 990	.0118 - .0197 - .0394	.0020 - .0039 - .0079
				Interrupted		PV7025	1/32	590 - 730 - 860	.0118 - .0197 - .0394	.0020 - .0039 - .0079
			Finishing-Medium (Finish Oriented)	Continuous	CQ	TN6010	1/32	590 - 760 - 890	.0197 - .0591 - .0984	.0039 - .0079 - .0098
				Interrupted		TN6020	3/64	500 - 690 - 830	.0197 - .0591 - .0984	.0039 - .0059 - .0079
			Finishing-Medium (Life Oriented)	Continuous	CQ	PV7010	1/32	530 - 690 - 860	.0197 - .0591 - .0984	.0039 - .0079 - .0098
				Interrupted		CA5525	1/32	460 - 660 - 790	.0197 - .0591 - .0984	.0039 - .0059 - .0079
			Medium-Roughing	Continuous	GS	CA5515	1/32	500 - 660 - 790	.0394 - .0787 - .1181	.0079 - .0118 - .0197
				Interrupted		CA5525	3/64	400 - 590 - 730	.0394 - .0787 - .1181	.0059 - .0079 - .0118
			Roughing	Continuous	PS	CA5515	1/32	500 - 660 - 790	.0394 - .0984 - .1378	.0079 - .0118 - .0157
				Interrupted		CA5525	3/64	400 - 530 - 660	.0394 - .0984 - .1378	.0079 - .0118 - .0157
			Medium-Roughing (High Feed)	Continuous	PT	CA5515	1/32	400 - 590 - 760	.0591 - .1181 - .1772	.0098 - .0138 - .0177
				Interrupted		CA5525	3/64	330 - 500 - 660	.0591 - .1181 - .1772	.0098 - .0138 - .0177
			Roughing (High Feed)	Continuous	PH	CA5515	3/64	400 - 590 - 760	.0787 - .1969 - .3150	.0157 - .0236 - .0315
				Interrupted		CA5525	1/16	330 - 500 - 660	.0787 - .1969 - .3150	.0118 - .0197 - .0276
			Roughing (Low Cutting Force)	Continuous	PX (Single Sided)	CA5515	3/64	400 - 590 - 760	.0787 - .1969 - .3150	.0157 - .0236 - .0315
				Interrupted		CA5525	1/16	330 - 500 - 660	.0787 - .1969 - .3150	.0118 - .0197 - .0276
	High-cabon Alloy D2,H13 etc.	HB ≦ 280	Finishing (Finish Oriented)	Continuous	GP	TN6010	1/64	500 - 660 - 830	.0118 - .0197 - .0394	.0020 - .0039 - .0079
				Interrupted		TN6020	1/32	400 - 590 - 730	.0118 - .0197 - .0394	.0020 - .0039 - .0079
			Finishing (Life Oriented)	Continuous	GP	PV7010	1/64	400 - 590 - 790	.0118 - .0197 - .0394	.0020 - .0039 - .0079
				Interrupted		CA5515	1/32	330 - 500 - 660	.0118 - .0197 - .0394	.0020 - .0039 - .0079
			Finishing-Medium	Continuous	CQ	CA5515	1/32	400 - 530 - 730	.0197 - .0591 - .0984	.0059 - .0098 - .0118
				Interrupted		CA5525	1/32	330 - 460 - 590	.0197 - .0591 - .0984	.0059 - .0079 - .0098
			Medium-Roughing	Continuous	PS	CA5515	1/32	400 - 500 - 660	.0394 - .0787 - .1181	.0079 - .0118 - .0197
				Interrupted		CA5525	1/32	330 - 430 - 590	.0394 - .0787 - .1181	.0059 - .0079 - .0118
			Medium-Roughing (High Feed)	Continuous	PT	CA5515	1/32	330 - 460 - 590	.0591 - .1181 - .1772	.0098 - .0138 - .0177
				Interrupted		CA5525	3/64	260 - 400 - 530	.0591 - .1181 - .1772	.0098 - .0138 - .0177
			Roughing (High Feed)	Continuous	PH	CA5515	3/64	330 - 460 - 590	.0787 - .1969 - .3150	.0157 - .0236 - .0315
				Interrupted		CA5525	1/16	260 - 400 - 530	.0787 - .1969 - .3150	.0118 - .0197 - .0276
			Roughing (Low Cutting Force)	Continuous	PX (Single Sided)	CA5515	3/64	330 - 460 - 590	.0787 - .1969 - .3150	.0157 - .0236 - .0315
				Interrupted		CA5525	1/16	260 - 400 - 530	.0787 - .1969 - .3150	.0118 - .0197 - .0276

Recommended Cutting Conditions - External Turning (Negative Insert)

ISO Classfication	Work Material (Hardness)		Cutting Range	Application	Recommended Chipbreaker	Recommended Grade	Corner-R (rε)	Lower Limit - Recommendation - Upper Limit		
								Cutting Speed (SFM)	D.O.C.(inch)	Feed Rate (ipr)
M	Stainless Steel AISI 303,304 AISI 316,420 etc.	HB ≦ 220	Finishing (Finish Oriented)	Continuous	HQ	TN6020	1/32	400 - 530 - 660	.0197 - .0394 - .0591	.0031 - .0059 - .0079
				Interrupted		TN6020	1/32	330 - 400 - 500	.0197 - .0394 - .0591	.0020 - .0039 - .0059
			Finishing	Continuous	MQ	CA6515	1/64	400 - 590 - 790	.0197 - .0394 - .0591	.0031 - .0059 - .0079
				Interrupted		CA6525	1/32	330 - 530 - 730	.0197 - .0394 - .0591	.0020 - .0039 - .0059
			Medium-Roughing (Chip Control)	Continuous	MS	CA6515	1/64	400 - 530 - 660	.0394 - .0787 - .1181	.0039 - .0079 - .0118
				Interrupted		CA6525	1/32	260 - 460 - 590	.0394 - .0787 - .1181	.0079 - .0118 - .0157
			Medium-Roughing (Sharpness Oriented)	Continuous	MU	CA6515	1/64	400 - 530 - 660	.0394 - .0787 - .1181	.0059 - .0098 - .0138
				Interrupted		CA6525	1/32	260 - 460 - 590	.0394 - .0787 - .1181	.0059 - .0098 - .0118
			Roughing	Continuous	Standard	CA6515	1/32	330 - 460 - 590	.0394 - .0787 - .1575	.0079 - .0118 - .0157
				Interrupted		CA6525	3/64	260 - 400 - 500	.0394 - .0787 - .1575	.0079 - .0118 - .0157
	Stainless Steel AISI 630 etc.	HB ≦ 300	Finishing (Finish Oriented)	Continuous	HQ	TN6020	1/32	330 - 400 - 500	.0197 - .0394 - .0591	.0020 - .0039 - .0059
				Interrupted		TN6020	1/32	260 - 330 - 400	.0197 - .0394 - .0591	.0020 - .0031 - .0039
			Finishing	Continuous	MQ	CA6515	1/64	330 - 400 - 500	.0197 - .0394 - .0591	.0031 - .0059 - .0079
				Interrupted		CA6525	1/32	260 - 330 - 400	.0197 - .0394 - .0591	.0020 - .0039 - .0059
			Medium-Roughing (Chip Control)	Continuous	MS	CA6515	1/64	330 - 400 - 500	.0394 - .0591 - .0787	.0039 - .0059 - .0098
				Interrupted		CA6525	1/32	260 - 330 - 400	.0394 - .0787 - .1181	.0039 - .0059 - .0079
			Medium-Roughing (Sharpness Oriented)	Continuous	MU	CA6515	1/64	330 - 400 - 500	.0394 - .0591 - .0787	.0039 - .0059 - .0098
				Interrupted		CA6525	1/32	260 - 330 - 400	.0394 - .0787 - .1181	.0039 - .0059 - .0079
			Roughing	Continuous	Standard	CA6515	1/32	260 - 330 - 400	.0394 - .0787 - .1181	.0079 - .0118 - .0157
				Interrupted		CA6525	3/64	200 - 260 - 330	.0394 - .0787 - .1575	.0079 - .0118 - .0157
K	Gray Cast Iron 30B,35B 45B etc.	HB ≦ 250	Finishing (High Speed)	Continuous	Without Chipbreaker	KBN60M	1/32	1320 - 2310 - 2970	.0020 - .0079 - .0197	.0012 - .0020 - .0039
				Continuous		KBN900	3/64	1650 - 2970 - 3960	.0039 - .0197 - .0394	.0020 - .0039 - .0079
				Interrupted		KBN900	3/64	1650 - 2310 - 2970	.0197 - .0394 - .0591	.0020 - .0039 - .0079
			Finishing (Finish Oriented)	Continuous	Standard	PV7005	1/32	990 - 1160 - 1320	.0197 - .0394 - .0591	.0039 - .0079 - .0118
				Interrupted		TN6020	1/32	330 - 500 - 660	.0197 - .0394 - .0591	.0031 - .0059 - .0079
			Finishing (Ceramic)	Continuous	Without Chipbreaker	KA30	3/64	990 - 1650 - 2310	.0118 - .0197 - .0394	.0039 - .0079 - .0118
				Interrupted		PT600M	1/32	990 - 1490 - 1980	.0118 - .0197 - .0394	.0039 - .0079 - .0118
			Medium (Ceramic)	Continuous		CS7050	3/64	830 - 1320 - 1650	.0394 - .0787 - .1181	.0059 - .0098 - .0138
				Interrupted		KS6050	3/64	830 - 1320 - 1650	.0394 - .0787 - .1181	.0059 - .0079 - .0118
			Medium	Continuous	Standard	CA4505	1/32	660 - 830 - 990	.0197 - .0787 - .0984	.0039 - .0079 - .0118
				Interrupted		CA4515	3/64	500 - 660 - 830	.0197 - .0787 - .0984	.0031 - .0059 - .0079
			Roughing	Continuous	ZS	CA4505	1/32	660 - 830 - 990	.0394 - .0787 - .1575	.0079 - .0118 - .0157
				Interrupted		CA4515	3/64	500 - 660 - 830	.0394 - .0787 - .1575	.0079 - .0118 - .0157
	Nodular Cast Iron 60-40-18 80-55-06 etc.	HB ≦ 270	Finishing (High Speed)	Continuous	Without Chipbreaker	KBN60M	1/64	660 - 990 - 1320	.0039 - .0118 - .0197	.0039 - .0059 - .0079
				Interrupted		PT600M	1/32	660 - 830 - 1160	.0039 - .0197 - .0394	.0039 - .0079 - .0157
			Finishing (Finish Oriented)	Continuous	Standard	PV7005	1/32	500 - 830 - 990	.0197 - .0394 - .0591	.0039 - .0079 - .0118
				Interrupted		TN6020	1/32	330 - 500 - 590	.0197 - .0394 - .0591	.0031 - .0059 - .0079
			Medium	Continuous	Standard	CA4505	1/32	500 - 660 - 830	.0197 - .0787 - .0984	.0039 - .0079 - .0118
				Interrupted		CA4515	3/64	400 - 590 - 730	.0197 - .0787 - .0984	.0031 - .0059 - .0079
			Roughing	Continuous	ZS	CA4505	1/32	500 - 660 - 830	.0394 - .0787 - .1575	.0079 - .0118 - .0157
				Interrupted		CA4515	3/64	400 - 590 - 730	.0394 - .0787 - .1575	.0079 - .0118 - .0157
N	Non-ferrous Metal Copper Alloy Aluminum Alloy (Si: under 10) etc.	HB ≦ 100	Finishing(High Speed) (Rainbow-colored Finish)	Continuous	Without Chipbreaker	KPD001	1/64	1320 - 1320 - 1320	.0020 - .0197 - .0394	.0020 - .0039 - .0059
			Finishing	Continuous	A3	KW10	1/32	1320 - 1650 - 2310	.0197 - .0394 - .0787	.0039 - .0079 - .0098
				Interrupted		KW10	1/32	1320 - 1650 - 2310	.0197 - .0394 - .0787	.0039 - .0079 - .0098
			Medium	Continuous	AH	KW10	1/32	660 - 990 - 1650	.0394 - .0787 - .1378	.0039 - .0118 - .0157
				Interrupted		KW10	1/32	660 - 990 - 1650	.0394 - .0787 - .1378	.0039 - .0118 - .0157
S	Titanium Alloy Ti-6Al-4V etc.	HB ≦ 400	Finishing(Precision) (Rainbow-colored Finish)	Continuous	Without Chipbreaker	KPD001	1/64	330 - 500 - 590	.0020 - .0118 - .0197	.0012 - .0039 - .0059
				Interrupted		KPD001	1/64	230 - 400 - 500	.0020 - .0118 - .0197	.0012 - .0028 - .0039
			Finishing	Continuous	A3	SW05	1/64	100 - 170 - 230	.0197 - .0591 - .0984	.0028 - .0059 - .0098
				Interrupted		SW05	1/64	100 - 170 - 230	.0197 - .0591 - .0984	.0028 - .0059 - .0079
			Medium	Continuous	AH	SW05	1/32	100 - 170 - 230	.0394 - .0787 - .1378	.0039 - .0098 - .0138
				Interrupted		SW05	1/32	100 - 170 - 230	.0394 - .0787 - .1378	.0039 - .0079 - .0118
	High-temperature Alloy Inconel625 Inconel 718 etc.	HB ≦ 350	Finishing	Continuous	MQ	PR1305	1/64	130 - 200 - 260	.0079 - .0197 - .0394	.0012 - .0031 - .0047
				Interrupted	MS/MU	PR1310	1/32	130 - 200 - 260	.0079 - .0197 - .0394	.0020 - .0039 - .0059
			Medium	Continuous	MS/MU	PR1310	1/32	130 - 200 - 260	.0197 - .060 - .0787	.0020 - .0039 - .0059
				Interrupted	TK	PR1325	3/64	130 - 200 - 260	.0197 - .060 - .0787	.0039 - .0059 - .0079
H	Heat Treated Steel High Hard Material D2, H13 etc.	40~50 HRC	Finishing	Continuous	HQ	CA5515	1/32	200 - 330 - 400	.0039 - .0118 - .0197	.0020 - .0031 - .0039
				Interrupted	Standard	CA5515	1/32	100 - 170 - 230	.0039 - .0118 - .0197	.0020 - .0031 - .0039
		40~50 HRC	Finishing	Continuous	Without Chipbreaker	PT600M	1/32	200 - 260 - 330	.0079 - .0197 - .0276	.0020 - .0039 - .0059
		50~65 HRC		Continuous		PT600M	3/64	100 - 130 - 200	.0079 - .0197 - .0276	.0020 - .0039 - .0059
		50~68 HRC	Finishing	Continuous	Without Chipbreaker SET,MET	KBN05M	1/32	330 - 500 - 660	.0020 - .0118 - .0197	.0020 - .0031 - .0039
				Interrupted		KBN25M	3/64	260 - 400 - 530	.0020 - .0118 - .0197	.0020 - .0031 - .0039
			Medium	Continuous	Without Chipbreaker	KBN900	3/64	260 - 330 - 400	.0197 - .0394 - .0787	.0020 - .0039 - .0079
				Interrupted		KBN900	Round	230 - 300 - 360	.0118 - .0276 - .0394	.0020 - .0039 - .0059

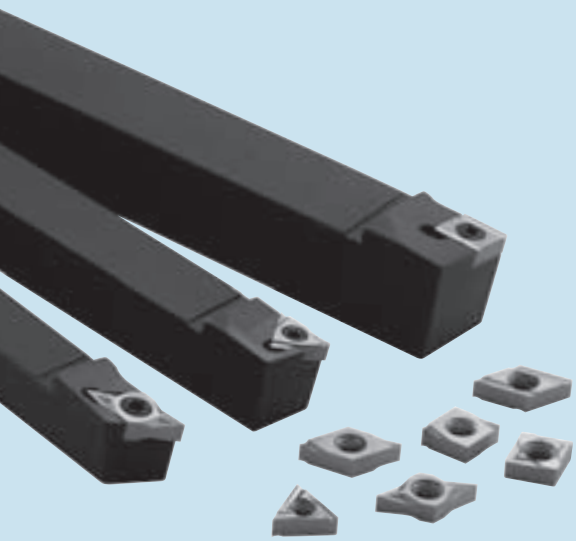
Small Tools

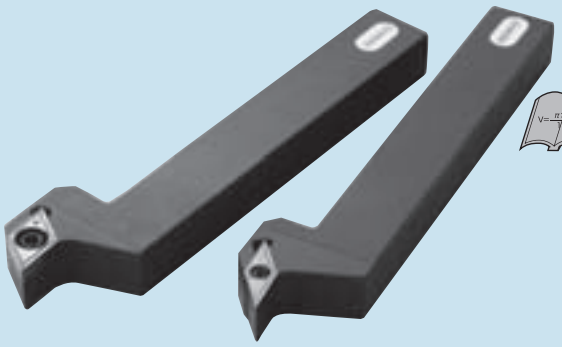


E

E1~E42

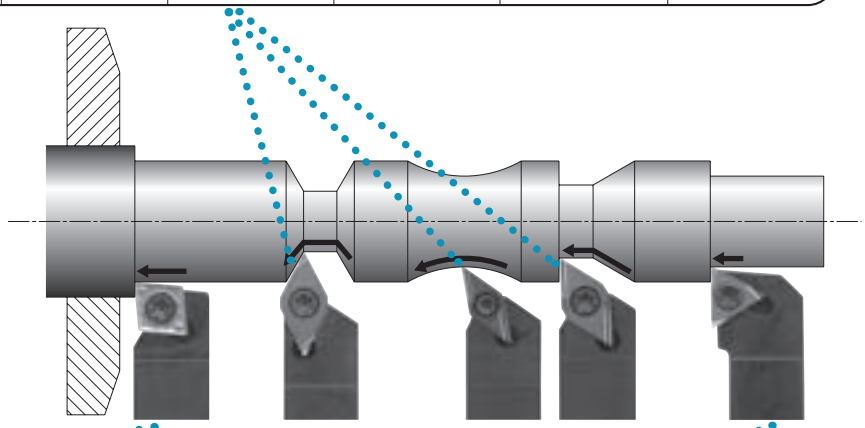
Summary of Turning		**E2~E3**
Small Tools Identification System		**E8**
Toolholders for Back Turning		**E9~E13**
ABS Insert	(Back Turning)	E9
ABW Insert	(Back Turning)	E10
TKFB Insert	(Back Turning, Goose-neck Holder)	E12
Goose-neck Holder		**E14~E15**
DC ☐☐ Insert	(Goose-neck Holder)	E14
VP ☐☐ Insert	(Goose-neck Holder)	E15
Toolholder for Small Double Sided Tooling		**E16~E17**
CN ☐ U Insert	(Without Offset)	E16
DN ☐ U Insert	(Without Offset)	E17
TN ☐ U Insert	(Without Offset)	E18
Toolholder for Double Sided Tooling for Automatic Lathe		**E18~E19**
CN ☐☐ Insert	(Without Offset)	E18
TN ☐☐ Insert	(Without Offset)	E19
External Toolholders (Back Clamp / Screw Clamp)		**E20~E32**
CC ☐☐ Insert	(Without Offset / With Offset)	E20
DC ☐☐ Insert	(Without Offset / With Offset)	E22
DP ☐☐ Insert	(Without Offset / With Offset)	E26
TC / TP ☐☐ Insert		E27
VB / VC ☐☐ Insert	(Without Offset / With Offset)	E28
VP ☐☐ Insert	(Without Offset / With Offset)	E30
YP ☐☐ Insert		E32
External Sleeve Holder Tools		**E33~E35**
CC ☐☐ Insert		E33
DC ☐☐ Insert		E34
VB / VC ☐☐ Insert		E35
External Toolholders (Top Clamp)		**E36~E37**
SP ☐ R / SP ☐ Insert		E36
TP ☐ R / TP ☐ Insert		E37
Technical Information		**E38~E39**
Recommended Cutting Conditions		E38
Sub-Spindle Tools for Star™ Machines		**E40~E41**
Alternative Toolholder Reference Table for Small Tools		**E42~E44**



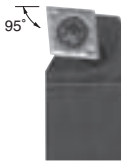
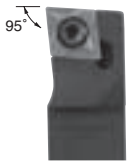


External / Copying

						
ADJC-FF	SDJC-FF	SDJC	SDLC-FF SDLP-FF	SDLN-FF	SDNC-F	SDNC
Back Clamp Without Offset	Screw Clamp Without Offset	Screw Clamp With Offset	Screw Clamp Without Offset	Screw Clamp Without Offset	Screw Clamp With Offset	Screw Clamp With Offset
E22	E23	E23	E24,E26	E16	E25	E25



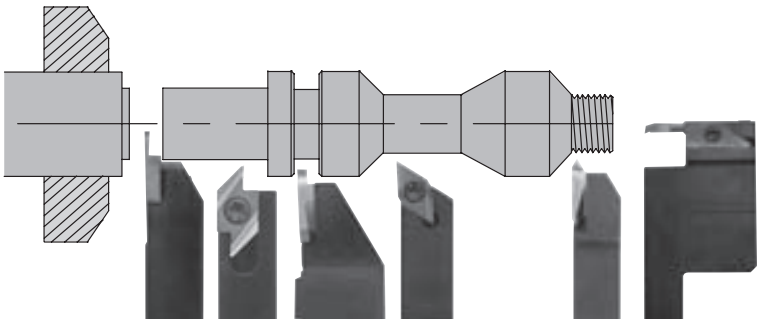
External / Facing

			
ACLC-FF	SCLC-FF	SCLC	SCLN-FF
Back Clamp Without Offset	Screw Clamp Without Offset	Screw Clamp With Offset	Screw Clamp Without Offset
E20	E21	E21	E16

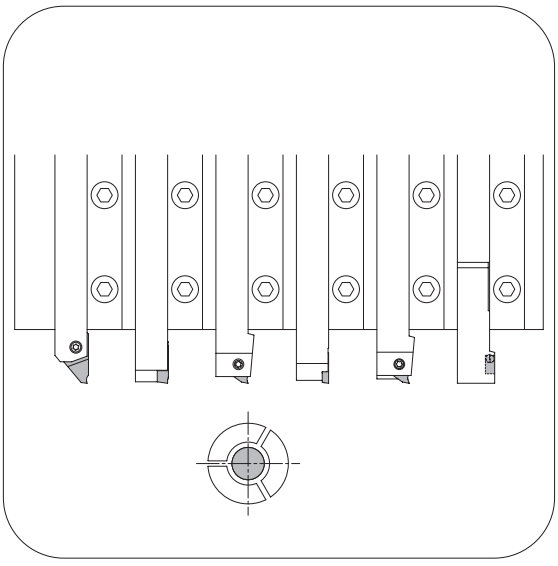
External

	
STGC(P)	STLN-FF
Screw Clamp With Offset	Screw Clamp Without Offset
E27	E17

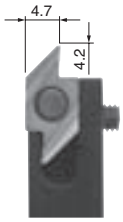
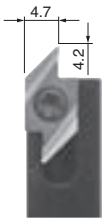
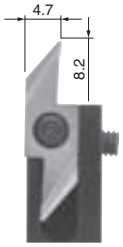
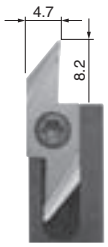
Tooling example① CNC Automatic lathe (Gang Type)

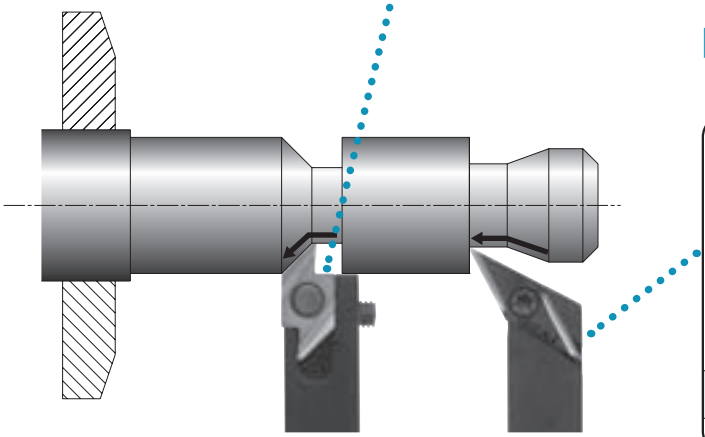


Cut-Off (Chapter H) | Back Turning | Grooving (Chapter G) | External | Threading (Chapter J) | Boring (Chapter F)



Back Turning

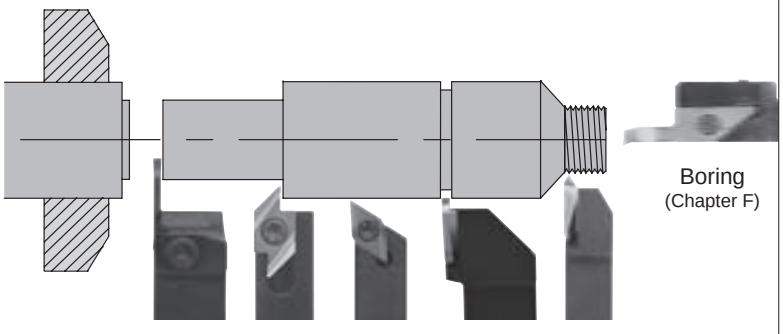
						
AABS-40F	SABS-40F	AABW-40F	SABW-40F	AABW-50F	SABW-50F	KTKF
Back Clamp Edge Width:2.8 ap:~4.0	Screw Clamp Edge Width:2.8 ap:~4.0	Back Clamp Edge Width:4.7 ap:~4.0	Screw Clamp Edge Width:4.7 ap:~4.0	Back Clamp Edge Width:4.7 ap:~5.0	Screw Clamp Edge Width:4.7 ap:~5.0	Screw Clamp Edge Width:1.5~3.8 ap:1.8~5.5
E9	E9	E10	E10	E11	E11	E12

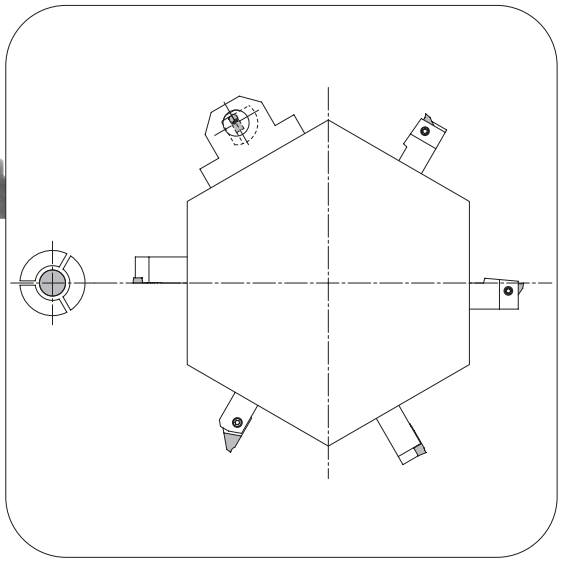


External / Facing / Copying / Undercutting

		
SVPB	SVPP	SVPP-FF
Screw Clamp With Offset	Screw Clamp With Offset	Screw Clamp Without Offset
E29	E31	E31

Tooling example② CNC Automatic lathe (Gang Type)



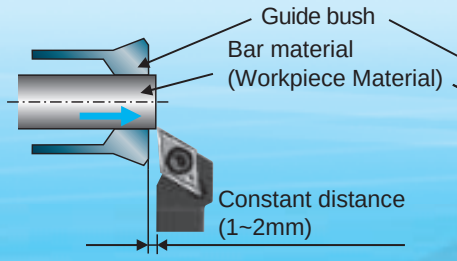


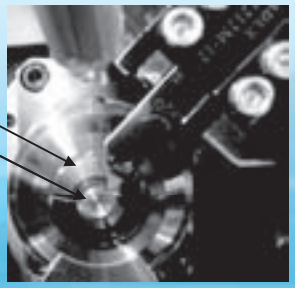
Swiss Tool Automatic Lathe (Guide Bush System)

Goose-neck holder is applicable to automatic lathes whose toolholder does not move to longitudinal direction (Z-axis direction).

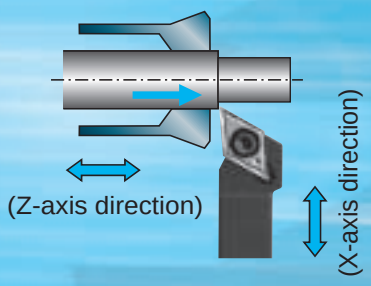
In case of machining with the conventional toolholder

Before Machining

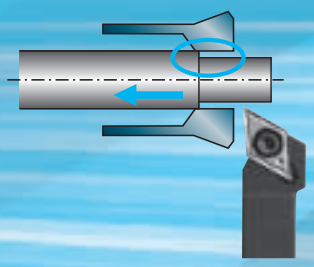




During Machining



Toolholder motion



The tool position is fixed and the bar material (workpiece) moves longitudinally.

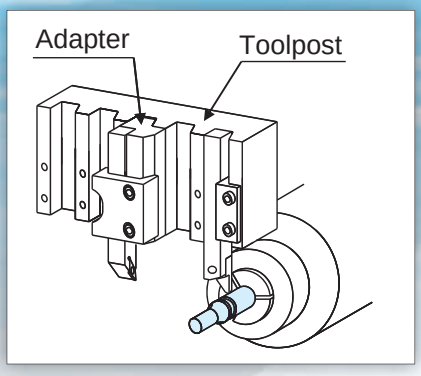
At step turning with multiple passes, the machined part returns into the guide bush and causes various problems.

Problems

1. Problems in attachment

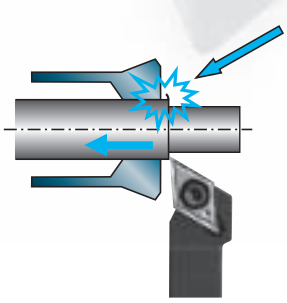
When using a conventional toolholder,

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

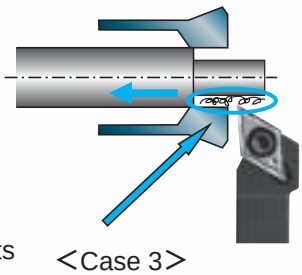


2. Problems in machining

When machining with a conventional toolholder



<Case1>
At multiple passes, when the bar material returns into the guide bush, the burr contacts and breaks the guide bush.



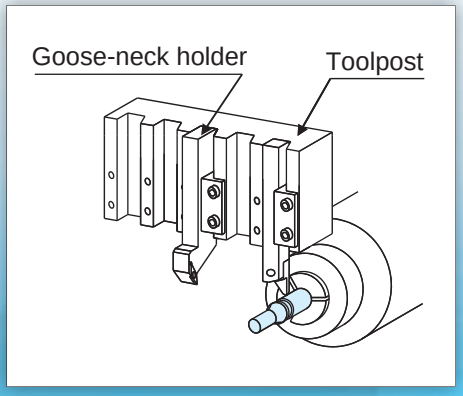
<Case 2>
The workpiece burr contacts the guide bush and causes dimensional variation.

<Case 3>
When roughing, chips come into the guide bush.

Advantages of Goose-neck Holder

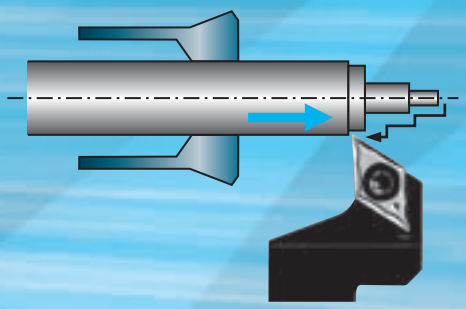
In Case of Goose-neck Holder

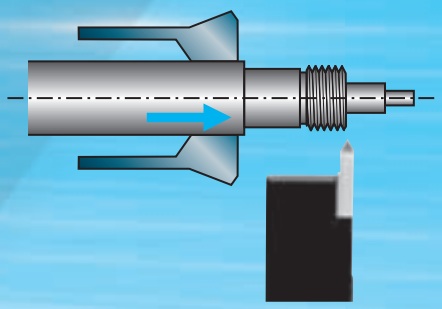
When using a Goose-neck holder
1) Maximum number of toolholders can be attached.
2) No interference with next toolpost.



1. Advantages of Using Goose-neck Holder

With a Goose-neck Holder





1) Machining precision improves by additional finishing process.
2) Chips do not come into the guide bush.
3) Better chip control due to large chip evacuation space.

Goose-neck Holder Lineup

External / Copying

SDJC••	SVLP••
Screw Clamp	Screw Clamp
E14	E15

For threading

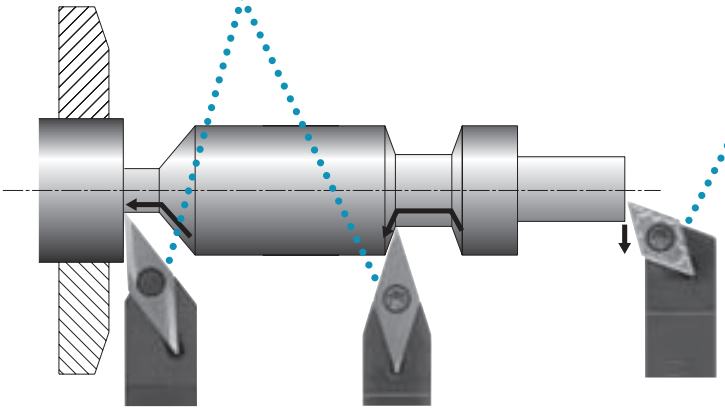
KTKF Threading
Screw Clamp
J18

External / Copying

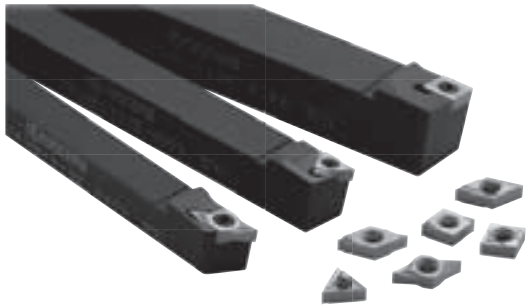
SVVB	AVJB-FF	SVJB-FF SVJP-FF	SVJB	SVLP-FF
Screw Clamp	Back Clamp Without Offset	Screw Clamp Without Offset	Screw Clamp	Screw Clamp Without Offset
E29	E28	E28,E30	E28	E30

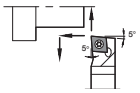
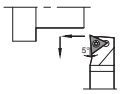
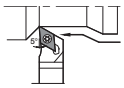
External / Facing / Copying

SDXC	SYXP-F
Screw Clamp	Screw Clamp
E24	E32



Toolholders for Small Double Sided Tooling (Screw Clamp)

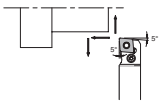
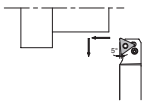


Machining type	External / Facing	External / Up Facing	External / Copying
Cutting Edge Angle	95°	95°	95°
Screw Clamp (Without Offset)			
Ref. Page	E16	E17	E16

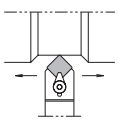
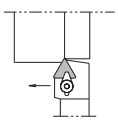
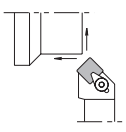
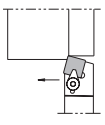
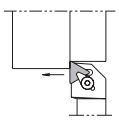
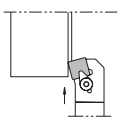
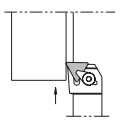
The double-sided design offers less cost per insert and more stability with newly-designed negative inserts. Sharp cutting performance equivalent to conventional positive inserts.

Toolholder for Double Sided Tooling for Automatic Lathe (Without Offset : Lever Lock)



Application	External / Facing	External / Up Facing
Cutting Edge Angle	95°	95°
Lever Lock (Without Offset)		
Ref. Page	E18	E19

The Lever lock type is available for small tools for external machining.

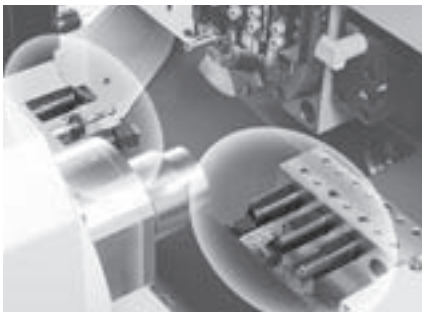
Machining type	External / Chamfering		External / Facing / Chamfering	External		Facing	
Cutting Edge Angle	45°	60°	45°	75°	91°	15°	-1°
Top Clamp							
	CSDP	CTTP	CSSP	CSBP	CTGP	CSKP	CTFP
Ref. Page	E36	E37	E36	E36	E37	E36	E37

External Sleeve Holder Tools

More tools attachable to CNC Automatic lathe

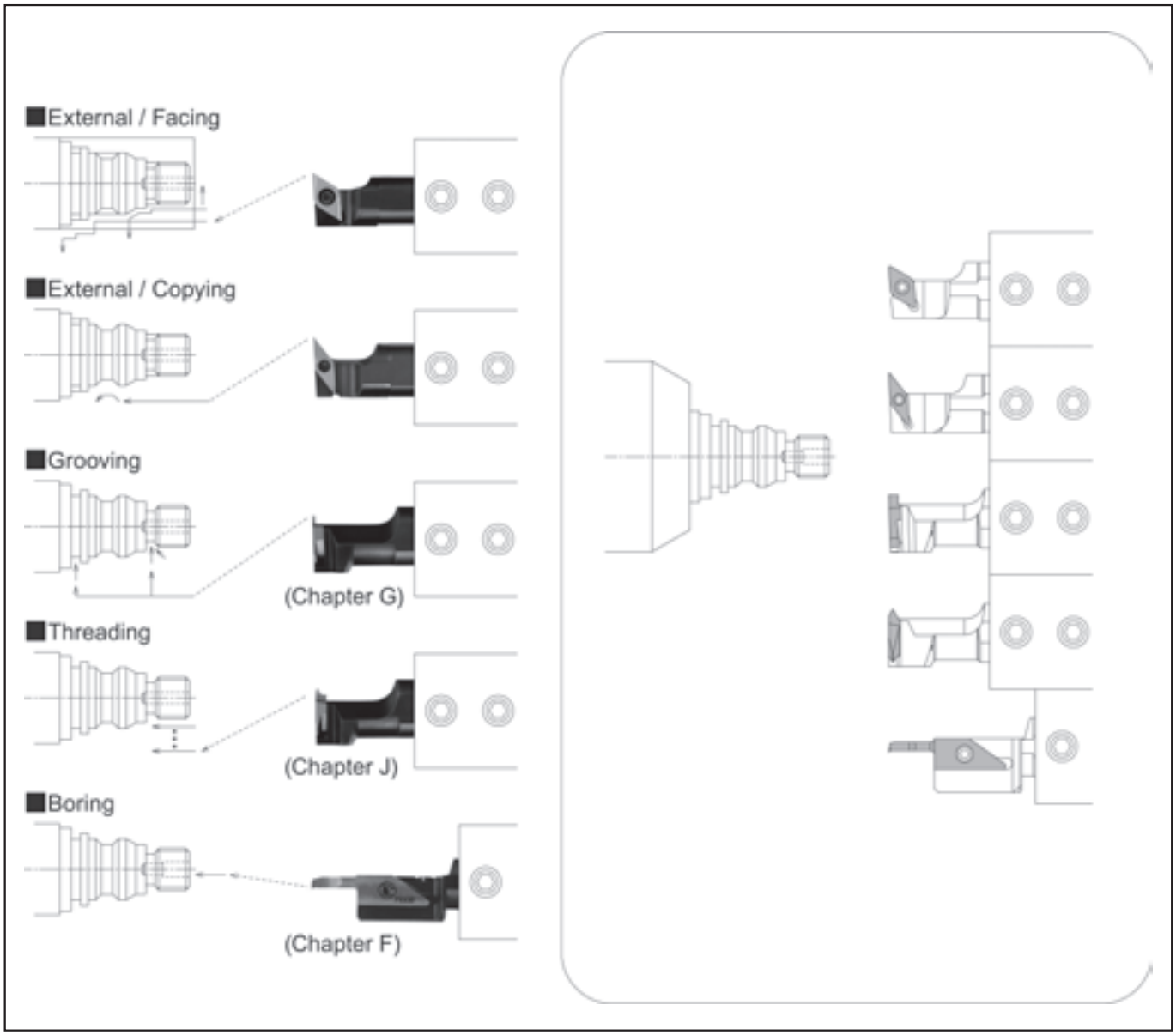
Limit to attachable tools at intricate part machining ►►► Use External Sleeve Holder Tools

			
S...SCLC	S...SDUC	S...SDLC	S...SVUB(C)
Screw Clamp Shank Dia. ø12~ø25.4	Screw Clamp Shank Dia. ø14~ø25.4	Screw Clamp Shank Dia. ø12~ø25.4	Screw Clamp Shank Dia. ø12~ø25.4
E33	E34	E34	E35



See Page R34~R40 for Tooling Layout and Automatic Lathe List by Manufacturer.

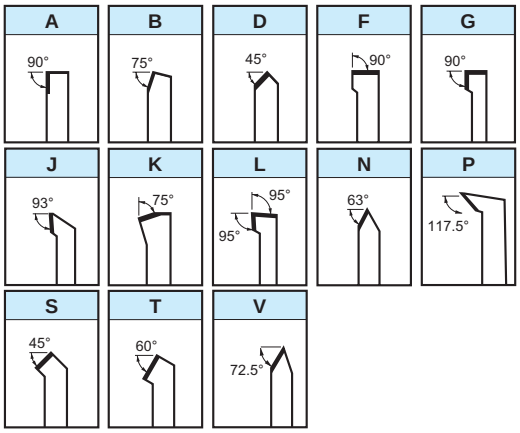
Tooling example③ CNC Automatic Lathe (Opposed Gang Type)



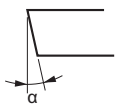
Square Shank Identification System

Clamping System	Insert Shape	Hand of Tool	Shank Height	Shank Width	Others
A : Back Clamp **C** : Top Clamp **S** : Screw Clamp	**C** : 80°Rhombic **D** : 55°Rhombic **S** : Square **T** : Triangle **V** : 35°Rhombic	**R** : Right-hand **L** : Left-hand **N** : Neutral	Shank Height (mm)	Shank Width (mm)	Optional Code Optional Mark or Number e.g.) FF : Without Offset
S	**C**	**L**	**C**	**R**	**12**	**12**	**JX**	–	**09**	**FF**

Cutting Edge Angle

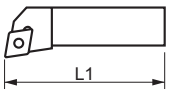


Insert Relief Angle



B : 5°Positive
C : 7°Positive
N : 0°Negative
P : 11°Positive

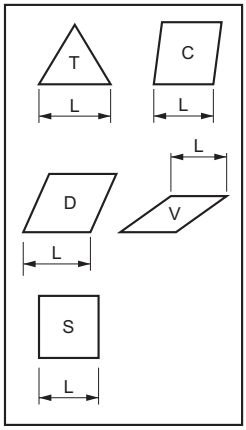
Toolholder Length



(mm)

F : 80 (85)	**JX** : 120
H : 100	**K** : 125
	M : 150

Insert Size

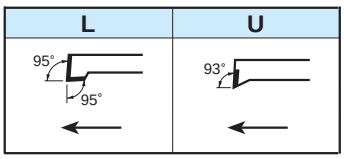


Sleeve Holder

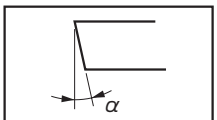
Shank	Toolholder Length	Clamping System	Insert Shape	Hand of Tool
S Steel	**F** : 80 (85) **G** : 90 **H** : 100 **K** : 125 (120)	**S** : Screw Clamp	**C** : 80°Rhombic **D** : 55°Rhombic **V** : 35°Rhombic	**L** : Left-hand
S	**20**	**K**	–	**S**	**C**	**L**	**C**	**L**	**09**

Bar Diameter

Cutting Edge Angle

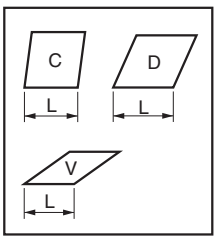


Insert Relief Angle



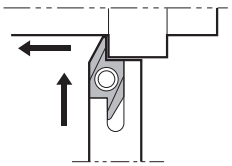
B : 5° Positive
C : 7° Positive

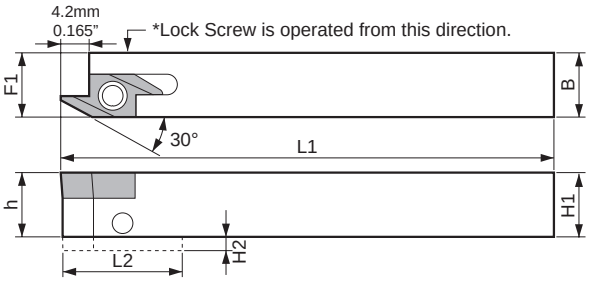
Insert Size



- The dimensions and specifications are subject to change for improvement without notice.
- Depending on the machine specifications such as attachment dimension, the symbol may not match the actual toolholder length.

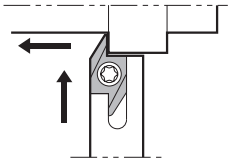
AABS-40F (Edge Width: 2.8mm, MAX Depth: 4mm)

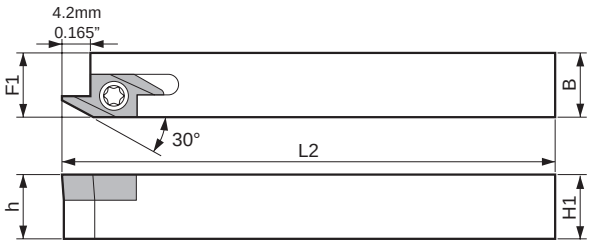




● Right-hand shown

SABS-40F (Edge Width: 2.8mm, MAX Depth: 4mm)



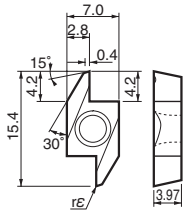


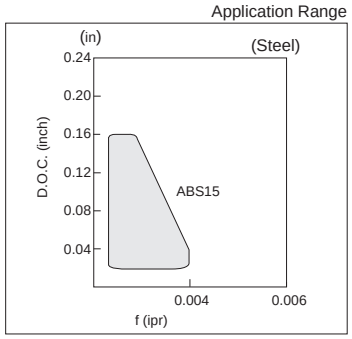
● Right-hand shown

Toolholder Dimensions

Description		Stock	Unit	Dimension						Standard Corner-R(rε)	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	0.15	LPA-11	HSB4X8R	-	FH-2
NEW	8-15JXF	●		0.500		0.500			0.508		LPA-13			
	10-15JXF	●		0.625		0.625			0.633		LPA-17			
AABSR	1010JX-40F	○	mm	10	-	10	120	-	10.2	0.15	LPA-11	HSB4X8R	-	FH-2
NEW	1212JX-40F	○		12		12			12.2		LPA-13			
	1616JX-40F	○		16		16			16.2		LPA-17			
SABSR	6-15JXF	●	inch	0.375	-	0.375	4.750	-	0.383	0.15	-	-	SB-3080TR	FT-10
NEW	8-15JXF	●		0.500		0.500			0.508					
	10-15JXF	●		0.625		0.625			0.633					
SABSR	1010JX-40F	○	mm	10	-	10	120	-	10.2	0.15	-	-	SB-3080TR	FT-10
NEW	1212JX-40F	○		12		12			12.2					
	1616JX-40F	○		16		16			16.2					
SABSR	1212F -40F	○		12	-	12	85	-	12.2	0.15	-	-	SB-3080TR	FT-10
	2020K -40F	○		20		20	125		20.2					

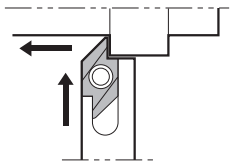
Applicable Inserts

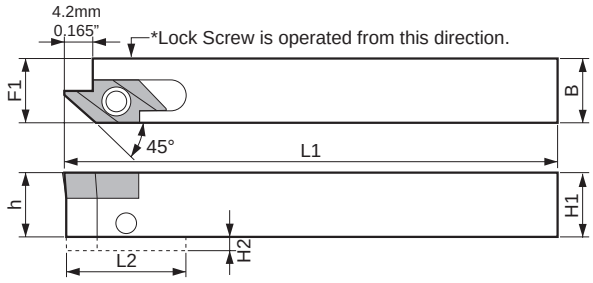
Insert		Description	Corner-R rε: mm (inch)	Reference Page
		ABS15R4005 15R4015	0.05 (0.002) 0.15 (0.006)	B82
		ABS15R4005M 15R4015M	< 0.05 (<0.002) < 0.15 (<0.006)	



Recommended Cutting Conditions ➡ E39

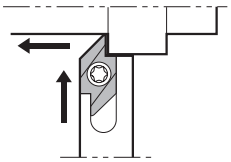
AABW-40F (Edge Width: 4.7mm, MAX Depth: 4mm)

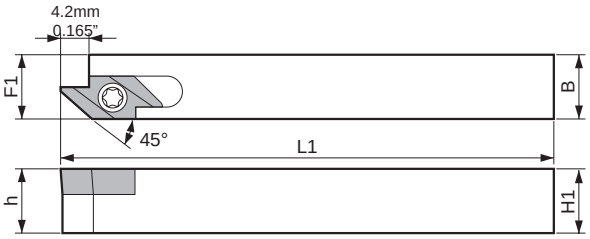




• Right-hand shown

SABW-40F (Edge Width: 4.7mm, MAX Depth: 4mm)



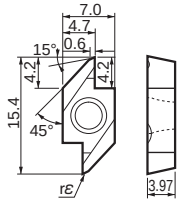


• Right-hand shown

Toolholder Dimensions

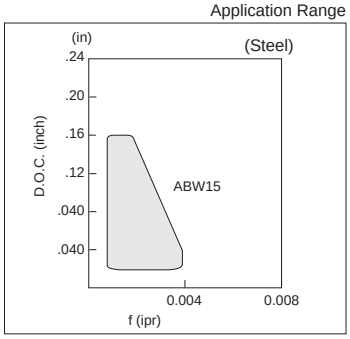
Description		Stock	Unit	Dimension						Standard Corner-R(rε)	Spare Parts			
				H1=h	H2	B	L1	L2	F1		Anchor Pin	Lock Screw	Clamp Screw	Wrench
AABWR	6-15JXF	●	inch	0.375	-	0.375	4.750	-	0.383	0.15	LPA-11	HSB4X8R	-	FH-2
NEW	8-15JXF	●		0.500		0.500			0.508		LPA-13			
	10-15JXF	●		0.625		0.625			0.633		LPA-17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

Applicable Inserts

Insert		Description	Corner-R rε: mm (inch)	Reference Page
		ABW15R4005 15R4015	0.05 (0.002) 0.15 (0.006)	B82
		ABW15R4005M 15R4015M	< 0.05 (<0.002) < 0.15 (<0.006)	

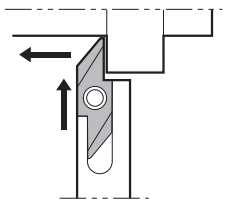
Recommended Cutting Conditions ➡ E39

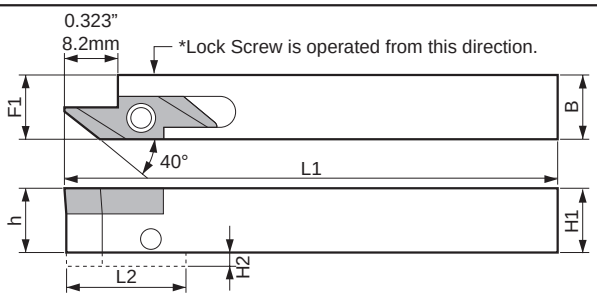
Application Range



● : Std. Stock ○ : World Express

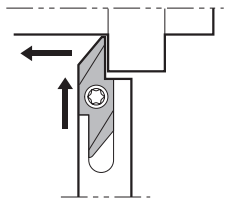
AABW-50F (Edge Width: 4.7mm, MAX Depth: 5mm)

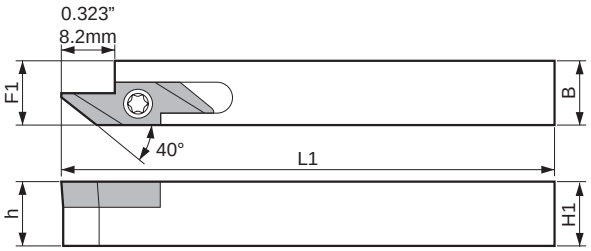




• Right-hand shown

SABW-50F (Edge Width: 4.7mm, MAX Depth: 5mm)



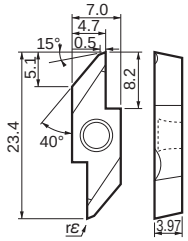


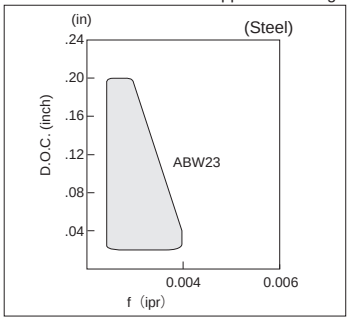
• Right-hand shown

Toolholder Dimensions

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

Applicable Inserts

Insert		Description	Corner-R rε: mm (inch)	Reference Page
		ABW23R5005 23R5015	0.05 (0.002) 0.15 (0.006)	B82
		ABW23R5005M 23R5015M	<0.05 (<0.002) <0.15 (0.006)	

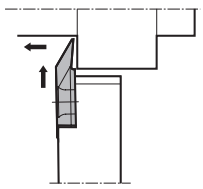


Recommended Cutting Conditions ➡ E39

● : Std. Stock ○ : World Express

Toolholders for Back Turning (TKFB Insert)

KTKF/KTKF (Goose-neck Holder)



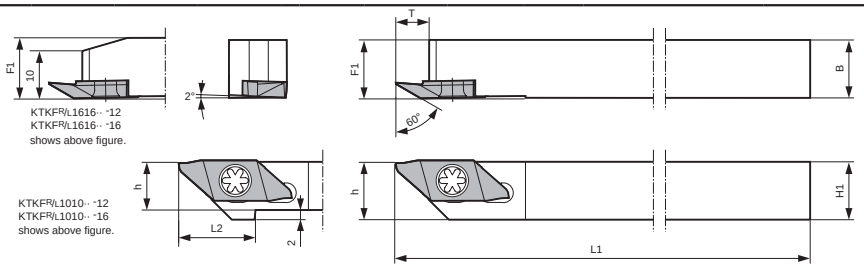
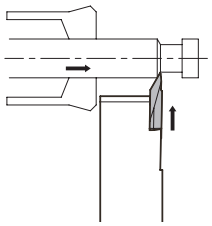


Fig.1

● Right-hand shown

R-hand Insert for R-hand Toolholder



<Goose-neck Holder>

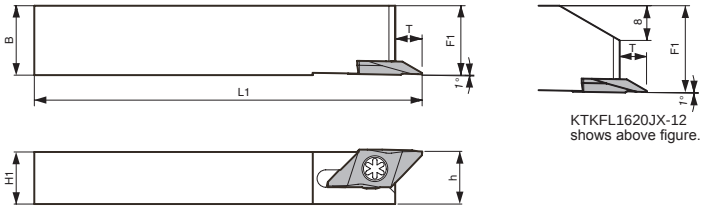


Fig.2

● Left-hand Shown

L-hand Insert for L-hand Toolholder

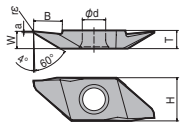
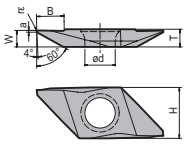
● Toolholder Dimensions

Description		Stock R	Stock NEW L	Unit	Dimension H1=h	Dimension B	Dimension L1	Dimension L2	Dimension F1	Dimension T	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable Inserts Page B81
KTKFR/L	6-12JX	●	●	inch	0.375	0.375	4.750	0.590	0.375	0.236	Fig.1	SB-4590TRWN	LTW-10S	TKFB12R/L …
NEW	8-12JX	●	●		0.500	0.500		-	0.500					
	10-12JX	●	●		0.625	0.625			0.625					
KTKFR/L	6-16JX	●	●		0.375	0.375	4.750	0.787	0.375	0.315		SB-4590TRWN	LTW-10S	TKFB16R/L …
NEW	8-16JX	●	●		0.500	0.500		-	0.500					
	10-16JX	●	●		0.625	0.625			0.625					
KTKFR/L	1010JX-12	○	○	mm	10	10	120	15	10	6		SB-4590TRWN	LTW-10S	TKFB12R/L …
NEW	1212JX-12	●	○		12	12		-	12					
	1616JX-12	○	○		16	16			16					
KTKFR/L	1010JX-16	○	○		10	10	120	20	10	8		SB-4590TRWN	LTW-10S	TKFB16R/L …
NEW	1212JX-16	○	○		12	12		-	12					
	1616JX-16	○	○		16	16			16					
KTKFR/L	1212F-12	○	○		12	12	85	-	12	6		SB-4590TRWN	LTW-10S	TKFB12R/L …
NEW	1212F-16	○	○							8				TKFB16R/L …
KTKFL	52-12JX		●	inch	0.500	0.625	4.750	-	0.625	0.236	Fig.2	SB-4590TRWN	LTW-10S	TKFB12L …
NEW	62.5-12JX		●		0.625	0.750			0.750					
KTKFL	1216JX-12		○	mm	12	16	120	-	16	6		SB-4590TRWN	LTW-10S	TKFB12L …
NEW	1620JX-12		○		16	20			20					

• Dimension T shows the distance from the Toolholder to the cutting edge.

● : Std. Stock ○ : World Express

Applicable Inserts

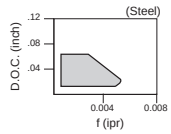
Insert Photo shows Right-hand		Description		Corner-R rε:mm (inch)	Ref. Page
	 ● Right-hand shown	TKFB	12R15005M	<0.05 (<0.002)	B81
			12R28005M	<0.05 (<0.002)	
			12R28010M	<0.1 (<0.004)	
		TKFB	16R38005M	<0.05 (<0.002)	
			16R38010M	<0.1 (<0.004)	
	 ● Left-hand shown	TKFB	12L28005MR	<0.05 (<0.002)	
			12L28010MR	<0.1 (<0.004)	
		TKFB	16L38005MR	<0.05 (<0.002)	
			16L38010MR	<0.1 (<0.004)	

Recommended Cutting Conditions ➡ E39

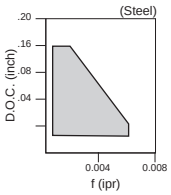
Applicable Chipbreaker Range

(ap indicates radius)

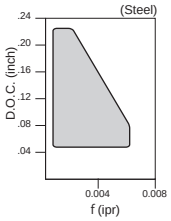
TKFB12R15..



TKFB12R28..



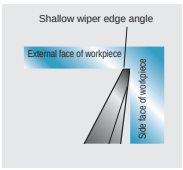
TKFB16R38..



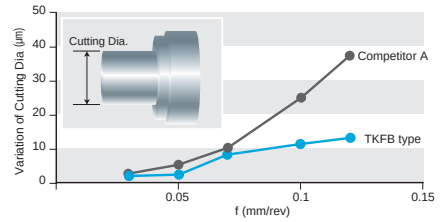
Advantages of TKFB type for Back Turning

1. Minimal deflection due to lower cutting force
2. Smooth chip control
3. Better surface finish by optimum wiper edge angle

TKFB edge shape

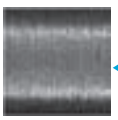
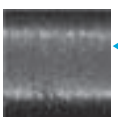


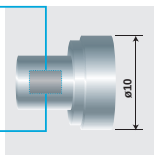
Variation of Cutting Dia (Transfer of Cutting Edge)



Cutting Conditions: Vc=80m/min ap=1mm f=0.03~0.12mm/rev WET C45

Comparison of surface finish

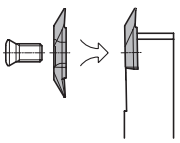
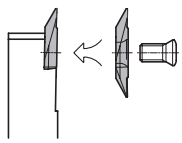
	TKFB type	Competitor **B**
Feed Rate (ipr) f=0.002	 Rz=3.3μm	 Rz=11.2μm
Feed Rate (ipr) f=0.0028	 Rz=4.6μm	 Rz=14.2μm



Cutting Conditions: Vc=80m/min ap=1mm WET(oil-base) C45

Combination of Toolholders and Inserts

Table1

Toolholder	R-hand(R)	Toolholder	L-hand(L)
Insert	R-hand(R)	Insert	L-hand(L)
			

When using TKF-AS type

The KTKF holder can be used as a multi-functional tooling for nonferrous and nonmetal materials when combined with a TKF-AS insert (See Fig.1).

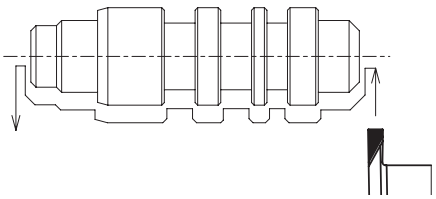
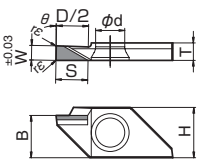


Fig.1 Example of the pass of KTKF toolholder + TKF-AS insert

Insert Handed Insert shows R-hand.		Description		W	Reference Page
 Traversing / Grooving		TKF12R/L	200-AS	2.0	C25
			250-AS	2.5	
		TKF16R/L	250-AS	2.5	

Recommended Cutting Conditions ➡ E39

Note 1)

The cutting edge of the TKF..-AS will be 1 mm lower than the center line when attached to the KTKF toolholder (See Fig.2). Adjust the height by making NC lathe parameter settings or inserting a plate.

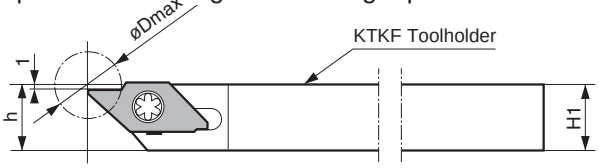
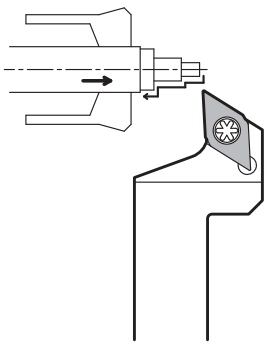


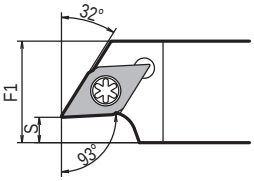
Fig.2 When a TKF-AS insert is attached (The cutting edge is 1 mm lower than the center line.)

● : Std. Stock ○ : World Express

Goose-neck Holder [DC □□ Insert]

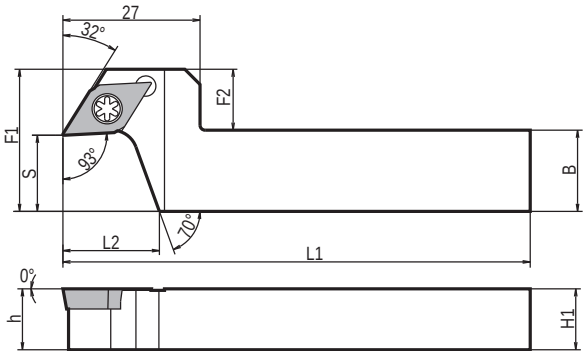
SDJC (External / Copying)





SDJCR1620JX-11-F05
shows above figure.

● Right-hand shown



Toolholder Dimensions

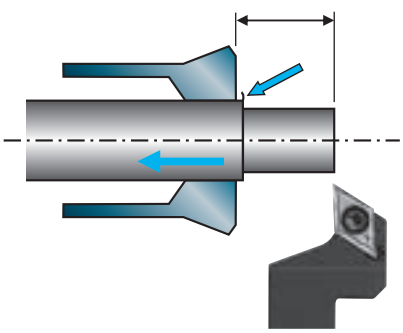
Description		Stock	Unit	Dimension							Standard Corner-R(rε)	Spare Parts	
				H1=h	B	L1	L2	F1	F2	S		Clamp Screw	Wrench
SDJCR	52-3JX-F3	●	Inch	0.500	0.625	4.750	0.488	0.687	0.062	0.187	0.008	SB-4085TR	FT-15
NEW	52-3JX-F9	●					0.488	1.125	0.500	0.562			
	62.5-3JX-F3	●		0.625	0.750		0.488	0.750	-	0.187			
	62.5-3JX-F9	●					0.488	1.125	0.375	0.562			
SDJCR	1216JX-11-F05	○	mm	12	16	120	15.4	18	2	5	0.2	SB-4085TR	FT-15
NEW	1216JX-11-F15	○					19	28	12	15			
	1620JX-11-F05	○		16	20		15.4	20	-	5			
	1620JX-11-F15	○					19	28	8	15			

Applicable Inserts

Application	Minute ap	Finishing	Finishing-Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision	Low Feed	Low Feed / Precision
Ref. Page	B52	B52	B53	B53	B55	B55	B56	B56	B57	B57
Insert / Toolholder	CF	GF	GK	GQ	R%-F	R%-FSF	(E/F) R%-U	F R%-USF	(E/F) R%-J	F R%-JSF
SDJCR..-11-F..	DCGT325	DCGT325	DCMT325	DCGT325	DCGT325	DCET325	DCGT325	DCET325	DCGT325	DCET325
Application	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	B54	B54	B54	B57	B57	B57	C20	C12		
Insert / Toolholde	XP	XQ	MQ	Without Chipbreaker	AH	R%-A3	PCD	CBN		
SDJCR..-11-F..	DCMT325	DCMT325	DCMT325	DCGW325	DCGT325	DCGT325	DCMT325	DCMW325		

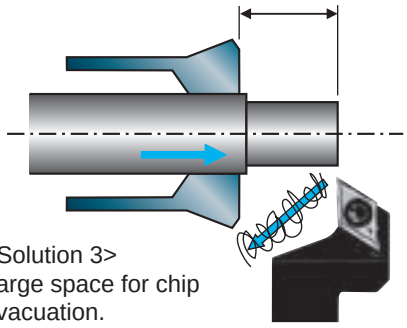
Recommended Cutting Conditions ➔ E38

● Goose-neck holder is designed for multiple passes, both roughing and finishing



<Solution 1>
The workpiece burr does not contact the guide bush and no breakage will be caused.

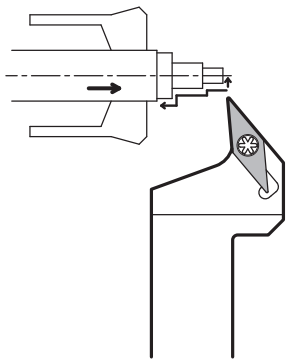
<Solution 2>
Longitudinal dimension will be stable.
External diameter will be stable by multiple pass machining (roughing and finishing).

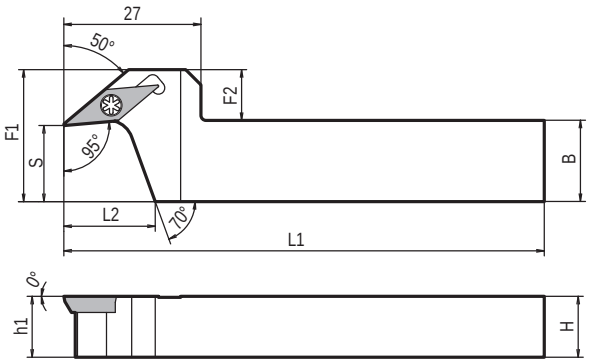


<Solution 3>
Large space for chip evacuation.
Better and smooth chip control.

● : Std. Stock ○ : World Express

SVLP (External / Copying)





● Right-hand shown

Toolholder Dimensions

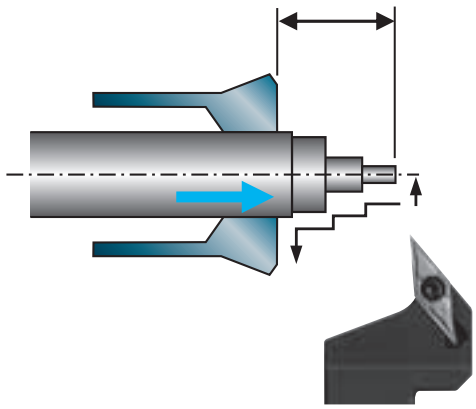
Description		Stock	Unit	Dimension							Standard Corner-R(re)	Spare Parts	
				H1=h	B	L1	L2	F1	F2	S		Clamp Screw	Wrench
SVLPR	52-2JX-F9	●	Inch	0.500	0.625	4.750	0.472	1.000	0.375	0.562	0.008	SB-2570TR	FT-8
NEW	62.5-2JX-F9	●		0.625	0.750				0.250				
SVLPR	1216JX-11-F15	○	mm	12	16	120	18	26	10	15	0.2	SB-2570TR	FT-8
NEW	1620JX-11-F15	○		16	20				6				

Applicable Inserts

Application	Minute ap	Finishing	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision				
Ref. Page	B75	B75	B75	B76	B76	B76				
Insert / Toolholder	CF	CK	GF	F%-FSF	F%-U	F%-USF				
SVLPR...-11-F..	VPGT22..	VPGT22..	VPGT22..	VPET22..	VPGT22..	VPET22..				

Recommended Cutting Conditions E38

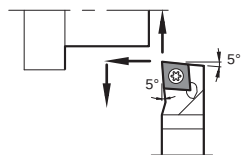
One toolholder for complex shape workpiece

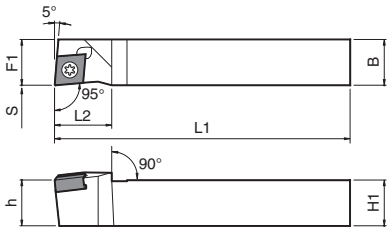


Toolholder for VP type insert is available.
Complex shape workpiece can be processed with one toolholder.
It is available for undercutting and external/face finishing.

● : Std. Stock ○ : World Express

SCLN (Without Offset) (External / Facing)





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

● Right-hand shown

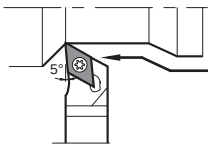
Toolholder Dimensions

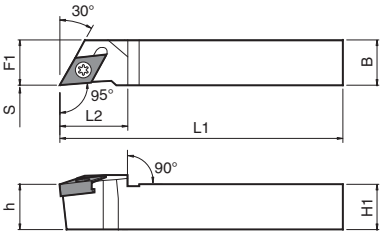
Description		Stock	Unit	Dimension					Standard Corner-R(rε)	Spare Parts		Applicable Inserts
				H1=h	B	L1	L2	F1		Clamp Screw	Wrench	
SCLNR	**6-2.4FF**	●	inch	0.375	0.375	6.00	0.590	0.375	0.008	SB-3080TR	LTW-10SS	CNGU242.. CNMU242..
	8-2.4FF	●		0.500	0.500			0.500				
	10-2.4FF	●		0.625	0.625	5.00		0.625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

Applicable Inserts

Applications	Finishing-Medium	Medium-Roughing	Finishing	Low Feed
Ref. Page	**B42**	**B42**	**B42**	**B42**
Insert / Toolholder	**SK**	**GK**	**FR-F**	**(F / E) R-U**
SCLNR...-07FF	CNGU242..	CNMU242..	CNGU242..	CNGU242..

SDLN (Without Offset) (External / Copying)





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

● Right-hand shown

Toolholder Dimensions

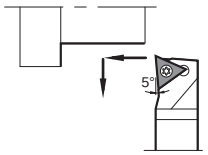
Description		Stock	Unit	Dimension						Spare Parts		Applicable Inserts
				H1=h	B	L1	L2	F1		Clamp Screw	Wrench	
SDLNR	**6-2.2FF**	●	inch	0.375	0.375	6.00	0.708	0.375	0.008	SB-3080TR	LTW-10SS	DNGU222.. DNMU222..
	8-2.2FF	●		0.500	0.500			0.500				
	10-2.2FF	●		0.625	0.625	5.00		0.625				
SDLNR	**1010K-08FF**	○	mm	10	10	120	18	10	0.2			
	1212F-08FF	○		12	12	85		12				
	1212K-08FF	○				120						
	1616K-08FF	○		16	16			16				

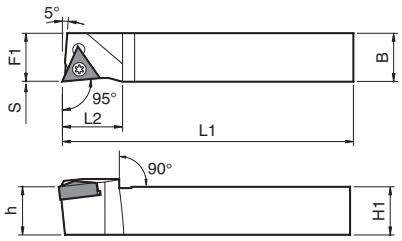
Applicable Inserts

Applications	Finishing-Medium	Medium-Roughing	Finishing	Low Feed
Ref. Page	**B43**	**B43**	**B43**	**B43**
Insert / Toolholder	**SK**	**GK**	**FR-F**	**(F / E) R-U**
SDLNR...-08FF	DNGU222..	DNMU222..	DNGU222..	DNGU222..

● : Std. Stock ○ : World Express

STLN (External / Up Facing)





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

● Right-hand shown

Toolholder Dimensions

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

● Applicable Inserts

Application	Finishing-Medium	Low Feed
Ref.Page	B44	B44
Shape / Toolholder	F 	(E/F)R-U 
STLNR...	TNGU182..	TNGU182..

Smaller double sided tooling for precision machining

TNGU18



Small Negative Insert

TNGG33



Negative Insert

Recommended Cutting Conditions

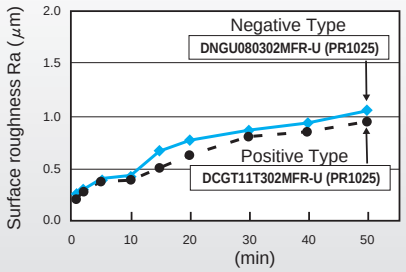
Work material	Insert Grade		
	PR1005	PR1225	PR1425
Free cutting steel	● Vc=330 (SFM) (200-500)		
Carbon Steel / Alloy Steel	◔ Vc=330 (SFM) (200-500)	◔ Vc=330 (SFM) (200-500)	● Vc=400 (SFM) (200-650)
Stainless Steel		● Vc=330 (SFM) (200-500)	○ Vc=330 (SFM) (250-500)

● Light interrupted to continuous / 1st recommendation
◔ Light interrupted to continuous / 2nd recommendation
○ Continuous / 2nd recommendation

● : Std. Stock ○ : World Express

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

Surface roughness comparison (sharp edge)

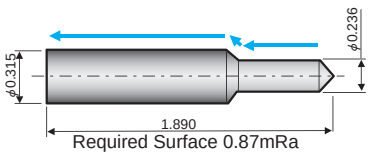


<cutting conditions>
Work Material : 1045 Vc=330 (SFM), D.O.C.=0.059 f=.0012 (ipr) Wet

In house evaluation

303 (SUS303)

• Spool
Dia 0.236" portion
• Vc=220 (SFM)
• D.O.C.=0.049
• f=.001 (ipr)
• Wet
Dia 0.315" portion
• Vc=430 (SFM)
• D.O.C.=0.098
• f=.001 (ipr)
• Wet



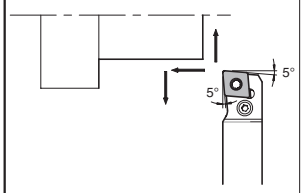
Required Surface 0.87mRa

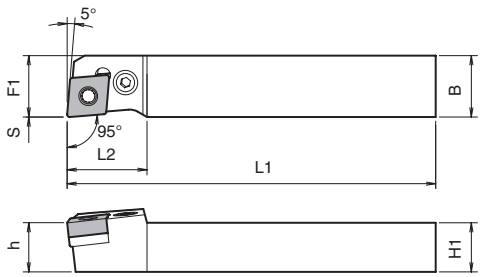
DNGU2.220.5MF-SK (PR1025)	60,000pcs/insert
Comp. D (DCGT type)	20,000pcs/insert

Competitor D (DCGT type) machined 10,000 pcs/edge. PR1025 machined15,000 pcs/edge resulting in 3 times longer tool life per insert.

Evaluation by the user

PCLN (Without Offset) (External / Facing)





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

● Right-hand shown

Toolholder Dimensions

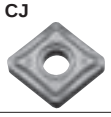
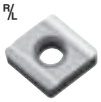
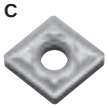
Description	Stock	Dimension (mm)						Standard Corner-R(rε)	Spare Parts					
		H1=h	B	L1	L2	F1	S		Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
NEW **PCLNR 1620JX-12FF**	○	16	20	120	26	20	0	0.8	LL-2N	LS-2N	LC-42N	LSP-2	PC-2	LW-3

Applicable Inserts (1st Choice)

Application	Medium-Roughing
Ref. Page	**B18**
Insert / Toolholder	TK 
PCLNR 1620JX-12FF	CNGG43..FP-TK

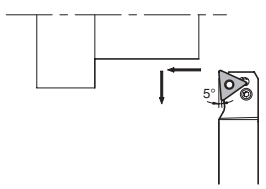
Recommended Cutting Conditions ➡ **E17**

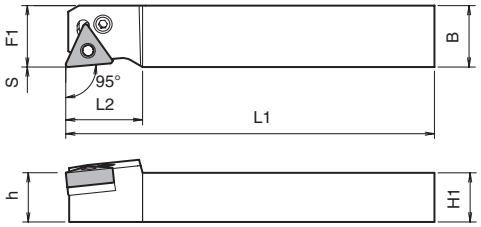
Applicable Inserts

Application	Finishing	Finishing-Medium	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing
Insert	**WP** (Wiper) 	**WQ** (Wiper) 	**GP** 	**HQ** 	**CQ** 	**CJ** 	**GS** 	**PS** 
Size	CN □□43	CN □□43	CN □□43	CN □□43	CN □□43	CN □□43	CN □□43	CN □□43
Page	**B14**	**B14**	**B14**	**B14**	**B14**	**B14**	**B15**	**B15**
Application	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed	Roughing	Roughing	Single Sided / Roughing / High Feed	Medium	
Insert	**HS** 	**CS** 	**PT** 	Standard 	**PH** 	**PX** 	R/L 	
Size	CN □□43	CN □□43	CN □□43	CN □□43	CN □□43	CN □□43	CN □□43	
Page	**B15**	**B15**	**B15**	**B16**	**B16**	**B16**	**B18**	
Application	Medium-Roughing / Low Cutting Force	Low Carbon Steel / Finishing	Low Carbon Steel / Medium	Low Carbon Steel Roughing	Stainless Steel Finishing	Stainless Steel Medium-Roughing	Stainless Steel Medium-Roughing	Cast Iron
Insert	R/L **-25R** 	**XP** (-T) 	**XQ** 	**XS** 	**MQ** 	**MS** 	**MU** 	**C** 
Size	CN □□43	CN □□43	CN □□43	CN □□43	CN □□43	CN □□43	CN □□43	CN □□43
Page	**B16**	**B16**	**B16**	**B16**	**B17**	**B17**	**B17**	**B17**
Application	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard materials
Insert	**ZS** 	**GC** 	Without Chipbreaker 	**Ceramic** 	**AH** 	**A3** 	**PCD** 	**CBN** 
Size	CN □□43	CN □□43	CN □□43	CN □□43	CN □□43	CN □□43	CN □□43	CN □□43
Page	**B17**	**B18**	**B18**	**B85**	**B18**	**B18**	**C18**	**C5**

● : Std. Stock ○ : World Express

PTLN (Without Offset) (External / Up Facing)





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

● Right-hand shown

Toolholder Dimensions

Description		Stpcl	Dimension (mm)						Standard Corner-R(rε)	Spare Parts					
			H1=h	B	L1	L2	F1	S		Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
NEW PTLNR	1620JX-16FF	○	16	20	120	25	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(rε) is larger than 1.6 mm, please purchase a shim with * mark and use it in order to prevent workpiece and shim from interfering each other.

Applicable Inserts (1st Choice)

Application	Medium-Roughing
Ref. Page	B44
Insert / Toolholder	TK 
PTLNR 1620JX-16FF	TNGG33..FP-TK

Recommended Cutting Conditions ➡ E17

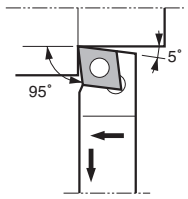
Applicable Inserts

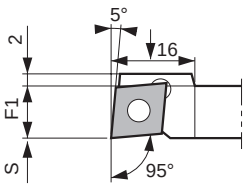
Application	Finishing	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed	Medium-Roughing / High Feed	Roughing
Insert	GP 	HQ 	CQ 	GS 	PS 	HS 	PT 	GT 	PH 
Size	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33
Page	B30	B30	B30	B30	B30	B30	B31	B31	B31
Application	Single Sided / Roughing / High Feed	Roughing	Finishing-Roughing	Finishing-Roughing	Medium-Roughing / Low Cutting Force	Low Carbon Steel Finishing	Low Carbon Steel Medium	Low Carbon Steel Roughing	Stainless Steel Finishing
Insert	PX 	Standard 	R/L-S 	R/L- □ 	R/L-25R 	XP (-T) 	XQ 	XS 	MQ 
Size	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33
Page	B31	B31	B34	B34	B34	B31	B31	B31	B32
Application	Stainless Steel Medium-Roughing	Stainless Steel Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Non-ferrous Metals
Insert	MS 	MU 	C 	ZS 	GC 	Without Chipbreaker 	Ceramic 	AH 	R/L-A3 
Size	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33	TN □□ 33
Page	B32	B32	B33	B33	B33	B33	B90	B33	B33

Application	Non-ferrous Metals	Hard materials
Insert	PCD 	CBN 
Size	TN □□ 33	TN □□ 33
Page	C18	C7

● : Std. Stock ○ : World Express

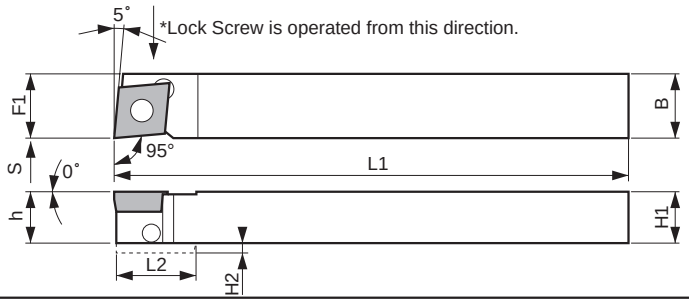
ACLC-FF (Without Offset) (External / Facing)





ACLC□1010JX-09FF shows above figure.

● Right-hand shown



Toolholder Dimensions

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

• Lock Screw : HSB4×8R for R-hand Toolholder, HSB4×8L for L-hand Toolholder.

Applicable Inserts

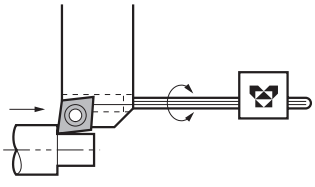
Applications	Finishing	Finishing-Medium	Finishing-Medium	Low Feed	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. Page	B45	B45	B45	B48	B46	B47	B46	B46	C19	C11
Insert / Toolholder	GF	GK	GQ	(E / F) □-U	MQ	Without Chipbreaker	AH	□-A3	PCD	CBN
ACLC□...-06FF ACLC□...-2JXFF	CCGT21..	CCMT21..	CCGT21..	CCGT21..	-	CCGW21..	-	-	CCMT21.. CCGW21..	CCMW21..
ACLC□...-09FF ACLC□...-3JXFF	CCGT325..	CCMT325..	CCGT325..	CCGT325..	CCMT325..	CCGW325..	CCGT325..	CCGT325..	CCMT325.. CCGW325..	CCMW325..

For recommended cutting conditions, see page E38

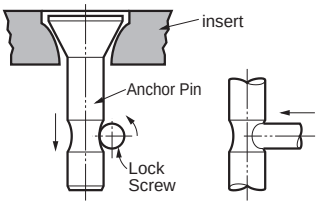
Back Clamp Holders



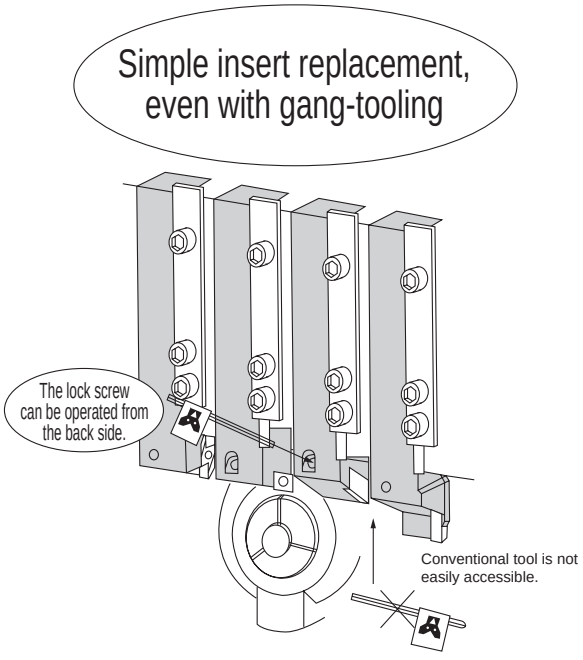
1. The lock screw can be operated from the back side and allows simple insert replacement on Swiss type automatic lathes. (Fig.1)
2. Simple insert replacement by slightly turning the wrench.
3. Rigid clamping with anchor pin and lock screw. (Fig.2)



(Fig.1)

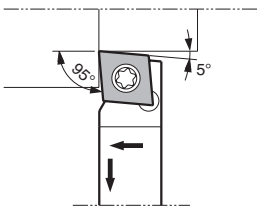


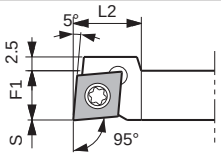
(Fig.2)



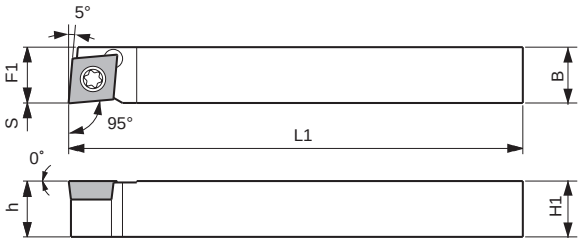
● : Std. Stock ○ : World Express

SCLC-FF (Without Offset) (External / Facing)





SCLC□1010JX-09FF shows above figure.

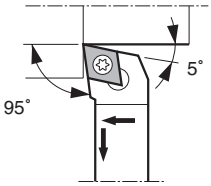


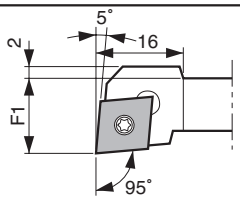
• Right-hand shown

Toolholder Dimensions

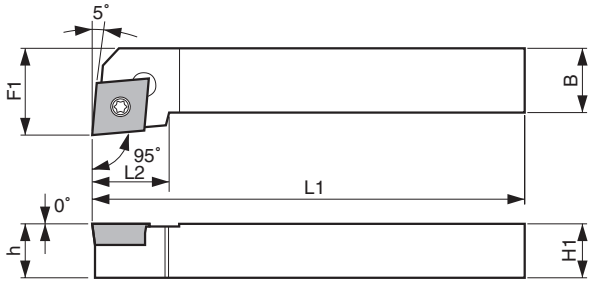
Description		Stock R	Stock L	Unit	Dimension H1=h	B	L1	L2	F1	S	Standard Corner-R(rε)	Spare Parts: Clamp Screw	Wrench	Wrench
SCLC□	6-2JXFF	●	●	inch	0.375	0.375	4.750	-	0.375	0	0.008	SB-2570TR	FT-8	-
NEW	6-3JXFF	●	●					0.590				SB-4085TR	FT-15	-
	8-3JXFF	●	●		0.500	0.500		-	0.500					
	10-3JXFF	●	●		0.625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

SCLC (External / Facing)





SCLC□1010F-09 shows above figure.



• Right-hand shown

Toolholder Dimensions

Description		Stock. R	Stock. L	Dimension (mm) H1=h	B	L1	L2	F1	Standard Corner-R(rε)	Spare Parts: 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		16				
	1616H -09	○	○	16	16		15	20				
	2020K -09	○	○	20	20	125	20	25				
	2525M -09	○	○	25	25	150	22	32				
	1616H -12	○	○	16	16	100	20	20	0.4	SB-5090TR	-	LTW-20
	2020K -12	○	○	20	20	125	22	25				
	2525M -12	○	○	25	25	150		32				

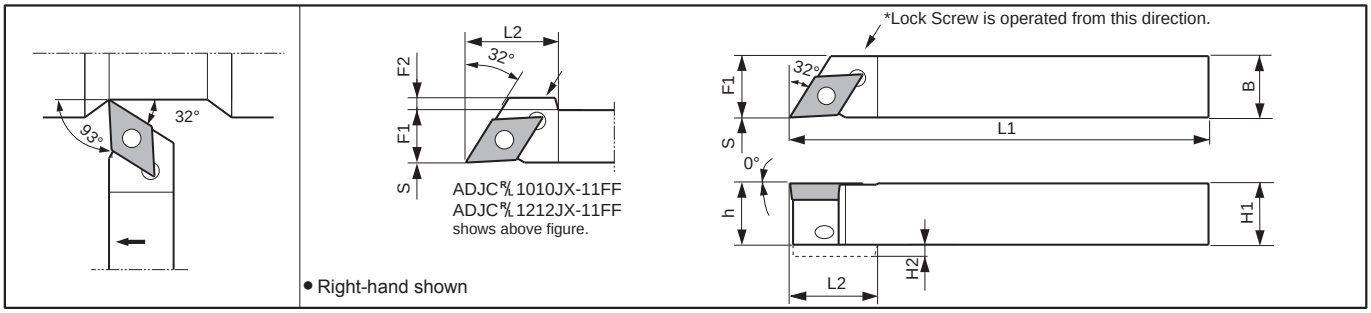
Applicable Inserts (SCLC-FF / SCLC)

Applications	Finishing	Finishing-Medium	Finishing-Medium	Low Feed	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. Page	B45	B45	B45	B48	B46	B46	B46	B46	C19	C11
Insert / Toolholder	GF	GK	GQ	(E/F) □-U	MQ	Without Chipbreaker	AH	□-A3	PCD	CBN
SCLC□...-06FF/-06 -2JXFF	CCGT215..	CCMT215..	CCGT215..	CCGT215..	-	CCGW215..	-	-	CCMT215.. CCGW215..	CCMW215..
SCLC□...-09FF/-09 -3JXFF	CCGT325..	CCMT325..	CCGT325..	CCGT325..	CCMT325..	CCGW325..	CCGT325..	CCGT325..	CCMT325.. CCGW325..	CCMW325..
SCLC□...-12	-	CCMT43..	-	-	-	-	-	CCGT43..	-	-

● : Std. Stock ○ : World Express

For recommended cutting conditions, see page E38

ADJC-FF (Without Offset) (External / Copying)



Toolholder Dimensions

Description		Stock R	Stock L	Unit	Dimension H1=h	H2	B	L1	L2	F1	F2	S	Standard Corner-R(rε)	Spare Parts: Anchor Pin	Spare Parts: Lock Screw	Spare Parts: Wrench
ADJCR/L	6-2JXFF	●	●	inch	0.375	-	0.375	4.750	-	0.375		0	0.008	LPF-11	HSB4X8R/L	FH-2
NEW	6-3JXFF	●	●			0.097			0.787		0.137			LPF-13		
	8-3JXFF	●	●		0.500	-	0.500		-	0.500						
	10-3JXFF	●	●		0.625		0.625			0.625				LPF-17		
ADJCR/L	1010JX-07FF	○	○	mm	10	-	10	120	-	10	-	0	0.2	LPF-11	HSB4X8R/L	FH-2
NEW	1010JX-11FF	○	○		10	2	10		20	10	3		0.2	LPF-13		
	1212JX-11FF	○	○		12	-	12			12	1					
	1616JX-11FF	●	○		16		16		-	16	-			LPF-17		

• Lock Screw : HSB4×8R for Right-hand Toolholder, and HSB4×8L for Left-hand Toolholder.

Applicable Inserts (ADJC Toolholders)

Applications	Minute ap	Finishing	Finishing-Medium	Finishing-Medium	Medium	Medium	Finishing	Finishing / Precision	Low Feed	Finishing / Precision
Ref. Page	B52	B52	B53	B53	B54	B53	B55	B55	B56	B56
Insert / Toolholder	CF	GF	GK	GQ	FN-Z	Standard	R/L-F	R/L-FSF	(E / F) R/L-U	FR/L-USF
ADLCR/L...-07FF ADLCR/L...-2JXFF	DCGT215..	DCGT215..	DCMT215..	DCGT215..	DCGT215..	DCGT215..	DCGT215..	DCET215..	DCGT215..	DCET215..
ADLCR/L...-11FF ADLCR/L...-3JXFF	DCGT325..	DCGT325..	DCMT325..	DCGT325..	DCGT325..	DCGT325.. DCMT325..	DCGT325..	DCET325..	DCGT325..	DCET325..

Applications	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	B57	B57	B54	B54	B54	B57	B57	B57	C20	C12
Insert / Toolholder	(E / F) R/L-J	FR/L-JSF	XP	XQ	MQ	Without Chipbreaker	AH	R/L-A3	PCD	CBN
ADLCR/L...-07FF ADLCR/L...-2JXFF	-	-	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMW215..
ADLCR/L...-11FF ADLCR/L...-3JXFF	DCGT325..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..

Applicable Inserts (SDJC Toolholders)

For recommended cutting conditions, see page E38

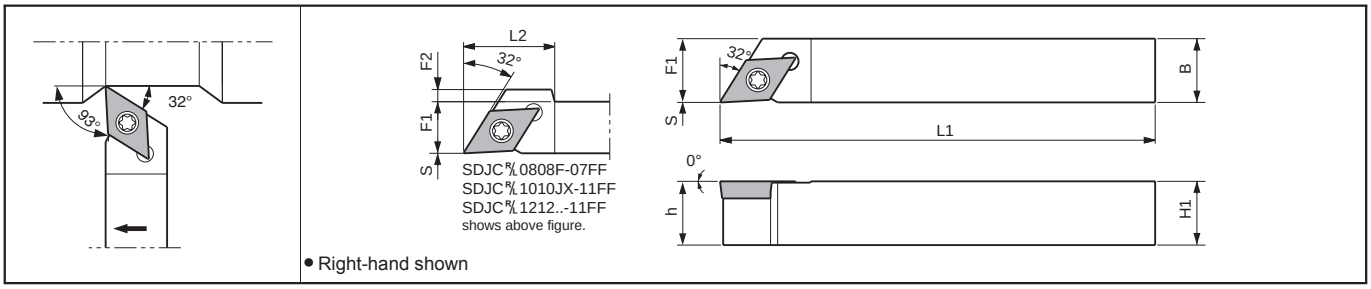
Applications	Minute ap	Finishing	Finishing-Medium	Finishing-Medium	Medium	Medium	Finishing	Finishing / Precision	Low Feed	Finishing / Precision
Ref. Page	B52	B52	B53	B53	B54	B53	B55	B55	B56	B56
Insert / Toolholder	CF	GF	GK	GQ	FN-Z	Standard	R/L-F	R/L-FSF	(E / F) R/L-U	FR/L-USF
SDJCR/L...-07FF/-07 SDJCR/L...-2JXFF	DCGT215..	DCGT215..	DCMT215..	DCGT215..	DCGT215..	DCGT215..	DCGT215..	DCET215..	DCGT215..	DCET215..
SDJCR/L...-11FF/-11 SDJCR/L...-3JXFF	DCGT325..	DCGT325..	DCMT325..	DCGT325..	DCGT325..	DCGT325.. DCMT325..	DCGT325..	DCET325..	DCGT325..	DCET325..

Applications	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	B57	B57	B54	B54	B54	B57	B57	B57	C20	C12
Insert / Toolholder	(E / F) R/L-J	FR/L-JSF	XP	XQ	MQ	Without Chipbreaker	AH	R/L-A3	PCD	CBN
SDJCR/L...-07FF/-07 SDJCR/L...-2JXFF	-	-	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMW215..
SDJCR/L...-11FF/-11 SDJCR/L...-3JXFF	DCGT325..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..

For recommended cutting conditions, see page E38

● : Std. Stock ○ : World Express

SDJC-FF (Without Offset) (External / Copying)



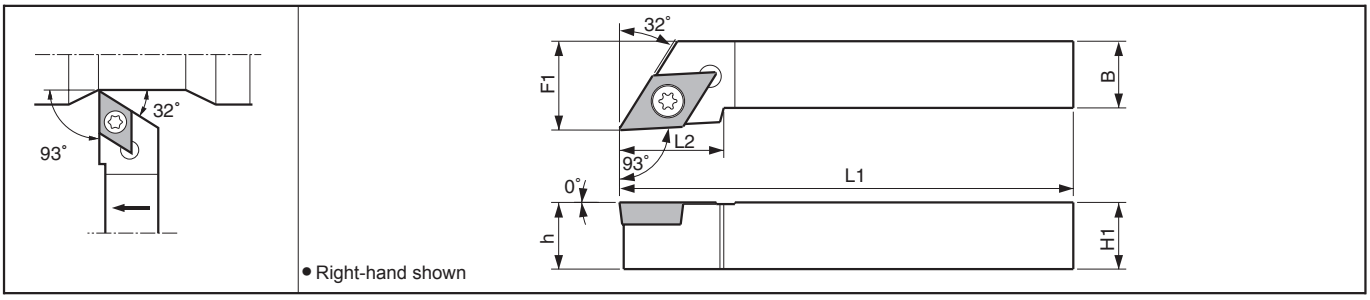
• Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	Unit	Dimension H1=h	B	L1	L2	F1	F2	S	Standard Corner-R(rε)	Spare Parts: Clamp Screw	Spare Parts: Wrench
SDJC□	6-2JXFF	●	●	inch	0.375	0.375	4.750	-	0.375		0	0.008	SB-2570TR	FT-8
NEW	6-3JXFF	●	●					0.787		0.137			SB-4085TR	FT-15
	8-3JXFF	●	●		0.500	0.500		-	0.500					
	10-3JXFF	●	●		0.625	0.625			0.625					
SDJC□	0808F -07FF	○	○	mm	8	8	85	14	8	0.5	0	0.2	SB-2570TR	FT-8
	1212F -11FF	○	○		12	12		20	12	1			SB-4085TR	FT-15
SDJC□	1010JX-07FF	○	○		10	10	120	-	10	-	0	0.2	SB-2570TR	FT-8
NEW	1010JX-11FF	○	○		10	10		20	10	3		0.2	SB-4085TR	FT-15
	1212JX-11FF	○	○		12	12			12	1				
	1616JX-11FF	●	○		16	16		-	16	-				

Applicable Inserts on Page E22

SDJC (External / Copying)



• Right-hand shown

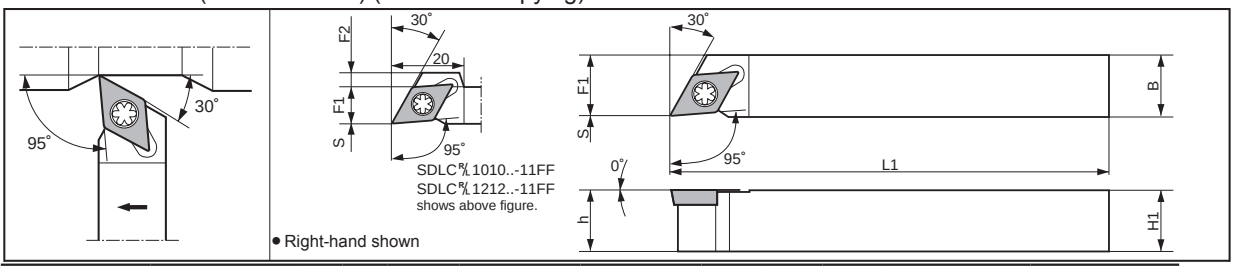
Toolholder Dimensions

Description		Stock R	Stock L	Dimension (mm) H1=h	B	L1	L2	F1			Standard Corner-R(rε)	Spare Parts: Clamp Screw	Spare Parts: 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		16								
	1616H -11	○	○	16	16			20								
	2020K -11	○	○	20	20	125		25								
	2525M -11	○	○	25	25	150		32								

Applicable Inserts on Page E22

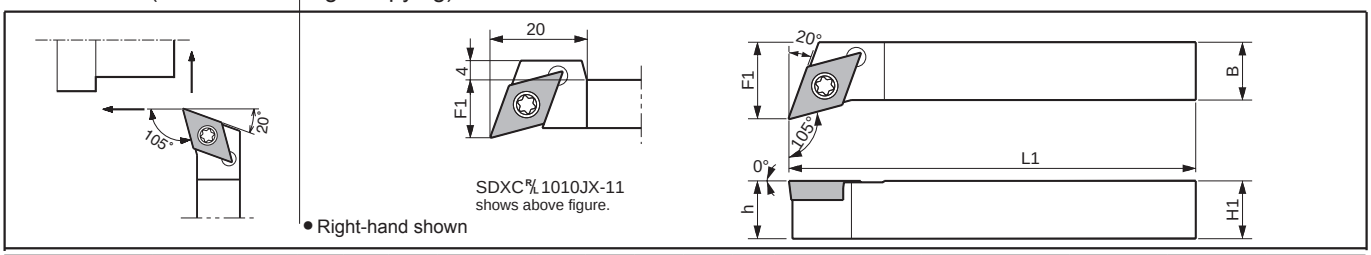
External Toolholders [DC □□ Insert]

SDLC-FF (Without Offset) (External / Copying)



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

SDXC (External / Facing / Copying)



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

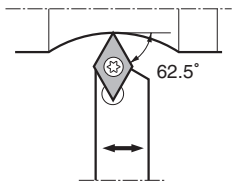
Applicable Inserts (SDLC-FF / SDXC)

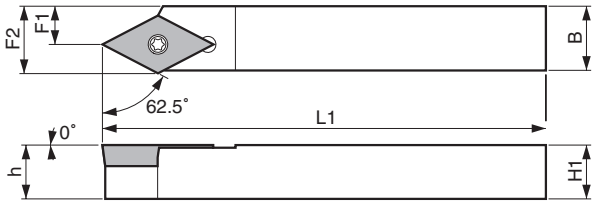
Applications	Minute ap	Finishing	Finishing-Medium	Finishing-Medium	Medium	Medium	Finishing	Finishing / Precision	Low Feed	Finishing / Precision
Ref. Page	B52	B52	B53	B53	B54	B53	B55	B55	B56	B56
Insert / Toolholder	CF	GF	GK	GQ	FN-Z	Standard	□-F	□-FSF	(E / F) □-U	F□-USF
SDLC□...-07FF / -2JXFF SDXC□...-07	DCGT215..	DCGT215..	DCMT215..	DCGT215..	DCGT215..	DCGT215..	DCGT215..	DCET215..	DCGT215..	DCET215..
SDLC□...-11FF / -3JXFF SDXC□...-11	DCGT325..	DCGT325..	DCMT325..	DCGT325..	DCGT325..	DCGT325.. DCMT325..	DCGT325..	DCET325..	DCGT325..	DCET325..

Applications	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	B57	B57	B54	B54	B54	B57	B57	B57	C20	C12
Insert / Toolholder	(E / F) □-J	F□-JSF	XP	XQ	MQ	Without Chipbreaker	AH	□-A3	PCD	CBN
SDLC□...-07FF / -2JXFF SDXC□...-07	-	-	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMW215..
SDLC□...-11FF / -3JXFF SDXC□...-11	DCGT325..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..

For recommended cutting conditions, see page E38

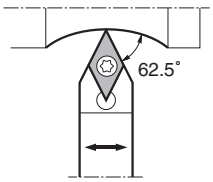
SDNC-F (External / Copying)

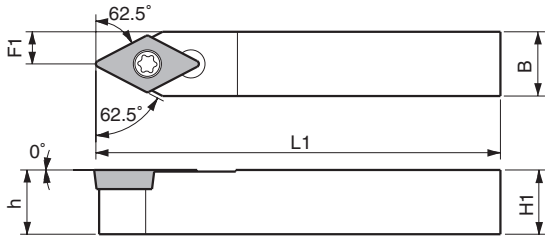




• Right-hand shown

SDNC (External / Copying)





Toolholder Dimensions

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

Applicable Inserts

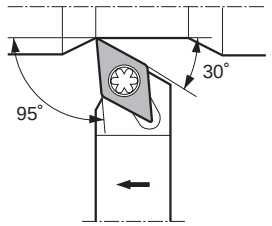
Applications	Minute ap	Finishing	Finishing-Medium	Finishing-Medium	Medium	Medium	Finishing	Finishing / Precision	Low Feed	Finishing / Precision
Ref. Page	B52	B52	B53	B53	B54	B53	B55	B55	B56	B56
Insert / Toolholder	CF	GF	GK	GQ	FN-Z	Standard	□-F	□-FSF	(E / F) □-U	F□-USF
SDNC□...-07F / -2JXFF	DCGT215..	DCGT215..	DCMT215..	DCGT215..	DCGT215..	DCGT215..	DCGT215..	DCET215..	DCGT215..	DCET215..
SDNCN...-07										
SDNCN...-11 / -3JXFF	DCGT325..	DCGT325..	DCMT325..	DCGT325..	DCGT325..	DCGT325.. DCMT325..	DCGT325..	DCET325..	DCGT325..	DCET325..

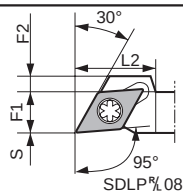
Applications	Low Feed	Low Feed / Precision	Low Carbon Steel Finishing	Low Carbon Steel Finishing-Medium	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. Page	B57	B57	B54	B54	B54	B57	B57	B57	C20	C12
Insert / Toolholder	(E / F) □-J	F□-JSF	XP	XQ	MQ	Without Chipbreaker	AH	□-A3	PCD	CBN
SDNC□...-07F / -2JXFF	-	-	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMW215..
SDNCN...-07										
SDNCN...-11 / -3JXFF	DCGT325..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..

● : Std. Stock ○ : World Express

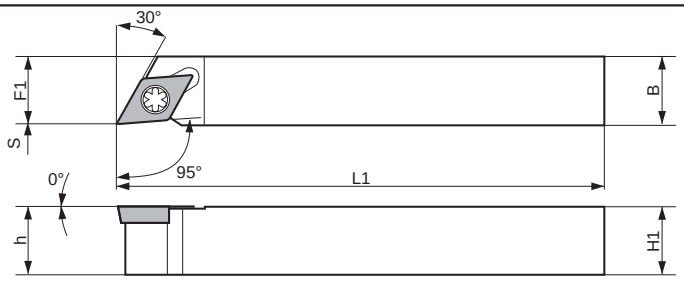
For recommended cutting conditions, see page E38

SDLP-FF (Without Offset) (External / Copying)





SDLP□ 0808F-07FF
SDLP□ 1212F-11FF
SDLP□ 1010JX-11FF
SDLP□ 1212JX-11FF
shows above figure.



• Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	Unit	Dimension H1=h	B	L1	L2	F1	F2	S	Standard Corner-R(re)	Spare Parts: Clamp Screw	Spare Parts: Wrench
SDLP□	6-2JXFF	●	●	inch	0.375	0.375	4.750	-	0.375	-	0	0.008	SB-2570TR	FT-8
NEW	6-3JXFF	●	●					-		0.176			SB-4085TR	FT-15
	8-3JXFF	●	●		0.500	0.500		0.375	0.500	0.051				
	10-3JXFF	●	●		0.625	0.625		-	0.625	-				
SDLP□	0808F -07FF	○	○	mm	8	8	85	14	8	0.5	0	0.2	SB-2570TR	FT-8
	1212F -11FF	○	○		12	12		20	12	2			SB-4085TR	FT-15
SDLP□	1010JX-07FF	○	○		10	10	120	-	10	-	0	0.2	SB-2570TR	FT-8
NEW	1010JX-11FF	○	○		10	10		20	10	4		0.2	SB-4085TR	FT-15
	1212JX-11FF	○	○		12	12			12	2				
	1616JX-11FF	○	○		16	16		-	16	-				

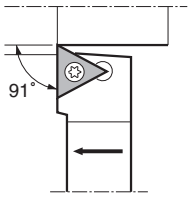
Applicable Inserts

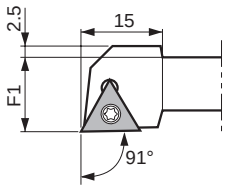
Applications	Finishing / Precision	Low Feed / Precision								
Ref. Page	B59	B59								
Insert / Toolholder	□-FSF 	F□-USF 								
SDLP□...-07FF / -2JXFF	DPET215..	DPET215..								
SDLP□...-11FF / -3JXFF	DPET325..	DPET325..								

For recommended cutting conditions, see page E38

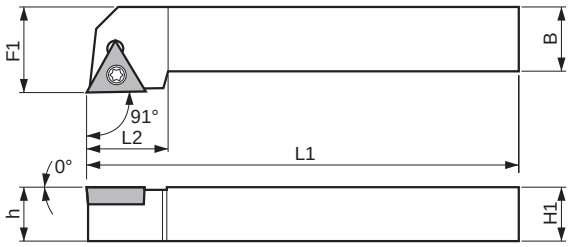
● : Std. Stock ○ : World Express

STGC(P) (External)





STGC(P)R/L1010F-11
shows above figure.



● Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	Dimension (mm) H1=h	B	L1	L2	F1			Standard Corner-R(rε)	Spare Parts: Clamp Screw	Spare Parts: Wrench			
																
STGCR/L	0808E -08	○	○	8	8	70	12	10			0.2	SB-2050TR	FT-6			
	1010F -08	○	○	10	10	80		12								
STGCR/L	1010F -11	○	○	10	10	80	15	14			0.4	SB-2570TR	FT-8			
	1212H -11	○	○	12	12	100		16								
	1616H -11	○	○	16	16			20								
	2020K -11	○	○	20	20	125		25								
	2525M -11	○	○	25	25	150	20	32								
STGPR/L	0808E -08	○	○	8	8	70	12	10			0.2	SB-2050TR	FT-6			
	1010F -08	○	○	10	10	80		12								
STGPR/L	1010F -11	○	○	10	10	80	15	14			0.2	SB-3080TR	FT-10			
	1212H -11	○	○	12	12	100		16								
	1616H -11	○	○	16	16			20								

Applicable Inserts (STGC)

Applications	Low Feed	Low Feed / Precision	Cast Iron	Non-ferrous Metals	Non-ferrous Metals					
Ref. Page	B63, B64	B64	B64	B64	C19, C20					
Insert / Toolholder	(E/F) R/L-U	FR/L-USF	Without Chipbreaker	R/L-A3	PCD					
										
STGCR/L...-08	TCGT1515..	TCET1515..	TCGW1515..	-	TCMT1515..					
STGCR/L...-11	TCGT22..	TCET22..	TCGW22..	TCGT22..	TCMT22.. TCGW22..					

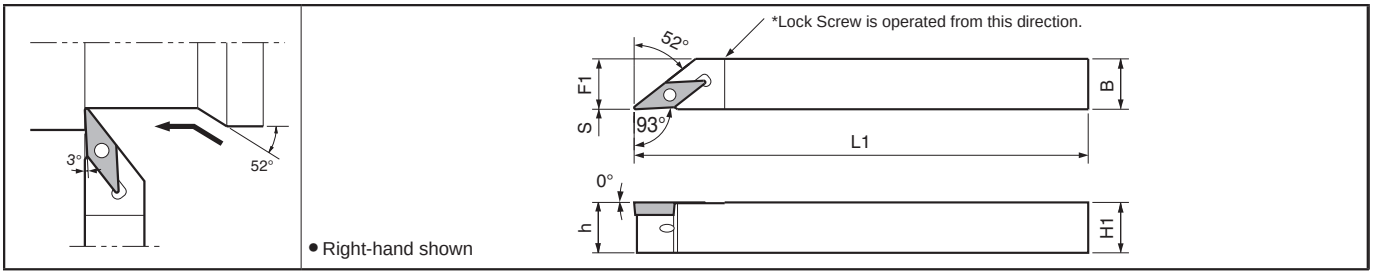
Applicable Inserts (STGP)

Applications	Minute ap	Finishing-Medium	Finishing	Finishing / Precision	Low Feed / Precision	Medium cutting	Low Carbon Steel Finishing	Low Carbon Steel Finishing-Medium	Cast Iron	Non-ferrous Metals
Ref. Page	B66	B66	B67	B68	B68	B67	B66	B66	B68	C21, C22
Insert / Toolholder	CF	HQ	R/L	R/L-FSF	FR/L-USF	R/L-H	XP	XQ	Without Chipbreaker	PCD
										
STGPR/L...-08	TPGT1515..	-	TPGH1515..	TPET1515..	TPET1515..	-	-	-	TPGB1515..	TPMH1515.. TPGB1515..
STGPR/L...-11	-	TPMT22..	TPGH22..	TPET22..	TPET22..	TPGH22..	TPMT22..	TPMT22..	TPGB22..	TPMH22.. TPGB22..
Applications	Hard Materials									
Ref. Page	C13									
Insert / Toolholder	CBN									
										
STGPR/L...-08	TPGB1515..									
STGPR/L...-11	TPGB22..									

For recommended cutting conditions, see page E38

● : Std. Stock ○ : World Express

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



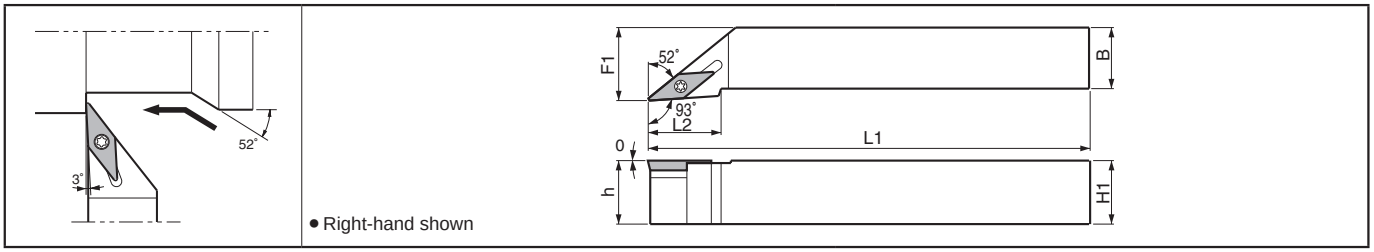
● Right-hand shown

Toolholder Dimensions

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

• Lock Screw: HSB4×8R for R-hand Toolholder, HSB4×8L for L-hand Toolholder.

SVJB (External / Copying)



● Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	Dimension (mm) H1=h	B	L1	L2	F1			Standard Corner-R(rε)	Spare Parts: Clamp Screw	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw	Spare Parts: Wrench
SVJB R/L	2020K-11	○	○	20	20	125	30	25			0.4	SB-2570TR	FT-8	-	-	-
	2525M-11	○	○	25	25	150	35	32								
SVJB R/L	2020K-16N	○	○	20	20	125	30	25			0.8	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4
	2525M-16N	○	○	25	25	150		32								

• Lock Screw: HSB4×8R for R-hand Toolholder, HSB4×8L for L-hand Toolholder.

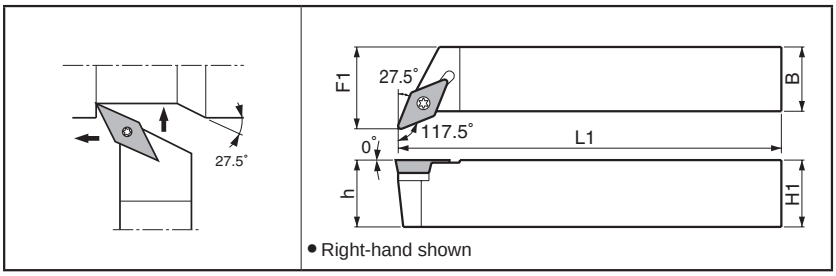
Applicable Inserts (AVJB-F / SVJB-F / SVJB)

Application	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium	Medium	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. Page	B72	B72	B72, B73	B72	B72	B73	B72, B73	B73	B73	C23	C15
Insert / Toolholder	GP	VF	HQ	R/L-F	R/L-FSF	R/L-Y	FN-Z	AH	R/L-A3	PCD	CBN
AVJB R/L ...-11FF/-11 SVJB R/L ...-11FF/-11 AVJB R/L ...-2JXFF SVJB R/L ...-2JXFF	VBMT22..	VBMT22..	VBMT22.. VCMT22..	VBGT22..	VBET22..	VBGT22.. VCGT22..	VBGT22.. VCGT22..	-	-	VBMT22..	VBGW22..
SVJB R/L ...-16 N	VBMT33..	VBMT33..	VBMT33.. VCMT33..	-	-	VBGT33.. VCGT33..	VBGT33.. VCGT33..	VCGT33..	VCGT33..	VBMT33..	VBGW33.. VCGW33..

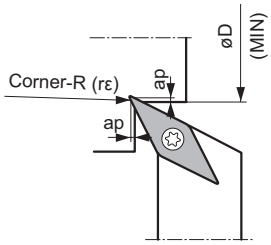
For recommended cutting conditions, see page E38

● : Std. Stock ○ : World Express

SVPB (External / Facing / Copying / Undercutting)



Undercutting diameter of SVPB

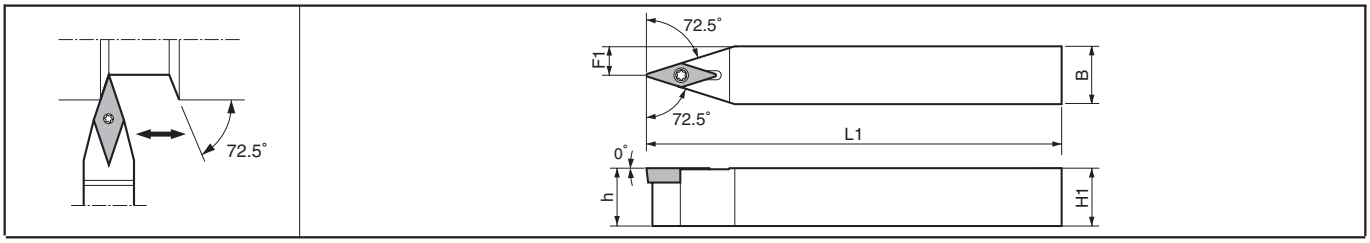


Corner-R (rε)	ap	øD (MIN)
0.4	0.5	ø25
	1	ø30
0.8	0.5	ø45
	1	ø55

Toolholder Dimensions

Description		Stock R	Stock L	Dimension (mm) H1=h	B	L1	L2	F1			Standard Corner-R(rε)	Spare Parts: Clamp Screw	Wrench	Shim	Shim Screw	Wrench
SVPB R/L	1010JX-11	○	○	10	10	120	-	14.5			0.4	SB-2570TR	FT-8	-	-	-
NEW	1212JX-11	○	○	12	12			16.5								
	1616JX-11	○	○	16	16			20.5								
SVPB R/L	2020K-11	○	○	20	20	125	-	25			0.4	SB-2570TR	FT-8	-	-	-
	2525M-11	○	○	25	25	150		32								
SVPB R/L	2020K-16N	○	○	20	20	125	-	25			0.8	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4
	2525M-16N	○	○	25	25	150		32								

SVVB (External / Copying)



Toolholder Dimensions

Description		Stock	Unit	Dimension H1=h	B	L1	F1	Standard Corner-R(rε)	Spare Parts: Clamp Screw	Wrench	Shim	Shim Screw	Wrench
SVVBN	6-2JXFF	●	inch	0.375	0.375	4.750	0.187	0.016	SB-2570TR	FT-8	-	-	-
NEW	8-2JXFF	●		0.500	0.500		0.250						
	10-2JXFF	●		0.625	0.625		0.312						
SVVBN	1212F-11	○	mm	12	12	85	6	0.4	SB-2570TR	FT-8	-	-	-
SVVBN	1010JX-11	○		10	10	120	5						
NEW	1212JX-11	○		12	12		6						
	1616JX-11	○		16	16		8						
SVVBN	1010F-11	○		10	10	80	5	0.4	SB-2570TR	FT-8	-	-	-
	1616H-11	○		16	16	100	8						
	2020K-11	○		20	20	125	10						
	2525M-11	○		25	25	150	12.5						
SVVBN	2020K-16N	○		20	20	125	10	0.8	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4
	2525M-16N	○		25	25	150	12.5						

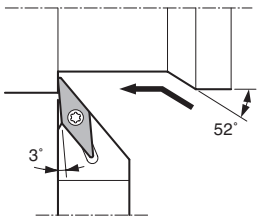
Applicable Inserts

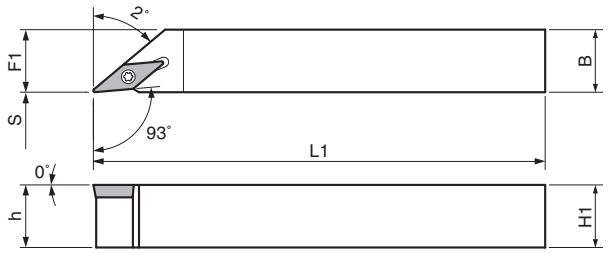
Application	Finishing	Finishing-Medium	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium	Medium	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. Page	B72	B72	B72, B73	B72	B72	B73	B72, B73	B73	B73	C23	C15
Insert / Toolholder	GP	VF	HQ	R/L-F	R/L-FSF	R/L-Y	FN-Z	AH	R/L-A3	PCD	CBN
SVPB R/L ...-11	VBMT22..	VBMT22..	VBMT22.. VCMT22..	VBGT22..	VBET22..	VBGT22.. VCGT22..	VBGT22.. VCGT22..	-	-	VBMT22..	VBGW22..
SVVBN...-11 SVVBN...-2JXFF											
SVPB R/L ...-16N	VBMT33..	VBMT33..	VBMT33.. VCMT33..	-	-	VBGT33.. VCGT33..	VBGT33.. VCGT33..	VCGT33..	VCGT33..	VBMT33..	VBGW33.. VCGW33..
SVVBN...-16N											

● : Std. Stock ○ : World Express

For recommended cutting conditions, see page E38

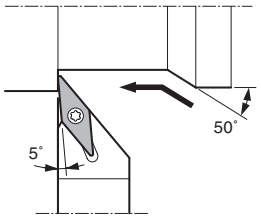
SVJP-FF (Without Offset) (External / Copying)

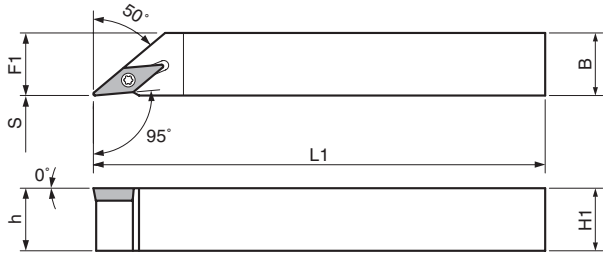




● Right-hand shown

SVLP-FF (Without Offset) (External / Copying)





● Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	Unit	Dimension H1=h	B	L1	L2	L3	F1	S	Standard Corner-R(rε)	Spare Parts: Clamp Screw	Spare Parts: Wrench
SVJP□	8-2JXFF	●	●	inch	0.500	0.500	4.750	-	-	0.500	0	0.008	SB-2570TR	FT-8
NEW	10-2JXFF	●	●		0.625	0.625				0.625				
SVJP□	1212F -11FF	○	○	mm	12	12	85	-	-	12	0	0.2	SB-2570TR	FT-8
NEW	1212JX -11FF	○	○		12	12	120			12				
	1616JX -11FF	○	○		16	16				16				
SVLP□	6-15JXFF	●	●	inch	0.375	0.375	4.750	-	-	0.375	0		SB-2050TR	FT-6
NEW	8-15JXFF	●	●		0.500	0.500				0.500				
	10-15JXFF	●	●		0.625	0.625				0.625				
	8-2JXFF	●	●		0.500	0.500				0.500			SB-2570TR	FT-8
	10-2JXFF	●	●		0.625	0.625				0.625				
SVLP□	1010JX -08FF	○	○	mm	10	10	120	-	-	10	0	0.1	SB-2050TR	FT-6
NEW	1212JX -08FF	○	○		12	12				12				
	1616JX -08FF	○	○		16	16				16				
SVLP□	1212JX -11FF	○	○		12	12	120	-	-	12	0	0.2	SB-2570TR	FT-8
NEW	1616JX -11FF	○	○		16	16				16				
SVLP□	1212F -08FF	○	○		12	12	85	-	-	12	0	0.1	SB-2050TR	FT-6
NEW	1212F -11FF	○	○		12	12	85	-	-	12	0	0.2	SB-2570TR	FT-8

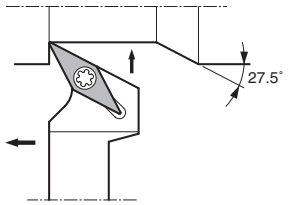
Applicable Inserts

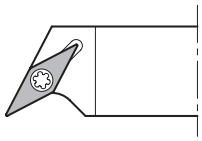
Applications	Minute ap	Finishing	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. Page	B75	B75	B75	B76	B76	B76
Insert / Toolholder	CF	CK	GF	□-FSF	F□-U	F□-USF
SVLP□...-08FF SVLP□...-15JXFF	-	VPGT1515..	-	VPET1515..	-	VPET1515..
SV○P□...-11FF SV○P□...-2JXFF	VPGT220..	VPGT220..	VPGT220..	VPET220..	VPGT220..	VPET220..

For recommended cutting conditions, see page E38

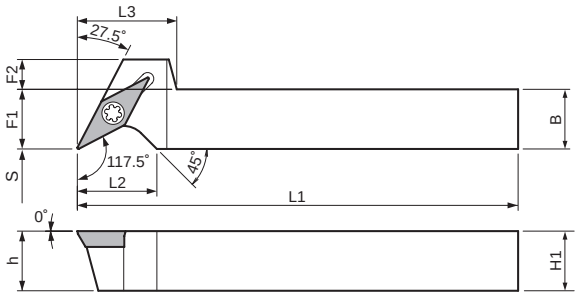
● : Std. Stock ○ : World Express

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



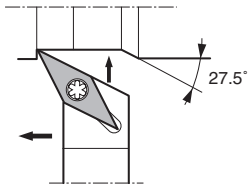


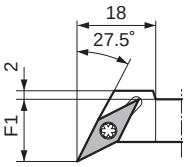
10-15 JXFF
shown above.



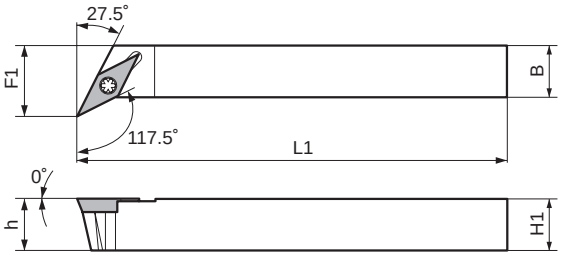
● Right-hand shown

SVPP (External / Facing / Copying / Undercutting)





SVPPR1010F-11
shows above figure.



● Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	Unit	Dimension H1=h	B	L1	L2	L3	F1	F2	S	Standard Corner-R(rε)	Spare Parts: Clamp Screw	Spare Parts: Wrench
SVPPR	6-15JXFF	●		inch	0.375	0.375	4.750	0.472	0.630	0.375	0.176	0		SB-2050TR	FT-6
NEW	8-15JXFF	●			0.500	0.500		0.551		0.500	0.051				
	10-15JXFF	●			0.625	0.625		0.787	-	0.625	-				
	6-2JXFF	●			0.375	0.375		0.630	0.787	0.375	0.334			SB-2570TR	FT-8
	8-2JXFF	●			0.500	0.500		0.630		0.500	0.209				
	10-2JXFF	●			0.625	0.625		0.787		0.625	0.084				
SVPPR	1010JX-08FF	○		mm	10	10	120	12	16	10	4	0	0.1	SB-2050TR	FT-6
NEW	1212JX-08FF	○			12	12				12	2				
	1616JX-08FF	○			16	16			-	16	-				
SVPPR	1010JX-11FF	○			10	10	120	16	20	10	8	0	0.2	SB-2570TR	FT-8
NEW	1212JX-11FF	○			12	12				12	6				
	1616JX-11FF	○			16	16				16	2				
SVPPR	1212F -08FF	○			12	12	85	12	16	12	2	0	0.1	SB-2050TR	FT-6
	1212F -11FF	○			12	12	85	16	20	12	6	0	0.2	SB-2570TR	FT-8
SVPPR/L	1010F -11		○		10	10	80	-	-	14.5	-	-	0.2	SB-2570TR	FT-8
	1212H -11		○		12	12	100			16.5					

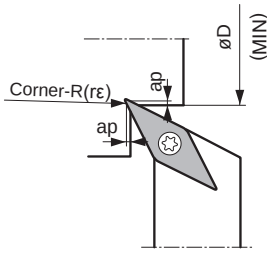
Applicable Inserts

Applications	Minute ap	Finishing	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. Page	B75	B75	B75	B76	B76	B76
Insert / Toolholder	CF	CK	GF	R/L-FSF	FR/L-U	FR/L-USF
SVPPR...-08FF SVPPR...-15JXFF	-	VPGT1515..	-	VPET1515..	-	VPET1515..
SVPPR...-11FF SVPPR...-2JXFF	VPGT220..	VPGT220..	VPGT220..	VPET220..	VPGT220..	VPET220..
SVPPR/L...-11	VPGT220..	VPGT220..	VPGT220..	VPET220..	VPGT220..	VPET220..

For recommended cutting conditions, see page E38

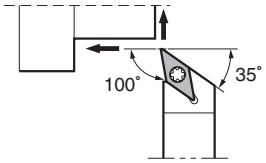
● : Std. Stock ○ : World Express

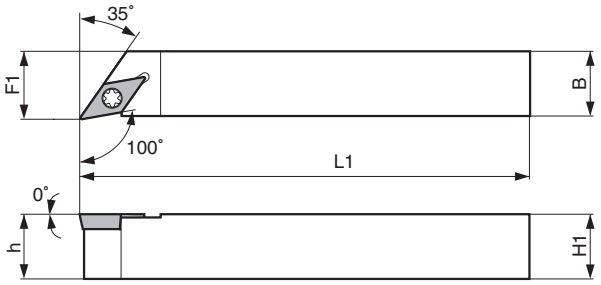
Undercutting diameter of SVPP-FF / SVPP



Corner-R (rε)	ap	øD (MIN)
0.2	0.5	ø20
	1	ø25

SYXP-F (External / Facing / Copying)





● Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	Dimension (mm) H1=h	B	L1	F1	Standard Corner-R(re)	Spare Parts: Clamp Screw	Spare Parts: Wrench
SYXP□	0808F-06F	○	○	8	8	80	8.5	0.2	SB-2050TR	FT-6
	1010H-06F	○	○	10	10	100	10.5			

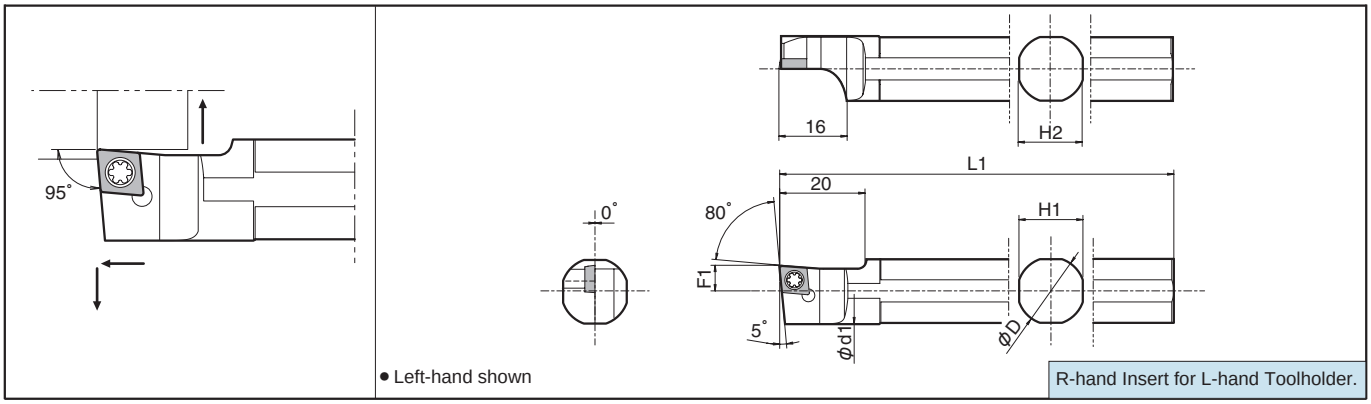
Applicable Inserts

Applications	Finishing	Low Feed
Ref. Page	B80	B80
Insert / Toolholder	□-F	F□-U
SYXP□...-06F	YPGT1515..	YPGT1515..

For recommended cutting conditions, see page E38

● : Std. Stock ○ : World Express

S...SCLC (External / Facing)



● Left-hand shown

R-hand Insert for L-hand Toolholder.

Toolholder Dimensions

Description	Stock	Unit	Dimension					Standard Corner-R(rε)	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		0.724	0.669			
S19K -SCLCL06	●			4.724						
S19G -SCLCL09	●		0.750	3.543	0.393	0.724	0.669		SB-4065TR	FT-5
S19K -SCLCL09	●			4.724						
S25K -SCLCL09	●		1.000			0.976	0.905			
S12F -SCLCL06	○	mm	12	80	6	13.4	11	0.4	SB-2560TR	FT-8
S14H -SCLCL06	○		14	100			13			
S16F -SCLCL06	○		16			15.4	15		SB-2570TR	
S20G -SCLCL06	○		20	90		19.4	18			
S20K -SCLCL06	○			120						
S20G -SCLCL09	○		20	90	10	19.4	18		SB-4065TR	FT-5
S20K -SCLCL09	○			120						
S25.0H-SCLCL09	○		25	100		24.4	23			

Applicable Inserts

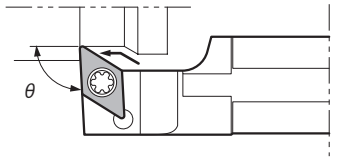
Applications	Finishing	Finishing-Medium	Finishing-Medium	Low Feed	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. Page	**B45**	**B45**	**B45**	**B48**	**B46**	**B46**	**B46**	**B46**	**C19**	**C11**
Insert / Toolholder	**GF**	**GK**	**GQ**	**(E/F)R-U**	**MQ**	**Without Chipbreaker**	**AH**	**R-A3**	**PCD**	**CBN**
S...SCLCL06	CCGT215..	CCMT215..	CCGT215..	CCGT215..	-	CCGW215..	-	-	CCMT215.. CCGW215..	CCMW215..
S...SCLCL09	CCGT325..	CCMT325..	CCGT325..	CCGT325..	CCMT325..	CCGW325..	CCGT325..	CCGT325..	CCMT325.. CCGW325..	CCMW325..

For recommended cutting conditions, see page E38

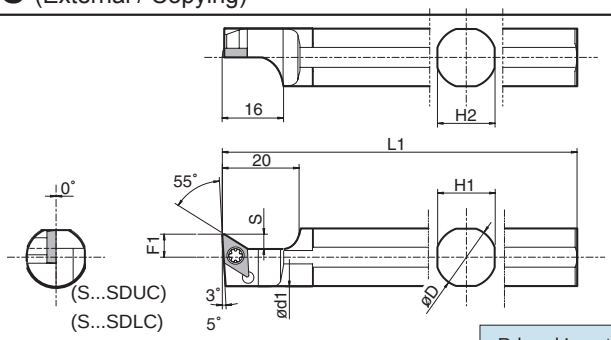
● : Std. Stock ○ : World Express

External Sleeve Holder [DC □□ Insert]

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



θ =93° (S...SDUC)
θ =95° (S...SDLC)



● Left-hand Shown

R-hand Insert for L-hand Toolholder.

Description	Stock	Unit	Dimension						Standard Corner-R(rε)	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		0.724	0.669				
S19K -SDUCL07	●			4.724							
S19G -SDUCL11	●		0.750	3.543	0.393	0.724	0.669	0.228		SB-4085TR	FT-15
S19K -SDUCL11	●			4.724							
S25K -SDUCL11	●		1.000			0.976	0.905				
S15F -SDLCL07	●		0.625	3.346	0.236	0.606	0.590	0.150		SB-2560TR	FT-8
S19G -SDLCL07	●		0.750	3.543		0.724	0.669				
S19K -SDLCL07	●			4.724							
S19G -SDLCL11	●		0.750	3.543	0.393	0.724	0.669	0.228		SB-4085TR	FT-15
S19K -SDLCL11	●			4.724							
S25K -SDLCL11	●		1.000			0.976	0.905				
S14H -SDUCL07	○	mm	14	100	6	13.4	13	3.8	0.4	SB-2560TR	FT-8
S20G -SDUCL07	○		20	90		19.4	18				
S20K -SDUCL07	○			120							
S20G -SDUCL11	○		20	90	10	19.4	18	5.8		SB-4085TR	FT-15
S20K -SDUCL11	○			120							
S22K -SDUCL11	○		22	120		21.4	20				
S25.0H-SDUCL11	○		25	100		24.4	23				
S12F -SDLCL07	○		12	80	6	13.4	11	3.8		SB-2560TR	FT-8
S14H -SDLCL07	○		14	100			13				
S16F -SDLCL07	○		16	85		15.4	15				
S20G -SDLCL07	○		20	90		19.4	18				
S20K -SDLCL07	○			120							
S20G -SDLCL11	○		20	90	10	19.4	18	5.8		SB-4085TR	FT-15
S20K -SDLCL11	○			120							
S22K -SDLCL11	○		22	120		21.4	20				
S25.0H-SDLCL11	○		25	100		24.4	23				

For recommended cutting conditions, see page E38

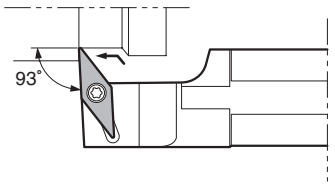
Applicable Inserts

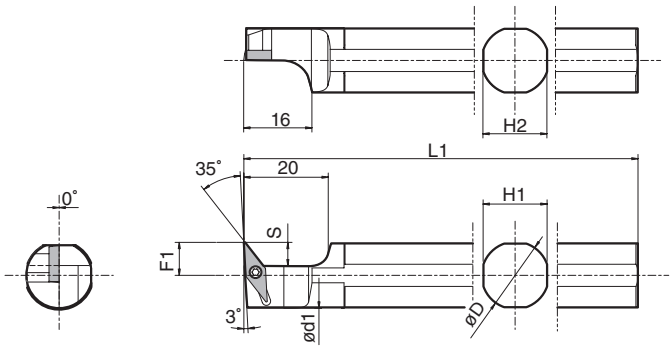
Applications	Minute ap	Finishing	Finishing-Medium	Finishing-Medium	Medium	Medium	Finishing	Finishing / Precision	Low Feed	Finishing / Precision
Ref. Page	B52	B52	B53	B53	B54	B53	B55	B55	B56	B56
Insert / Toolholder	CF	GF	GK	GQ	FN-Z	Standard	R-F	R-FSF	(E / F) R-U	FR-USF
S...SD○CL07	DCGT215..	DCGT215..	DCMT215..	DCGT215..	DCGT215..	DCGT215..	DCGT215..	DCET215..	DCGT215..	DCET215..
S...SD○CL11	DCGT325..	DCGT325..	DCMT325..	DCGT325..	DCGT325..	DCGT325.. DCMT325..	DCGT325..	DCET325..	DCGT325..	DCET325..

Applications	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	B57	B57	B54	B54	B54	B57	B57	B57	C20	C12
Insert / Toolholder	(E / F) R-J	FR-JSF	XP	XQ	MQ	Without Chipbreaker	AH	R-A3	PCD	CBN
S...SD○CL07	-	-	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMW215..
S...SD○CL11	DCGT325..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..

● : Std. Stock ○ : World Express

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





● Left-hand Shown

R-hand Insert for L-hand Toolholder.

Toolholder Dimensions

Description	Stock	Unit	Dimension øD	L1	F1	ød1	H1=H2	S		Standard Corner-R(rε)	Spare Parts: Clamp Screw	Spare Parts: 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				
S19K -SVUBL11	●		0.750	4.724	0.413	0.724	0.669	0.315				
S25K -SVUBL11	●		1.000	4.724	0.413	0.976	0.906	0.315				
S12F -SVUCL08	○	mm	12	80	7.5	13.4	11	5.5		0.4	SB-2050TR	FT-6
S14H -SVUCL08	○		14	100	7.5	13.4	13	5.5				
S16F -SVUCL08	○		16	85	8	15.4	15	5.5				
S20G -SVUBL11	○		20	90	10.5	19.4	18	8				
S20K -SVUBL11	○		20	120	10.5	19.4	18	8				
S25.0H-SVUBL11	○		25	100	10.5	24.4	23	8				

Applicable Inserts

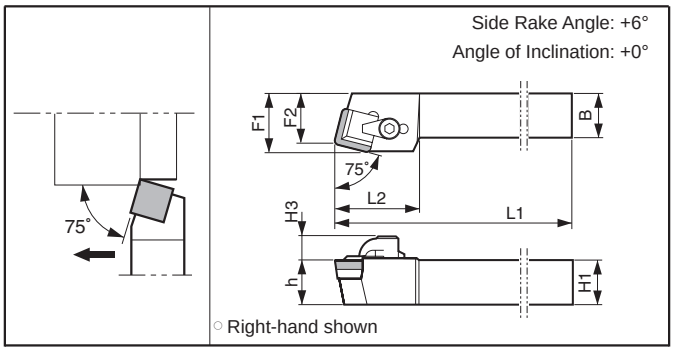
Applications	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium	Medium	Non-ferrous Metals	Hard Materials	
Ref. Page	**B72**	**B72, B73**	**B72, B73**	**B72**	**B72**	**B73**	**B72, B73**	**C23**	**C15**	
Insert / Toolholder	**GP**	**VF**	**HQ**	**R-F**	**R-FSF**	**R-Y**	**FN-Z**	**PCD**	**CBN**	
S...SVUCL08	–	VCMT1515..	VCMT1515..	-	-	-	-	VCMT1515..	VCGW1515..	
S...SVUBL11	VBMT22..	VBMT22..	VBMT22..	VBGT22..	VBET22..	VBGT22..	VBGT22.. VCGT22..	VBMT22..	VBGW22..	

For recommended cutting conditions, see page E38

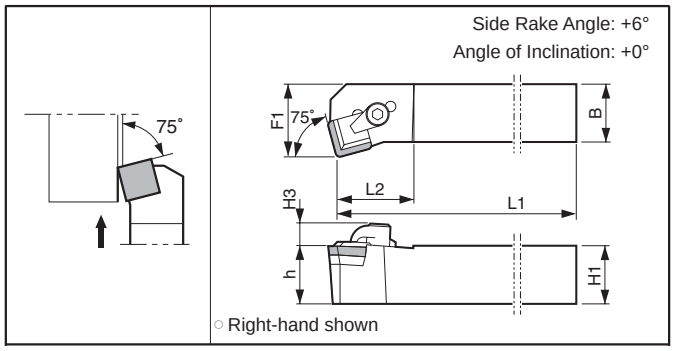
● : Std. Stock ○ : World Express

External Toolholders [SP□R/SP□Insert]

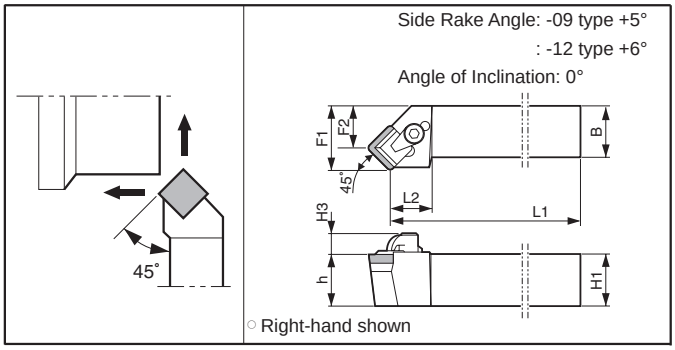
CSBP (External)



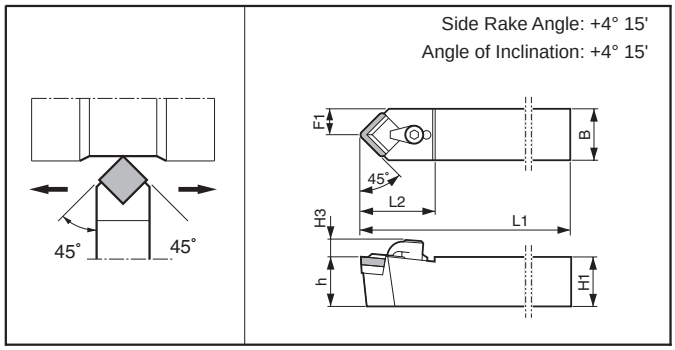
CSKP (Facing)



CSSP (External / Facing / Chamfering)



CSDP (External / Chamfering)



Toolholder Dimensions

Description		Stock			Dimension (mm)							Standard Corner-R(re)	Spare Parts				
		R	N	L	H1=h	H3	B	L1	L2	F1	F2		Clamp Set	Wrench	Shim	Shim Screw	Chipbreaker
CSBPR/L	1212F -09N	○		○	12	7.5	12	80	23	15.7	13	0.4	CPS-2P	LW-2.5	-	-	CB-S3220
CSKPR/L	1616H -09N	○			16	7.5	16	100	21	20	-	0.4	CPS-2P	LW-2.5	-	-	CB-S3220
	2020K -12N	○			20	8.5	20	125	28	25	-	0.8	CPS-3	LW-3	KPS-42	SP3X8	CB-S4220
	2525M -12N	○			25		25	150		32							
CSSPR/L	1212F -09N	○		○	12	7.5	12	80	15	16	9	0.4	CPS-2P	LW-2.5	-	-	CB-S3220
	1616H -09N	○		○	16		16	100	16	20	13						
	2020K -12N	○		○	20	8.5	20	125	19	25	16	0.8	CPS-3	LW-3	KPS-42	SP3X8	CB-S4220
	2525M -12N	○		○	25		25	150		32	23						
CSDPN	2020K -12N		○		20	8.5	20	125	32	10	-	0.8	CPS-3	LW-3	KPS-42	SP3X8	CB-S4220
	2525M -12N		○		25		25	150		12.5							

・Chipbreaker is not included. Purchase separately.

Applicable Inserts

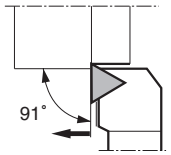
Applications	Medium cutting	Medium cutting	Finishing-Medium	Cast Iron	Cast Iron	Non-ferrous Metals				
Ref. Page	B61	B61	B61	B61	B92	C24				
Insert / Toolholder	G	Standard	R/L	Without Chipbreaker	Ceramic	PCD				
CSBPR/L...-09N	SPMR32..	SPMR32..	SPGR32..	SPM32.. SPG32..	SPG32..	-				
CSKPR/L...-09N	SPMR32..	SPMR32..	SPGR32..	SPM32.. SPG32..	SPG32..	-				
CSKPR/L...-12N	SPMR42..	SPMR42..	SPGR42..	SPM42.. SPG42..	SPG42..	SPG42..				
CSSPR/L...-09N	SPMR32..	SPMR32..	SPGR32..	SPM32.. SPG32..	SPG32..	-				
CSSPR/L...-12N	SPMR42..	SPMR42..	SPGR42..	SPM42.. SPG42..	SPG42..	SPG42..				
CSDPN...-12N	SPMR42..	SPMR42..	SPGR42..	SPM42.. SPG42..	SPG42..	SPG42..				

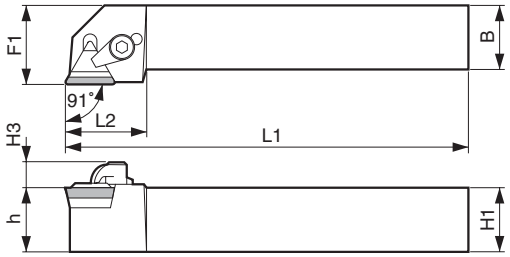
・CSKPR/L: L-hand Insert for R-hand Toolholder.
・CSSPR/L: At External Turning, R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder.
At Facing, L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

For recommended cutting conditions, see page E38

● : Std. Stock ○ : World Express

CTGP (External)

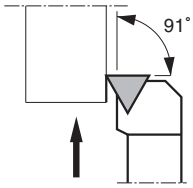


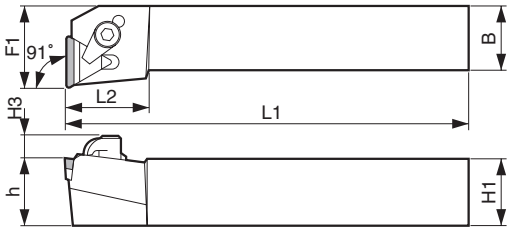


○ Right-hand shown

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

CTFP (Facing)

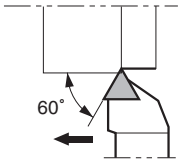


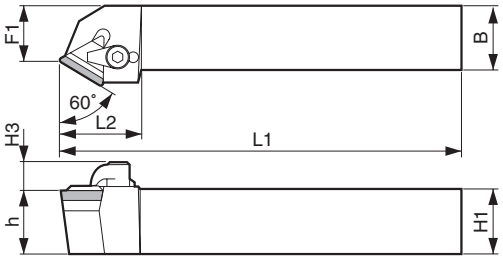


○ Right-hand shown

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

CTTP (External / Chamfering)





○ Right-hand shown

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

Toolholder Dimensions

Description		Stock R	Stock L	Dimension (mm) H1=h	H3	B	L1	L2	F1	Standard Corner-R(rε)	Spare Parts: Clamp Set	Wrench	Shim	Shim Screw	Chipbreaker
CTGP R/L	1212F -11N	○	○	12	8	12	80	18	16	0.4	CPS-2P	LW-2.5	-	-	CB-T2212
	1616H -11N	○	○	16		16	100		20						
	2020K -16N	○	○	20	8.5	20	125	26	25	0.8	CPS-3	LW-3	KPT-32	SP3X8	CB-T3220
	2525M -16N	○	○	25		25	150		32						
CTFP R/L	1212F -11N	○	○	12	8	12	80	18	16	0.4	CPS-2P	LW-2.5	-	-	CB-T2212
	1616H -11N	○	○	16		16	100		20						
	2020K -16N	○	○	20	8.5	20	125	22	25	0.8	CPS-3	LW-3	KPT-32	SP3X8	CB-T3220
	2525M -16N	○	○	25		25	150		32						
CTTP R/L	1212F -11N	○	○	12	8	12	80	22.5	9	0.4	CPS-2P	LW-2.5	-	-	CB-T2212
	1616H -11N	○	○	16		16	100		13						
	2020K -16N	○	○	20	8.5	20	125	28	17	0.8	CPS-3	LW-3	KPT-32	SP3X8	CB-T3220
	2525M -16N	○	○	25		25	150		22						

○Chipbreaker is not included. Purchase separately.

Applicable Inserts

Applications	Finishing	Finishing	Finishing-Medium	Medium cutting	Medium cutting	Finishing-Medium	Cast Iron	Cast Iron	Non-ferrous Metals	Hard Materials
Ref. Page	B70	B70	B70	B70	B70	B70	B70	B92	C24	C16
Insert / Toolholder	GP	DP	HQ	G	Standard	R/L - □	Without Chipbreaker	Ceramic	PCD	CBN
CTGP R/L...-11N	TPMR22..	TPMR22..	TPMR22..	TPMR22..	TPMR22..	TPGR22..	TPM22.. TPG22..	TPG22..	TPG22..	TPG22..
CTGP R/L...-16N	TPMR32..	TPMR32..	TPMR32..	TPMR32..	TPMR32..	TPGR32..	TPM32.. TPG32..	TPG32..	TPG32..	TPG32..
CTFP R/L...-11N	TPMR22..	TPMR22..	TPMR22..	TPMR22..	TPMR22..	TPGR22..	TPM22.. TPG22..	TPG22..	TPG22..	TPG22..
CTFP R/L...-16N	TPMR32..	TPMR32..	TPMR32..	TPMR32..	TPMR32..	TPGR32..	TPM32.. TPG32..	TPG32..	TPG32..	TPG32..
CTTP R/L...-11N	TPMR22..	TPMR22..	TPMR22..	TPMR22..	TPMR22..	TPGR22..	TPM22.. TPG22..	TPG22..	TPG22..	TPG22..
CTTP R/L...-16N	TPMR32..	TPMR32..	TPMR32..	TPMR32..	TPMR32..	TPGR32..	TPM32.. TPG32..	TPG32..	TPG32..	TPG32..

• CTFP R/L: L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● : Std. Stock ○ : World Express

For recommended cutting conditions, see page E38

Recommended Cutting Conditions - External Turning (Positive Inserts)

ISO Classification	Work Material (Hardness)		Cutting Range	Application	Recommended Chipbreaker	Recommended Grade	Corner-R (rε)	Lower Limit - Recommendation - Upper Limit		
								Cutting Speed (SFM)	D.O.C. (in)	Feed Rate (ipr)
P	Low-carbon Steel Low-carbon Alloy 1010, 4115 5015 etc.	HB ≦ 300	Precision Finishing	Continuous	FSF	PR1425	0.002	330-500-650	.002-.003-.006	.001-.002-.004
				Interrupted		PR1425	0.008	260-400-525	.002-.004-.008	.001-.004-.006
			Precision Finishing (Molded Chipbreaker)	Continuous	CF	PR1425	0.008	330-500-650	.001-.002-.004	.001-.002-.005
			Finishing	Continuous	GF	PR1425	0.008	330-450-600	.008-.020-.039	.002-.004-.008
				Interrupted		PR1425	1/64	260-400-525	.008-.020-.039	.002-.004-.008
			Finishing-Medium	Continuous	GQ	PR1425	0.008	260-400-525	.012-.059-.118	.001-.002-.004
				Interrupted		PR1425	1/64	200-330-450	.012-.039-.079	.001-.002-.004
			Low Feed & Large D.O.C.	Continuous	J , U	PR1425	0.008	200-330-450	.020-.079-.138	.001-.002-.004
	Medium-carbon Steel Medium-carbon Alloy 1045 4135 etc.	HB ≦ 330	Precision Finishing	Continuous	FSF	PR1425	0.001	330-500-650	.002-.003-.006	.001-.002-.004
				Interrupted		PR1425	0.008	260-400-525	.002-.004-.008	.001-.004-.006
			Precision Finishing (Molded Chipbreaker)	Continuous	CF	PR1425	0.008	330-500-650	.001-.002-.004	.001-.002-.005
			Finishing	Continuous	GF	PR1425	0.008	330-450-600	.008-.020-.039	.002-.004-.008
				Interrupted		PR1425	1/64	260-400-525	.008-.020-.039	.002-.004-.008
			Finishing-Medium	Continuous	GQ	PR1425	0.008	260-400-525	.012-.059-.118	.001-.002-.004
				Interrupted		PR1425	1/64	200-330-450	.012-.039-.079	.001-.002-.004
			Low Feed & Large D.O.C.	Continuous	J , U	PR1425	0.008	200-330-450	.020-.079-.138	.001-.002-.004
	High-carbon Alloy D2, H13 etc.	HB ≦ 280	Precision Finishing	Continuous	FSF	PR1425	0.001	330-500-650	.002-.003-.006	.001-.002-.004
				Interrupted		PR1425	0.008	260-400-525	.002-.004-.008	.001-.004-.006
			Precision Finishing (Molded Chipbreaker)	Continuous	CF	PR1425	0.008	330-500-650	.001-.002-.004	.001-.002-.005
			Finishing	Continuous	GF	PR1425	0.008	330-450-600	.008-.020-.039	.002-.004-.008
				Interrupted		PR1425	1/64	260-400-525	.008-.020-.039	.002-.004-.008
			Finishing-Medium	Continuous	GQ	PR1425	0.008	260-400-525	.012-.059-.118	.001-.002-.004
				Interrupted		PR1425	1/64	200-330-450	.012-.039-.079	.001-.002-.004
			Low Feed & Large D.O.C.	Continuous	J , U	PR1425	0.008	200-330-450	.020-.079-.138	.001-.002-.004
	Stainless Steel 303, 304 316, 420 etc.	HB ≦ 220	Finishing	Continuous	MQ	PR1225	0.008	260-330-400	.004-.012-.020	.001-.002-.004
				Interrupted		PR1225	1/64	200-260-330	.012-.020-.039	.002-.004-.006
			Medium	Continuous	GK	PR1225	0.008	260-330-400	.020-.039-.079	.003-.005-.006
				Interrupted		PR1225	1/64	200-260-330	.020-.039-.059	.002-.004-.006
	Stainless Steel 17-4PH etc.	HB ≦ 300	Finishing	Continuous	MQ	PR1225	0.008	130-200-260	.004-.012-.020	.001-.002-.004
				Interrupted		PR1225	1/64	100-170-230	.012-.020-.039	.002-.004-.006
			Medium	Continuous	GK	PR1225	0.008	130-200-260	.020-.039-.079	.003-.005-.006
				Interrupted		PR1225	1/64	100-170-230	.020-.039-.059	.002-.004-.006
	Cast Iron 30B, 35B 45B etc.	HB ≦ 250	Finishing	Continuous	Standard	CA4505	1/64	330-400-500	.008-.020-.039	.004-.006-.008
				Interrupted		CA4505	1/64	260-330-400	.008-.020-.039	.002-.004-.006
			Medium	Continuous	Standard	CA4505	1/64	330-400-500	.020-.039-.079	.004-.006-.008
				Interrupted		CA4505	1/32	260-330-400	.020-.039-.079	.002-.004-.006
	Nodular Cast Iron 60-40-18 80-55-06 etc.	HB ≦ 270	Finishing	Continuous	Standard	CA4515	1/64	260-330-400	.008-.020-.039	.004-.006-.008
				Interrupted		CA4515	1/64	200-260-330	.008-.020-.039	.002-.004-.006
			Medium	Continuous	Standard	CA4515	1/64	260-330-400	.020-.039-.079	.004-.006-.008
				Interrupted		CA4515	1/32	200-260-330	.020-.039-.079	.002-.004-.006
	Non-Ferrous Metal Copper Alloy Aluminum Alloy (Si : under 10%) etc.	HB ≦ 100	Finishing(High Speed) (Rainbow-colored Finish)	Continuous	Without Chipbreaker	KPD001	0.008	500-830-1160	.002-.004-.012	.002-.004-.006
			Finishing	Continuous	F , FSF	KW10	0.008	330-500-660	.002-.012-.020	.001-.003-.004
				Interrupted		KW10	1/64	330-500-660	.002-.012-.020	.001-.003-.004
			Medium	Continuous	U , USF	KW10	0.008	330-500-660	.008-.020-.059	.001-.004-.008
				Interrupted		KW10	1/64	330-500-660	.008-.020-.059	.001-.004-.008
	Titanium Alloy Ti-6Al-4V etc.	HB ≦ 400	Finishing(High Speed) (Rainbow-colored Finish)	Continuous	Without Chipbreaker	KPD001	0.008	330-400-500	.002-.004-.012	.001-.003-.004
				Interrupted		KPD001	1/64	230-330-400	.002-.004-.012	.001-.003-.004
			Medium	Continuous	FSF,USF	KW10	1/64	100-170-230	.004-.020-.039	.001-.004-.008
				Interrupted		KW10	1/64	100-170-230	.004-.020-.039	.001-.004-.008
	High-temperature Alloy Inconel 625 Inconel 718 etc.	HB ≦ 350	Finishing	Continuous	F , U	KW10	1/64	30-100-170	.004-.012-.020	.001-.002-.004
				Interrupted	Without Chipbreaker	KW10	1/32	30-100-170	.008-.020-.028	.001-.002-.004
			Finishing	Continuous	MQ	PR1310	1/64	130-200-260	.004-.012-.020	.001-.002-.004
				Interrupted		PR1310	1/32	130-200-260	.004-.012-.020	.001-.002-.004
	Heat Treated Steel High Hard Material D2, H13 etc.	40-50 HRC	Finishing	Continuous	GK	PR1225	0.008	130-200-260	.004-.012-.020	.001-.003-.004
				Interrupted		PR1225	1/64	130-200-260	.004-.012-.020	.001-.003-.004
		50-68 HRC	Finishing	Continuous	SE,ME	KBN25M	0.008	260-400-500	.004-.012-.020	.001-.003-.004
				Interrupted	SET,MET	KBN25M	1/64	200-330-400	.004-.012-.020	.001-.003-.004

Recommended Cutting Conditions - Back Turning

● KTKF ➡ **E12**

Workpiece Material		MEGACOAT PR1225		MEGACOAT NANO PR1425		Carbide KW10		Remarks
		Grooving	Traversing	Grooving	Traversing	Grooving	Traversing	
Carbon steel / Alloy steel (SxxC・SCM etc.)	Cutting speed (sfm)	200 ～ 500		★ 250 ～ 650		-		Wet
	Feed rate (ipr)	0.0004 ～ 0.0012	0.0008 ～ 0.006	0.0004 ～ 0.0012	0.0008 ～ 0.006	-		
Stainless Steel (SUSetc.)	Cutting speed (sfm)	★ 200 ～ 425		200 ～ 500		-		
	Feed rate (ipr)	0.0004 ～ 0.0008	0.0008 ～ 0.004	0.0004 ～ 0.0008	0.0008 ～ 0.004	-		
Cast Iron (FC・FCD etc.)	Cutting speed (sfm)	-		-		160 ～ 325		
	Feed rate (ipr)	-		-		0.0004 ～ 0.0008	0.0008 ～ 0.006	
Aluminum	Cutting speed (sfm)	-		-		650 ～ 1500		
	Feed rate (ipr)	-		-		0.0004 ～ 0.0012	0.0008 ～ 0.006	
Brass	Cutting speed (sfm)	-		-		325 ～ 650		
	Feed rate (ipr)	-		-		0.0004 ～ 0.0020	0.0008 ～ 0.008	

Workpiece Material		PCD KPD001		Remarks
		Grooving	Traversing	
Carbon steel / Alloy steel (SxxC・SCM etc.)	Cutting speed (sfm)	-		Wet
	Feed rate (ipr)	-		
Stainless Steel (SUS etc.)	Cutting speed (sfm)	-		
	Feed rate (ipr)	-		
Cast Iron (FC・FCD etc.)	Cutting speed (sfm)	-		
	Feed rate (ipr)	-		
Aluminum	Cutting speed (sfm)	650 ～ 1600		
	Feed rate (ipr)	0.0004 ～ 0.0012	0.0008 ～ 0.0047	
Brass	Cutting speed (sfm)	325 ～ 1150		
	Feed rate (ipr)	0.0004 ～ 0.0020	0.0008 ～ 0.006	

●ABS15, ABW15, ABW23 ➡ **E9~E11**

Workpiece Material		MEGACOAT PR1225		MEGACOAT NANO PR1425		Carbide KW10		Remarks
		Grooving	Traversing	Grooving	Traversing	Grooving	Traversing	
Carbon steel / Alloy steel (SxxC・SCM etc.)	Cutting speed (sfm)	250 ～ 325		★ 250 ～ 600		-		Wet
	Feed rate (ipr)	0.0008	0.008 ～ 0.0028	0.0008	0.0008 ～ 0.028	-		
Stainless Steel (SUS etc.)	Cutting speed (sfm)	★ 130 ～ 200		150 ～ 400		-		
	Feed rate (ipr)	0.0008	0.0008 ～ 0.0020	0.0008	0.0008 ～ 0.0020	-		
Aluminum	Cutting speed (sfm)	-		-		500 ～ 650		
	Feed rate (ipr)	-		-		0.0008	0.0008 ～ 0.0039	

★：1st Choice

KSTB...CCET

Fig. 1

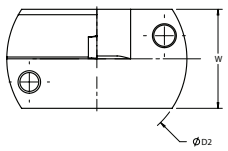
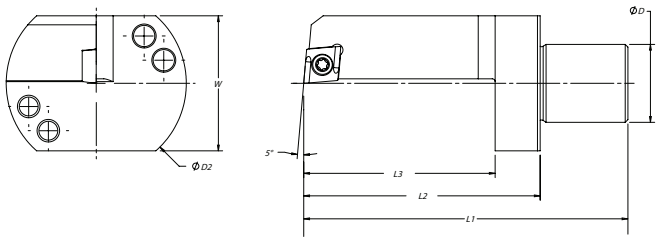


Fig. 2



● Toolholder Dimensions

Description	Stock	Unit	Applicable Inserts B45-B49	Dimension øD	L1	L2	L3	W	øD2	Spare Parts Clamp Screw	Spare Parts Wrench	Fig.	Reference Machine
KSTB SR16/20 CCET215	●	inch	CCET 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	●		CCGT 32.5	0.866	3.323	2.250	1.875	1.1	2.0	SB-4085TR	FT-15		
KSTB SR32J CCET325	●			0.866	3.605	2.625	2.125	1.5	2.0			2	SR32J

KSTB...DCET

Fig. 1

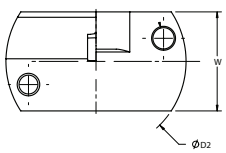
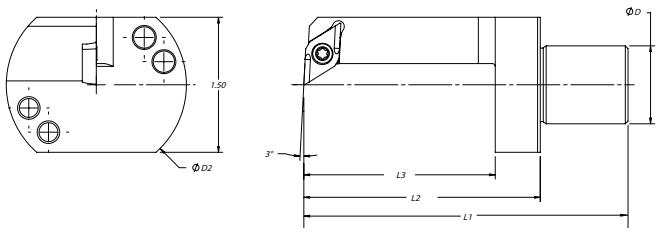


Fig. 2



● Toolholder Dimensions

Description	Stock	Unit	Applicable Inserts B52-B59	Dimension øD	L1	L2	L3	W	øD2	Spare Parts Clamp Screw	Spare Parts Wrench	Fig.	Reference Machine
KSTB SR16/20 DCET215	●	inch	DCET 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	●		DCGT 32.5	0.866	3.323	2.250	1.875	1.1	2.0	SB-4085TR	FT-15		
KSTB SR32J DCET325	●			0.866	3.605	2.625	2.125	1.5	2.0			2	SR32J

KSTB...VBET

Fig. 1

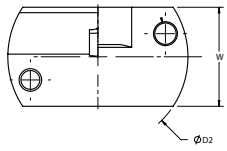
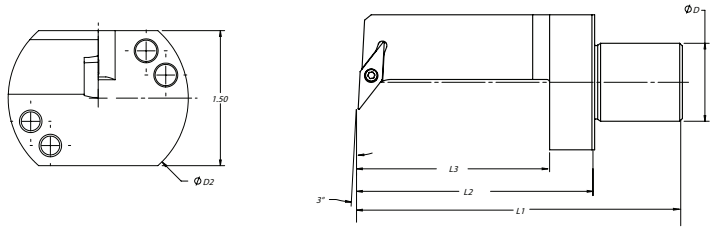


Fig. 2



● Toolholder Dimensions

Description	Stock	Unit	Applicable Inserts B72, B74	Dimension øD	L1	L2	L3	W	øD2	Spare Parts Clamp Screw	Spare Parts Wrench	Fig.	Reference Machine
KSTB SR16/20 VBET22	●	inch	VBET 22	0.866	3.323	2.250	1.875	1.1	2.0	SB-2570TR	FT-8	1	SR16, SR20
KSTB SR32J VBET22	●			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

● : Std. Stock ○ : World Express

KSTB...TGF

Fig. 1

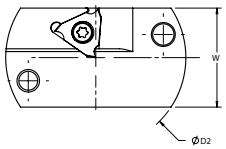
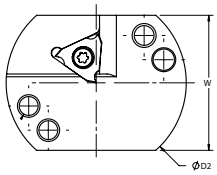
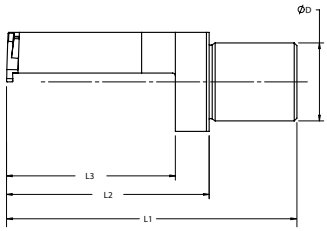


Fig. 2





● Toolholder Dimensions

Description	Stock	Unit	Applicable Inserts G51	Dimension						Spare Parts		Fig.	Reference Machine
				øD	L1	L2	L3	W	øD2	Clamp Screw	Wrench		
KSTB SR16/20 TGF32	●	inch	TGF32L_	0.866	3.323	2.250	1.875	1.1	2.0	SB-4070TRS	FT-10	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

Fig. 1

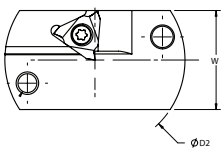
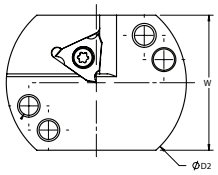
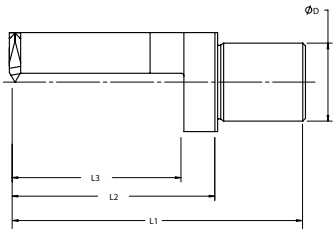


Fig. 2





● Toolholder Dimensions

Description	Stock	Unit	Applicable Inserts J17, J18	Dimension						Spare Parts		Fig.	Reference Machine
				øD	L1	L2	L3	W	øD2	Clamp Screw	Wrench		
KSTB SR16/20 TT32	●	inch	TT32_	0.866	3.323	2.250	1.875	1.1	2.0	SB-4070TRS	FT-10	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

Alternative Toolholder Reference Table for Small Tools - Inch & Metric Sizes (Back Clamp)

Conventional Toolholder			Alternative Toolholder			
Insert Shape	Description	Length	Description	Length	Remarks	Ref. Page
ABS.. 40	AABSR6-15CF	5.00"	AABSR6-15JXF	4.75"		E9
	AABSR8-15DF	6.00"	AABSR8-15JXF	4.75"		
	-		AABSR10-15JXF	4.75"	New item	
	AABSR0810K-40F	125	-	-	No Alternative	-
	AABSR1010K-40F	125	AABSR1010JX-40F	120		E9
	AABSR1212M-40F	150	AABSR1212JX-40F	120		
	AABSR1616M-40F	150	AABSR1616JX-40F	120		
ABW.. 40	AABWR6-15CF	5.00"	AABWR6-15JXF	4.75"		E10
	AABWR8-15DF	6.00"	AABWR8-15JXF	4.75"		
	-		AABWR10-15JXF	4.75"	New item	
	AABWR0810K-40F	125	-	-	No Alternative	-
	AABWR1010K-40F	125	AABWR1010JX-40F	120		E10
	AABWR1212M-40F	150	AABWR1212JX-40F	120		
	AABWR1616M-40F	150	AABWR1616JX-40F	120		
ABW.. 50	AABWR6-23CF	**5.00**	AABWR6-23JXF	4.75"		E11
	AABWR8-23DF	**6.00**	AABWR8-23JXF	4.75"		
	-		AABWR10-23JXF	4.75"	New item	
	AABWR0810K-50F	125	-	-	No Alternative	-
	AABWR1010K-50F	125	AABWR1010JX-50F	120		E11
	AABWR1212M-50F	150	AABWR1212JX-50F	120		
	AABWR1616M-50F	150	AABWR1616JX-50F	120		
CC..	ACLCR/L6-2CF	5.00	ACLCR/L6-2JXFF	4.75"		E20
	-		ACLCR/L6-3JXFF	4.75"	New item	
	ACLCR/L8-3DF	6.00	ACLCR/L8-3JXFF	4.75"		
	-		ACLCR/L10-3JXFF	4.75"	New item	
	ACLC®0810K-06F	125	SCLC®0808F-06FF	120	Clamping system is different.	E21
	ACLC®1010K-06F	125	ACLC®1010JX-06FF	120		E20
	ACLC®1010K-09F	125	ACLC®1010JX-09FF	120		
	ACLC®1212M-09F	150	ACLC®1212JX-09FF	120		
	ACLC®1616M-09F	150	ACLC®1616JX-09FF	120		
DC..	ADJCR/L6-2CF	5.00"	ADJCR/L6-2JXFF	4.75"		E22
	-		ADJCR/L6-3JXFF	4.75"	New item	
	ADJCR/L8-3DF	6.00"	ADJCR/L8-3JXFF	4.75"		
	-		ADJCR/L10-3JXFF	4.75"	New item	
	ADNCR6-2CF	5.00"	-		No Alternative	
	ADNCR/L8-3DF	6.00"	-			
	ADJC®0810K-07F	125	SDJC®0808F-07FF	120	Clamping system is different.	E23
	ADJC®1010K-07F	125	ADJC®1010JX-07FF	120		E22
	ADJC®1010K-11F	125	ADJC®1010JX-11FF	120		
	ADJC®1212M-11F	150	ADJC®1212JX-11FF	120		
	ADJC®1616M-11F	150	ADJC®1616JX-11FF	120		
	ADNCR0810K-07F	125	-	-	No Alternative	-
	ADNCR1010K-07F	125	SDNCN1010JX-07	120	Clamping system is different. Neutral	E25
	ADNCR1010K-11F	125	SDNCN1010JX-11	120		
	ADNCR1212M-11F	150	SDNCN1212JX-11	120		
	ADNCR1616M-11F	150	SDNCN1616JX-11	120		
VB..	AVJBR/L6-2CF	5.00"	AVJBR/L6-2JXFF	4.75"		
	AVJBR/L8-2DF	6.00"	AVJBR/L8-2JXFF	4.75"		
			AVJBR/L10-2JXFF	4.75"	New item	
	AVJB®1010K-11F	125	AVJB®1010JX-11FF	120		E28
	AVJB®1212M-11F	150	AVJB®1212JX-11FF	120		
	AVJB®1616M-11F	150	AVJB®1616JX-11FF	120		
	AVVB®1010K-11F	125	SVVBN1010JX-11	120	Clamping system is different. Neutral	E29
	AVVB®1212M-11F	150	SVVBN1212JX-11	120		
	AVVB®1616M-11F	150	SVVBN1616JX-11	120		

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

Alternative Toolholder Reference Table for Small Tools - Metric Sizes (Screw Clamp)

Conventional Toolholder			Alternative Toolholder			
Insert Shape	Description	Length (mm)	Description	Length (mm)	Remarks	Ref. Page
ABS..40	SABSR0810K-40F	125	-	-	No Alternative	-
	SABSR1010K-40F	125	SABSR1010JX-40F	120		E9
	SABSR1212M-40F	150	SABSR1212JX-40F	120		
	SABSR1616M-40F	150	SABSR1616JX-40F	120		
ABW..40	SABWR0810K-40F	125	-	-	No Alternative	-
	SABWR1010K-40F	125	SABWR1010JX-40F	120		E10
	SABWR1212M-40F	150	SABWR1212JX-40F	120		
	SABWR1616M-40F	150	SABWR1616JX-40F	120		
ABW..50	SABWR0810K-50F	125	-	-	No Alternative	-
	SABWR1010K-50F	125	SABWR1010JX-50F	120		E11
	SABWR1212M-50F	150	SABWR1212JX-50F	120		
	SABWR1616M-50F	150	SABWR1616JX-50F	120		
CC..	SCACR0808K-06	125	SCLCR0808F-06FF	85	Cutting edge angle is different.	E21
	SCACR1010K-06	125	SCLCR1010JX-06FF	120		
	SCACR1010K-09	125	SCLCR1010JX-09FF	120		
	SCACR1212M-09	150	SCLCR1212JX-09FF	120		
	SCACR1616M-09	150	SCLCR1616JX-09FF	120		
	SCACR1212F-09FF	85	SCLCR1212JX-09FF	120		
	SCLCR0808E-06	70	SCLCR0808F-06FF	85		
DC..	SDJCR0808F-07F	80	SDJCR0808F-07FF	85		E23
	SDJCR1010F-07F	80	SDJCR1010JX-07FF	120		
	SDJCR1010F-11F	80	SDJCR1010JX-11FF	120		
	SDJCR1212H-11F	100	SDJCR1212JX-11FF	120		
	SDJCR1616H-11F	100	SDJCR1616JX-11FF	120		
	SDLCR1010F-07FF	80	SDLCR1010JX-07FF	120		E24
	SDLCR1212H-07FF	100	SDLCR1212F-07FF	85	Short length type	
			SDLCR1212JX-07FF	120		
	SDLCR1616H-07FF	100	SDLCR1616JX-07FF	120		
	SDLCR1212H-11FF	100	SDLCR1212JX-11FF	120		
	SDLCL1616H-11FF	100	SDLCL1616JX-11FF	120		
	SDNCR1010F-07F	80	SDNCR1010JX-07F	120		E25
	SDNCR1010F-11F	80	SDNCR1010JX-07F	120	Insert size is different.	
			SDNCN1010JX-11	120	Neutral	
	SDNCR1212H-11F	100	SDNCN1212F-11	85	Neutral Short length type	
			SDNCN1212JX-11	120	Neutral	
	SDNCR1616H-11F	100	SDNCN1616JX-11	120	Neutral	
	SDNCN0808E-07	70	SDNCN0808F-07	85		
	SDNCN1010F-07	80	SDNCN1010JX-07	120		
	SDNCN1212H-07	100	SDNCN1212JX-07	120		
	SDNCN1212H-11	100	SDNCN1212F-11	85	Short length type	
			SDNCN1212JX-11	120		
	SDXCR1010F-07	80	SDXCR1010JX-07	120		E24
	SDXCR1010F-11	80	SDXCR1010JX-11	120		
	SDXCR1212H-11	100	SDXCR1212JX-11	120		
	SDXCR1616H-11	100	SDXCR1616JX-11	120		
DP..	SDLPR0808F-07F	80	SDLPR0808F-07FF	85		E26
	SDLPR1010F-07F	80	SDLPR1010JX-07FF	120		
	SDLPR1010F-11F	80	SDLPR1010JX-11FF	120		
	SDLPR1212H-11F	100	SDLPR1212JX-11FF	120		
	SDLPR1616H-11F	100	SDLPR1616JX-11FF	120		

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

Alternative Toolholder Reference Table for Small Tools - Inch Sizes (Screw Clamp)

Conventional Toolholder			Alternative Toolholder			
Insert Shape	Description	Length (inch)	Description	Length (inch)	Remarks	Ref. Page
ABS.. 40	SABSR6-15CF	5.00	SABSR6-15JXF	4.75		E9
	SABSR8-15DF	6.00	SABSR8-15JXF	4.75		
			SABSR10-15JXF	4.75	New Item	
ABW.. 40	SABWR6-15CF	5.00	SABWR6-15JXF	4.75		E10
	SABWR8-15DF	6.00	SABWR8-15JXF	4.75		
			SABWR10-15JXF	4.75	New Item	
ABW.. 50	SABWR6-23CF	5.00	SABWR6-23JXF	4.75		E11
	SABWR8-23DF	6.00	SABWR8-23JXF	4.75		
			SABWR10-23JXF	4.75	New Item	
CC..	SCLCR/L6-2X	3.00	SCLCR/L6-2JXFF	4.75		E21
	SCACR/L6-2C	5.00			Cuting adge angle is different	
	SCGCR6-2X	3.00				
			SCLCR/L6-3JXFF	4.75	New Item	
	SCLCR/L8-3A	4.00	SCLCR/L8-3JXFF	4.75	No Alternative	
	SCACR/L8-3D	6.00			Cuting adge angle is different	
	SCGCR8-3A	4.00				
	SCLCR/L10-3C	5.00	SCLCR/L10-3JXFF	4.75		
	SCGCR10-3C	5.00			Cuting adge angle is different	
	SCLCR/L12-3C	5.00		←	No Alternative	
DC..	SDJCR/L6-2CF	5.00	SDJCR/L6-2JXFF	4.75		E23
	SDJCR/L6-2X	3.00				
			SDJCR/L6-3JXFF	4.75	New Item	
	SDJCR/L8-3DF	6.00	SDJCR/L8-3JXFF	4.75		
	SDJCR/L8-3A	4.00				
	SDJCR/L10-3C	5.00	SDJCR/L10-3JXFF	4.75		
	SDJCR/L12-3C	5.00			No Alternative	
			SDLCR/L6-2JXFF	4.75	New Items	E24
			SDLCR/L6-3JXFF	4.75		
			SDLCR/L8-3JXFF	4.75		
			SDLCR/L10-3JXFF	4.75		
	SDNCR/L6-2CF	5.00	SDNCR/L6-2JXF	4.75		E25
	SDNCN6-2X	3.00	SDNCN6-2JX	4.75		
			SDNCN6-3JX	4.75	New Items	
			SDNCN8-2JX	4.75		
	SDNCR/L8-3DF	6.00	SDNCN8-3JX	4.75		
	SDNCN8-3A	4.00				
	SDNCN10-3C	5.00	SDNCN10-3JX	4.75		
	SDNCN12-3C	5.00		4.75	No Alternative	
			SDJCR52-3JX-F3	4.75	New Items	
			SDJCR52-3JX-F9	4.75		
			SDJCR62.5-3JX-F3	4.75		
			SDJCR62.5-3JX-F9	4.75		
DP..			SDLPR/L6-2JXFF	4.75	New Items	E26
			SDLPR/L6-3JXFF	4.75		
			SDLPR/L8-3JXFF	4.75		
			SDLPR/L10-3JXFF	4.75		

Conventional Toolholder			Alternative Toolholder			
Insert Shape	Description	Length (inch)	Description	Length (inch)	Remarks	Ref. Page
VB..	SVJBR/L6-2CF	5.00	SVJBR/L6-2JXFF	4.75		E28
	SVJBR/L6-2X	3.00		4.75		
	SVJBR/L8-2DF	6.00	SVJBR/L8-2JXFF	4.75		
	SVJBR/L8-2A	4.00		4.75		
			SVJBR/L10-2JXFF	4.75	New Item	
	SVJBR/L12-3C	5.00			No Alternative	
			SVVBN6-2JX	4.75	New Items	E29
			SVVBN8-2JX	4.75		
			SVVBN10-2JX	4.75		
VP..			SVJPR/L8-2JXFF	4.75	New Items	E30
			SVJPR/L10-2JXFF	4.75		
			SVLPR/L6-15JXFF	4.75		
			SVLPR/L8-15JXFF	4.75		
			SVLPR/L8-2JXFF	4.75		
			SVLPR/L10-15JXFF	4.75		
			SVLPR/L10-2JXFF	4.75		
			SVPPR6-15JXFF	4.75		
			SVPPR6-2JXFF	4.75		
			SVPPR8-15JXFF	4.75		
			SVPPR8-2JXFF	4.75		
			SVPPR10-15JXFF	4.75		
			SVPPR10-2JXFF	4.75		
			SVLPR52-2JX-F9	4.75		
			SVLPR62.5-2JX-F9	4.75		
TC..	STGCR6-1.5X	3.00	-		No Alternative	
	STGCR/L8-2A	4.00	-			
WP..	SWLPR/L8-2A	4.00	-		No Alternative	
	SWLPR12-3C	5.00	-			

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

Boring



F

F1~F94

New Product Descriptions F2~F4

Product Lineups F5~F12

Solid Bars		F5
Dynamic Bars	Inch Size	F6
Dynamic Bars	Metric Size	F7
Boring Bars	Inch/Metric	F9

Boring Bar Identification System F13

Solid Tip Bars for Micro-Boring F14~F27

Twin Bar	TWB/TWBT	F14
System Bar	VNB-S/VNB/VNBT/VNBX-S	F16
2-Edge Tip Bar	HPB/HPBT	F24
Tip-Bar	PSB-S/PSBT-S	F26

Boring Bars for Positive Inserts F28~F77

CC □□ Insert/CP □□ Insert	Dynamic Bar / Boring Bars for General Purpose	F28
DC □□ Insert	Dynamic Bar / Boring Bars for General Purpose	F37
JC □□ Insert	Boring Bars for General Purpose	F45
TC □□ Insert	Dynamic Bar	F46
TB / TP □□ Insert	Dynamic Bar / Boring Bars for General Purpose	F47
VB / VC / VP □□ Insert	Dynamic Bar / Boring Bars for General Purpose	F58
WB / WP □□ Insert	Dynamic Bar / Boring Bars for General Purpose	F71
SP □□ Insert	Boring Bars for General Purpose	F76
YP □□ Insert	Boring Bars for General Purpose	F77

AD Bars F78~F81

AD Bar Identification System		F78
CN □□ Insert		F78
DN □□ Insert		F79
TN □□ Insert		F79
CC □□ Insert		F80
DC □□ Insert		F80
Boring Adapter	(with coolant hole / anti-vibration damper system)	F81

Boring Bars for Negative Inserts F82~F85

CN □□ Insert		F82
DN □□ Insert		F83
TN □□ Insert		F84
WN □□ Insert		F85
EN □□ / SN □□ / TC □□ Insert		F86

Boring Bars for Ceramic Tools F87

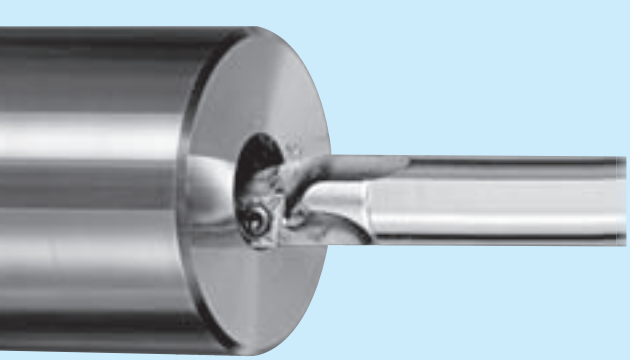
Boring Bars for Solid CBN Tools F88

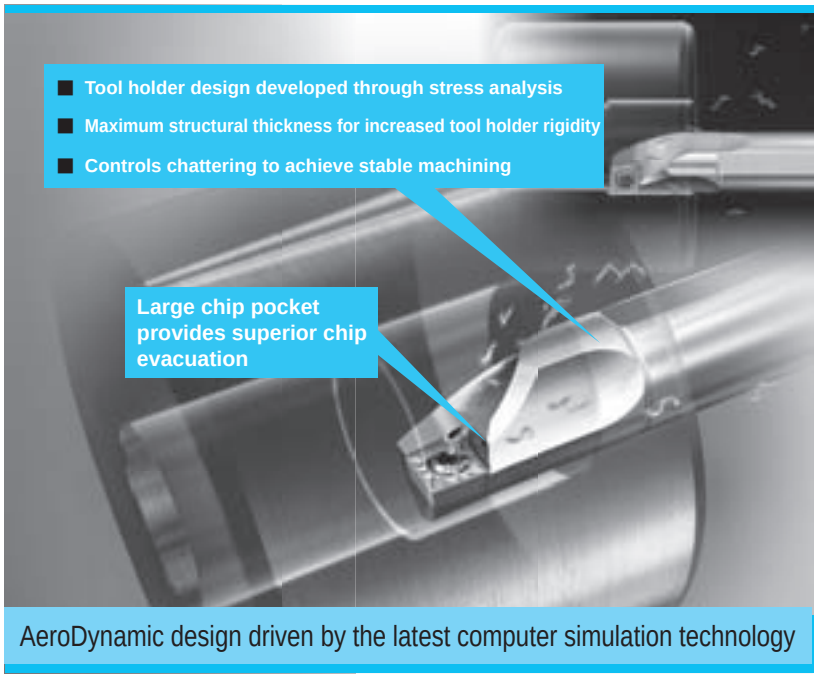
Boring Toolholders for Bearing Machining (Square Shank) F89

Sleeves F90~F92

PSH		F90
PH / SH / SL		F91
SHC / SJS		F92

Recommended Cutting Conditions F93~F94



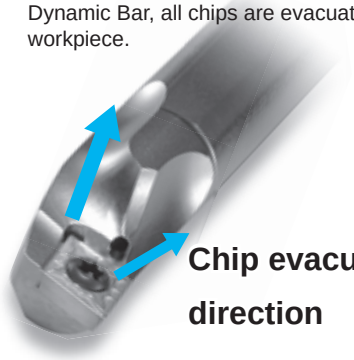


AeroDynamic design driven by the latest computer simulation technology

Superior chip evacuation (external coolant)

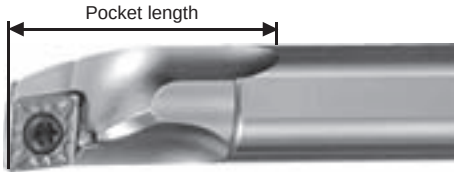
	Dynamic Bar	Competitor A	Competitor B
Inside the workpiece			

In the boring bars of Competitors A and B, chips remain inside the workpiece. In the new Dynamic Bar, all chips are evacuated from the workpiece.



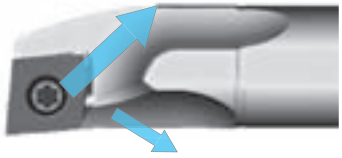
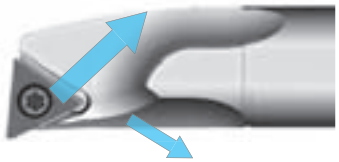
Chip evacuation direction

Comparison of pocket length



item/description	Pocket length (mm)	
	Dynamic Bar	Competitor A
A16-SCLPR09-18 Type	37	29
A20-SCLCR09-22 Type	48	32

Chip evacuation direction

SCLC(P)-type	STLB(P)-type
	
Better evacuation by backward chip flow	

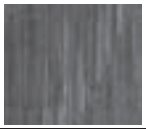
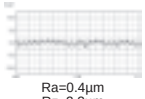
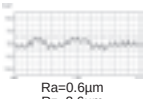
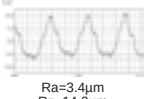
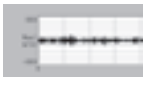
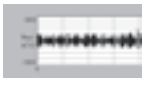
The Dynamic Bar achieves superior chip evacuation

Improved rigidity and chattering resistance are guaranteed through the use of a special alloy and stress analysis technology. Previously unattained surface finish and dimensional accuracy are now achieved.

Comparison of surface finish

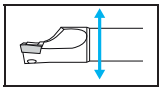
Vibration of the Dynamic Bar was minimal even at high cutting speeds, enabling stable machining.

<cutting conditions>
SCM415
Vc=500sfm
doc=0.02"
f=0.004 ipr
S16-SCLPR09type
CPMH090304L-Y

	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			

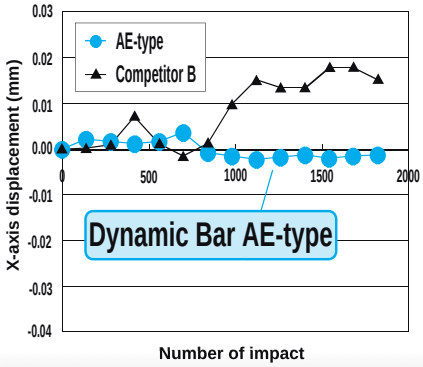
<cutting conditions>
SCM415
Vc=700 sfm
doc=0.002"
f=0.004 ipr
A16Q-SCLPR09-18type
CPMT090304XP(PV7020)
L/D=4
External coolant

Direction of vibration measurement



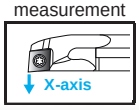
Cutting Point Precision

The AE Dynamic Bar maintains precise cutting edge positional accuracy through the use of a special alloy, thereby achieving high precision machining.



<cutting conditions>
SCM435
Vc=600 sfm, doc=0.08"
f=0.008 ipr
S/A16Q-SCLPR09-18type
CPMH322(CA5525)
L/D=4
External coolant

Direction of measurement

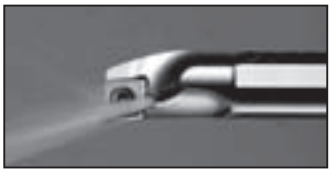


Toolholder Lineup

Inch-Size

■ **Excellent Bar(AE)**

The Excellent Bar with internal coolant hole* is made from a special tool steel with rigidity comprable to heavy metal.



Excellent Bar with Coolant Hole

Metric-Size

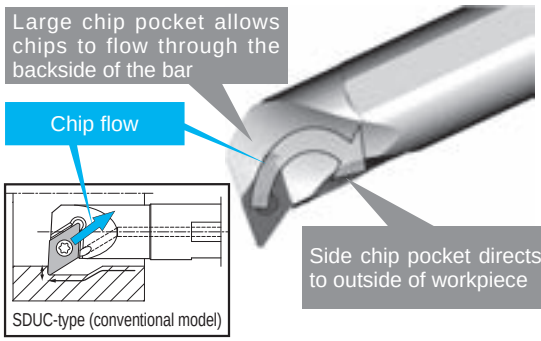
- **Excellent Bar**
- **Steel Shank Bar**
- **Carbide ShankBar**



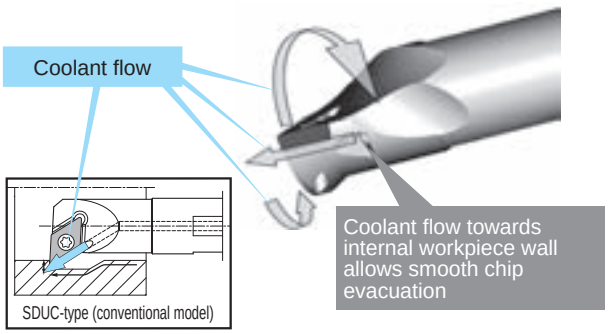
Steel Bar without Coolant Hole

New Enhanced Chip Evacuation Design

New design Streamlined pocket provides effective chip evacuation



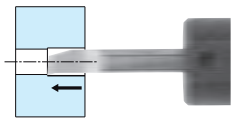
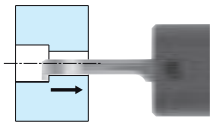
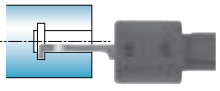
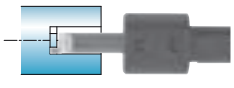
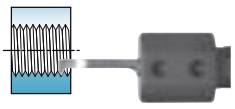
New design Coolant flows toward workpiece internal wall



HP Double-Sided Micro Boring Bar

- Cost efficient 2-edge insert
- Minimum bore diameter 2.0mm
- Adjustable overhang length
- Special sleeve customized to various machine tools

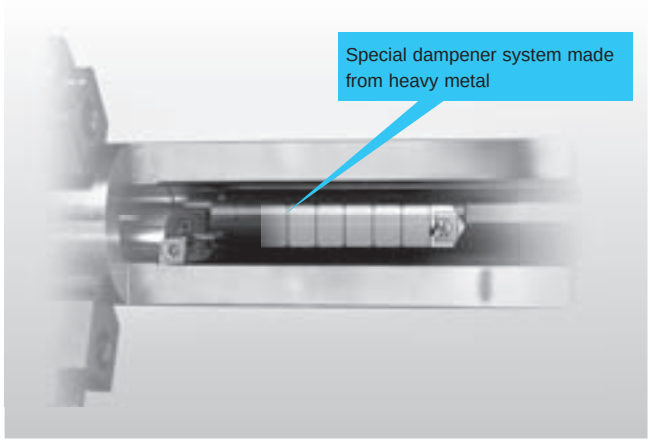


Boring	Back Boring	Grooving	Face Grooving	Threading
				
HPB F24	**HPBT** F24	**HPG** G66	**HPFG** G87	**HPT** J31
Min.Bore.Dia.: ϕ.079"~ϕ.276" Corner-R(rε) : 0.002"	Min.Bore.Dia. : ϕ.157~ϕ.197 Corner-R(rε) : 0.002"	Min.Bore.Dia. : ϕ.157~ϕ.276 Edge Width : .39~.79" Groove Depth : 39~.79"	Min.Groove Dia. : ϕ.315 Edge Width : .039~.118" Groove Depth : .079~.118"	Min.Pilot Hole Dia. : ϕ.177~ϕ.318 M : .03~.06" UN : 28~16TPI W : 24~18TPI Rc : 28~19TPI

Interchangeable head boring bars with anti-vibration dampener system



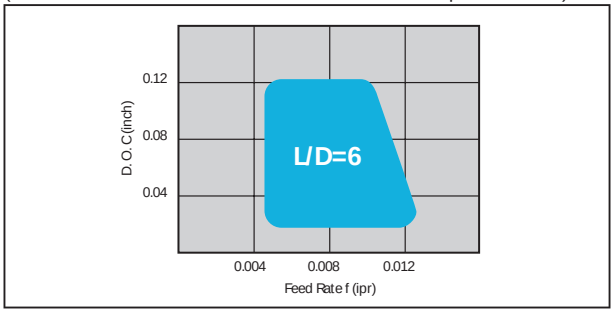
Structure of the Anti-Vibration Dampner System



Possible machining area

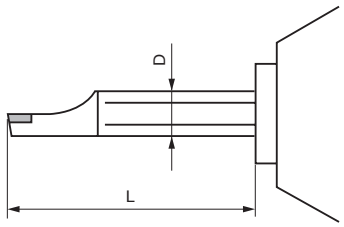
(Guide Line for Overhang Length)

(4140 Vc=500 sfm doc=0.02~0.12" f=0.004~0.012 ipr TNMG332)



Guideline for Overhang Length of Boring Bar (Workpiece Material: 1045)

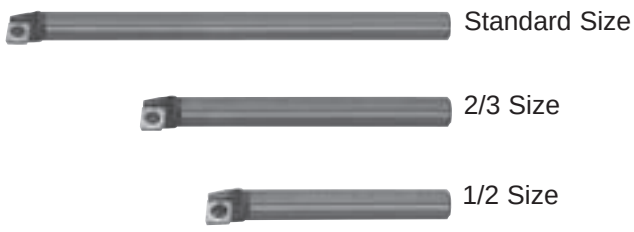
Shank Material	L/D	Example
Steel	3	S…SCLP
Steel (Dynamic Bar)	4	S…SCLP-A
Excellent Bar	5	S…SCLP-E
Excellent Bar (Dynamic Bar)	5.5	A…SCLP-AE
Anti vibration damper (AD Bar)	6	HA…PCLN
Carbide	7	C…SCLP



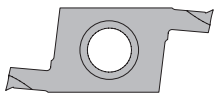
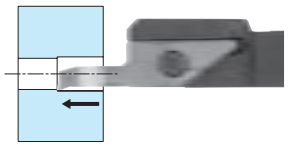
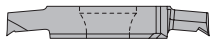
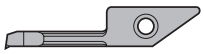
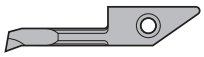
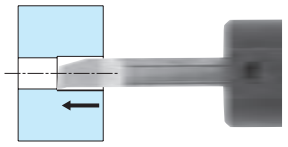
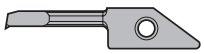
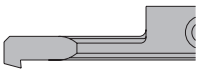
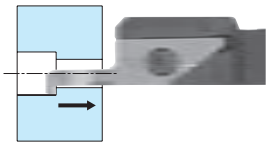
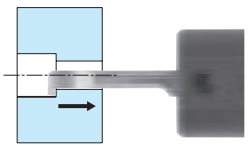
Carbide Shank Bar

○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)

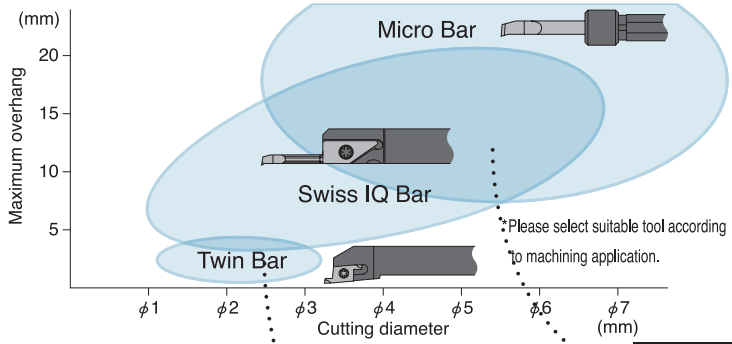


Product Lineup of Solid Bars

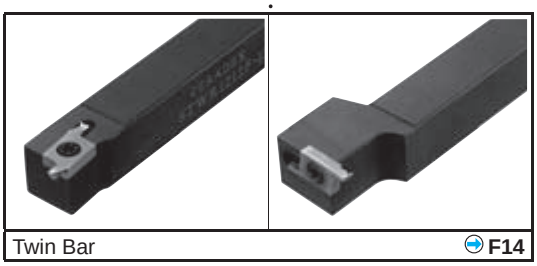
Application	Solid Bars Type	Shape	Shank Type Max. Overhang Length (L/D)	Min. Bore Dia. ϕA (mm) 1	1.5	2	2.5	3	3.5	4	5	6	7	Ref. Page for Toolholder	Summary
Boring	**TWB** Twin Bar → F14		Solid	●	●	●	●	●						F15	
	TWBT Twin Bar → F14		Solid	●	●	●	●	●							
	VNB-S Swiss IQ Bar → F16		Solid	●	●	●		●		●				F18 F19 F20	
	VNB Swiss IQ Bar → F16		Solid			●		●		●	●	●	●		
	VNB-X Swiss IQ Bar → F22		Solid	●	●	●		●	●	●				F23	
	HPB Double sided Micro-Bar → F24		Solid L/D=~5			●		●		●	●	●	●	F25	
	PSB-S Micro-Bar → F26		Solid L/D=~5			●		●		●	●	●	●	F27	
Back Boring	**VNBT** Swiss IQ Bar → F17		Solid							●	●			F18 F19 F20	
	HPBT Double sided Micro-Bar → F24		Solid L/D=~5							●	●			F25	
	PSBT-S Micro-Bar → F26		Solid L/D=~5							●	●			F27	

Toolholder Dimension

Solid Bar Type : Minimum cutting dia. 1mm







Twin Bar → F14



SVN → F18~19

Sqare Shank (Straight)



S...SVN → F20

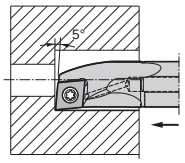
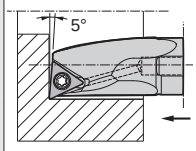
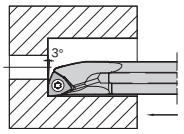
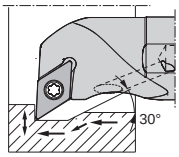
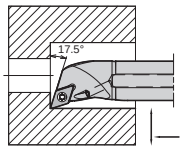
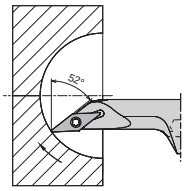
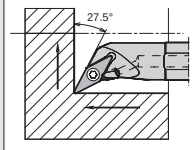
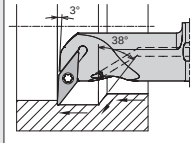
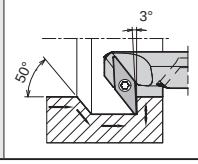
Round Shank (Standard)



SVNS → F18~19

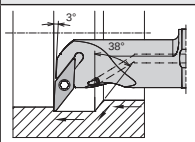
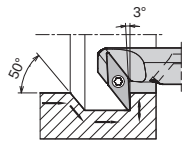
Swiss IQ Bar → F16

Dynamic Bar (Inch)

Application	Overview Shape	Boring Bar Type	Shank Type Max.Overhang Length (L/D)	Coolant Hole Yes	Coolant Hole No	Min.Bore Dia. ϕA(inch) .240	.312	.392	.413	.450	.480	.512	.551	.580	.630	.700	.770	.787	.790	.825	.930	.980	1.180	1.200	1.240	1.300	1.340	Ref.Page for Toolholder
Boring / Internal Facing		A...SCLC-AE	Excellent L/D = ~5.5	●						●			.600 ●			●				●			●				F28
		A...SCLP-AE	Excellent L/D = ~5.5	●				●		●			●		●				●				●				F30
		A...STLP(B)-AE	Excellent L/D = ~5.5	●			●		●				●		●				●						1.280 ●		F47
		S...STLB-AE	Excellent L/D = ~5.5		○		●																				
Boring		A...SWUP(B)-AE	Excellent L/D = ~5.5	●						.472 ●				●		●				●				●			F71
		S...SWUB-AE	Excellent L/D = ~5.5		○	●	●																				
Copying		A...SDUC-AE	Excellent L/D = ~5.5	●								●			●			●					1.063 ●			●		F37
		A...SDQC-AE	Excellent L/D = ~5.5	●								●			●			●				●						F39
		A...SVJB(C)-AE	Excellent L/D = ~5.5	●																		.984 ●	●					F59
		A...SVPB(C)-AE	Excellent L/D = ~5.5	●											●				●			●	●		●			
Copying		A...SVUB(C)-AE	Excellent L/D = ~5.5	●											●				●			●					●	F65
Back Boring		A...SVZB(C)-AE	Excellent L/D = ~5.5	●											●				●			●					●	

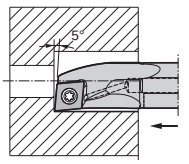
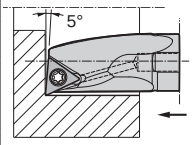
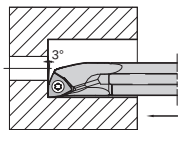
Min.Bore Dia. ϕA is indicated by the figure under ● depending on the boring bar size.

Dynamic Bar (Inch)

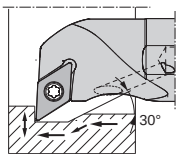
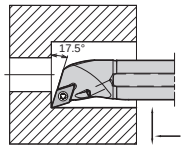
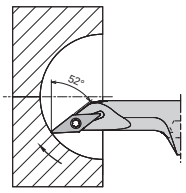
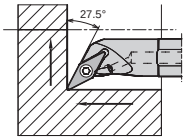
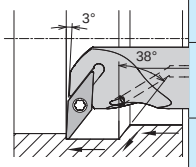
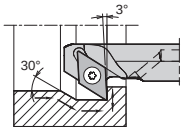
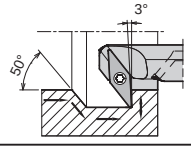
Application	Overview Shape	Boring Bar Type	Shank Type Max.Overhang Length (L/D)	Coolant Hole Yes	Coolant Hole No	Min.Bore Dia. ϕA(inch) .240	.312	.392	.413	.450	.480	.512	.551	.580	.630	.700	.770	.787	.790	.825	.930	.980	1.180	1.200	1.240	1.300	1.340	Ref.Page for Toolholder
Copying		**A...SVUB(C)-AE**	Excellent L/D = ~5.5	●											●				●			●					●	F65
Back Boring		**A...SVZB(C)-AE**	Excellent L/D = ~5.5	●											●				●			●					●	F65

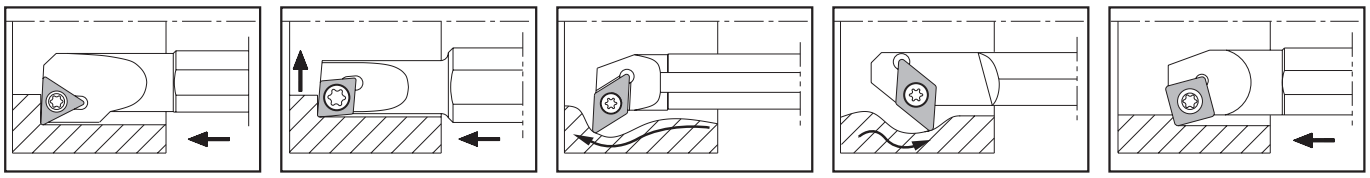
Min.Bore Dia. ϕA is indicated by the figure under ● depending on the boring bar size.

Dynamic Bar (Metric)

Application	Overview Shape	Boring Bar Type	Shank Type Max.Overhang Length (L/D)	Coolant Hole Yes	Coolant Hole No	Min.Bore Dia. ϕA(mm) 5	6	7	8	10	12	13	14	16	18	20	22	23	25	26	27	30	31	32	34	40	50	Ref.Page for Toolholder
Boring/Internal Facing		**A...SCLC-AE**	Excellent L/D = ~5.5	●						●	●		●		●		●				●							F28
		S...SCLC-AE	Excellent L/D = ~5.5		○	●	●	●	●																			F28
		S...SCLC-A	Steel L/D = ~4		○					●	●		●		●		●				●							F28
		C...SCLC-A	Carbide L/D = ~7		○	●	●	●	●																			F28
		E...SCLC-A	Carbide L/D = ~7	●						●	●		●		●		●				●							F28
		A...SCLP-AE	Excellent L/D = ~5.5	●							●		●	●	●		●				●							F30
		S...SCLP-A	Steel L/D = ~4		○						●		●	●	●		●				●							F30
		E...SCLP-A	Carbide L/D = ~7	●							●		●	●	●		●				●							F30
		**E...STLP-A** **C...STLB-A**	Carbide L/D = ~7	●	○				●	●	●		●		●		●				●							F47
		A...STLP-AE **S...STLB-AE**	Excellent L/D = ~5.5	●	○				●	●	●		●		●		●				●							F47
		S...STLB(P)-A	Steel L/D = ~4		○				●	●	●		●		●		●				●							F47
		A...STLC-AE	Excellent L/D = ~5.5	●						●	●		●		●		●											F46
		S...STLC-A	Steel L/D = ~4		○					●	●		●		●		●											F46
Boring		**S...SWUB(P)-A**	Steel L/D = ~4		○		●	●	●	●	●		●	●	●	●	●											F71
		S...SWUB-AE	Excellent L/D = ~5.5		○		●	●	●	●																		F71
		A...SWUB(P)-AE	Excellent L/D = ~5.5	●							●		●	●	●	●	●											F71
		C...SWUB-A	Carbide L/D = ~7		○		●	●	●																			F71
		E...SWUB(P)-A	Carbide L/D = ~7	●						●	●		●		●	●	●											F71

Dynamic Bar (Metric)

Application	Overview Shape	Boring Bar Type	Shank Type Max.Overhang Length (L/D)	Coolant Hole Yes	Coolant Hole No	Min.Bore Dia. ϕA(mm) 5	6	7	8	10	12	13	14	16	18	20	22	23	25	26	27	30	31	32	34	40	50	Ref.Page for Toolholder
Copying		A…SDUC-AE	Excellent L/D = ~5.5	●									●	●		●		●			●			●				F37
		S…SDUC-A	Steel L/D = ~4		○								●	●		●		●			●			●				
		E…SDUC-A	Carbide L/D = ~7	●									●	●		●			●		●			●				
		A…SDQC-AE	Excellent L/D = ~5.5	●							●		●			●			●					●				F39
		S…SDQC-A	Steel L/D = ~4		○							●		●		●			●					●				
		E…SDQC-A	Carbide L/D = ~7	●								●		●		●			●		●			●				
		A…SVJB(C)-AE A…SVJP-AE	Excellent L/D = ~5.5	●										●		●			●			●				●	●	F59
				●										●														
		S…SVJB(C)-A S…SVJP-A	Steel L/D = ~4		○									●		●			●			●				●	●	
					○									●														
		A…SVPB(C)-AE	Excellent L/D = ~5.5	●										●	●		●			●			●			●		
		S…SVPB(C)-A	Steel L/D = ~4		○									●	●		●			●			●			●		
		E…SVPB(C)-A	Carbide L/D = ~7	●										●	●		●			●			●			●		
		A…SVUB(C)-AE	Excellent L/D = ~5.5	●										●		●			●						●	●		F65
		S…SVUB(C)-A	Steel L/D = ~4		○									●		●			●			●			●			
		E…SVUB(C)-A	Carbide L/D = ~7	●											●		●			●			●					
Back Boring		A…SDZC-AE	Excellent L/D = ~5.5	●									●	●		●		●			●			●				F41
		S…SDZC-A	Steel L/D = ~4		○								●	●		●		●			●			●				
		E…SDZC-A	Carbide L/D = ~7	●									●	●		●	●		●					●				
		A…SVZB(C)-AE	Excellent L/D = ~5.5	●										●		●			●						●	●		F67
		S…SVZB(C)-A	Steel L/D = ~4		○									●		●			●						●	●		

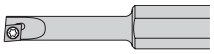
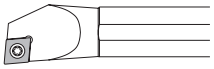
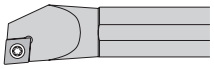
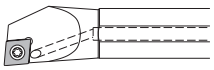
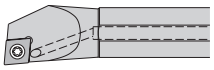
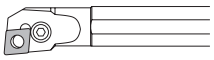
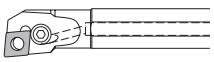
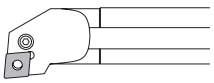
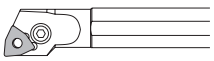
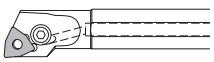
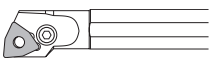
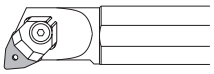
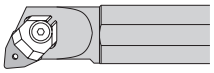
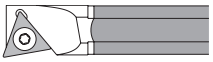


Boring Bars

	Boring Bar Type	Shape	Shank Type / Max. Overhang Length (L/D)	Coolant Hole Yes	Coolant Hole No	Insert Type	Min. Bore Dia. ϕA (inch) .20	.24	.28	.32	.40	.48	.56	.64	.72	.80	1.0	1.2	1.3	1.6	2.0	Ref. Page for Toolholder
Boring	S···SWUB		Steel L/D=~3		○	Positive		●	●	●												F74
	S···SWUB-E		Excellent L/D=~5		○	Positive		●	●	●												
	C···SWUB		Carbide L/D=~7		○	Positive		●	●	●												
	S···SWUP(B)-E		Excellent L/D=~5		○	Positive					●	●	●	●	●	●	●					
	C···SWUP		Carbide L/D=~7		○	Positive					●	●	●	●	●	●	●					
	A···SWUP-E		Excellent L/D=~5	●		Positive							●	●	●	●	●					
	S···STUP(B)		Steel L/D=~3		○	Positive				●	●	●		●		●	●		●			F50
	S···STUP(B)-E		Excellent L/D=~5		○	Positive				●	●	●	●	●	●	●	●		●			
	C···STUP(B)		Carbide L/D=~7		○	Positive				●	●	●	●	●	●	●	●					
	A···STUP-E		Excellent L/D=~5	●		Positive					●	●	●	●	●	●	●		●			F59
	E···STUP		Carbide L/D=~7	●		Positive					●	●	●	●	●	●	●					
	S···CTUP		Steel L/D=~3		○	Positive										●	● 1.06		● 1.34	● 1.69	●	
	S···PTUN11		Steel L/D=~3		○	Negative										●	●		●			F84
	A···PTUN11		Steel L/D=~3	●		Negative										●	●		●			
	S···PTUN16		Steel L/D=~3		○	Negative												●		●	●	

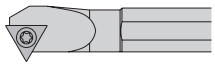
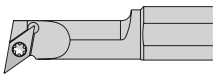
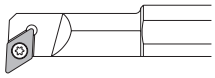
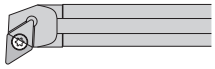
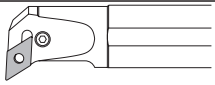
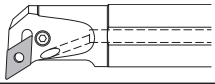
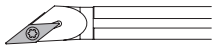
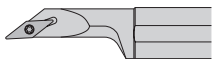
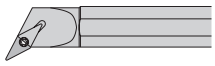
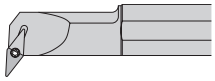
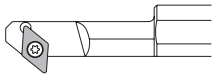
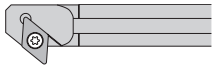
Min. Bore Dia. ϕA is indicated by figure under ● depending on Boring Bar size.

Boring Bars

	Boring Bar Type	Shape	Shank Type / Max. Overhang Length (L/D)	Coolant Hole Yes	Coolant Hole No	Insert Type	Min. Bore Dia. ϕA (inch) .20	.24	.28	.32	.40	.48	.56	.64	.72	.80	1.0	1.2	1.3	1.6	2.0	Ref. Page for Toolholder
Boring / Internal Facing			Excellent L/D=~5		○	Positive	●	●	●	●												
	C···SCLC		Carbide L/D=~7		○	Positive	●	●	●	●												
	S···SCLP(C)		Steel L/D=~3		○	Positive					●	●	●	●	●	●	●	●				F33
	S···SCLP(C)-E		Excellent L/D=~5		○	Positive					●	●	●	●	●	●	●					
	C···SCLP(C)		Carbide L/D=~7		○	Positive					●	●		●		●	●					
	A···SCLC		Steel L/D=~3	●		Positive					●	●	●	●		●	●					
	A···SCLP(C)-E		Excellent L/D=~5	●		Positive					●	●	●	●	●	●	●					F35
	E···SCLP(C)		Carbide L/D=~7	●		Positive					●	●		●		●	●					
	S···PCLN09		Steel L/D=~3		○	Negative										●	● 1.06		●			
	A···PCLN09		Steel L/D=~3	●		Negative										●	● 1.06		●			F82
	S···PCLN12		Steel L/D=~3		○	Negative														●	●	
	S···PWLN06		Steel L/D=~3		○	Negative										●	● 1.06		●			
	A···PWLN06		Steel L/D=~3	●		Negative										●	● 1.06		●			
	S···PWLN08		Steel L/D=~3		○	Negative														●	●	F85
	S···WWLN08		Steel L/D=~3		○	Negative													● 1.34	●		
	S···WWLN08-E		Excellent L/D=~5		○	Negative											● 1.10		● 1.34	●		
	C···STXP(B)		Carbide L/D=~7		○	Positive			● .29	● .35	● .43											F56
	C···SJLC		Carbide L/D=~7		○	Positive	● .22															F45

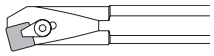
Min. Bore Dia. ϕA is indicated by figure under ● depending on Boring Bar size.

Boring Bars

	Boring Bar Type	Shape	Shank Type / Max. Overhang Length (L/D)	Coolant Hole Yes	Coolant Hole No	Insert Type	Min. Bore Dia. ϕA (inch) .20	.24	.28	.32	.40	.48	.56	.64	.72	.80	1.0	1.2	1.3	1.6	2.0	Ref. Page for Toolholder
Copying	S···STWP		Steel L/D=~3		○	Positive						●		●		●	●					F55
	S···STWP-E		Excellent L/D=~5		○	Positive						●		●		●	●		●			
	S···SYXP-E		Excellent L/D=~5		○	Positive						●		●								
	S···SDUC		Steel L/D=~3		○	Positive							●	●		●	●					F37
	S···SDUC-E		Excellent L/D=~5		○	Positive							●	●		●	●		●			
	C···SDUC		Carbide L/D=~7		○	Positive							●	●		●	●		●			
	S···PDUN11		Steel L/D=~3		○	Negative											● 1.06		●	●		F83
	A···PDUN11		Steel L/D=~3	●		Negative											● 1.06		●	●		
	S···SVJB		Steel L/D=~3		○	Positive								● .62		● .78	● .98					F61
	S···SVJB(C)-E S···SVJP-E		Excellent L/D=~5		○	Positive								● ●		●	●	●		●	●	
	S···SVPB(C)-E		Excellent L/D=~5		○	Positive								●		●	●		● 1.34	●		
	S···SVUB(C)-E		Excellent L/D=~5		○	Positive								●		●	●		● 1.34	●		
Back Boring	C···STZB		Carbide L/D=~7		○	Positive				● .34												F56
	C···SJZC		Carbide L/D=~7		○	Positive		● .26														F45
	S···SDZC		Steel L/D=~3		○	Positive							●	●		●	●					F44
	S···SDZC-E		Excellent L/D=~5		○	Positive							●	●		●	●		●			

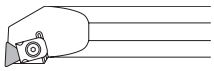
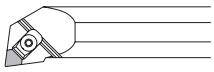
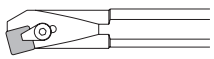
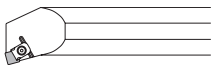
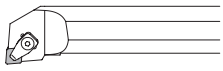
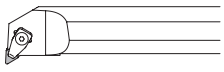
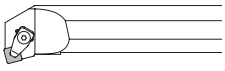
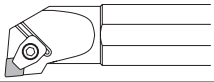
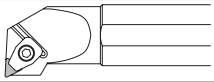
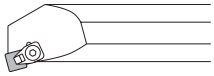
Min. Bore Dia. ϕA is indicated by figure under ● depending on Boring Bar size.

Boring Bars

	Boring Bar Type	Shape	Shank Type Max. Overhang Length (L/D)	Coolant Hole Yes	Coolant Hole No	Insert Type	Min. Bore Dia. ϕA (inch) .20	.24	.28	.32	.40	.48	.56	.64	.72	.80		1.2	1.3	1.6	2.0	Ref. Page for Toolholder
Thru Boring	S···SSKP		Steel L/D=~3		○	Positive										●	●		●	●		F76
Thru Boring	S···CSKP		Steel L/D=~3		○	Positive										●	●		●	●		F76
																	1.06		1.34	1.69		

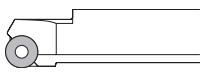
Min. Bore Dia. ϕA is indicated by figure under ● depending on Boring Bar size.

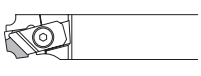
Boring Bars for Ceramic / Solid CBN Tools

	Boring Bar Type	Shape	Shank Type Max. Overhang Length (L/D)	Coolant Hole Yes	Coolant Hole No	Insert Type	Min. Bore Dia. ϕA (inch) .20	.24	.28	.32	.40		.56	.64	.72	.80	1.0	1.2	1.3	1.6	2.0	Ref. Page for Toolholder
Blind Hole Boring	S···CTUP		Steel L/D=~3		○	Positive								●		●	●		●	●	●	F57
Blind Hole Boring	S···CTUC		Steel L/D=~3		○	Positive														●		F86
	S···CELN		Steel L/D=~3		○	Negative															●	F86
Thru Boring	S···CSKP		Steel L/D=~3		○	Positive										●	●		●	●		F86
Thru Boring	S···CSKN		Steel L/D=~3		○	Negative															●	F86
Boring / Facing	S...CCLN-GX		~		○	Negative														●	●	F87
Copying	S...CDUN-GX		Steel L/D=~3		○	Negative														●	●	F87
Thru Boring	S...CSKN-GX		~		○	Negative														●	●	F87
Boring / Facing	S···CCLN-A		Steel L/D=~3		○	Negative												●		●		F88
	S···CTUN-A		Steel L/D=~3		○	Negative												●				F88
Thru Boring	S···CSKN-A		Steel L/D=~3		○	Negative												●		●		F88

Min. Bore Dia. ϕA is indicated by figure under ● depending on Boring Bar size.

Toolholders for Bearing Machining (Square Shank)

	Toolholder Type	Shape	Min. Bore Dia. ϕA (inch) 1.0	1.2	1.3	1.6	2.0	Ref. Page for Toolholder
Thru Boring	SRCP-B				●			F89

	Toolholder Type	Shape	Min. Bore Dia. ϕA (inch) .80	1.0	1.2	1.3	1.6	2.0	Ref. Page for Toolholder
Round-Chamfering	CBSN-B		●						F89

Boring Bar Identification System (Round Shank)

	ANSI (in)	ISO (mm)
F	3	80
G	3.5	90
H	4	100
J	4.5	110
K	5	125
L	5.5	140
M	6	150
N	6.5	160
P	6.75	170
Q	7	180
R	8	200
S	10	250
T	12	300
U	14	350
V	16	400
W	18	450
Y	20	500
X	Special	

S	Steel
A	Steel (with Coolant Hole)
C	Carbide
E	Carbide (with Coolant Hole)

C : Clamp Only
M : Clamp and Lock Pin
P : Lock Pin Only or Lever Lock
S : Screw Only
W : Wedge Lock

R : Round
S : 90° Square
T : 60° Triangle
C : 80° Diamond
J : 70° Diamond
D : 55° Diamond
V : 35° Diamond
W : 80° Trigon

R : Right-hand
L : Left-hand

Optional Code

A: Dynamic Bar
E: Excellent Bar
AE: Excellent Bar (Dynamic-type)

	Shank Type	Bar Length		Clamping System		Insert Shape	Hand of Tool	Others	
ANSI	S	08	M	– S	C	L	P	R	3 – AE
ISO	S	12	M	– S	C	L	P		09 – 16

		Boring Bar Style	Insert Relief Angle	Insert Size	Minimum Bore Dia.

ANSI
A two-digit number which indicates the bar diameter in 1/16-inch increments.

ISO
Bar diameter in mm

F	K
90°	75°
L	P
95° 95°	117.5°
Q	S
107.5°	45°
U	W
93°	60°
Y	X
85°	110°
Z	
93°(95°)	

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

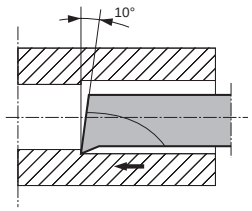
ANSI
Number of 1/8th of IC

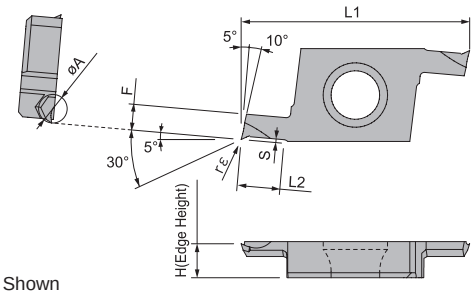
ISO
Cutting Edge Length(mm)

R L S L T L C L D,J,Y L V L

Twin Bar for Micro Boring

TWB (Micro Boring: Lay-down type) [Corner-R(rε) tolerance: +0/-0.02mm,+0/-0.03mm]



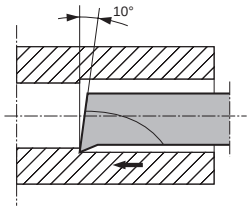


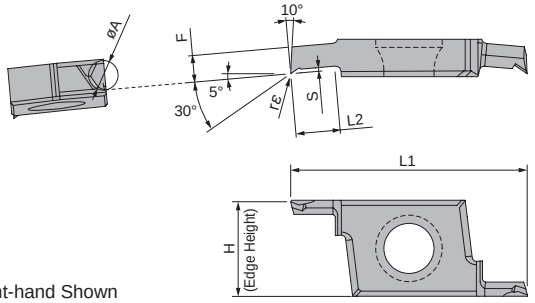
●Right-hand Shown



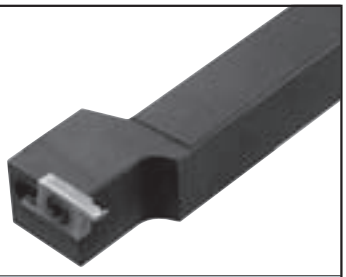
Installation example for the inserts of straight-shape shank

TWBT (Micro Boring: Stand-up type) [Corner-R(rε) tolerance: +0/-0.02mm,+0/-0.03mm]





●Right-hand Shown



Installation example for the inserts of L-shape shank

F

Boring

● Insert Dimension (TWB, TWBT)

Description		Min. Bore Dia.	Dimension (mm)								Insert Grade			Ref. Page for Toolholder
											PVD Coated		Carbide	
		øA	H	L1	L2	F	S	rε			PR1025		KW10	
TWBR	**01003-005**	1.0	2.38	16	3	0.85	0.2	+0 -0.02 0.05			○		○	**F15**
	01503-005	1.5				1.30					○		○	
	02003-005	2.0				1.75	0.25				○		○	
	02503-005	2.5				2.10	0.3				○		○	
	03003-005	3.0				2.40	0.4				○		○	
TWBR	**01503-010**	1.5	2.38	16	3	1.30	0.2	+0 -0.03 0.1			○		○	
	02003-010	2.0				1.75	0.25				○		○	
	02503-010	2.5				2.10	0.3				○		○	
	03003-010	3.0				2.30	0.4				○		○	
TWBTR	**01003-005**	1.0	6.4	16	3	0.85	0.2	+0 -0.02 0.05			○		○	**F15**
	01503-005	1.5				1.30					○		○	
	02003-005	2.0				1.75	0.25				○		○	
	02503-005	2.5				2.10	0.3				○		○	
	03003-005	3.0				2.30	0.4				○		○	
TWBTR	**01503-010**	1.5	6.4	16	3	1.30	0.2	+0 -0.03 0.1			○		○	
	02003-010	2.0				1.75	0.25				○		○	
	02503-010	2.5				2.10	0.3				○		○	
	03003-010	3.0				2.30	0.4				○		○	

● Recommended Cutting Conditions (TWB, TWBT)

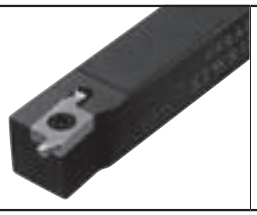
Workpiece Material	Insert Grade (Cutting Speed:SFM)		TWBR01003 type TWBR01503 type TWBTR01003 type TWBTR01503 type		TWBR02003 type TWBR02503 type TWBR03003 type TWBTR02003 type TWBTR02503 type TWBTR03003 type		Remarks
	PVD Coated	Carbide					
	PR1025	**KW10**	D.O.C (in)	Feed Rate (ipr)	D.O.C (in)	Feed Rate (ipr)	
Carbon Steel / Alloy Steel	★ 100~330		~.004	~.0004	~.008	~.0012	Coolant
Stainless Steel	★ 100~270		~.004	~.0004	~.008	~.0008	
Non-ferrous Material		★ ~330	~.004	~.0008	~.008	~.002	

Twin-bars are sold in 5 piece boxes

★ : 1st Recommendation ☆ : 2nd Recommendation

● : Std. Stock ○ : World Express

STW (Square Shank for Lay-down type inserts)



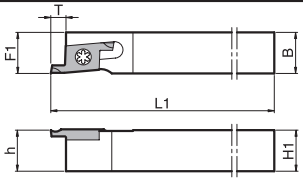


Fig.1

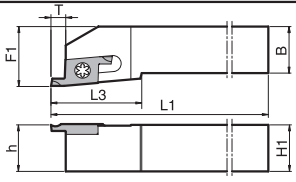


Fig.2

• Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description		Stock	Dimension (mm) H1=h	B	L1	L2	L3	F1	F2	T	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable Insert
STWR	1010F-15	○	10	10	80			10			Fig. 1	SB-3080TR	LTW-10S	TWBR○○○○○-○○○
	1212F-15	○	12	12				12						
	1010K-15	○	10	10	125	-	-	10	-	3				
	1212K-15	○	12	12				12						
	1616K-15	○	16	16				16						
	2020K-15	○	20	20			25	25			Fig. 2			
	2525M-15	○	25	25	150			32						

F14

S..-STW (Round Shank for Lay-down type inserts)



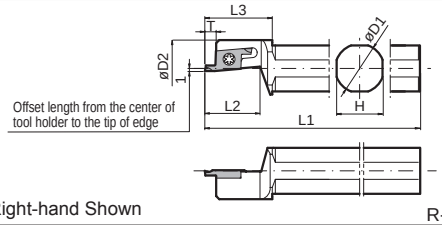


Fig.1

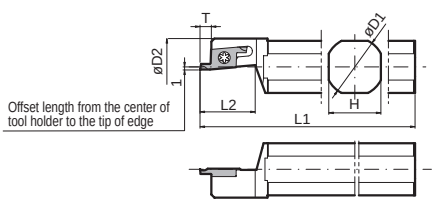


Fig.2

• Right-hand Shown

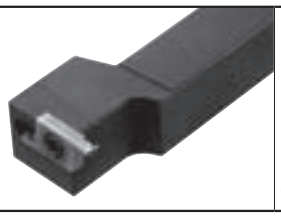
R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder.

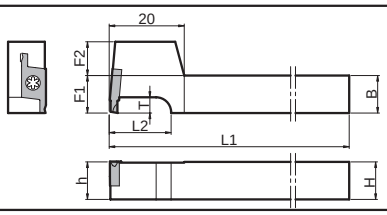
● Toolholder Dimensions

Description		Stock	Dimension (mm) ϕD1	ϕD2	H	L1	L2	L3	T	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable Insert
S12F-	STWR15	○	12	20	11	80	18	22	3	Fig. 1	SB-3080TR	LTW-10S	TWBR○○○○○-○○○
S14H-	STWR15	○	14		13	100							
S15F-	STWR15	○	15.875		15	85							
S16F-	STWR15	○	16			85							
S19G-	STWR15	○	19.05	18.5	17	90		-	3	Fig. 2			
S19K-	STWR15	○	19.05			120							
S20G-	STWR15	○	20	19.5	18	90							
S20K-	STWR15	○	20			120							
S22K-	STWR15	○	22	21.5	20	125	22						
S25.0J-	STWR15	○	25	24.5	23	110							

F14

STWS (Square Shank for Stand up type inserts : L-shape)





• Right-hand Shown

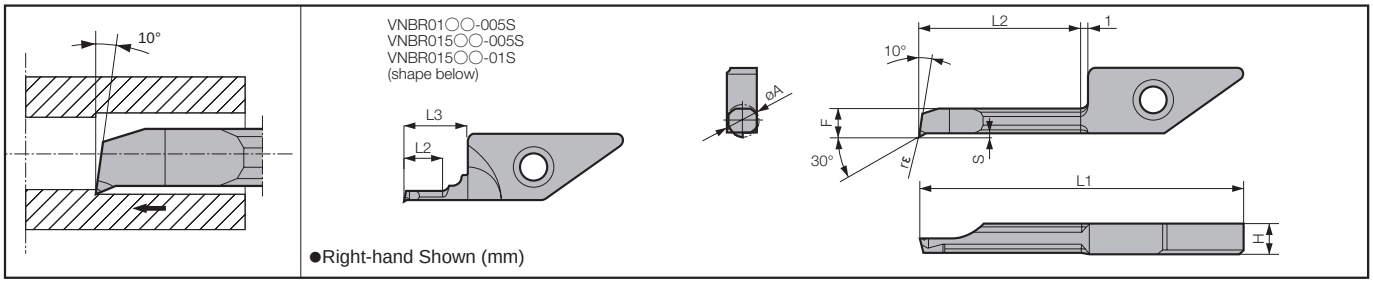
● Toolholder Dimensions

Description		Stock	Dimension (mm) H1=h	B	L1	L2	L3	F1	F2	T	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable Insert
STWSR	1010F-15T	○	10	10	80	16	-	10	9	3	-	SB-3080TR	LTW-10S	TWBTR○○○○○-○○○
	1212F-15T	○	12	12				12	7					
	1010K-15T	○	10	10	125			10	9					
	1212K-15T	○	12	12				12	7					
	1616K-15T	○	16	16		20		16	3					

F14

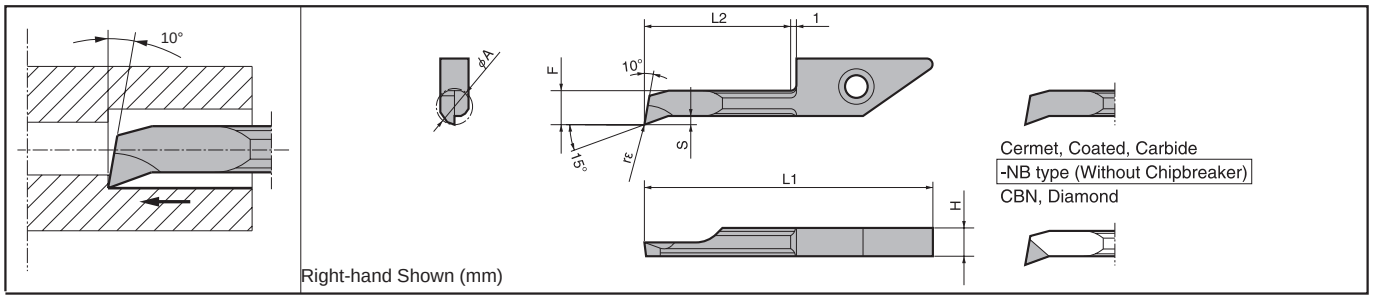
● : Std. Stock ○ : World Express

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



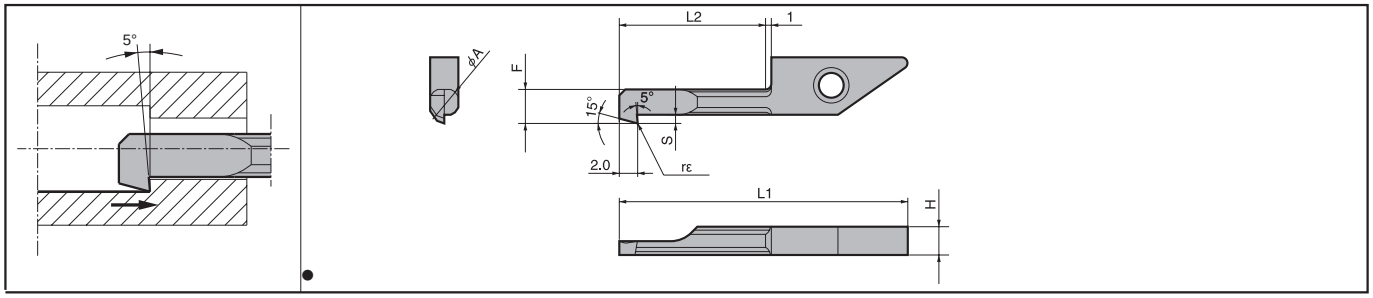
●Right-hand Shown (mm)

VNB



Right-hand Shown (mm)

VNBT (Back Boring)



●

● Insert Dimensions

Description		Min. Bore Dia.	Dimension (mm)								Insert Grade						
											Cermet	PVD Coated Carbide		Carbide	CBN	Diamond	
		ϕA	H	L1	L2	L3	F	S	rε +0 -0.025		TC60	PR915	PR930	KW10	KBN510	KPD001	KPD010
VNBR	0103-005S	1.0	3.9	26.5	3	7	0.85	0.2	0.05				○				
	0105-005S				5								○				
	01503-005S	1.5			3		1.3						○				
	01505-005S				5								○				
	0206-005S	2.0			6	-	1.8	0.25					○				
	025075-005S	2.5		28.1	7.5		2.1	0.4					○				
	0311-005S	3.0		30.8	11		2.6	0.4					○				
	03515-005S	3.5		34.8	15		2.9	0.5					○				
	0411-005S	4.0		30.8	11		3.5	0.5					○				
	0420-005S			39.8	20								○				
VNBR	01503-01S	1.5	3.9	26.5	3	7	1.3	0.2	0.1				○				
	01505-01S				5								○				
	0206-01S	2.0			6	-	1.8	0.25					○				
	025075-01S	2.5		28.1	7.5		2.1	0.4					○				
	0311-01S	3.0		30.8	11		2.6	0.4					○				
	03515-01S	3.5		34.8	15		2.9	0.5					○				
	0411-01S	4.0		30.8	11		3.5	0.5					○				
	0420-01S			39.8	20								○				
VNBR	0411-02S	4.0	3.9	30.8	11	-	3.5	0.5	0.2				○				
	0420-02S			39.8	20								○				

● Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Cutting Speed: SFM)							VNB01-S VNB015-S		VNB02-S VNB03-S VNB04-S		Remarks
	Cermet	PVD Coated		Carbide	CBN	Diamond						
	TC60	PR915	PR930	KW10	KBN510	KPD001	KPD010	D.O.C. (in)	Feed Rate (ipr)	D.O.C. (in)	Feed Rate (ipr)	
Carbon Steel / Alloy Steel			★ 100~330					~.004	~.0004	~.008	~.0012	Coolant
Stainless Steel			★ 100~270					~.004	~.0004	~.008	~.0008	

★: 1st Recommendation ● : Std. Stock ○ : World Express

● Insert Dimensions

Description		Min. Bore Dia.	Dimension (mm)								Insert Grade						
											Cermet	PVD Coated Carbide		Carbide	CBN	Diamond	
		ϕA	H	L1	L2	F	S	rε			TC60	PR915	PR930	KW10	KBN510	KPD001	KPD010
VNBR	0206-003	2	3.9	26.5	6	1.8	0.25	0.03					○	○			
	0311-003	3		30.8	11	2.6	0.4						●	●			
	0411-003	4		30.8	11	3.5	0.5				○		●	●			
	0420-003			39.8	20						○		●	●			
	0511-003	5		30.8	11	4.5	0.7				○		●	●			
	0520-003			39.8	20						○		●	●			
	0620-003	6		39.8	20	5.3	1.0				○		●	●			
	0630-003			49.8	30						○		○	○			
	0720-003	7		39.8	20	6.2	1.0				○		●	●			
	0730-003			49.8	30						○		○	○			
VNBR	0206-02	2	3.9	26.5	6	1.8	0.25	0.2					○	○			
	0311-02	3		30.8	11	2.6	0.4					○	○	○			
	0411-02	4		30.8	11	3.5	0.5					○	○	○			
	0420-02			39.8	20								○	○			
	0511-02	5		30.8	11	4.5	0.7						○	○			
	0520-02			39.8	20								○	○			
	0620-02	6		39.8	20	5.3	1.0						○	○			
	0630-02			49.8	30								○	○			
	0720-02	7		39.8	20	6.2	1.0						○	○			
	0730-02			49.8	30								○	○			
VNBR	0206-01	2	3.9	26.5	6	1.8	0.25	0.1					○	○			
	0311-01	3		30.8	11	2.6	0.4						○	○			
	0411-01	4				3.5	0.5						○	○			
	0420-01			39.8	20								○	○			
	0511-01	5		30.8	11	4.5	0.7						○	○			
	0520-01			39.8	20								○	○			
	0620-01	6				5.3	1.0						○	○			
	0630-01			49.8	30								○	○			
	0720-01	7		39.8	20	6.2	1.0						○	○			
	0730-01			49.8	30								○	○			
VNBR	0206-003NB	2	3.9	26.5	6	1.8	0.25	0.03					○	○			
	0311-003NB	3		30.8	11	2.6	0.4						○	○			
	0411-003NB	4		30.8	11	3.5	0.5						○	○			
	0420-003NB			39.8	20								○	○			
	0511-003NB	5		30.8	11	4.5	0.7						○	○			
	0520-003NB			39.8	20								○	○			
	0620-003NB	6		39.8	20	5.3	1.0						○	○			
	0630-003NB			49.8	30								○	○			
	0720-003NB	7		39.8	20	6.2	1.0						○	○			
	0730-003NB			49.8	30								○	○			
VNBR	0206-02NB	2	3.9	26.5	6	1.8	0.25	0.2						○			
	0311-02NB	3		30.8	11	2.6	0.4							○			
	0411-02NB	4		30.8	11	3.5	0.5							○		○	○
	0420-02NB			39.8	20									○		○	○
	0511-02NB	5		30.8	11	4.5	0.7							○		○	○
	0520-02NB			39.8	20									○		○	○
	0620-02NB	6		39.8	20	5.3	1.0							○		○	○
	0630-02NB			49.8	30									○		○	○
	0720-02NB	7		39.8	20	6.2	1.0							○		○	○
	0730-02NB			49.8	30									○		○	○
VNBTR	0411-003	4	3.9	30.8	11	3.6	1.0	0.03					○	○			
	0420-003			39.8	20								○	○			
	0511-003	5		30.8	11	4.6	1.3						○	○			
	0520-003			39.8	20								○	○			
VNBTR	0411-01	4	3.9	30.8	11	3.6	1.0	0.1					○	○			
	0420-01			39.8	20								○	○			
	0511-01	5		30.8	11	4.6	1.3						○	○			
	0520-01			39.8	20								○	○			

Swiss IQ Bars are sold in a 5-pc box.

● Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Cutting Speed: SFM)							VNB02		VNB03		VNB04 VNBT04		VNB05 VNB06 VNB07 VNBT05		Remarks
	Cermet	PVD Coated			CBN	Diamond										
	TC60	PR915	PR930	KW10	KBN510	KPD001	KPD010	D.O.C. (in)	Feed Rate (ipr)	D.O.C. (in)	Feed Rate (ipr)	D.O.C. (in)	Feed Rate (ipr)	D.O.C. (in)	Feed Rate (ipr)	
Carbon Steel / Alloy Steel	☆ 200~400	☆ 170~500	★ 100~330					~.012	~.0012	~.016	~.0016	~.018	~.0028	~.02	~.004	
Stainless Steel	☆ 170~330	☆ 170~500	100~270					~.012	~.0008	~.016	~.0012	~.018	~.002	~.02	~.0028	
Non-ferrous Metal				☆~		★ ~1000	☆ ~1000	~.012	~.002	~.016	~.0024	~.018	~.004	~.02	~.006	

★: 1st Recommendation ☆: 2nd Recommendation

● : Std. Stock ○ : World Express

SVN-N (Without side stopper) SVNS-N (Without side stopper/without setscrew)

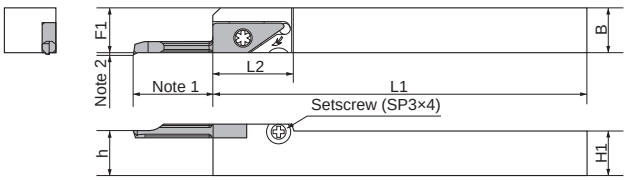


Fig. 1 (SVN-N)

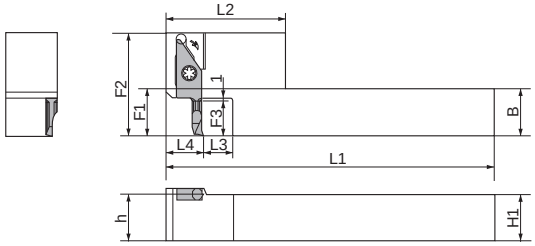


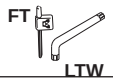
Fig. 2 (SVNS-N)

●Right-hand Shown (mm)

R-hand Insert for R-hand Toolholder.

Note 1 & Note 2: See Insert Dimension Table. (Page **F16~F17**)

● Toolholder Dimensions

Description		Stock	Dimension (mm)									Shape	Spare Parts			Applicable Inserts
			H1=h	B	L1	L2	L3	L4	F1	F2	F3		Insert Screw	Wrench	Setscrew	➔ F16 ➔ G89 ➔ G65 ➔ J30
																
SVNR	1010H-12N	○	10	10	100	22	-	-	10	-	-	Fig. 1	SB-3080TR	FT-10	SP3×4	VNBR ○○○○ - ○○○
	1212K-12N	○	12	12	125				12							VNBTR ○○○○ - ○○○
	1616K-12N	○	16	16	125				16							VNGR ○○○○ - ○○
	2020K-12N	○	20	20	125				20							VNFGR ○○○○ - ○○
	2525M-12N	○	25	25	150				25							VNTR ○○○ - ○○
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		10	12	10	33	11					(VNBR ○○ 11- ○○○)* (VNBTR ○○ 11- ○○○)* (VNGR ○○○○ -11)* (VNTR ○○○ -11)*
	1212M-12-06N	○	12	12	150		10	12	12	29	6					(VNBR ○○ 06- ○○○)*
	1212M-12-11N	○	12	12	150		10	12	12	33	11					(VNBR ○○ 11- ○○○)* (VNBTR ○○ 11- ○○○)* (VNGR ○○○○ -11)* (VNTR ○○○ -11)*
	1212M-12-20N	○	12	12	150		10	13	12	42	20					(VNBR ○○ 20- ○○○)* (VNBTR ○○ 20- ○○○)* (VNGR ○○○○ -20)*
	1616M-12-06N	○	16	16	150		16	12	16	29	6					(VNBR ○○ 06- ○○○)*
	1616M-12-11N	○	16	16	150		16	12	16	33	11					(VNBR ○○ 11- ○○○)* (VNBTR ○○ 11- ○○○)* (VNGR ○○○○ -11)* (VNTR ○○○ -11)*
	1616M-12-20N	○	16	16	150		16	13	16	42	20					(VNBR ○○ 20- ○○○)* (VNBTR ○○ 20- ○○○)* (VNGR ○○○○ -20)*

1. SVN-N (without side stopper) retains high index accuracy by simple restraint.
2. A holder which attaches a setscrew (without side stopper) can be used as binding effect holder like with side stopper holder, once taking off the setscrew, and insert a screw (HS3x4: sold separately) by a wrench (LW-1.5: sold separately).
3. In case of machining insert emphasizing on binding effect, (e.g. varying loading direction of under cutting, internal and external or face cutting by one tool) please use [SVN / SVNS Holders] with attached side stoppers.

* 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.

● : Std. Stock ○ : World Express

SVN Square Shank (Straight)

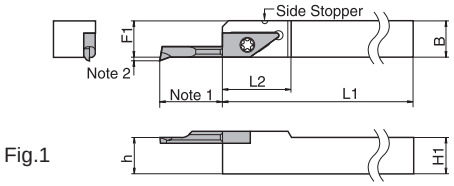


Fig.1

SVNS Square Shank (L-Shape)

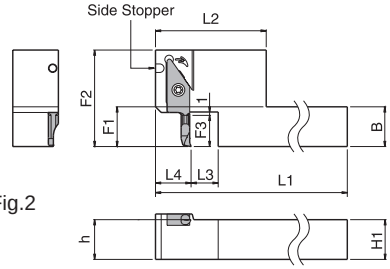


Fig.2

●Right-hand Shown (mm)

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

Note 1 & Note 2: See Insert Dimension Table. (Page **F16~F17**)

● Toolholder Dimensions

Description		Stock	Unit	Dimension									Shape	Spare Parts				Applicable Inserts
				H1=h	B	-L1		-L3	-L4	F1	F2	F3		Insert Screw	Wrench	Screw (Side-Stopper)	Wrench	➔ F16 ➔ G89 ➔ G65 ➔ J30
SVNR	1010H-12	○	mm	10	10	100	22	-	-	10	-	-	Fig.1	SB-3080TR	FT-10	H3X4	LW-1.5	VNBR○○○○-○○○ ○○○○○○○
	1212K-12	○		12	12	125				12								
	1616K-12	○		16	16	125				16						HS3X8		VNGR○○○○-○○
	2020K-12	○		20	20					20						HS3X12		VNFGR○○○○-○○
	2525M-12	○		25	25	150				25						HS3X16		○○○○○
SVNSR	6-12-11	●	inch	0.375	0.375		1.772	0.394	0.472	0.375	1.299	0.433	Fig.2	SB-3080TR	LTW-10S	HS3X4	LW-1.5	(VNBR○○11-○○○)❖ (VNBTR○○11-○○○)❖ (VNGR○○○○-11)❖ (VNTR○○○-11)❖
	8-12-11	●		0.500	0.500		1.772	0.394	0.472	0.500	1.299	0.433						(VNBR○○11-○○○)❖ (VNBTR○○11-○○○)❖ ○○○○❖ (VNTR○○○-11)❖
	8-12-20	●									1.654	0.787						(VNBR○○20-○○○)❖ (VNBTR○○20-○○○)❖ (VNGR○○○○-20)❖
	12-12-11	●		0.750	0.750	8.0	1.772	0.63	0.472	0.750	1.299							(VNBR○○11-○○○)❖ (VNBTR○○11-○○○)❖ (VNGR○○○○-11)❖ (VNTR○○○-11)❖
	12-12-20	●							0.492		1.654	0.787						(VNBR○○20-○○○) (VNBTR○○20-○○○)❖ (VNGR○○○○-20)❖
SVNSR	1010K-12-06	○	mm	10	10	125	45	10	12	10	29	6	Fig.2	SB-3080TR	LTW-10S	HS3X4	LW-1.5	(VNBR○○06-○○○)❖
	1010K-12-11	●		10	10	125	45	45	12	10	33	11						(VNBR○○11-○○○)❖ (VNBTR○○11-○○○)❖ (VNGR○○○○-11)❖ (VNTR○○○-11)❖
	1212M-12-06	○		12	12	150	45	10	12	12	29	6						(VNBR○○06-○○○)❖
	1212M-12-11	●		12	12	150	45	10	12	12	33	11						(VNBR○○11-○○○)❖ (VNBTR○○11-○○○)❖ (VNGR○○○○-11)❖ (VNTR○○○-11)❖
	1212M-12-20	●		12	12	150	45	10	12.5	12	42	20						(VNBR○○20-○○○)❖ (VNBTR○○20-○○○)❖ (VNGR○○○○-20)❖
	1616M-12-06	○		16	16	150	45	16	12	16	29	6						(VNBR○○06-○○○)❖
	1616M-12-11	●			16	150	45	16	12	16	33	11						(VNBR○○11-○○○)❖ (VNBTR○○11-○○○)❖ ○○○○❖ (VNTR○○○-11)❖
	1616M-12-20	●		16	16	150	45	16	12.5	16	42	20						(VNBR○○20-○○○)❖ (VNBTR○○20-○○○)❖ (VNGR○○○○-20)❖

❖All Swiss IQ Bar Inserts are used with SVNSR Toolholder, but when setting the cutting edge at the toolholder face level as shown in Fig. 2, use the Insert shown in ( ).
In that case, the toolholder dimension F3 becomes the same as L2 of Insert Dimension.

● : Std. Stock ○ : World Express

S•••SVN Round Shank (Standard)

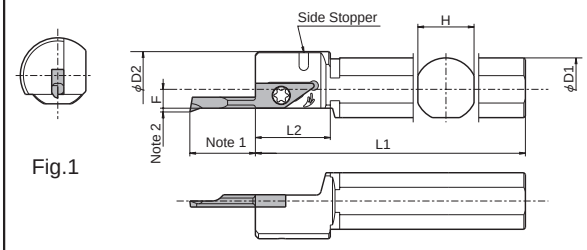


Fig.1

S•••SVN-S Round Shank (Straight)

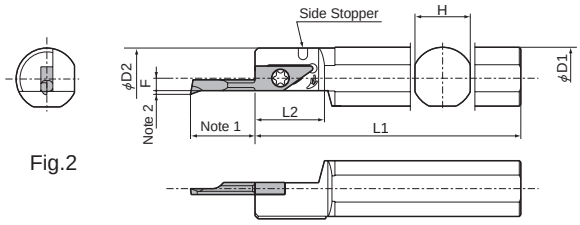


Fig.2

• Right-hand Shown

R-hand Insert for R-hand Toolholder

Note 1 & Note 2: See Insert Dimension Table. (Page **F16~F17**)

● Toolholder Dimensions (With Side Stopper)

Description	Stock	Unit	Dimension φD1	φD2	H	L1	L2	F	Shape	Spare Parts: Insert Screw	Wrench	Screw (Side-Stopper)	Wrench	Applicable Inserts
S08- SVNR12	●	inch	0.500	0.787	0.480	3.50	0.906	0.157	Fig.1	**SB-3080TR**	**FT-10**	**HS3X4**	**LW-1.5**	**F16 G89 G65 J30** VNBR○○○○-○○○ VNBTR○○○○-○○○ VNGR○○○○-○○ ○○○○○○ VNTR○○○-○○
S10- SVNR12	●	inch	0.625	0.945	0.584	4.00	0.906	0.236				**HS3X8**		
S12F- SVNR12	●	mm	12	20	11	80	23	4	Fig.1	**SB-3080TR**	**FT-10**	**HS3X4**	**LW-1.5**	VNBR○○○○-○○○ VNBTR○○○○-○○○ VNGR○○○○-○○ VNFGR○○○○-○○ VNTR○○○-○○
S14G- SVNR12	○		14	20	13	90	23	4				**HS3X8**		
S16H- SVNR12	●		16	24	15	100	23	6						
S19H- SVNR12	●	inch	.750	.945	.669	3.937	.945	.236						
S19N- SVNR12	○		.750	.945	.669	6.299	.945	.236						
S20H- SVNR12	●		20	24	18	100	24	6						
S25H- SVNR12	●	inch	1.000	1.181	.905	3.937	.945	.236				**HS3X12**		
S25Q- SVNR12	○		1.000	1.181	.905	7.086	.945	.236						
S19H- SVNR12S	●	inch	.750	.728	.669	3.937	.905	.157	Fig.2	**SB-3080TR**	**FT-10**	**HS3X4**	**LW-1.5**	
S20H- SVNR12S	○	mm	20	19.5	18	100	23	4						
S22K- SVNR12S	●		22	21.5	20	125	23	4						
S25.0G- SVNR12S	○		25	24.5	23	90	23	4						

S•••SVN-N / S•••SVN-SN

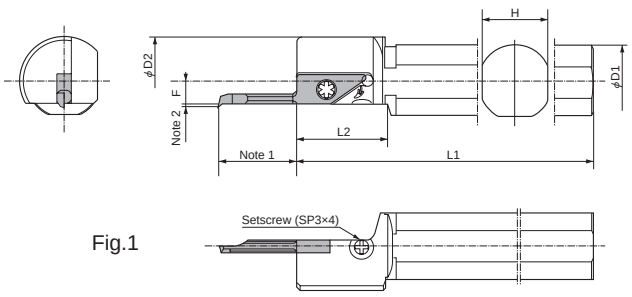


Fig.1

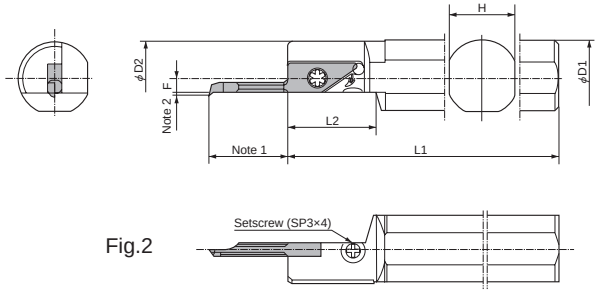


Fig.2

• Right-hand Shown

R-hand Insert for R-hand Toolholder

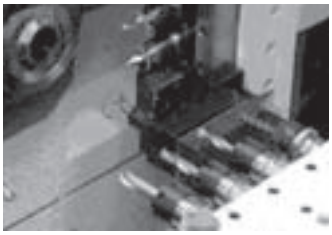
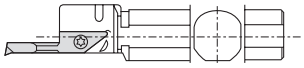
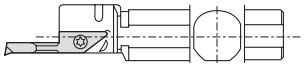
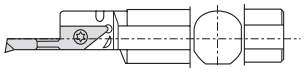
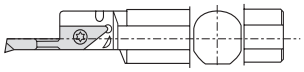
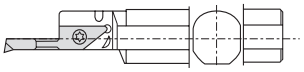
Note 1 & Note 2: See Insert Dimension Table. (Page **F16~F17**)

● Toolholder Dimensions

Description	Stock	Unit	Dimension φD1	φD2	H	L1	L2	F	Shape	Spare Parts: Insert Screw	Wrench	Setscrew		Applicable Inserts
S12F- SVNR12N	○	mm	12	20	11	80	23	4	Fig.1	**SB-3080TR**	**FT-10**	**SP3×4**		**F16 G89 G65 J30** VNBR○○○○-○○○ VNBTR○○○○-○○○ ○○○○○○ VNFGR○○○○-○○ VNTR○○○-○○
S14G- SVNR12N	○		14	20	13	90	23	4						
S16H- SVNR12N	○		16	24	15	100	23	6						
S19H- SVNR12N	●	inch	.750	.945	.669	3.937	.945	.236						
S19N- SVNR12N	○		.750	.945	.669	6.299	.945	.236						
S20H- SVNR12N	○	mm	20	24	18	100	24	6						
S25H- SVNR12N	●	inch	1.000	1.181	.905	3.937	.945	.236						
S25Q- SVNR12N	○		1.000	1.181	.905	7.086	.945	.236						
S19H- SVNR12SN	●	inch	.750	.728	.669	3.937	.905	.157	Fig.2	**SB-3080TR**	**FT-10**	**SP3×4**		
S20H- SVNR12SN	○	mm	20	19.5	18	100	23	4						
S22K- SVNR12SN	●		22	21.5	20	125	23	4						
S25.0G- SVNR12SN	○		25	24.5	23	90	23	4						

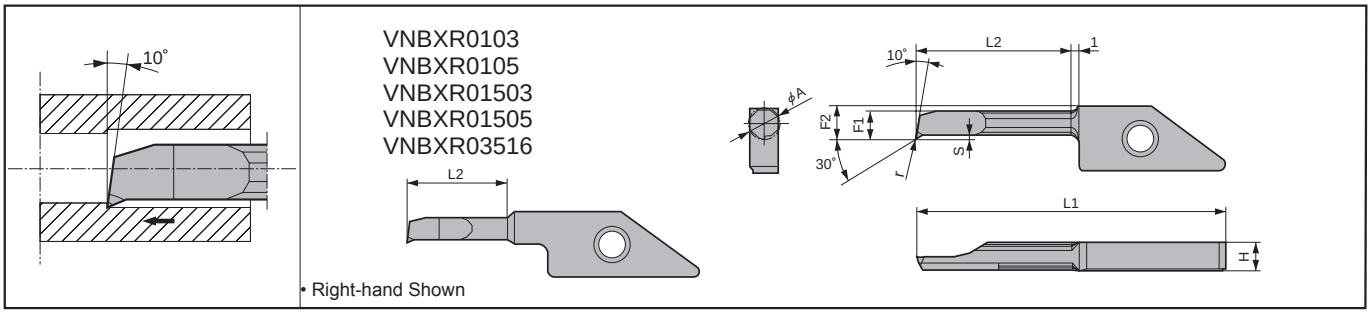
● : Std. Stock ○ : World Express

Selection of Swiss IQ Bars

Gang-Type (Horizontal) (Popular in HDD Machining)	Gang-Type	Gang-Type (Front Loading Sleeve Type)	Gang-Type (Back Loading Sleeve Type)
			
Square Shank (Straight) 	Square Shank (L-shape) 		Square Shank
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.

VNBX



● Insert Dimensions

(Applicable Holder ➔ F23)

Description		Min. Bore Dia.	Dimension (mm)								Insert Grade							
											Cermet	PVD Coated Carbide			Carbide	CBN	PCD	
		ϕ	H	L1	L2	F1	F2	S	rε +0 -0.025		TC60		PR915	PR930	KW10		KPD001	
VNBXR	0103-005S	1	3.9	26.5	3	0.85	2.5	0.2	0.05					○				
	0105-005S				5									○				
	01503-005S	1.5		26.5	3	1.3	2.75	0.2						○				
	01505-005S				5									○				
	0206-005S	2		26.5	6		3	0.25						○				
	0311-005S	3		30.8	11	2.6	3.5	0.4						○				
	03511-005S	3.5		30.8	11	3.1	3.75	0.45						○				
	03516-005S			39.8	16									○				
	0411-005S	4		30.8	11	3.5	4	0.5						○				
	0420-005S			39.8	20									○				
VNBXR	01503-01S	1.5	3.9	26.5	3	1.3	2.75	0.2	0.1					○				
	01505-01S				5									○				
	0206-01S	2		26.5	6	1.8	3	0.25						○				
	0311-01S	3		30.8	11	2.6	3.5	0.4						○				
	03511-01S	3.5		30.8	11	3.1	3.75	0.45						○				
	03516-01S			39.8	16									○				
	0411-01S	4		30.8	11	3.5	4	0.5						○				
	0420-01S			39.8	20									○				
VNBXR	0411-02S	4	3.9	30.8	11	3.5	4	0.5	0.2					○				
	0420-02S			39.8	20									○				

Swiss IQ Bars are sold in a 5-pc box.

● Recommended Cutting Conditions

Workpiece Material	PR930	VNB01-S VNB015-S		VNB02-S VNB03-S VNB04-S		Remarks
	Cutting Speed (SFM)	D.O.C (in)	Feed (ipr)	D.O.C (in)	Feed (ipr)	
Carbon Steel / Alloy Steel	100~330	~.004	~.0004	~.008	~.0012	Coolant
Stainless Steel	100~270	~.004	~.0004	~.008	~.0008	

● : Std. Stock ○ : World Express

SVNS-XN Square Shank (L-Shape)

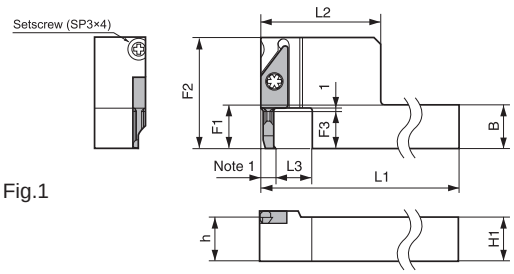


Fig.1

• Right-hand Shown (mm)

R-hand Insert for R-hand Toolholder

Note 1 & Note 2 : See Insert Dimension Table (page **F16**)

● Toolholder Dimensions

Description		Stock	Unit	Dimension									Shape	Spare Parts				Applicable Insert
				H1=h	B	L1	L2	L3	L4	F1	F2	F3		Insert Screw	Wrench	Setscrew		
SVNSR	1010K-12-06XN	○	mm	10	10	125	45	10	-	10	29	6	Fig.1	SB-3080TR	LTW-10S	SP3×4		F22
	1010K-12-11XN	○									33	11						
	1212M-12-06XN	○		12	12	150	45	10		12	29	6						VNBXR○○○○
	1212M-12-11XN	○									33	11						
	1212M-12-20XN	○									42	20						
	1616M-12-06XN	○		16	16	150	45	16		16	29	6						
	1616M-12-11XN	○									33	11						
	1616M-12-20XN	○									43	20						

S•••SVN-XN / S•••SVN-SXN

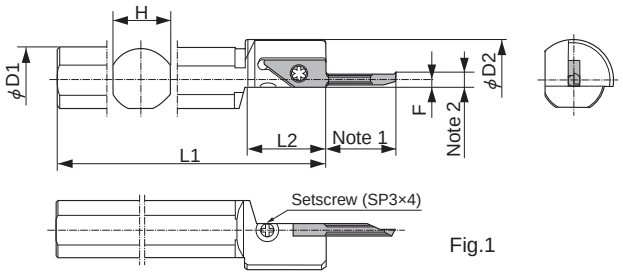


Fig.1

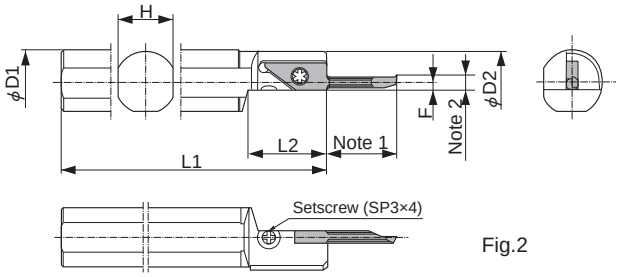


Fig.2

• Right-hand Shown

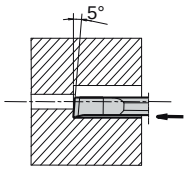
R-hand Insert for R-hand Toolholder

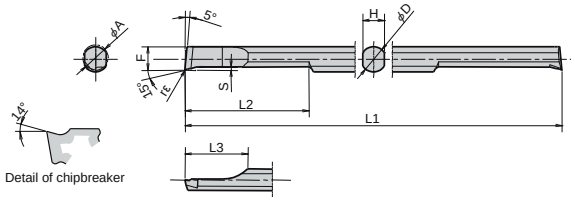
Note 1 & Note 2 : See Insert Dimension Table (page **F16**)

● Toolholder Dimensions

Description		Stock	Unit	Dimension						Shape	Spare Parts				Applicable Insert
				φD1	φD2	H	L1	L2	F		Insert Screw	Wrench	Setscrew		
S12G-	SVNR12XN	○	mm	12	20	11	80	23	2	Fig.1	SB-3080TR	FT-10	SP3×4		F22
S14G-	SVNR12XN	○		14	20	13	90	23	2						
S15H-	SVNR12XN	○	inch	.625	.945	.590	3.937	.905	.079						
S16H-	SVNR12XN	○	mm	16	24	15	100	23	2						
S19H-	SVNR12XN	○	inch	.750	.945	.669	3.937	.945	.079						
S19N-	SVNR12XN	○		.750	.945	.669	6.299	.945	.079						
S20H-	SVNR12XN	○	mm	20	24	18	100	24	2						VNBXR○○○○-○○○
S25H-	SVNR12XN	○	inch	1.000	1.181	.905	3.937	.945	.079						
S25Q-	SVNR12XN	○		1.000	1.181	.905	7.086	.945	.079						
S19H-	SVNR12SXN	○		.750	.728	.669	3.397	.905	.079						
S20H-	SVNR12SXN	○	mm	20	19.5	18	100	23	2	Fig.2	SB-3080TR	FT-10	SP3×4		
S22K-	SVNR12SXN	○		22	21.5	20	125	23	2						
S25.0G-	SVNR12SXN	○		25	24.5	23	90	23	2						

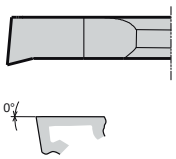
HPB (Boring)



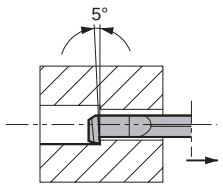


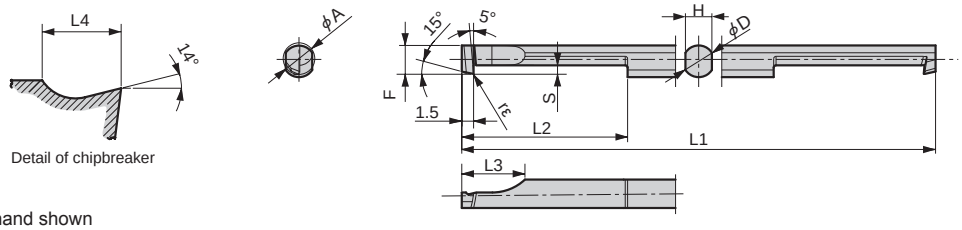
• Right-hand shown

NB Type (Without Chipbreaker)



HPBT (Back Boring)





• Right-hand shown

● Double sided Micro-Bar Dimensions

Description		Min. Bore Dia.	Dimension (mm)								Insert Grade PVD Coated PR930 R	Insert Grade PVD Coated PR930 L	Insert Grade Carbide KW10 R	Insert Grade Carbide KW10 L	Ref. Page for Toolholder
		φA	φD	H	L1	L2	L3	F	S	rε					
HPB R/L	0202-005	2	2	1.7	50	10	5	1.75	0.25	0.05 +0 -0.02	○	○	○		F25
	0303-005	3	3	2.5		15	7	2.7	0.3		○	○	○		
	0404-005	4	4	3.35	60	20	10	3.65	0.5		○	○	○		
	0505-005	5	5	4.3	70	25	12	4.55			○	○	○		
	0606-005	6	6	5.2				5.5			○	○	○		
	0707-005	7	7	6.2	80			6.45			○	○	○		
HPB R/L	0202-005NB	2	2	1.7	50	10	5	1.75	0.25	0.05 +0 -0.02	○		○		F25
	0303-005NB	3	3	2.5		15	7	2.7	0.3		○		○		
	0404-005NB	4	4	3.35	60	20	10	3.65	0.5		○		○		
	0505-005NB	5	5	4.3	70	25	12	4.55			○		○		
	0606-005NB	6	6	5.2				5.5			○		○		
	0707-005NB	7	7	6.2	80			6.45			○		○		
HPBT R/L	0404-005	4	4	3.35	60	21	8	3.65	1.0	0.05 +0 -0.02	○	○	○	○	F25
	0505-005	5	5	4.3	70	26		4.55	1.3		○	○	○	○	

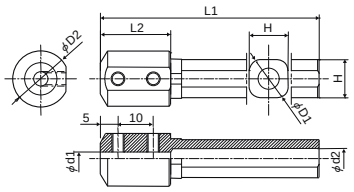
● Recommended Cutting Conditions

Workpiece Material	Insert Grade Cutting Speed: SFM PVD Coated PR930	Insert Grade Cutting Speed: SFM Carbide KW10	HPB02 type D.O.C.	HPB02 type f	HPB03 type D.O.C.	HPB03 type f	HPB04 type HPBT04 type D.O.C.	HPB04 type HPBT04 type f	HPB05/06/07 type HPBT05 type D.O.C.	HPB05/06/07 type HPBT05 type f	Remarks
			D.O.C. (in), f (ipr)								
Carbon steel / Alloy steel	100~330	-	~.012	~.0012	~.016	~.0016	~.018	~.0028	~.02	~.004	Coolant
Stainless Steel	100~270	-	~.012	~.0008	~.016	~.0012	~.018	~.002	~.02	~.003	
Non-ferrous Metal	-	100~330	~.012	~.002	~.016	~.0024	~.018	~.004	~.02	~.006	

Micro-Bars are sold in 1 piece boxes.

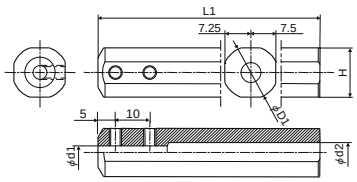
● : Std. Stock ○ : World Express

● Applicable Sleeve



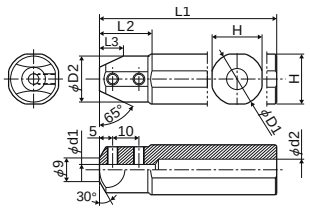
Double sided
Micro-Bar installation side

Fig.1



Double sided
Micro-Bar installation side

Fig.2



Double sided
Micro-Bar installation side

Fig.3

Description		Stock	Dimension (mm) *φd1	φD1	φD2	φd2	H	L1	L2	L3	Shape	Spare Parts Screw	Spare Parts Wrench	Applicable Machine Manufacturer	Ref.Page for Applicable Inserts
PSH	**0212-80**	○	2	12	16	6	11	80	20	-	Fig.1	HS3×4P	LW-1.5	General use	Boring (HPB) ➡ **F24** Back Boring (HPBT) ➡ **F24** Grooving (HPG) ➡ **G66** Face Grooving (HPFG) ➡ **G87** Threading (HPT) ➡ **J27**
	0312-80	○	3												
	0412-80	○	4									HS4×4P	LW-2		
	0512-80	○	5												
	0612-80	○	6			8									
	0712-80	○	7												
PSH	**0216-100**	○	2	16	-	6	15	100	-	-	Fig.2	HS3×4P	LW-1.5		
	0316-100	○	3												
	0416-100	○	4									HS4×4P	LW-2		
	0516-100	○	5												
	0616-100	○	6			8									
	0716-100	○	7												
PSH	**0220-120**	○	2	20	17.5	6	19	120	20	11	Fig.3	HS3×4P	LW-1.5	Amada Wasino Eguro Citizen Machinery Precision Tsugami Miyano General use	
	0320-120	○	3												
	0420-120	○	4							9		HS4×4P	LW-2		
	0520-120	○	5												
	0620-120	○	6			8				7.5					
	0720-120	○	7												
PSH	**0225.0-135**	○	2	25	18	6	24	135	23	11.5	Fig.3	HS3×4P	LW-1.5	Amada Wasino Eguro Precision Tsugami Miyano General use	
	0325.0-135	○	3												
	0425.0-135	○	4							9.5		HS4×4P	LW-2		
	0525.0-135	○	5												
	0625.0-135	○	6			8				8					
	0725.0-135	○	7												
PSH	**0219-120**	○	2	19.05 (.75")	17.5	6	18	120	20	11	Fig.3	HS3×4P	LW-1.5	Citizen Machinery	
	0319-120	○	3												
	0419-120	○	4							9		HS4×4P	LW-2		
	0519-120	○	5												
	0619-120	○	6			8				7.5					
	0719-120	○	7												
PSH	**0225-120**	○	2	25.4 (1")	18	6	24.4	120	23	11.5	Fig.3	HS3×4P	LW-1.5		
	0325-120	○	3												
	0425-120	○	4							9.5		HS4×4P	LW-2		
	0525-120	○	5												
	0625-120	○	6			8				8					
	0725-120	○	7												
PSH	**0222-135**	○	2	22	18	6	21	135	22	11.5	Fig.3	HS3×4P	LW-1.5	Star Micronics Nomura	
	0322-135	○	3												
	0422-135	○	4							9.5		HS4×4P	LW-2		
	0522-135	○	5												
	0622-135	○	6			8				8					
	0722-135	○	7												
PSH	**0223-120**	○	2	23	18	6	22	120	22	11.5	Fig.3	HS3×4P	LW-1.5	Nomura	
	0323-120	○	3												
	0423-120	○	4							9.5		HS4×4P	LW-2		
	0523-120	○	5												
	0623-120	○	6			8				8					
	0723-120	○	7												

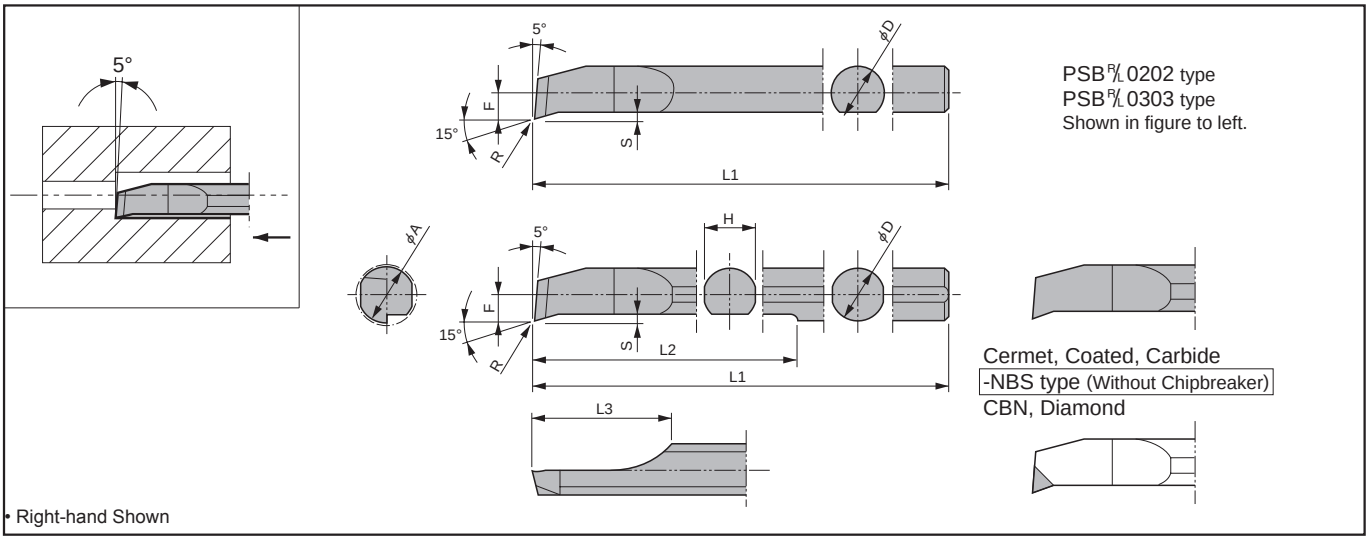
*: Length of φd1 portion···20mm PH02,PH03,PH04)
···25mm PH05,PH06,PH07)

·Choose sleeves (φd1) to meet with φD dimension of tip-bar.

·Machine manufacturers in random order.

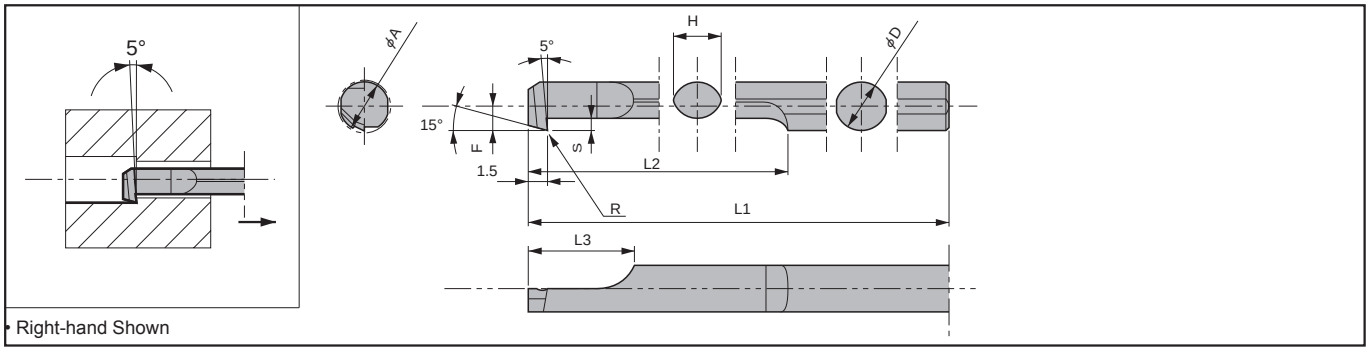
● : Std. Stock ○ : World Express

PSB-S



• Right-hand Shown

PSBT-S (Back Boring)



• Right-hand Shown

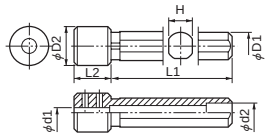
● Micro-Bar Dimensions

Description	Min. Bore Dia.	Dimension (mm)								Insert Grade							
										Cermet	PVD Coated Carbide			Carbide		PCD	
	φA	φD	H	L1	L2	L3	F	S	R	TC60	PR630	PR915	PR930	KW10	KBN510	KPD001	KPD010
PSBR/L 0202-50S	2	1.8	-	50	-	5	0.9	0.25	0.05				○				
PSBR/L 0303-50S	3	2.8	-	50	-	7	1.4	0.3	0.05				○	●			
PSBR/L 0404-60S	4	3.8	3.6	60	30	10	1.9	0.5	0.05	●	○		○	●			
PSBR/L 0505-70S	5	4.8	4.4	70	40	12	2.4	0.5	0.05	●	○		○	●			
PSBR/L 0606-70S	6	5.8	5.2	70	45	12	2.9	0.5	0.05	R	○		○	●			
PSBR/L 0707-80S	7	6.8	6.2	80	50	12	3.4	0.5	0.05	●	○		○	●			
PSBR/L 0202-50NBS	2	1.8	-	50	-	5	0.9	0.25	0.05				R	R			
PSBR/L 0303-50NBS	3	2.8	-	50	-	7	1.4	0.3	0.05				R	R	R		
PSBR/L 0404-60NBS	4	3.8	3.6	60	30	10	1.9	0.5	0.05	R	R		R	R	R	R	R
PSBTR/L 0505-70NBS	5	4.8	4.4	70	40	12	2.4		0.05	R	R		R	R	R	R	R
PSBR/L 0606-70NBS	6	5.8	5.2	70	45	12	2.9	0.5	0.05	R	R		R	R	R	R	R
PSBR/L 0707-80NBS	7	6.8	6.2	80	50	12	3.4	0.5	0.05	R	R		R	R	R	R	R
PSBTR/L 0415-60S	4	3.8	3.6	60	20	8	1.9	1.0	0.05				○	○			
PSBTR/L 0515-70S	5	4.8	4.6	70	20	8	2.4	1.3	0.05				○	○			

Micro-Bars are sold in 1 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only

● Applicable Sleeve

Shape	Description	(Old Description)	Stock	Dimension (mm, inch)							Spare Parts		Applicable Micro-Bar
				ϕD1	ϕD2	ϕd1	ϕd2	H	L1	L2	Screw	Wrench	
	PH 0212-60	PH -0212	○	12	19	1.8	6	11	60	20	HS3X4	LW-1.5	PSB□0202-50S/NBS
		-0312	○			2.8							PSB□0303-50S/NBS
	0412-60	-0412	○			3.8					HS4X4	LW-2	PSB□0404-60S/NBS PSBT□0415-60S
	0512-60	-0512	○			4.8							PSB□0505-70S/NBS PSBT□0515-70S
	0612-60	-0612	○			5.8	8						PSB□0606-70S/NBS
	0712-60	-0712	○			6.8							□
	PH 0216-80	PH -0216	○	16	22	1.8	Rp¼ (PS¼)	14	80	20	HS3X4	LW-1.5	PSB□0202-50S/NBS
	0316-80	-0316	○			2.8							PSB□0303-50S/NBS
	0416-80	-0416	○			3.8					HS4X4	LW-2	PSB□0404-60S/NBS PSBT□0415-60S
	0516-80	-0516	○			4.8							PSB□0505-70S/NBS PSBT□0515-70S
	0616-80	-0616	○			5.8							PSB□0606-70S/NBS
	0716-80	-0716	○			6.8							PSB□0707-80S/NBS
	PH 10-2MM	-		0.625		0.071 (1.8mm)	3/8-24 UNF	0.575	3.213	0.787	SLS-1	LW-2	PSB□0202-50S/NBS
	10-3MM		●			0.110 (2.8mm)							PSB□0303-50S/NBS
	10-4MM		●		0.875	0.150 (3.8mm)							PSB□0404-60S/NBS PSBT□0415-60S
	10-5MM					0.189 (4.8mm)							PSB□0505-70S/NBS PSBT□0515-70S
	10-6MM		●			0.228 (5.8mm)							PSB□0606-70S/NBS
	10-7MM		●			0.268 (6.8mm)							PSB□0707-80S/NBS

Unit (Inch)

● Recommended Cutting Conditions

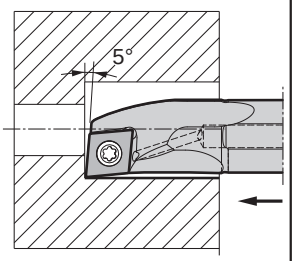
Workpiece Material	Recommended Insert Grade (Cutting Speed: SFM)								PSB02 type		PSB03 type		PSB04 PSBT04 type		PSB05 PSB06 PSB07 PSBT05 type		Remarks
	Cermet	PVD Coated			Carbide	CBN	PCD										
	TC60	TC630	PR915	PR930	KW10	KBN510	KPD001	KPD010	D.O.C. (in)	Feed Rate (ipr)	D.O.C. (in)	Feed Rate (ipr)	D.O.C. (in)	Feed Rate (ipr)	D.O.C. (in)	Feed Rate (ipr)	
Carbon Steel / Alloy Steel	☆ 200~400	☆ 100~330		★ 100~330					~.012	~.0012	~.016	~.0016	~.018	~.0028	~.02	~.004	Coolant
Stainless Steel	170~330	☆ 100~270		★ 100~270					~.012	~.0008	~.016	~.0012	~.018	~.002	~.02	~.003	
Hardened Mat'l																	
Non-ferrous Metal					☆ ~330				~.012	~.002	~.016	~.0024	~.018	~.004	~.02	~.006	

★: 1st Recommendation ☆: 2nd Recommendation

● : Std. Stock ○ : World Express

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

Max. Overhang Length L/D=~5.5



• Right-hand Shown

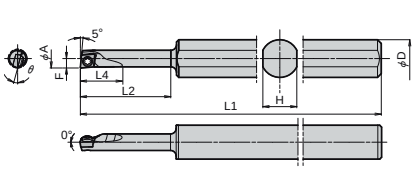


Fig.1

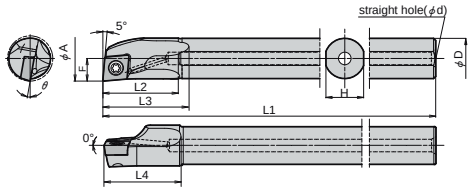


Fig.2

shank dia. φD	straight hole dia. (φd)
φ8	φ2.5
φ10 (.375")	φ3
φ12 (.500")	φ4
φ16 (.625")	φ5
φ20 (.75")	
φ25 (.1")	

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	L4	F	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts Clamp Screw	Spare Parts Wrench
A06M-SCLC□2AE	●	●	inch	CCGW CCMT CCGT CCMW 215_	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°					
A10R-SCLC□3AE	●	●		CCET CCGT CCGW CCMT CCMW 32.5_	0.770	0.625	0.586	8	1.181	1.339	1.205	0.354	10°				SB-4065TR	FT-15
A12S-SCLC□3AE	●	●			0.930	0.750	0.711	10	1.417	1.874	1.437	0.413	8°					
A16T-SCLC□3AE	●	●			1.200	1.000	0.961	12	1.811	2.189	1.827	0.531	6°					
S10H-SCLC□03-05AE	○	○	mm	CCET CCGT CCMW 1109_	5	10	9	100	24	–	11	2.5	15°	0.2	No	Fig.1	SB-1635TR	FT-6
S10H-SCLC□03-06AE	○	○			6				28		13	3	13°					
S10H-SCLC□04-07AE	○	○		CCET CCGT CCMW CCGW 1411_	7				32		15	3.5					SB-2035TR	
S10H-SCLC□04-08AE	○	○			8				37		15	4	11°					
A08X-SCLC□06-10AE	○	○	mm	CCGW CCMT CCGT CCMW 215_	10	8	7	120	16	20	17	5	14°	0.4	Yes	Fig.2	SB-2545TR	FT-8
A10L-SCLC□06-12AE	○	○			12	10	9	140	20	25	21	6	12°					
A12M-SCLC□06-14AE	○	○			14	12	11	150	24	30	25	7	10°					
A16Q-SCLC□09-18AE	○	○		CCET CCGT CCGW CCMT CCMW 32.5_	18	16	15	180	30	34	31	9					SB-4065TR	FT-15
A20R-SCLC□09-22AE	○	○			22	20	19	200	36	49	37	11	8°					
A25S-SCLC□09-27AE	○	○			27	25	24	250	46	55	46	13.5	6°					

Applicable Inserts

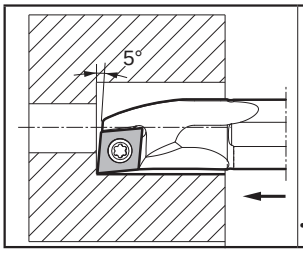
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
CC_	B45-B49	-	C11	C19

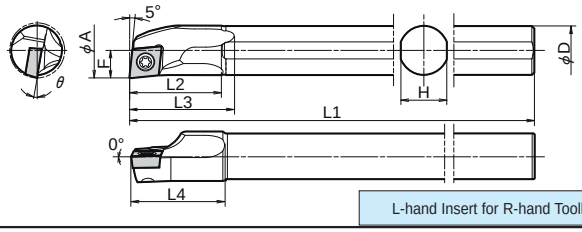
Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

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

Max. Overhang Length L/D=~4





• Right-hand Shown

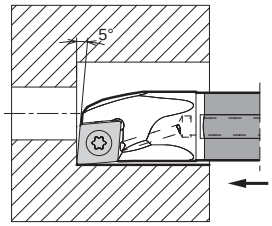
L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	L4	F	θ	Std. Coner R (rε)	Coolant Hole	Spare Parts: Clamp Screw	Spare Parts: Wrench
S08X-SCLC□06-10A	○	○	mm	CCGW CCMT CCGT CCMW 215_	10	8	7	120	16	20	17	5	14°	0.4	No	SB-2545TR	FT-6
S10L-SCLC□06-12A	○	○			12	10	9	140	20	25	21	6	12°				
S12M-SCLC□06-14A	○	○			14	12	11	150	24	30	25	7	10°				
S16Q-SCLC□09-18A	○	○		CCET CCGT CCGW CCMT CCMW 32.5	18	16	15	180	30	34	31	9	10°			SB-4065TR	FT-15
S20R-SCLC□09-22A	○	○			22	20	19	200	36	49	37	11	8°				
S25S-SCLC□09-27A	○	○			27	25	24	250	46	55	46	13.5	6°				

C/E-SCLC-A Carbide Shank Bar (Boring/Internal Facing)

Max. Overhang Length L/D=~7



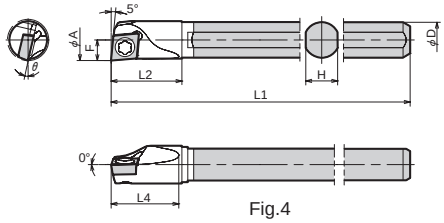


Fig.4

•2° for C04G-SCLC□03-05A

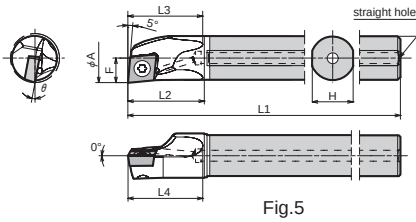


Fig.5

shank dia. φD	straight hole dia. (φd)
φ8	φ3
φ10	
φ12	φ4
φ16	
φ20	φ6
φ25	

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

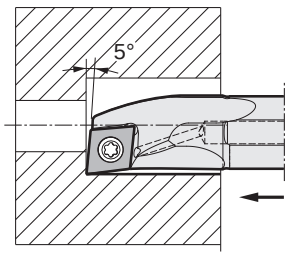
Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	L4	F	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
NEW E06N-SCLC□2A	●	●	inch	CCGW CCMT CCGT CCMW 215_	0.480	0.375	0.336	6.3	0.787	0.764	0.764	0.236	12°	1/64	Yes	Fig.5	SB 2545TR	FT-8
NEW E06N-SCLC□2A-2/3	●	●						4.2										
NEW E08Q-SCLC□2A	●	●			0.600	0.5	0.461	7.1	0.906	0.882	0.882	0.276	10°					
NEW E08Q-SCLC□2A-2/3	●	●						4.8										
NEW E10X-SCLC□3A	●	●			0.770	0.625	0.586	8.7	1.102	1.079	1.079	0.354	10°					
NEW E10X-SCLC□3A-2/3	●	●						5.8										
C04G-SCLC□03-05A	○	○	mm	CCET CCGT CCMW 1109_	5	4	3.8	90	9	–	8	2.5	15°	0.2	No	Fig.4	SB-1635TR	FT-6
C05H-SCLC□03-06A	○	○			6	5	4.4	100	11		11	3	13°					
C06J-SCLC□04-07A	○	○		1411_	7	6	5.4	110	12		12	3.5	13°				SB-2035TR	
C07K-SCLC□04-08A	○	○			8	7	6.4	125	13		13	4	11°					
E08L-SCLC□06-10A	○	○	mm	CCGW CCMT CCGT CCMW 215_	10	8	7	140	16	15	15	5	14°	0.4	Yes	Fig.5	SB 2545TR	FT-8
E08L-SCLC□06-10A-2/3	○							90										
E10N-SCLC□06-12A	○	○			12	10	9	160	20	19	19	6	12°					
E10N-SCLC□06-12A-2/3	○							105										
E12Q-SCLC□06-14A	○	○			14	12	11	180	23	22	22	7	10°					
E12Q-SCLC□06-14A-2/3	○							120										
E16X-SCLC□09-18A	○	○		CCET CCGT CCGW CCMT CCMW 32.5_	18	16	15	220	28	27	27	9	10°				SB-4065TR	FT-15
E16X-SCLC□09-18A-2/3	○							145										
E20S-SCLC□09-22A	○	○			22	20	19	250	32	31	31	11	8°					
E20S-SCLC□09-22A-2/3	○							165										
E25T-SCLC□09-27A	○	○			27	25	24	300	38	37	37	13.5	6°					
E25T-SCLC□09-27A-2/3	○							200										

● : Std. Stock ○ : World Express

Applicable Inserts Page Reference F28

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

Max. Overhang Length L/D=~5.5



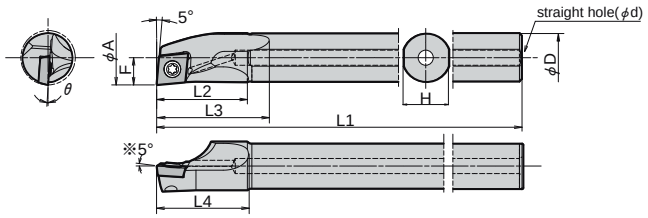


Fig.1

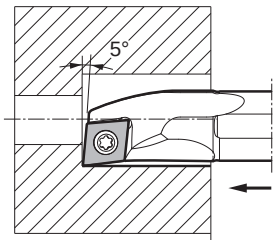
shank dia. ϕD	straight hole dia. (ϕd)
(.312")	ϕ2.5
ϕ10 (.375")	ϕ3
ϕ12 (.500")	ϕ4
ϕ16 (.625")	ϕ5
ϕ20 (.75")	
ϕ25 (.1")	

• 0° for A05K-SCLP□2AE
• Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

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

Max. Overhang Length L/D=~4



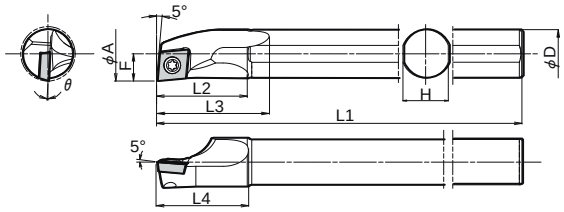


Fig.2

• Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

	Description	Stock R	Stock L	Unit	Applicable Insert		Min. Bore Dia. ϕA	Dimension ϕD	H	L1	L2	L3	L4	F	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
Excellent Bar	A05K-SCLP□2AE	●	●	inch	CPGT	215	0.413	0.312	0.273	5	0.630	0.760	0.669	0.197	10°	1/64	Yes	Fig.1	SB-2545TR	FT-8
	A06M-SCLP□2.5AE	●	●		CPMB CPMH CPGB CPMT	2515_	0.480	0.375	0.336	6	0.787	0.961	0.791	0.236	5°				SB-3060TR	FT-10
	A08M-SCLP□2.5AE	●	●				0.580	0.500	0.461	6	0.945	1.201	0.961	0.276	4°					
	A10R-SCLP□3AE	●	●		CPMB CPMH CPMT CPGB	32_	0.700	0.625	0.586	8	1.181	1.461	1.189	0.354	3.5°				SB-4065TR	FT-15
	A12S-SCLP□3AE	●	●				0.825	0.750	0.711	10	1.417	1.780	1.421	0.413	2°					
	A16T-SCLP□3AE	●	●				1.200	1.000	0.961	12	1.811	2.185	1.815	0.531	0°					
Excellent Bar	A10L-SCLP□08-12AE	○	○	mm	CPMB CPMH CPGB CPMT	2515_	12	10	9	140	20	25	20	6	5°	0.4	Yes	Fig.1	SB-3060TR	FT-10
	A12M-SCLP□08-14AE	○	○				14	12	11	150	24	29	24	7	4°					
	A12M-SCLP□09-16AE	○	○		CPMB CPMH CPMT CPGB	32_	16					31	24	8					SB-4065TR	FT-15
	A16Q-SCLP□09-18AE	○	○				18	16	15	180	30	37	30	9	3.5°					
	A20R-SCLP□09-22AE	○	○				22	20	19	200	36	47	37	11	2°					
	A25S-SCLP□09-27AE	○	○				27	25	24	250	46	55	46	13.5	0°					
Steel Bar	S10L-SCLP□08-12A	○	○	mm	CPMB CPMH CPGB CPMT	2515_	12	10	9	140	20	25	20	6	5°	0.4	No	Fig.2	SB-3060TR	FT-10
	S12M-SCLP□08-14A	○	○				14	12	11	150	24	29	24	7	4°					
	S12M-SCLP□09-16A	○	○		CPMB CPMH CPMT CPGB	32_	16					31	24	8					SB-4065TR	FT-15
	S16Q-SCLP□09-18A	○	○				18	16	15	180	30	37	30	9	3.5°					
	S20R-SCLP□09-22A	○	○				22	20	19	200	36	47	37	11	2°					
	S25S-SCLP□09-27A	○	○				27	25	24	250	46	55	46	13.5	0°					

Applicable Inserts

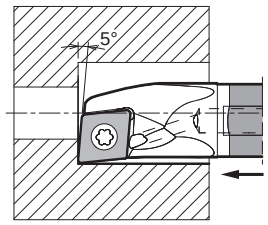
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
CP_	B50-B51	-	C11-C12	C19

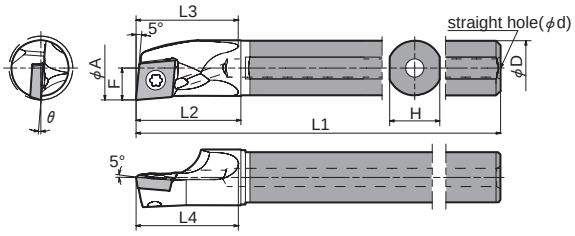
Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

E-SCLP-A Carbide Shank Bar (Boring/Internal Facing)

Max. Overhang Length L/D=~7





shank dia. ϕD	straight hole dia. (ϕd)
ϕ10	ϕ3
ϕ12	ϕ4
ϕ16	
ϕ20	ϕ6
ϕ25	

• Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. ϕA	Dimension ϕD	H	L1	L2	L3	L4	F	θ	Std. Coner R (rε)	Coolant Hole	Spare Parts: Clamp Screw	Spare Parts: Wrench
E10N-SCLP□08-12A	○	○	mm	CPGB CPMB CPMH CPMT 2515_	12	10	9	160	20	19	19	6	5°	0.4	Yes	SB-3060TR	FT-10
E10N-SCLP□08-12A-2/3	○							105									
E10N-SCLP□08-12A-1/2	○							80									
E12Q-SCLP□08-14A	○	○			14	12	11	180	23	22	22	7	4°				
E12Q-SCLP□08-14A-2/3	○							120									
E12Q-SCLP□08-14A-1/2	○							90									
E16X-SCLP□09-18A	○	○		CPMB CPMT CPMH CPGB CPMH 32_	18	16	15	220	28	27	27	9	3.5°			SB-4065TR	FT-15
E16X-SCLP□09-18A-2/3	○							145									
E16X-SCLP□09-18A-1/2	○							110									
E20S-SCLP□09-22A	○	○			22	20	19	250	32	31	31	11	2°				
E20S-SCLP□09-22A-2/3	○							165									
E20S-SCLP□09-22A-1/2	○							125									
E25T-SCLP□09-27A	○	○			27	25	24	300	38	37	37	13.5	0°				
E25T-SCLP□09-27A-2/3	○							200									

Applicable Inserts

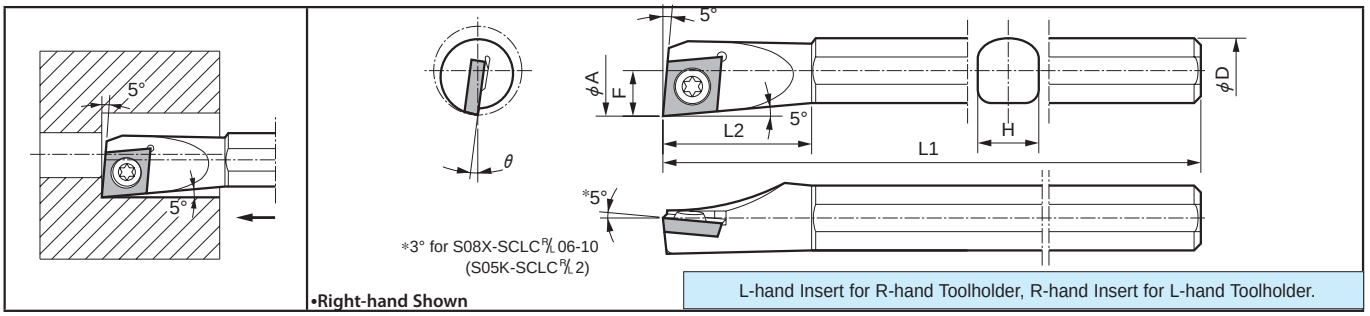
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
CP_	B50-B51	-	C11-C12	C19

Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

S...SCLP(C) Steel Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~3



L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	L4	F	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
S05K-SCLCR/L2	●	●	inch	CCGW CCGT CCMT CCMW 215_	0.394	0.312	0.282	5.00	0.625	-	-	0.197	12°	0.004	SB-2035TR	FT-6
S06M-SCLPR/L2.5	●	●		CPMB CPMH CPMT CPGW CPMH 2515_	0.472	0.375	0.334	6.00	1.000	-	-	0.236	5°	1/64		
S08M-SCLPR/L3	●	●		CPMB CPMH CPMT CPGB CPMH 32_	0.630	0.500	0.480	6.00	1.180	-	-	0.315	4°	1/64		
S10X-SCLPR/L3	●	●			0.788	0.625	0.584	7.00	1.380			0.394	3°		SB-2050TR	
S12R-SCLPR/L3	●	●			0.984	0.750	0.710	8.00	1.560			0.492	0°			
S16T-SCLPR/L3	●	●			1.338	1.000	0.910	12.00	1.750			0.669	0°			
S08X-SCLCR/L06-10	○	○	mm	CCGW CCGT CCMT CCMW 215_	10	8	7	120	17	-	-	5	12°	0.2	SB-2050TR	FT-6
S10M-SCLPR/L08-12	○	○		CPMB CPMH CPMT CPGB CPMH 2515_	12	10	9	150	23	-	-	6	5°	0.4	SB-2545TR	FT-8
S12M-SCLPR/L08-14	○	○			14	12	11	150	26			7	4°			
S12M-SCLPR/L09-16	○	○		CPMB CPMH CPMT CPGB 32_	16	12	11	150	29	-	-	8	4°			
S16N-SCLPR/L09-18	○	○			18	16	15	160	32			9	3.5°			
S16Q-SCLPR/L09-20	○	○			20	16	15	180	34			10	3°			
S20R-SCLPR/L09-25	○	○			25	20	19	200	37			12.5	0°			
S25S-SCLPR/L09-30	○	○			30	25	24	250	40			15	0°		SB-4065TR	FT-15

Applicable Inserts

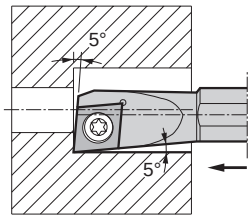
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
CC_	B45-B49	-	C11	C19
CP_	B50-B51		C11-C12	

Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

S...SCLP(C)-E Excellent Bar (Boring / Internal Facing)

Max. Overhang Length L/D=~5



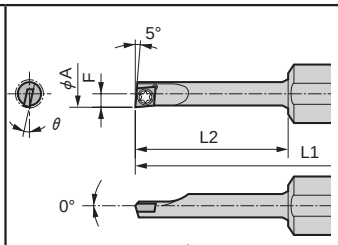
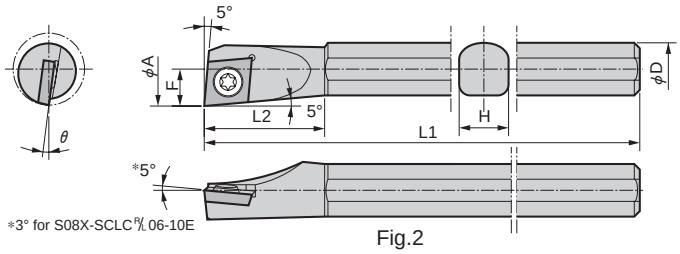


Fig.1

•Right-hand Shown



*3° for S08X-SCLC□06-10E

Fig.2

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. ϕA	Dimension ϕD	H	L1	L2	L3	L4	F	θ	Std. Coner R (rε)	Shape	Spare Parts: Insert Screw	Spare Parts: Wrench
S10H-SCLC□03-05E	○	○	mm	CCET CCGT CCMW 1109_	5	10	9	100	24	-	-	2.5	15°	0.2	Fig.1	SB-2035TR	FT-6
S10H-SCLC□03-06E	○	○			6	10	9	100	28	-	-	3	13°				
S10J-SCLC□04-07E	○	○		CCET CCGT CCMW CCGW 1411_	7	10	9	110	32	-	-	3.5	13°	0.2			
S10J-SCLC□04-08E	○	○			8	10	9	110	37	-	-	4	11°			SB-2050TR	
S08X-SCLC□06-10E	○	○		CCGW CCGT CCMT CCMW 215_	10	8	7	120	17	-	-	5	12°	0.2	Fig.2		
S10M-SCLP□08-12E	○	○		CPMB CPMH CPMT CPGB 2515_	12	10	9	150	23	-	-	6	5°	0.4			
S12M-SCLP□08-14E	○	○			14	12	11	150	26	-	-	7	4°				
S12M-SCLP□09-16E	○	○		CPMB CPMH CPMT CPGB 32_	16	12	11	150	29	-	-	8	4°	0.4		SB-2545TR	FT-8
S16Q-SCLP□09-18E	○	○			18	16	15	180	32			9	3.5°				
S16R-SCLP□09-20E	○	○			20	16	15	200	34	-	-	10	3°				
S20X-SCLP□09-25E	○	○			25	20	19	220	37			12.5	0°				

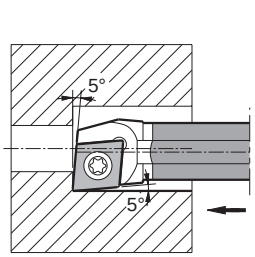
Applicable Inserts

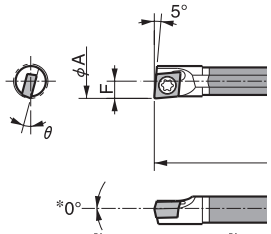
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
CC_	B45-B49	-	C11	C19
CP_	B50-B51		C11-C12	

Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

C...SCLP(C) Carbide Shank Bar (Boring / Internal Facing) Max. Overhang Length L/D=~7

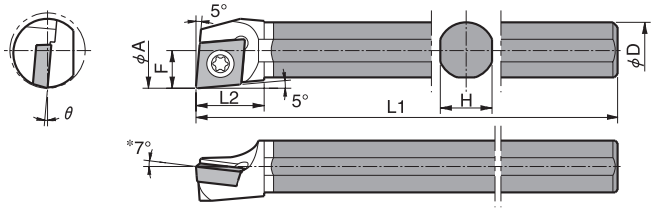




*2° for C04G-SCLC□03-05 (C025X-SCLC□1.1)

•Right-hand Shown

Fig.1



*3° for C08L-SCLC□06-10

Fig.2

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert		Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	L4	F	θ	Std. Coner R (rε)	Shape	Spare Parts: Insert Screw	Spare Parts: Wrench
C025X-SCLC□1.1 **	●		inch	CCET CCGT CCMW	1109_	0.197	0.156	0.148	3.543	0.315	-	-	0.098	15°	0.008	Fig.1	SB-1630TR	FT-6
C05K-SCLC□2	●			CCGW CCGT CCMT CCMW	215_	0.394	0.312	0.282	5.00	0.625	-	-	0.197	12°	0.004	Fig.2	SB-2545TR	FT-8
C06M-SCLP□2.5	●			CPMB CPMH CPMT CPGB	2515_	0.472	0.312	0.334	6.00	1.000	-	-	0.236	5°	1/64		SB-2545TR	FT-10
C08R-SCLPR3	●				32_	0.630	0.500	0.480	8.00	1.180	-	-	0.315	4°	1/64		SB-4TR	FT-15
C10S-SCLPR3	●					0.788	0.625	0.584	10.00	1.380	-	-	0.394	3°				
C12S-SCLPR3	●					0.984	0.750	0.710	10.00	1.560	-	-	0.492	0°				
C04G-SCLC□03-05	●	○	mm	CCET CCGT CCMW	1109_	5	4	3.8	90	-	-	-	2.5	15°	0.2	Fig.1	SB-1630TR	FT-6
C05H-SCLC□03-06	○	○				6	5	4.4	100	-	-	-	3	13°				
C06J-SCLC□04-07	○	○		CCET CCGT CCMW CCGW	1411_	7	6	5.4	110	-	-	-	3.5	13°	0.2		SB-2040TR	
C07K-SCLC□04-08	○	○				8	7	6.4	125	-	-	-	4	11°				
C08L-SCLC□06-10	○	○		CCGW CCGT CCMT CCMW	215_	10	8	7	140	10	-	-	5	10°	0.2	Fig.2	SB-2545TR	FT-8
C10N-SCLP□08-12	○	○		CPMB CPMH CPMT CPGB	2515_	12	10	9	160	12	-	-	6	8°	0.4		SB-3STR	FT-10
C10N-SCLP□08-12-1/2	○					12	10	9	80	12	-	-	6					
C10N-SCLP□08-12-2/3	○					12	10	9	105	12	-	-	6					
C12Q-SCLP□09-16	○	○		CPMB CPMH CPMT CPGB	32_	16	12	11	180	14	-	-	8	5°	0.4		SB-4TR	FT-15
C12Q-SCLP□09-16-1/2	○					16	12	11	90	14	-	--	8					
C12Q-SCLP□09-16-2/3	○					16	12	11	120	14	-	-	8					
C16X-SCLP□09-20	○	○				20	16	15	220	15	-	-	10	3°	0.4			
C16X-SCLP□09-20-1/2	○					20	16	15	110	15	-	-	10					
C16X-SCLP□09-20-2/3	○					20	16	15	145	15	-	-	10					
C20S-SCLP□09-25	○	○				25	20	19	250	17	-	-	12	0°				
C20S-SCLP□09-25-1/2	○					25	20	19	125	17	-	-	12					
C20S-SCLP□09-25-2/3	○					25	20	19	165	17	-	-	12					

** Optional sleeve SL2.5-10 (.625inch dia.) is available. (Sleeve screw: SLS-2, sleeve wrench: LW-2)

Applicable Inserts

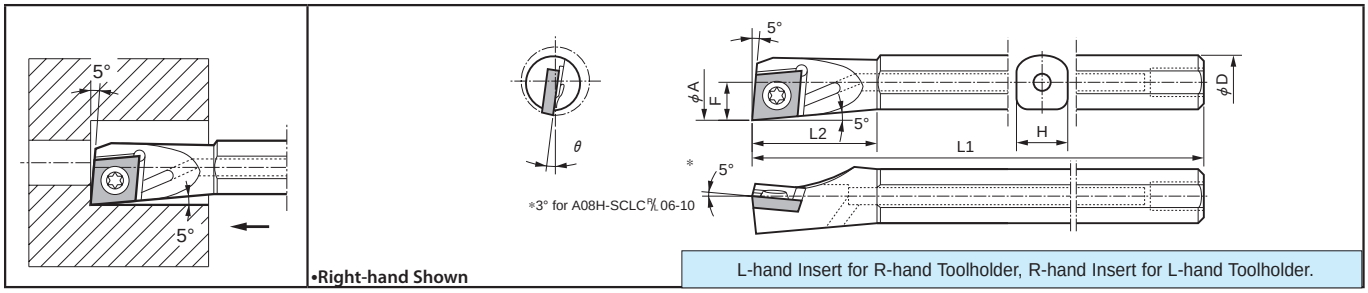
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
CC_	B45-B49	-	C11	C19
CP_	B50-B51		C11-C12	

Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

A...SCLC Steel Bar (Boring / Internal Facing)

Max. Overhang-Length L/D=~3



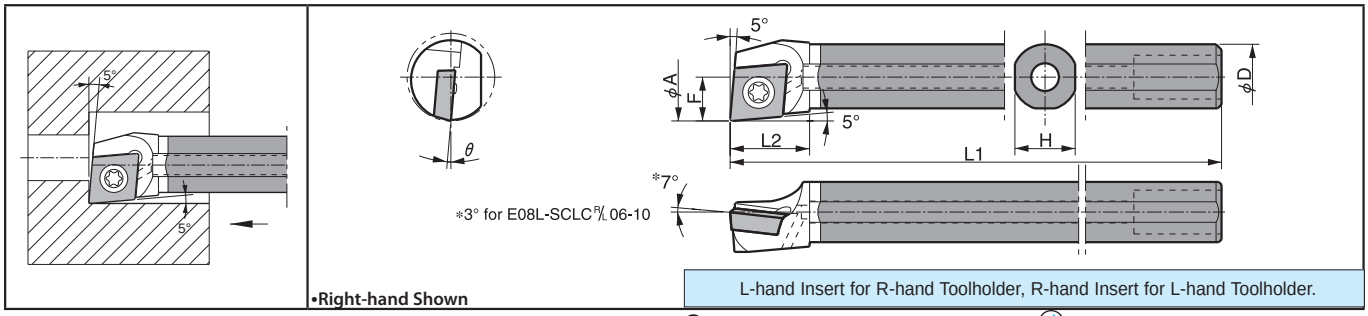
•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	G	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
NEW A05K-SCLCR-2	●		inch	CCGW CCGT CCMT CCMW 215_	0.42	0.313		5.0		0.218		11°	1/64	SB-2545TR	T8
NEW A06M-SCLCR-2	●				0.48	0.375		6.0		0.250		8°			
NEW A08R-SCLCR-2	●				0.60	0.500		8.0		0.312		6°			
NEW A10S-SCLCR-2	●				0.08	0.625		10.0		0.406		4°			
A08H-SCLCR/L 06-10	○	○	mm	CCGW CCGT CCMT CCMW 215_	10	8	7	100	17	5		12°	0.4	SB-2545TR	FT-8
A10X-SCLCR/L 06-12	○	○			12	10	9	120	23	6		10°			
A12X-SCLCR/L 06-14	○	○			14	12	11	120	25	7		8°			
A12X-SCLCR/L 06-16	○	○			16	12	11	120	29	8		7°			
A16M-SCLCR/L 09-20	○	○		CCET CCGT CCMT CCGW CCMW 325_	20	16	15	150	34	10		8°	0.8	SB-4TR	FT-15
A20Q-SCLCR/L 09-25	○	○			25	20	19	180	37	12.5		6°			

E...SCLP (C) Carbide Twin-Hole Bar (Boring / Internal Facing)

Max. Overhang-Length L/D=~7



•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Applicable Coolant Sleeve / Joint F92

● Toolholder Dimensions

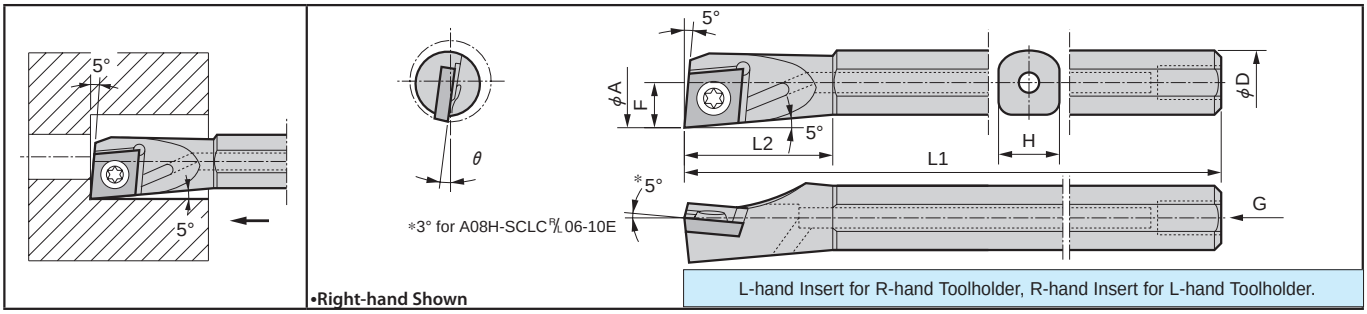
Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	G	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
E08L-SCLCR/L 06-10	○	○	mm	CCGW CCGT CCMT CCMW 215_	10	8	7	140	10	5		10°	0.2	SB-2545TR	FT-8
E10N-SCLPR/L 08-12	○	○		CPMB CPMH CPMT CPGB CPMH 2515_	12	10	9	160	12	6		8°	0.4	SB-3STR	FT-10
E12Q-SCLPR/L 09-16	○	○		CCET CCGT CCMT CCGW CCMW 325_	16	12	11	180	14	8		5°	0.4	SB-4TR	Ft-15
E16X-SCLPR/L 09-20	○	○			20	16	15	220	15	10		3°			
E20S-SCLPR/L 09-25	○	○			25	20	19	250	17	12.5		0°			

● : Std. Stock ○ : World Express

Applicable Inserts Page Reference F34

A...SCLP (C)-E Excellent Twin Hole Bar (Boring/Internal Facing)

Max. Overhang-Length L/D=~5



● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	G	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
S06H-SCLC□1.1E	●		inch	CCET CCGT CCMW 1109_	0.197	0.375	0.335	4.00	0.900	0.098	-	15°	0.016	SB-1630TR	FT-6
A05H-SCLC□2E	●			CCGW CCGT CCMT CCMW 215_	0.394	0.312	0.281	4.00	0.650	0.197	#10-32	12°		SB-2545TR	FT-8
A06X-SCLP□2.5E	●			CPMB CPMH CPMT CPGB 2515_	0.472	0.375	0.336	4.75	0.900	0.236	#10-32	5°		SB-3STR	FT-8
A08X-SCLP□3E	●			CPMB CPMH CPMT CPGB 32_	0.632	0.500	0.461	4.75	1.140	0.315	1/4-28	4°		SB-4TR	FT-15
A10M-SCLP□3E	●				0.709	0.625	0.586	6.00	1.220	0.354	5/16-24	3°			
A12X-SCLP□3E	●				0.984	0.750	0.709	7.00	1.450	0.492	5/16-24	0°			
A08H-SCLC□06-10E	○	○	mm	CCGW CCGT CCMT CCMW 215_	10	8	7	100	17	5		12°	0.2	SB-2545TR	FT-8
A10X-SCLP□08-12E	○	○		CPMB CPMH CPMT CPGB 2515_	12	10	9	120	23	6		5°	0.4	SB-3STR	FT-10
A12X-SCLP□08-14E	○	○			14	12	11	120	25	7		4°			
A12X-SCLP□09-16E	○	○		CPMB CPMH CPMT CPGB 32_	16	12	11	120	29	8		4°	0.4	SB-4TR	FT-15
A16M-SCLP□09-18E	○	○			18	16	15	150	31	9		3.5°			
A16M-SCLP□09-20E	○	○			20	16	15	150	34	10		3°			
A20Q-SCLP□09-25E	○	○			25	20	19	180	37	12.5		0°			

Applicable Inserts

Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
CC_	B45-B49	-	C11	C19
CP_	B50-B51		C11-C12	

Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

A-SDUC-AE Excellent Bar (Copying)

Max. Overhang Length L/D=~5.5

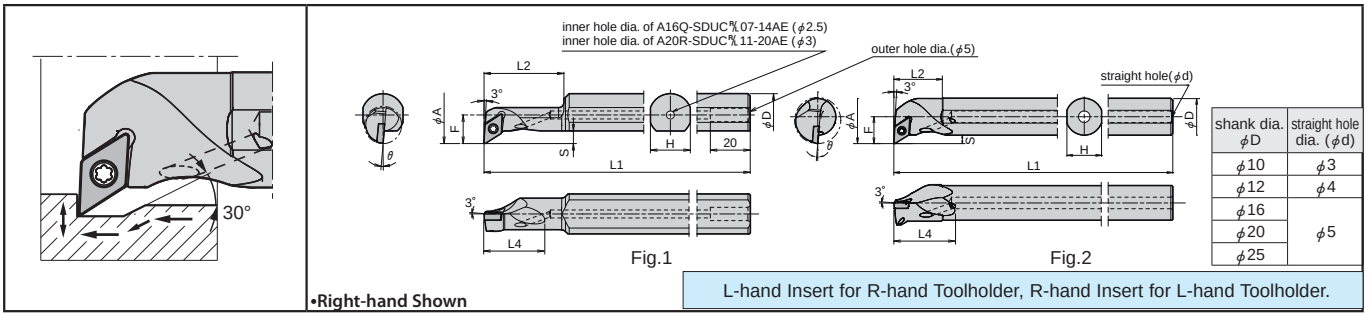


Fig.1 Fig.2

shank dia. ϕD	straight hole dia. (ϕd)
ϕ10	ϕ3
ϕ12	ϕ4
ϕ16	ϕ5
ϕ20	
ϕ25	

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. ϕA	Dimension ϕD	H	L1	L2	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
A06M-SDUC□2AE	●	●	inch	DCGT DCGW DCMT DCMW 215_	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						
A10R-SDUC□2AE	●	●			0.787	0.625	0.586	8	0.827	1.031	0.459	0.130						
A12S-SDUC□3AE	●	●		325_	1.063	0.750	0.711	10	0.866	1.386	0.650	0.240					SB-4065TR	FT-15
A16T-SDUC□3AE	●	●			1.300	1.000	0.961	12	0.945	1.461	0.748	0.240						
A16Q-SDUC□07-14AE	○	○	mm	DCGT DCGW DCMT DCMW 215_	14	16	15	180	28	23	10.8	4.4	5°	0.4	Yes	Fig.1	SB-2560TR	FT-8
A20R-SDUC□11-20AE	○	○		325_	20	20	19	200	48	30	15.6	6.1					SB-4065TR	FT-15
A10L-SDUC□07-14AE	○	○		215_	14	10	9	140	19	20	8.7	3.3	5°	0.4		Fig.2	SB-2560TR	FT-8
A12M-SDUC□07-16AE	○	○			16	12	11	150	21	24	9.7							
A16Q-SDUC□07-20AE	○	○			20	16	15	180		26	11.7							
A16Q-SDUC□11-23AE	○	○			23					31	14.5	6.1					SB-4065TR	FT-15
A20R-SDUC□11-27AE	○	○		325_	27	20	19	200	23	36	16.5							
A25S-SDUC□11-32AE	○	○			32	25	24	250	24	39	19							

S-SDUC-A Steel Bar (Copying)

Max. Overhang Length L/D=~4

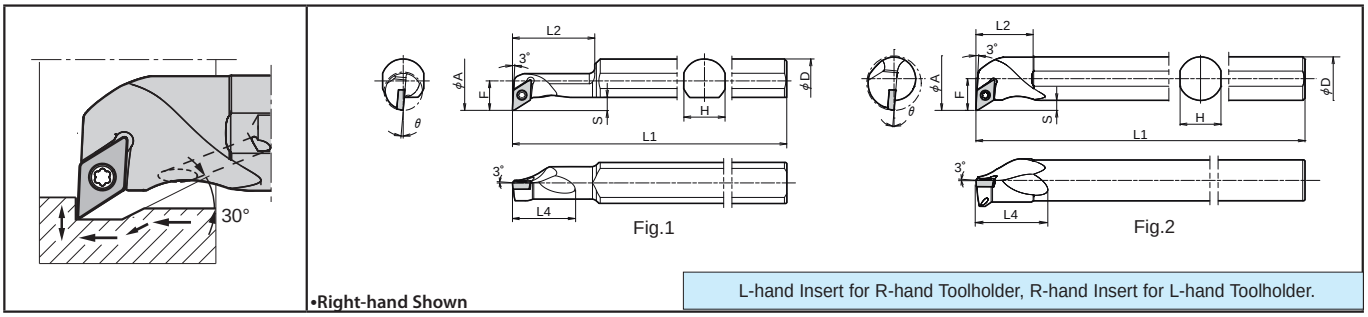


Fig.1 Fig.2

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

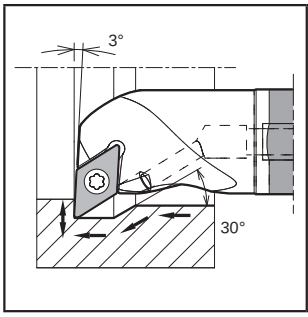
Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. ϕA	Dimension ϕD	H	L1	L2	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
S16Q-SDUC□07-14A	○	○	mm	DCGT DCGW DCMT DCMW 215_	14	16	15	180	28	23	10.8	4.4	5°	0.4	No	Fig.1	SB-2560TR	FT-8
S20R-SDUC□11-20A	○	○		325_	20	20	19	200	48	30	15.6	6.1					SB-4065TR	FT-15
S10L-SDUC□07-14A	○	○		215_	14	10	9	140	19	20	8.7	3.3	5°	0.4		Fig.2	SB-2560TR	FT-8
S12M-SDUC□07-16A	○	○			16	12	11	150	21	24	9.7							
S16Q-SDUC□07-20A	○	○			20	16	15	180		26	11.7							
S16Q-SDUC□11-23A	○	○			23					31	14.5	6.1					SB-4065TR	FT-15
S20R-SDUC□11-27A	○	○		325_	27	20	19	200	23	36	16.5							
S25S-SDUC□11-32A	○	○			32	25	24	250	24	39	19							

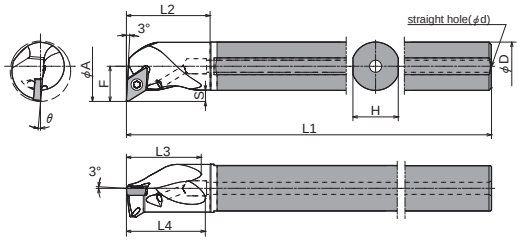
● : Std. Stock ○ : World Express

Applicable Inserts Page Reference F36

E-SDUC-A Carbide Shank Bar (Copying)

Max. Overhang Length L/D=~7





shank dia. φD	straight hole dia. (φd)
φ10	φ3
φ12	φ4
φ16	
φ20	φ6
φ25	

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Spare Parts: Clamp Screw	Spare Parts: Wrench
NEW E06N-SDUC□2A	●	●	inch	DCGT DCGW DCMT DCMW 215_	0.551	0.375	0.336	6.3	0.776	-	0.697	0.341	0.130	5°	1/64	Yes	SB-2560TR	FT-8
NEW E06N-SDUC□2A-2/3	●	●						4.2										
NEW E08Q-SDUC□2A	●	●			0.630	0.5	0.461	7.1	0.894	-	0.772	0.360	0.098					
NEW E08Q-SDUC□2A-2/3	●	●						4.8										
NEW E10X-SDUC□2A	●	●			0.787	0.625	0.586	8.7	1.091	-	0.976	0.459	0.130					
NEW E10X-SDUC□2A-2/3	●	●						5.8										
E10N-SDUC□07-14A	○	○	mm	DCGT DCGW DCMT DCMW 215_	14	10	9	160	20	-	19	8.7	3.3	5°	0.4	Yes	SB-2560TR	FT-8
E10N-SDUC□07-14A-2/3	○							105										
E12Q-SDUC□07-16A	○	○			16	12	11	180	23	-	22	9.7						
E12Q-SDUC□07-16A-2/3	○							120										
E16X-SDUC□07-20A	○	○			20	16	15	220	28	-	26	11.7						
E16X-SDUC□07-20A-2/3	○							145										
E16X-SDUC□11-23A	○	○		325_	23			220		-	27	14.5	6.1				SB-4065TR	FT-15
E16X-SDUC□11-23A-2/3	○							145										
E20S-SDUC□11-27A	○	○			27	20	19	250	32	-	31	16.5						
E20S-SDUC□11-27A-2/3	○							165										
E25T-SDUC□11-32A	○	○			32	25	24	300	38	-	37	19						
E25T-SDUC□11-32A-2/3	○							200										

Applicable Inserts

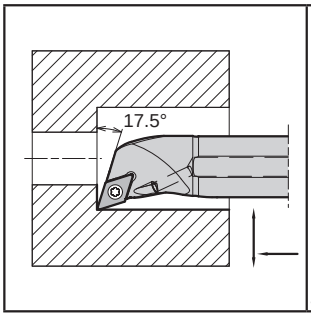
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
DC_	B52-B58	-	C12	C20

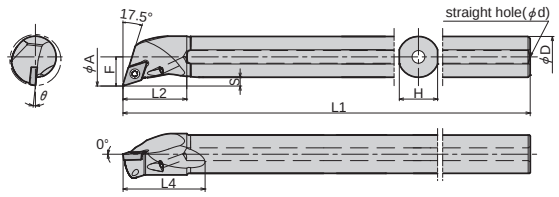
Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

A-SDQC-AE Excellent Bar (Copying)

Max. Overhang Length L/D=~5.5





shank dia. φD	straight hole dia. (φd)
φ10	φ3
φ12	φ4
φ16	φ5
φ20	
φ25	

•Right-hand Shown

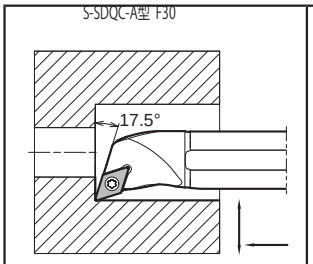
L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

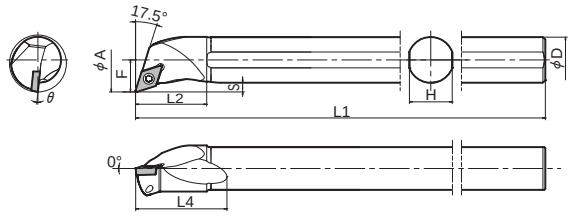
● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Spare Parts: Clamp Screw	Spare Parts: Wrench
A06M-SDQC[R/L]2AE	●	●	inch	DCGT DCMT DCGW DCMW 215_	0.512	0.375	0.336	6	0.736	0.783	0.295	0.083	10°	1/64	Yes	SB-2560TR	FT-8
A08M-SDQC[R/L]2AE	●	●			0.630	0.500	0.461	6	0.866	1.051	0.364	0.102	8°				
A10R-SDQC[R/L]2AE	●	●			0.787	0.625	0.586	8	0.984	1.256	0.443	0.102	6°				
A12S-SDQC[R/L]3AE	●	●		325	0.980	0.750	0.711	10	1.220	1.390	0.565	0.146	5°			SB-4065TR	FT-15
A10L -SDQC[R/L]07-13AE	○	○	mm	DCGT DCMT DCGW DCMW 215_	13	10	9	140	19	21	7.5	2.1	10°	0.4	Yes	SB-2560TR	FT-8
A12M-SDQC[R/L]07-16AE	○	○			16	12	11	150	22	25	9.25	2.6	8°				
A16Q-SDQC[R/L]07-20AE	○	○			20	16	15	180	25	32	11.3	2.6	6°				
A20R-SDQC[R/L]11-25AE	○	○		325_	25	20	19	200	31	37	14.4	3.7	5°			SB-4065TR	FT-15
A25S-SDQC[R/L]11-30AE	○	○			30	25	24	250	38	45	16.9	3.7	4°				

S-SDQC-A Steel Bar (Copying)

Max. Overhang Length L/D=~4





•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Spare Parts: Clamp Screw	Spare Parts: Wrench
S10L-SDQC[R/L]07-13A	○	○	mm	DCGT DCMT DCGW DCMW 215_	13	10	9	140	19	21	7.5	2.1	10°	0.4	No	SB-2560TR	FT-8
S12M-SDQC[R/L]07-16A	○	○			16	12	11	150	22	25	9.25	2.6	8°				
S16Q-SDQC[R/L]07-20A	○	○			20	16	15	180	25	32	11.3	2.6	6°				
S20R-SDQC[R/L]11-25A	○	○		DCGT DCMT DCGW DCMW 325_	25	20	19	200	31	37	14.4	3.7	5°			SB-4065TR	FT-15
S25S-SDQC[R/L]11-30A	○	○			30	25	24	250	38	45	16.9	3.7	4°				

Applicable Inserts

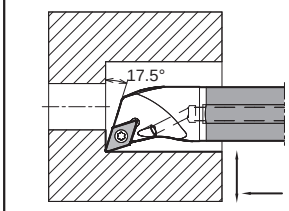
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
DC_	B52-B58	-	C12	C20

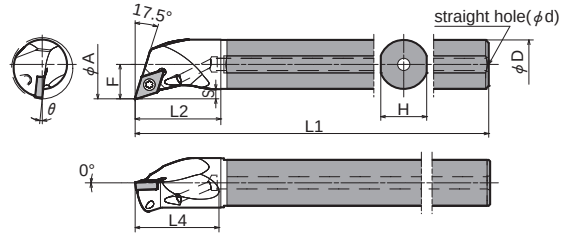
Recommended Cutting Conditions ➔ F93~F94

● : Std. Stock ○ : World Express

S-SDQC-A Carbide Shank Bar (Copying)

Max. Overhang Length L/D=~7





shank dia. ϕD	straight hole dia. (ϕd)
ϕ10	ϕ3
ϕ12	ϕ4
ϕ16	
ϕ20	ϕ6
ϕ25	

•Right-hand Shown

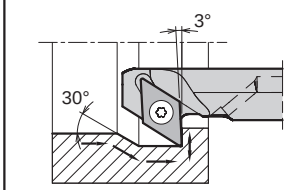
L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. ϕA	Dimension ϕD	H	L1	L2	L3	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Spare Parts: Clamp Screw	Spare Parts: Wrench
E10N-SDQC□07-13A	○	○	mm	DCGT DCMT DCGW DCMW 215_	13	10	9	160	20	-	19	7.5	2.1	10°	0.4	Yes	SB-2560TR	FT-8
E10N-SDQC□07-13A-2/3	○							105										
E12Q-SDQC□07-16A	○	○			16	12	11	180	23	-	22	9.25	2.6	8°				
E12Q-SDQC□07-16A-2/3	○							120										
E16X-SDQC□07-20A	○	○			20	16	15	220	28	-	27	11.3	2.6	6°				
E16X-SDQC□07-20A-2/3	○							145										
E20S-SDQC□11-25A	○	○		DCGT DCMT DCGW DCMW 325_	25	20	19	250	32	-	31	14.4	3.7	5°			SB-4065TR	FT-15
E20S-SDQC□11-25A-2/3	○							165										
E25T-SDQC□11-30A	○	○			30	25	24	300	38	-	37	16.9	3.7	4°				
E25T-SDQC□11-30A-2/3	○							200										

A-SDZC-AE Excellent Bar (Back Boring)

Max. Overhang Length L/D=~5.5



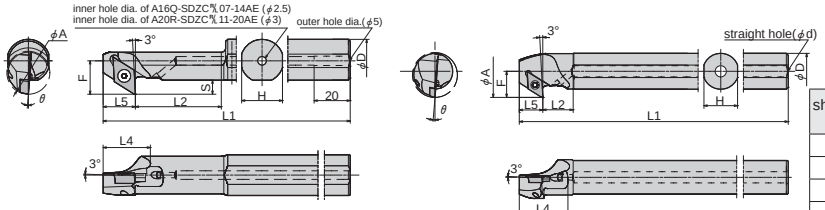


Fig.1

shank dia. ϕD	straight hole dia. (ϕd)
ϕ10	ϕ3
ϕ12	ϕ4
ϕ16	
ϕ20	ϕ5
ϕ25	

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. ϕA	Dimension ϕD	H	L1	L2	L5	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
A16Q-SDZC□07-14AE	○	○	mm	215_	14	16	15	180	30	10	10.8	4.4	5°	0.4	Yes	Fig.1	SB-2545TR	FT-8
A20R-SDZC□11-20AE	○	○		DCGT DCMT DCGW DCMW 325_	20	20	19	200	40	15	15.6	6.1					SB-4065TR	FT-15
A10L-SDZC□07-14AE	○	○		215_	14	10	9	140	14	9.5	8.7	3.3	5°	0.4		Fig.2	SB-2545TR	FT-8
A12M-SDZC□07-16AE	○	○			16	12	11	150	14	10.5	9.7	3.3					SB-2560TR	
A16Q-SDZC□07-20AE	○	○			20	16	15	180	14	10.5	11.7	3.3						
A16Q-SDZC□11-23AE	○	○		DCGT DCMT DCGW DCMW 325_	23	16	15	180	15	15	14.5	6.1					SB-4065TR	FT-15
A20R-SDZC□11-27AE	○	○			27	20	19	200	15	15	16.5	6.1						
A25S-SDZC□11-32AE	○	○			32	25	24	250	15	15	19	6.1						

Applicable Inserts

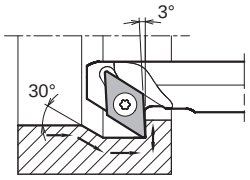
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
DC_	B52-B58	-	C12	C20

Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

S-SDZC-AE Steel Bar (Back Boring)

Max. Overhang Length L/D=~4



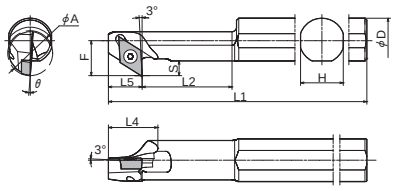


Fig.1

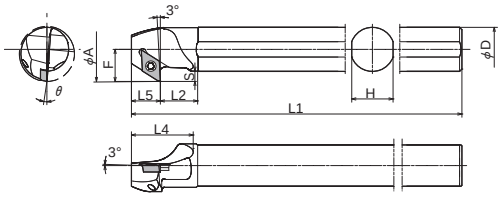


Fig.2

•Right-hand Shown

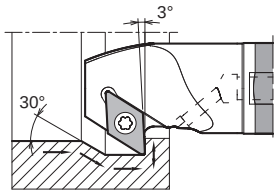
R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

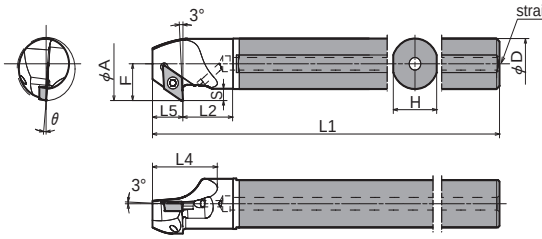
● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert		Min. Bore Dia. φA	Dimension φD	H	L1	L2	L5	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
S16Q-SDZC□07-14A	○	○	mm	DCGT DCMT DCGW DCMW	215_	14	16	15	180	30	10	10.8	4.4	5°	0.4	No	Fig.1	SB-2545TR	FT-8
S20R-SDZC□11-20A	○	○			325_	20	20	19	200	40	15	15.6	6.1					SB-4065TR	FT-15
S10L-SDZC□07-14A	○	○			215_	14	10	9	140	14	9.5	8.7	3.3	5°	0.4		Fig.2	SB-2545TR	FT-8
S12M-SDZC□07-16A	○	○				16	12	11	150	14	10.5	9.7	3.3					SB-2560TR	
S16Q-SDZC□07-20A	○	○				20	16	15	180	14	10.5	11.7	3.3						
S16Q-SDZC□11-23A	○	○			325_	23	16	15	180	15	15	14.5	6.1					SB-4065TR	FT-15
S20R-SDZC□11-27A	○	○				27	20	19	200	15	15	16.5	6.1						
S25S-SDZC□11-32A	○	○				32	25	24	250	15	15	19	6.1						

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

Max. Overhang Length L/D=~7





shank dia. φD	straight hole dia. (φd)
φ10	φ3
φ12	φ4
φ16	
φ20	φ6

•Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert		Min. Bore Dia. φA	Dimension φD	H	L1	L2	L5	F	S	θ	Std. Coner R (rε)	Coolant Hole	Spare Parts: Clamp Screw	Spare Parts: Wrench
E10N-SDZC□07-14A	○		mm	DCGT DCMT DCGW DCMW	215_	14	10	9	160	10.5	9.5	8.7	3.3	5°	0.4	Yes	SB-2545TR	FT-8
E12Q-SDZC□07-16A	○					16	12	11	180	12.5	10.5	9.7	3.3				SB-2560TR	
E16X-SDZC□07-20A	○					20	16	15	220	17.5	10.5	11.7	3.3					
E16X-SDZC□11-23A	○				325_	23	16	15	220	17	15	14.5	6.1				SB-4065TR	FT-15
E20S-SDZC□11-27A	○					27	20	19	250	23	15	16.5	6.1					

Applicable Inserts

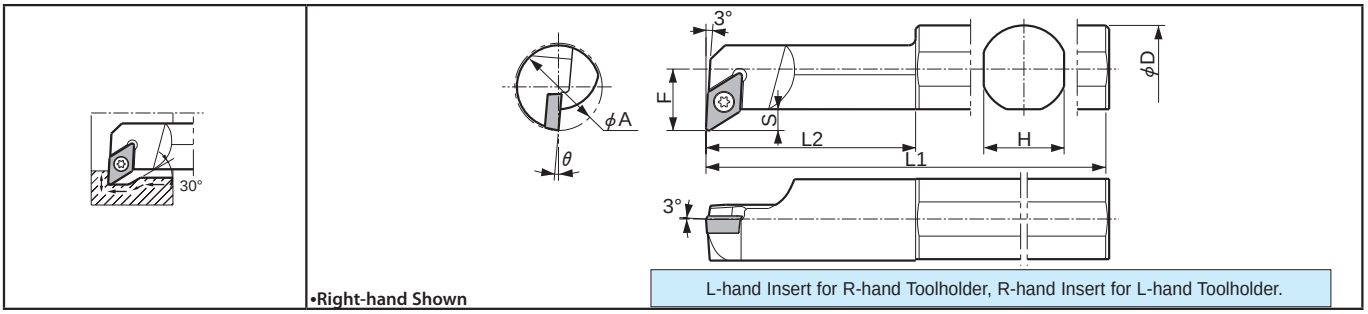
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
DC_	B52-B585	-	C112	C20

Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

S...SDUC Steel Bar (Copying)

Max. Overhang-Length L/D=~3



•Right-hand Shown

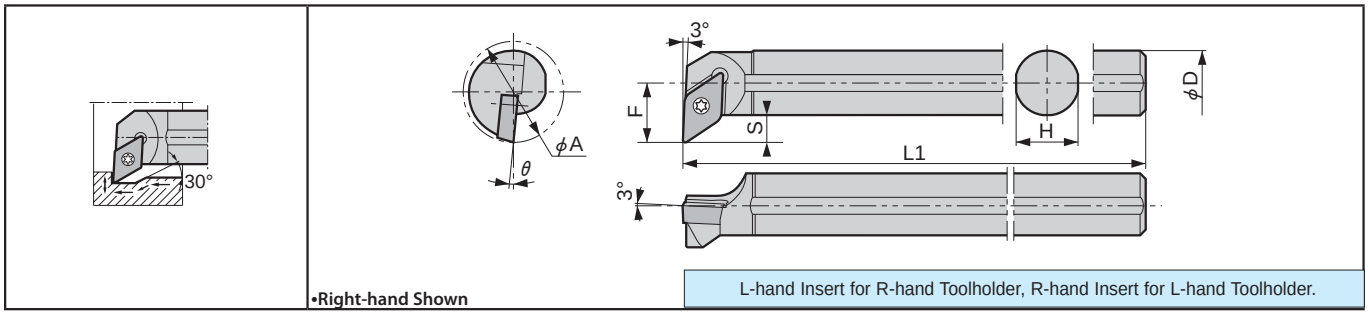
L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
S08M-SDUCR/L2	●	●	inch	DCGT DCMT DCGW DCMW 215_	0.564	0.500	0.480	6.00	1.125	0.346	0.145	5°	1/64	SB-2560TR	FT-8
S10X-SDUCR/L2	●	●	inch	DCGT DCMT DCGW DCMW 215_	0.564	0.625	0.584	7.00	1.125	0.346	0.145	5°	1/64	SB-2560TR	FT-8
S12R-SDUCR/L3	●	●	inch	DCGT DCMT DCGW DCMW 325_	0.750	0.750	0.710	8.00	1.500	0.476	0.224	5°	1/32	SB-4085TR	FT-15
S16X-SDUCR/L3	●	●	inch	DCGT DCMT DCGW DCMW 325_	0.980	1.000	0.970	9.00	2.360	0.693	0.240	5°	1/32	SB-4085TR	FT-15
S16Q-SDUCR/L07-14	○	○	mm	DCGT DCMT DCGW DCMW 215_	14	16	14	180	30	10.4	4.4	5°	0.4	SB-2560TR	
S16Q-SDUCR/L07-16	○	○	mm	DCGT DCMT DCGW DCMW 215_	16	16	14	180	35	11.4	4.4	5°	0.4	SB-2560TR	
S20R-SDUCR/L11-20	○	○	mm	DCGT DCMT DCGW DCMW 325_	20	20	18	200	50	15.1	6.1	5°		SB-4085TR	FT-15
S25X-SDUCR/L11-25	○	○	mm	DCGT DCMT DCGW DCMW 325_	25	25	23	220	60	17.6	6.1	5°		SB-4085TR	FT-15

S...SDUC-E Excellent Bar (Copying)

Max. Overhang-Length L/D=~5



•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
S10M-SDUCR/L07-14E	○	○	mm	DCGT DCMT DCGW DCMW 215_	14	10	9	150	-	8.3	3.3	5°	0.4	SB-2560TR	FT-8
S12M-SDUCR/L07-16E	○	○	mm	DCGT DCMT DCGW DCMW 215_	16	12	11	150	-	9.3	3.3	5°	0.4	SB-2560TR	FT-8
S16Q-SDUCR/L07-20E	○	○	mm	DCGT DCMT DCGW DCMW 215_	20	16	15	180	-	11.3	3.3	5°	0.4	SB-2560TR	FT-8
S16Q-SDUCR/L11-25E	○	○	mm	DCGT DCMT DCGW DCMW 325_	25	16	15	180	-	14.1	6.1		0.8	SB-4085TR	FT-15
S20Q-SDUCR/L11-32E	○	○	mm	DCGT DCMT DCGW DCMW 325_	32	20	19	180	-	16.1	6.1		0.8	SB-4085TR	FT-15

Applicable Inserts

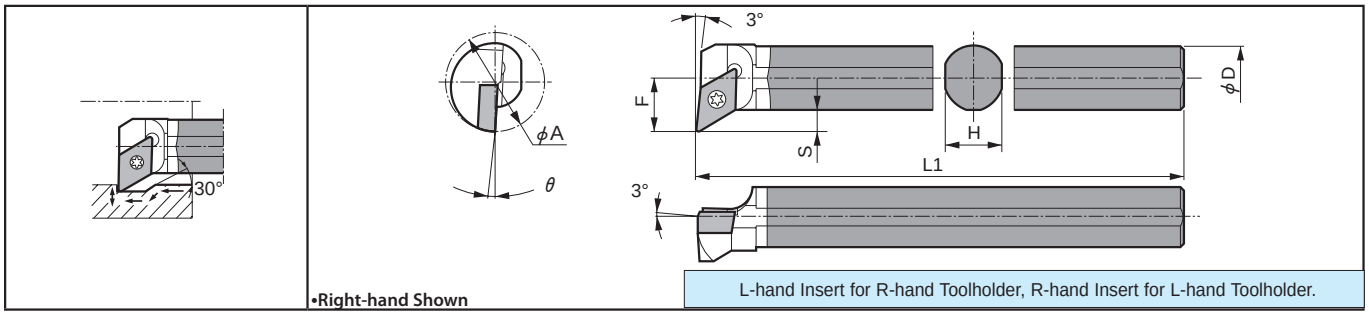
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
DC_	B52-B58	-	C12	C20

Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

C...SDUC Carbide Shank Bar (Copying)

Max. Overhang-Length L/D=~7



•Right-hand Shown

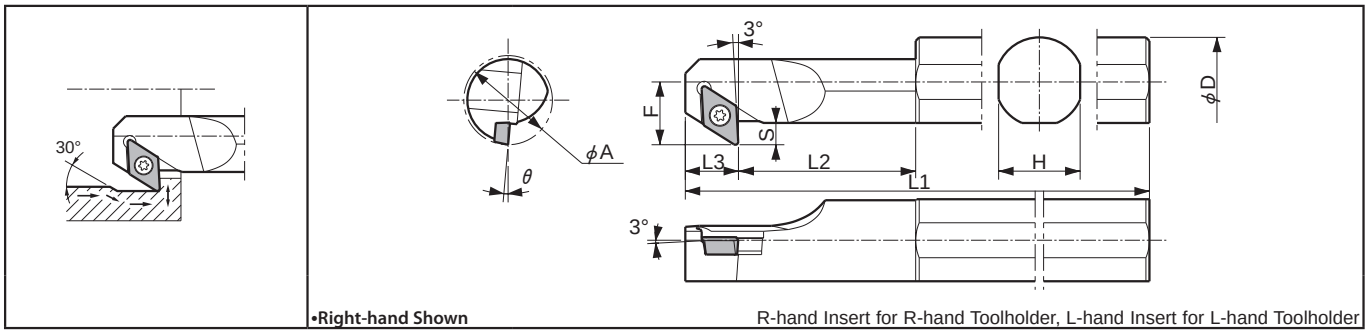
L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
C10N-SDUC□07-14	○	○	mm	DCGT DCMT DCGW DCMW 215_	14	10	9	160	-	-	3.3	5°	0.4	SB-2560TR	FT-15
C12Q-SDUC□07-16	○	○			16	12	11	180	-	-	3.3	5°			
C12Q-SDUC□11-20	○	○		DCGT DCMT DCGW DCMW 325_	20	12	11	180	-	12.3	6.1	5°	0.8	SB-4085TR	FT-15
C16X-SDUC□11-25	○	○			25	16	15	220	-	14.3	6.1	5°			
C20S-SDUC□11-32	○	○			32	20	19	250	-	16.3	6.1	5°			

S...SDZC Steel Bar (Back Boring)

Max. Overhang-Length L/D=~3



•Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
S10X-SDZC□2	●	●	inch	DCGT DCMT DCGW DCMW 215_	0.630	0.625	0.596	7.00	1.52	0.491	0.449	0.173	5°	1/64	SB-2560TR	FT-8
S10Q-SDZC□2	●	●			0.550	0.625	0.596	7.00	1.18	0.491	0.410	0.173	5°	1/64		
S12R-SDZC□3	●	●		DCGT DCMT DCGW DCMW 325_	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□3	●	●			0.984	1.000	0.960	9.00	2.09	0.590	0.693	0.240	5°	1/32		
S16Q-SDZC□07-14	○	○	mm	DCGT DCMT DCGW DCMW 215_	14	16	14	180	30	10	10.4	4.4	5°	0.4	SB-2560TR	FT-8
S16Q-SDZC□07-16	○	○			16	16	14	180	35	12.5	11.4	4.4	5°			
S20R-SDZC□11-20	○	○		DCGT DCMT DCGW DCMW 325_	20	20	18	200	40	15	15.1	6.1	5°	0.8	SB-4085TR	FT-15
S25X-SDZC□11-25	○	○			25	25	23	220	50	15	17.6	6.1	5°			

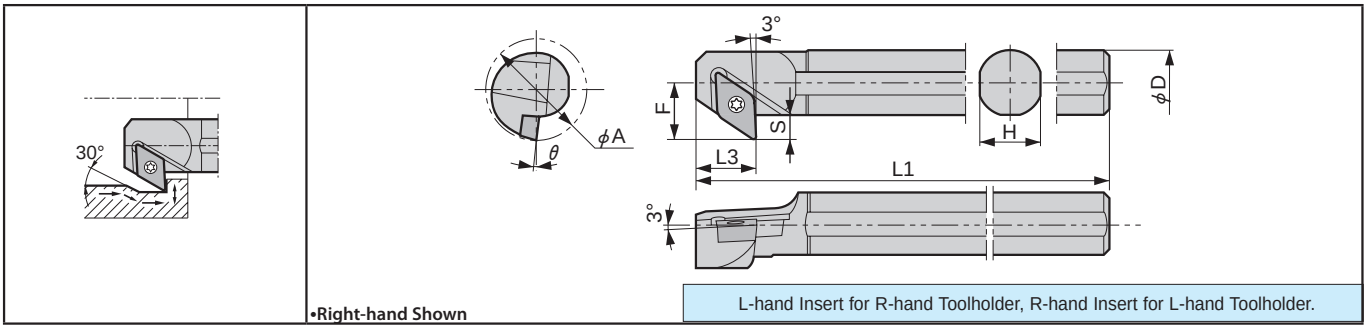
Applicable Inserts

Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
DC_	B52-B58	-	C12	C20

Recommended Cutting Conditions F93~F94

S...SDZC -E Excellent Bar (Back Boring)

Max. Overhang-Length L/D=~5



•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. ϕA	Dimension ϕD	H	L1	L3	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
S10M-SDZC□07-14E	○	○	mm	DCGT DCMT DCGW DCMW 215_	14	10	9	150	9.5	8.3	3.3	5°	0.4	SB-2560TR	FT-8
S12M-SDZC□07-16E	○	○			16	12	11	150	10.5	9.3	3.3	5°			
S16Q-SDZC□07-20E	○	○			20	16	15	180	10.5	11.3	3.3	5°			
S16Q-SDZC□11-25E	○	○		DCGT DCMT DCGW DCMW 325_	25	16	15	180	15	14.1	6.1	5°	0.8	SB-4085TR	FT-15
S20Q-SDZC□11-32E	○	○			32	20	19	180	15	16.1	6.1	5°			

Applicable Inserts

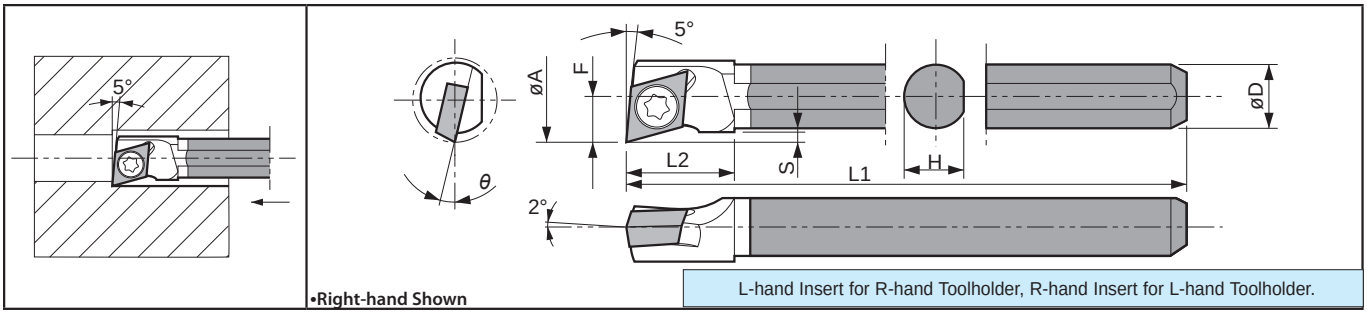
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
DC_	B52-B58	-	C12	C20

Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

C...SJLC Carbide Shank Bar (Boring / Internal Facing)

Max. Overhang-Length L/D=~7

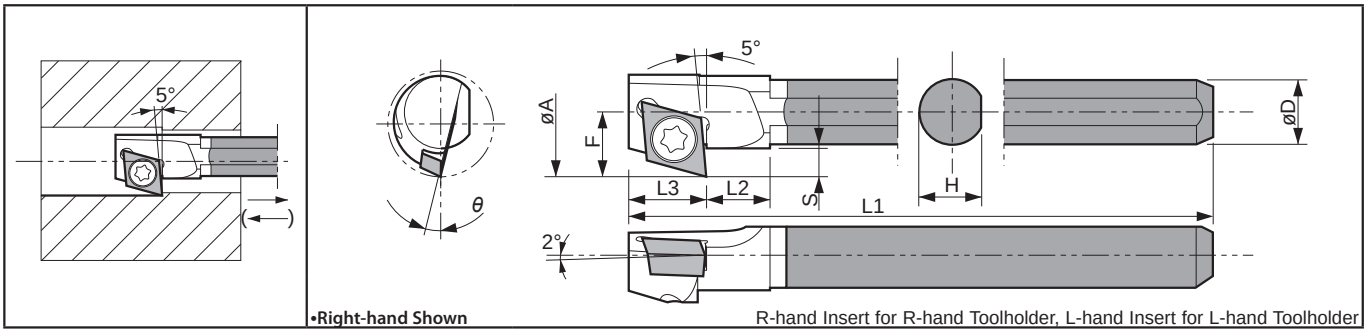


•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

C...SJZC Carbide Shank Bar (Back Boring)

Max. Overhang-Length L/D=~7



•Right-hand Shown

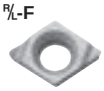
R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

❖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

Description	Stock		Min. Bore Dia.	Dimension (mm)								θ	Std. Corner-R(rε)	Spare Parts	
														Clamp Screw	Wrench
	R	L	ϕA	ϕD	H	L1	L2	L3	F	S					
C04X-SJLCR/L03-055	●	●	5.5	4	3.8	91	7	-	2.95	0.65		15°	0.03	**SB-1630TR**	**FT-6**
C04X-SJZCR/L03-065	●	●	6.5	4	3.8	93	4	4.8	4.0	1.8		15°	0.03	**SB-1630TR**	**FT-6**

● Applicable Inserts

Application	Finishing	Finishing/Precision
Ref. Page	**B60**	**B60**
Insert / Toolholder	R/L-F 	R/L-FSF 
····SJLCR/L03-····	JCGT1109..	JCET1109..
····SJZCR/L03-····	JCGT1109..	JCET1109..

Recommended Cutting Conditions ➡ **F93~F94**

Feature of C-SJLC

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

Feature 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 necking
3. Large clearance between cutting edge and holder (1.8mm).

● : Std. Stock ○ : World Express

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

Max. Overhang Length L/D=~5.5

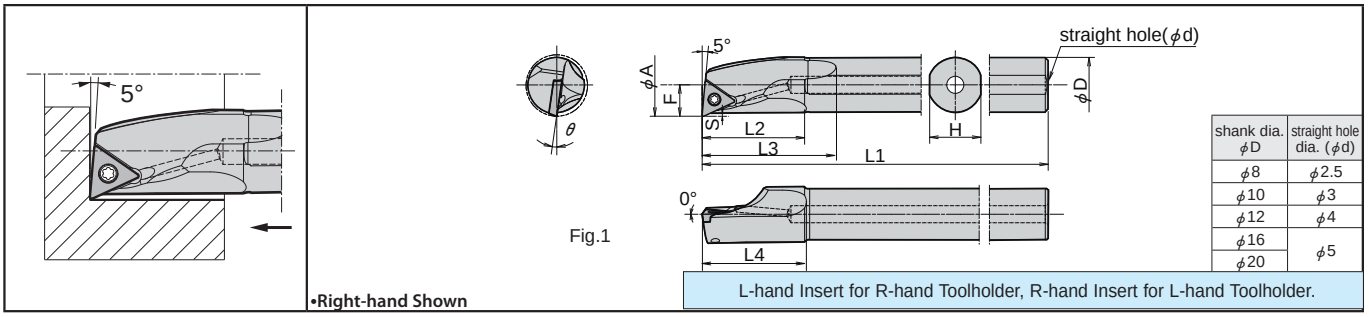


Fig.1

•Right-hand Shown

shank dia. ϕD	straight hole dia. (ϕd)
ϕ8	ϕ2.5
ϕ10	ϕ3
ϕ12	ϕ4
ϕ16	ϕ5
ϕ20	

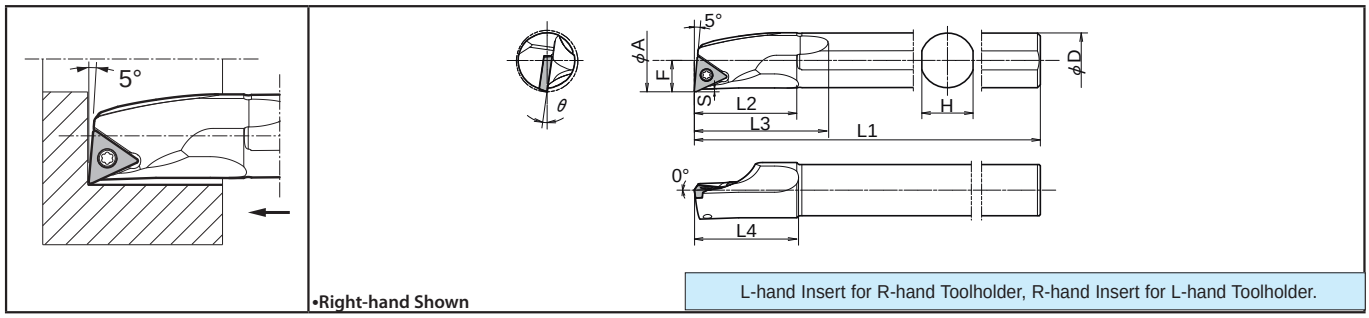
L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. ϕA	Dimension ϕD	H	L1	L2	L3	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Spare Parts: Clamp Screw	Spare Parts: Wrench
A08X-STLC□09-10AE	○	○	mm	TCMT 1815_	10	8	7	120	16	22	16	5	0.5	14°	0.4	Yes	SB-2250TR	FT-7
A10L-STLC□09-12AE	○	○			12	10	9	140	20	26	20	6.2	0.9	12°				
A10L-STLC□11-12AE	○	○		TCGT 215_ TCMT													SB-2560TR	FT-8
A12M-STLC□11-14AE	○	○			14	12	11	150	24	30	25	7.2	0.7	10°				
A16Q-STLC□11-18AE	○	○			18	16	15	180	30	39	31	9.2		8°				
A20R-STLC□11-22AE	○	○			22	20	19	200	36	44	36	11.2		6°				

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

Max. Overhang Length L/D=~4



•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. ϕA	Dimension ϕD	H	L1	L2	L3	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Spare Parts: Clamp Screw	Spare Parts: Wrench
S08X-STLC□09-10A	○	○	mm	TCMT 1815_	10	8	7	120	16	22	16	5	0.5	14°	0.4	No	SB-2250TR	FT-7
S10L-STLC□09-12A	○	○			12	10	9	140	20	26	20	6.2	0.9	12°				
S10L-STLC□11-12A	○	○		TCGT 215_ TCMT													SB-2560TR	FT-8
S12M-STLC□11-14A	○	○			14	12	11	150	24	30	25	7.2	0.7	10°				
S16Q-STLC□11-18A	○	○			18	16	15	180	30	39	31	9.2		8°				
S20R-STLC□11-22A	○	○			22	20	19	200	36	44	36	11.2		6°				

Applicable Inserts

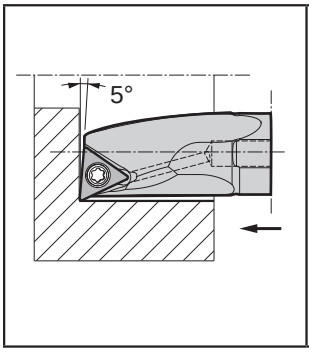
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
TC_	B63-B65	-	-	C20-C21

Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

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

Max. Overhang Length L/D=~5.5



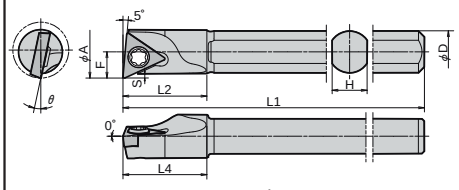


Fig.1

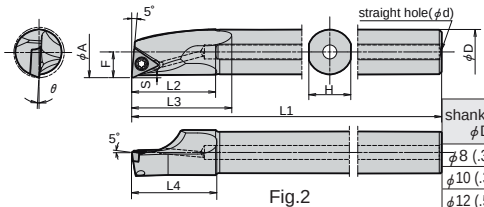


Fig.2

shank dia. φD	straight hole dia. (φd)
φ8 (.312")	φ2.5
φ10 (.375")	φ3
φ12 (.500")	φ4
φ16 (.625")	φ5
φ20 (.75")	
φ25 (.1")	

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
S04H-STLB[R/L]1.2AE	●	●	inch	TBGW TBGT TBMT 121_	0.312	0.250	0.211	4	0.472	-	0.469	0.150	0.025	12°	0.008	No	Fig.1	SB-2035TR	FT-6
A05K-STLB[R/L]1.2AE	●	●			0.392	0.312	0.273	5	0.630	0.839	0.650	0.201	0.031	12°		Yes	Fig.2		
A05K-STLP[R/L]1.8AE	●	●		TPGB TPGH TPMH TPMT 1815_	0.392	0.312	0.273	5	0.630	0.850	0.646	0.197	0.022	10°	1/64			SB-2545TR	FT-8
A06M-STLP[R/L]1.8AE	●	●			0.480	0.375	0.336	6	0.787	0.949	0.807	0.244	0.036	8°					
A06M-STLP[R/L]2AE	●	●		TPGB TPET TPGH TPMH TPMT 22_	0.480	0.375	0.336	6	0.787	0.961	0.807	0.236	0.030	10°				SB-3060TR	FT-10
A08M-STLP[R/L]2AE	●	●			0.580	0.500	0.461	6	0.945	1.228	0.953	0.283	0.032	7°					
A10R-STLP[R/L]2AE	●	●			0.700	0.625	0.586	8	1.181	1.402	1.193	0.362	0.036	3.5°					
A12S-STLP[R/L]2AE	●	●			0.825	0.750	0.711	10	1.417	1.744	1.425	0.421	0.031	2°					
A16T-STLP[R/L]3AE	●	●		TPGB TPGH TPMH TPMT 32_	1.280	1.000	0.961	12	1.811	2.173	1.815	0.539	0.031	0°				SB-4065TR	FT-15
S06H-STLB[R/L]06-08AE	○	○	mm	TBGW TBGT TBMT 121_	8	6	5	100	12	-	12	3.8	0.5	12°	0.2	No	Fig.1	SB-2035TR	FT-6
A08X-STLP[R/L]09-10AE	○	○		TPGB TPGH TPMH TPMT 1815_	10	8	7	120	16	22	16	5	0.5	10°	0.4	Yes	Fig.2	SB-2545TR	FT-8
A10L-STLP[R/L]09-12AE	○	○			12	10	9	140	20	25	20	6.2	0.9	8°					
A10L-STLP[R/L]11-12AE	○	○		TPGB TPET TPGH TPMH TPMT 22_						26		6	0.7	10°				SB-3060TR	FT-10
A12M-STLP[R/L]11-14AE	○	○			14	12	11	150	24	30	24	7.2	0.8	7°					
A16Q-STLP[R/L]11-18AE	○	○			18	16	15	180	30	36	30	9.2	0.7	3.5°					
A20R-STLP[R/L]11-22AE	○	○			22	20	19	200	36	46	37	11.2		2°					
A25S-STLP[R/L]16-27AE	○	○		TPGB TPGH TPMH TPMT 32_	27	25	24	250	46	55	46	13.7		0°				SB-4065TR	FT-15

Applicable Inserts

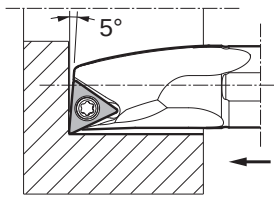
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
TB_, TP_	B63, B66-B71	-	C13-C14	C21-C22

Recommended Cutting Conditions ➔ F93~F94

● : Std. Stock ○ : World Express

S-STLB(P)-A Steel Bar (Boring/Internal Facing)

Max. Overhang Length L/D=~4



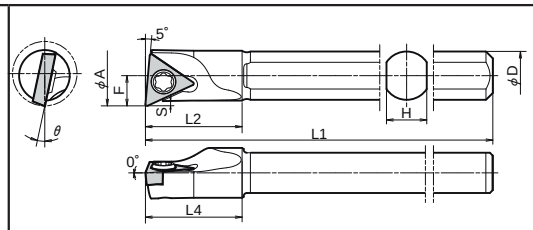


Fig.1

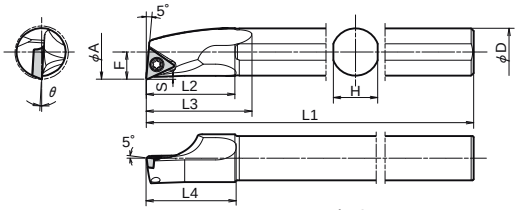


Fig.2

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
S06H-STLB□06-08A	○	○	mm	TBGW TBGT TBMT 121_	8	6	5	100	12	-	12	3.8	0.5	12°	0.2	No	Fig.1	SB-2035TR	FT-6
S08X-STLP□09-10A	○	○		TPGB TPGH TPMH TPMT 1815_	10	8	7	120	16	22	16	5	0.5	10°	0.4		Fig.2	SB-2545TR	FT-8
S10L-STLP□09-12A	○	○			12	10	9	140	20	25	20	6.2	0.9	8°					
S10L-STLP□11-12A	○	○		TPGB TPET TPGH TPMH TPMT 22_						26		6	0.7	10°				SB-3060TR	FT-10
S12M-STLP□11-14A	○	○			14	12	11	150	24	30	24	7.2	0.8	7°					
S16Q-STLP□11-18A	○	○			18	16	15	180	30	36	30	9.2	0.7	3.5°					
S20R-STLP□11-22A	○	○			22	20	19	200	36	46	37	11.2		2°					
S25S-STLP□16-27A	○	○		TPGB TPGH TPMH TPMT 32_	27	25	24	250	46	55	46	13.7		0°				SB-4065TR	FT-15

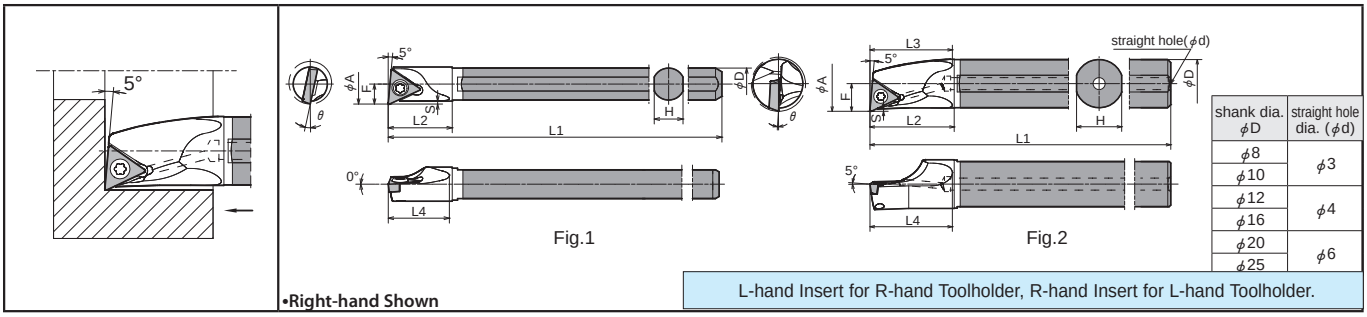
Applicable Inserts

Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
TB_, TP_	B63, B66-B71	-	C13-C14	C21-C22

Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

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



shank dia. φD	straight hole dia. (φd)
φ8	φ3
φ10	
φ12	φ4
φ16	
φ20	φ6
φ25	

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
C06J-STLB R/L 06-08A	○	○	mm	TBGW TBGT TBMT 121_	8	6	5.4	110	12	-	12	3.8	0.5	12°	0.2	No	Fig.1	SB-2035TR	FT-6
E08L-STLP R/L 09-10A	○	○		TPGB TPGH TPMH TPMT 1815_	10	8	7	140	16	15	15	5	0.5	10°	0.4	Yes	Fig.2	SB-2545TR	FT-8
E10N-STLP R/L 09-12A	○	○			12	10	9	160	20	19	19	6.2	0.9	8°					
E10N-STLP R/L 09-12A-2/3	○							105											
E10N-STLP R/L 09-12A-1/2	○							80											
E10N-STLP R/L 11-12A	○	○		TPGB TPET TPGH TPMH TPMT 22_				160				6	0.7	10°				SB-3060TR	FT-10
E10N-STLP R/L 11-12A-2/3	○							105											
E10N-STLP R/L 11-12A-1/2	○							80											
E12Q-STLP R/L 11-14A	○	○			14	12	11	180	23	22	22	7.2	0.8	7°					
E12Q-STLP R/L 11-14A-2/3	○							120											
E12Q-STLP R/L 11-14A-1/2	○							90											
E16X-STLP R/L 11-18A	○	○			18	16	15	220	28	27	27	9.2	0.7	3.5°					
E16X-STLP R/L 11-18A-2/3	○							145											
E16X-STLP R/L 11-18A-1/2	○							110											
E20S-STLP R/L 11-22A	○	○			22	20	19	250	32	31	31	11.2		2°					
E20S-STLP R/L 11-22A-2/3	○							165											
E20S-STLP R/L 11-22A-1/2	○							125											
E25T-STLP R/L 16-27A	○	○		TPGB TPGH TPMH TPMT 32_	27	25	24	300	38	37	37	13.7		0°				SB-4065TR	FT-15
E25T-STLP R/L 16-27A-2/3	○							200											

Applicable Inserts

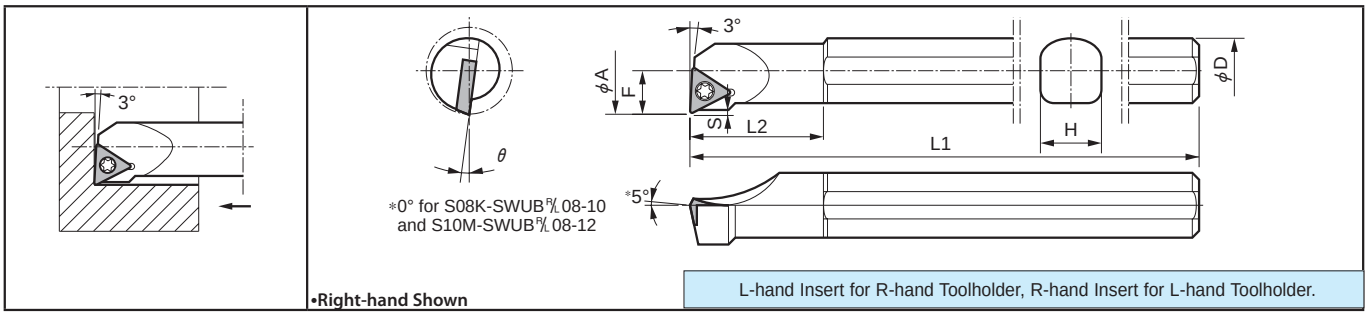
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
TB_, TP_	B63, B66-B71	-	C13-C14	C21-C22

Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

S...STUP (B) Steel Bar

Max. Overhang Length L/D=~3



Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
S04H-STUB□1.2	●		inch	TBGW TBGT TBMT 121_	0.312	0.250	0.224	4.00	0.50	0.148	0.023	12°	1/64	SB-1STR	FT-6
S05K-STUP□1.5	●			TPGB TPET TPGH TPGT TPMH 1515_	0.392	0.313	0.270	5.00	0.75	0.196	0.020	13°		SB-1TR	FT-6
S06M-STUP□1.8	●	●		TPGB TPGH TPMT TPMH 1815_	0.472	0.375	0.356	6.00	1.01	0.236	0.015	13°	1/64	SB-2TR	FT-8
S08M-STUP□1.8	●	●			0.630	0.500	0.480	6.00	1.18	0.315	0.090	10°			
S10X-STUP□2	●	●		TPGB TPET TPGH TPMT 22_	0.787	0.625	0.584	7.00	1.38	0.394	0.100	7°	1/64	SB-3TR	FT-10
S12R-STUP□2	●	●			0.912	0.750	0.710	8.00	1.58	0.456	0.115	5°			
S06H-STUB□06-08	○	○	mm	TBGW TBGT TBMT 121_	8	6	5.4	100	13	4	0.6	12°	0.2	SB-1STR	FT-6
S08K-STUP□08-10	○	○		TPGB TPET TPGH TPGT TPMH 1515_	10	8	7	125	17	5	0.4	10°	0.4	SB-1TR	
S10M-STUP□09-12	○	○		TPGB TPGH TPMT TPMH 1815_	12	10	9	150	20	6	0.5	8°	0.4	SB-2TR	FT-8
S12M-STUP□09-16	○	○			16	12	11	150	25	8	0.5	5°			
S16Q-STUP□11-20	○	○		TPGB TPET TPGH TPMT 22_	20	16	15	180	27	10	0.9	3°	0.4	SB-3TR	FT-10
S20R-STUP□11-25	○	○			25	20	19	200	33	12.5	0.9	0°			
S25X-STUP□16-32	○	○		TPGB TPGH TPMT TPMH 32_	32	25	23.4	220	42	16	0.6	0°	0.8	SB-4TR	FT-15

Applicable Inserts

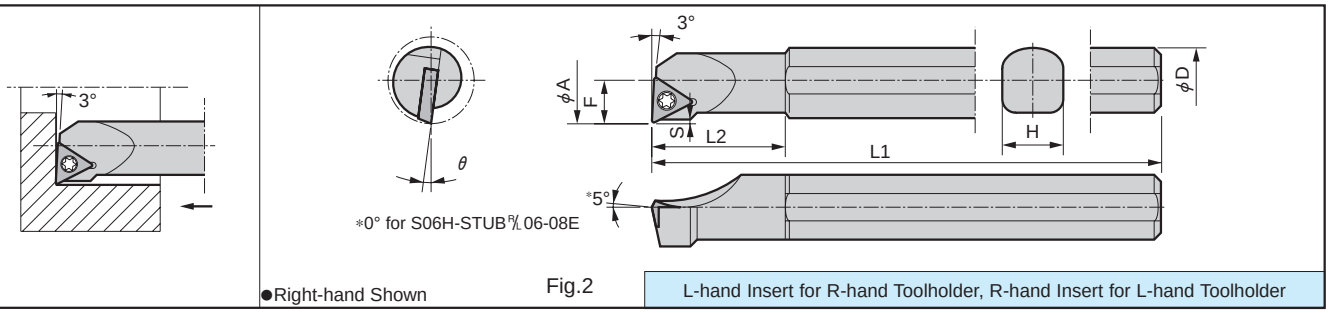
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
TP_	B66-B71	-	C13-C14	C21-C22

Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

S...STUP (B)-E

Max. Overhang-Length L/D=~5



●Right-hand Shown

Fig.2

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
S06H-STUBR(L)06-08E	○	○	mm	TBGW TBGT TBMT 121_	8	6	5.4	100	13	4	0.6	12°	0.2	SB-1STR	FT-6
S08K-STUPR(L)08-10E	○	○		TPGB TPET TPGH TPGT TPMH 1515_	10	8	7	125	17	5	0.4	10°	0.4	SB-1TR	FT-6
S10M-STUPR(L)09-12E	○	○		TPGB TPGH TPMT TPMH 1815_	12	10	9	150	20	6	0.5	8°	0.4	SB-2TR	FT-8
S12M-STUPR(L)09-16E	○	○			16	12	11	150	25	8	0.5	5°			
S10M-STUPR(L)11-12E	○	○		TPGB TPET TPGH TPMT 22_	12	10	9	150	20	6	0.6	8°	0.4	SB-3TR	FT-10
S12M-STUPR(L)11-14E	○	○			14	12	11	150	25	7	0.6	7°			
S12M-STUPR(L)11-16E	○	○			16	12	11	150	25	8	0.5	5°			
S16R-STUPR(L)11-18E	○	○			18	16	15	200	26	9	0.7	4°			
S16R-STUPR(L)11-20E	○	○			20	16	15	200	26	10	0.9	3°			
S20X-STUPR(L)11-25E	○	○			25	20	19	220	33	12.5	0.9	0°			
S20X-STUPR(L)16-25E	○	○		TPGB TPGH TPMT TPMH 32_	25	20	19	220	33	12.5	0.9	0°	0.8	SB-4TR	FT-15
S25X-STUPR(L)16-32E	○	○			32	25	23.4	270	42	16	0.6	0°			

Applicable Inserts

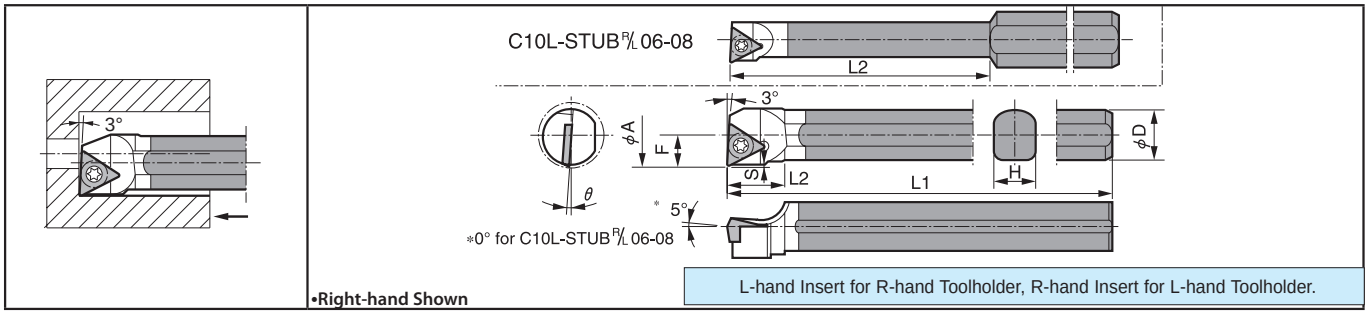
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
TP_	B66-B71	-	C13-C14	C21-C22

Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

C...STUP (B) Carbide Shank Bar

Max. Overhang-Length L/D=~7



•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
C10L-STUBR/L 06-08	○	○	mm	TBGW TBGT TBMT 121_	8	10	9	140	50	4	0.5	12°	0.2	SB-1STR	FT-6
C08L-STUPR/L 08-10	○	○		TPGB TPGH TPMT TPMH 1515_	10	8	7	140	10	5	0.5	10°	0.4	SB-1TR	FT-6
C10N-STUPR/L 09-12	○	○			12	10	9	160	11	6	0.5	8°	0.4	SB2TR	FT-8
C10N-STUPR/L 09-12-1/2	○				12	10	9	80	11	6	0.5				
C10N-STUPR/L 09-12-2/3	○				12	10	9	105	11	6	0.5				
C12Q-STUPR/L 09-16	○	○			16	12	11	180	12	8	0.7	5°	0.4	SB-3TR	FT-10
C12Q-STUPR/L 09-16-1/2	○				16	12	11	90	12	8	0.7				
C12Q-STUPR/L 09-16-2/3	○				16	12	11	120	12	8	0.7				
C10N-STUPR/L 11-12	○	○		TPGB TPET TPGH TPMT 22_	12	10	9	160	11	6	0.5	8°	0.4		
C10N-STUPR/L 11-12-1/2	○				12	10	9	80	11	6	0.5				
C10N-STUPR/L 11-12-2/3	○				12	10	9	105	11	6	0.5				
C12Q-STUPR/L 11-14	○	○			14	12	11	180	12	7	0.5	7°	0.4		
C12Q-STUPR/L 11-14-1/2	○				14	12	11	90	12	7	0.5				
C12Q-STUPR/L 11-14-2/3	○				14	12	11	120	12	7	0.5				
C12Q-STUPR/L 11-16	○	○			16	12	11	180	12	8	0.3	5°	0.4		
C12Q-STUPR/L 11-16-1/2	○				16	12	11	90	12	8	0.3				
C12Q-STUPR/L 11-16-2/3	○				16	12	11	120	12	8	0.3				
C16X-STUPR/L 11-18	○	○			18	16	15	220	14	9	0.3	4°	0.4		
C16X-STUPR/L 11-18-1/2	○				18	16	15	110	14	9	0.3				
C16X-STUPR/L 11-18-2/3	○				18	16	15	145	14	9	0.3				
C16X-STUPR/L 11-20	○	○			20	16	15	220	14	10	0.8	3°	0.4		
C16X-STUPR/L 11-20-1/2	○				20	16	15	110	14	10	0.8				
C16X-STUPR/L 11-20-2/3	○				20	16	15	145	14	10	0.8				
C20S-STUPR/L 11-25	○	○			25	20	19	250	17	12.5	0.7	0°	0.4		
C20S-STUPR/L 11-25-1/2	○				25	20	19	125	17	12.5	0.7				
C20S-STUPR/L 11-25-2/3	○				25	20	19	165	17	12.5	0.7				
C20S-STUPR/L 16-25	○	○		TPGB TPGH TPMT TPMH 32_	25	20	19	250	17	12.5	0.3	0°	0.8	SB-4TR	FT-15
C20S-STUPR/L 16-25-1/2	○				25	20	19	125	17	12.5	0.3				
C20S-STUPR/L 16-25-2/3	○				25	20	19	165	17	12.5	0.3				

Applicable Inserts

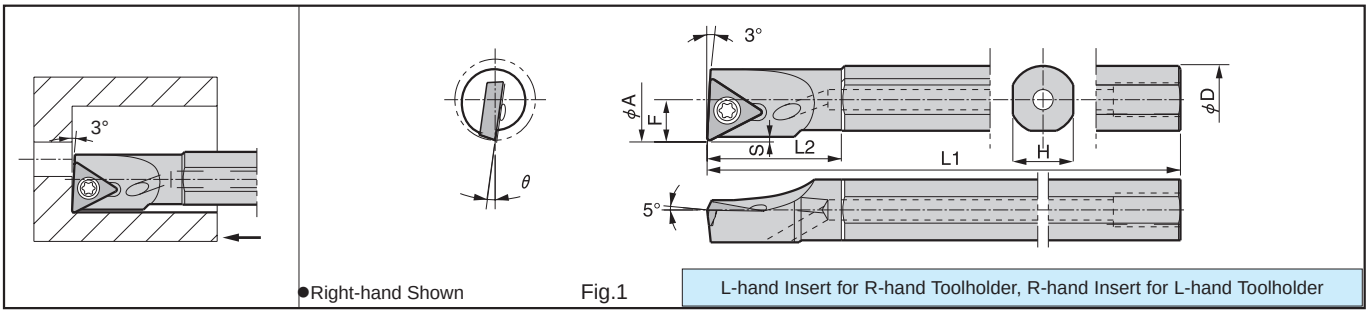
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
TB_	B63, B66-B71	-	C13-C14	C21-C22
TP_				

Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

A...STUP-E Excellent Bar, Twin Coolant Hole Bar

Max. Overhang-Length L/D=~5



●Right-hand Shown Fig.1

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
A08H-STUP□08-10E	○	○	mm	TPGB TPET TPGT TPGT TPMH 1515_	10	8	7	100	17	5	0.4	10°	0.4	SB-1TR	FT-6
A10X-STUP□09-12E	○	○		TPGB TPGH TPMT TPGB TPMH 1815_	12	10	9	120	20	6	0.5	8°	0.4	SB-2TR	FT-8
A12X-STUP□09-16E	○				16	12	11	120	25	8	0.5	5°			
A10X-STUP□11-12E	○	○		TPGB TPET TPGH TPMT TPMH 22_	12	10	9	120	20	6	0.6	8°	0.4	SB-3TR	FT-10
A12X-STUP□11-14E	○	○			14	12	11	120	25	7	0.6	7°			
A12X-STUP□11-16E	○				16	12	11	120	25	8	0.5	5°			
A16M-STUP□11-18E	○	○			18	16	15	150	27	9	0.7	4°			
A16M-STUP□11-20E	○	○			20	16	15	150	27	10	0.9	3°			
A20Q-STUP□11-25E	○	○			25	20	19	180	33	12.5	0.9	0°			
A20Q-STUP□16-25E	○	○		TPGB TPGH TPMT TPGB TPMH 32_	25	20	19	180	33	12.5	0.9	0°	0.8	SB-4TR	FT-15
A25R-STUP□16-32E	○	○			32	25	23.4	200	42	16	0.6	0°			

Applicable Inserts

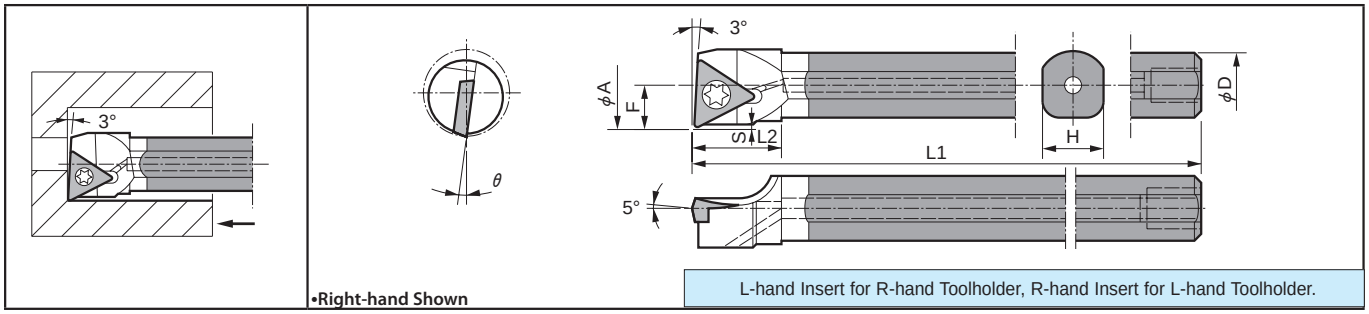
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
TP_	B66-B71	-	C13-C14	C21-C22

Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

E...STUP Carbide Twin Coolant Hole Bar

Max. Overhang-Length L/D=~7



•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	Dimension H	Dimension L1	Dimension L2	Dimension F	Dimension S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
E08L-STUP□08-10	○	○	mm	TPGB TPET TPGT TPGH TPMT TPMH 1515_	10	8	7	140	10	5	0.4	10°	0.4	SB-1TR	FT-6
E10N-STUP□09-12	○	○		TPGB TPET TPGT TPGH TPMT TPMH 1815_	12	10	9	160	11	6	0.5	8°	0.4	SB-2TR	FT-8
E12Q-STUP□09-16	○	○			16	12	11	180	12	8	0.5	5°			
E10N-STUP□11-12	○	○		TPGB TPET TPGT TPGH TPMT TPMH 22_	12	10	9	160	11	6	0.6	8°	0.4	SB-3TR	FT-10
E12Q-STUP□11-14	○	○			14	12	11	180	12	7	0.6	7°			
E12Q-STUP□11-16	○	○			16	12	11	180	12	8	0.5	5°			
E16X-STUP□11-18	○	○			18	16	15	220	14	9	0.7	4°			
E16X-STUP□11-20	○	○			20	16	15	220	14	10	0.9	3°			
E20S-STUP□11-25	○	○			25	20	19	250	17	12.5	0.9	0°			
E20S-STUP□16-25	○			TPGB TPGH TPMT TPGT TPMH 32_	25	20	19	250	17	12.5	0.9	0°	0.8	SB-4TR	FT-15

Applicable Inserts

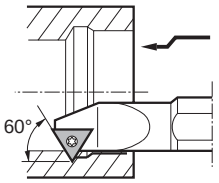
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
TP_	B66-B71	-	C13-C14	C21-C22

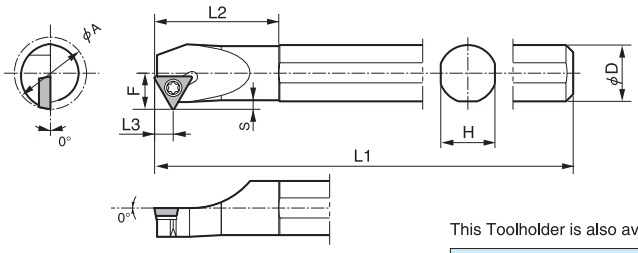
Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

S...STWP Steel Bar (Copying)

Max. Overhang-Length L/D=~3





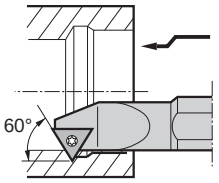
This Toolholder is also available for Threading.

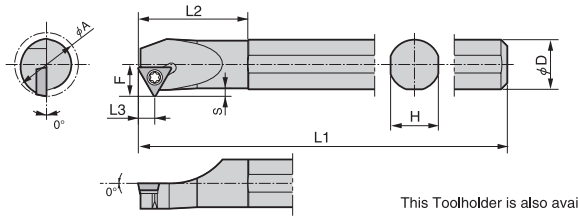
L-Hand Insert for R-Hand Toolholder

•Right-hand Shown

S...STWP-E Excellent Bar (Copying)

Max. Overhang-Length L/D=~5





This Toolholder is also available for Threading.

L-Hand Insert for R-Hand Toolholder

•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	F	S	θ	Std. Coner R (re)	Spare Parts: Insert Screw	Spare Parts: Wrench
S06M-STWPR 2	●		inch	TPGB TPGH 215_	0.476	0.375	0.350	6.00	0.91	0.205	0.238	0.056	0°	1/64	SB-3STR	FT-10
S08M-STWPR 2	●				0.630	0.500	0.476	6.00	1.20	0.205	0.315	0.700	0°	1/64		
S10X-STWPR 2	●				0.786	0.625	0.600	7.00	1.40	0.205	0.393	0.860	0°			
S12R-STWPR 2	●				0.970	0.750	0.726	8.00	1.60	0.205	0.485	0.115	0°			
S16R-STWPR 2	●				1.240	1.000	0.974	8.00	2.00	0.205	0.620	0.125	0°			
S10M-STWPR 11-12	○		mm	TPGB TPET TPGH TPMH TPMT 22_	12	10	9.2	150	23	5.5	6	1		0.1	SB-3STR	FT-10
S12M-STWPR 11-16	○				16	12	11	150	30	5.5	8	1.5				
S16Q-STWPR 11-20	○				20	16	15	180	35	5.5	10	2			SB-3TR	
S20R-STWPR 11-25	○				25	20	19	200	40	5.5	12.5	2.5				
S10M-STWPR 11-12E	○	○			12	10	9.2	150	23	5.5	6	1	0°	0.1	SB-3STR	FT-10
S12M-STWPR 11-16E	○	○			16	12	11	150	30	5.5	8	1.5	0°			
S16R-STWPR 11-20E	○	○			20	16	15	200	35	5.5	10	2	0°		SB-3TR	
S20X-STWPR 11-25E	○	○			25	20	19	220	40	5.5	12.5	2.5	0°			
S20X-STWPR 16-25E	○	○		TPGB TPGH TPMH TPMT TPGB 32_	25	20	19	220	40	7.7	14	4	0°	0.8	SB4TR	FT-15
S25X-STWPR 16-32E	○	○			32	25	23	270	42	7.7	16.5	4	0°			

Applicable Inserts

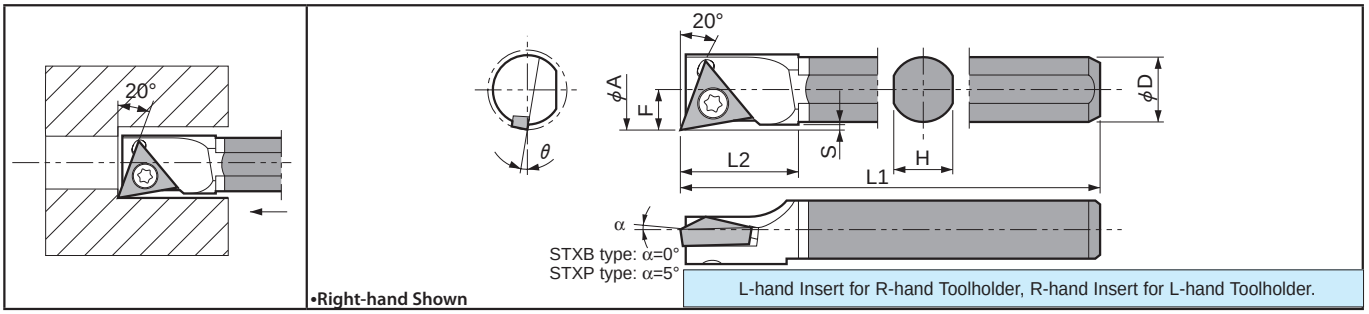
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
TP_	B66-B71	-	C13-C14	C21-C22

Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

C...STXP (B) Carbide Shank Bar (Boring / Internal Facing)

Max. Overhang-Length L/D=~7

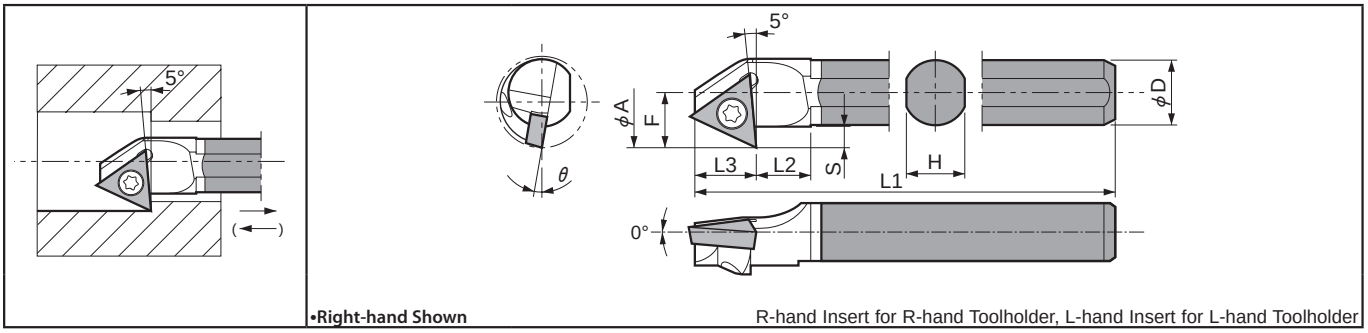


•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

C...STZB Carbide Shank Bar (Back Boring)

Max. Overhang-Length L/D=~7



•Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

❖ When using R-hand Toolholder, use R-hand insert for machining this direction (→)
use L-hand insert for machining this direction (←).

Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
C06J-STXBR/L06 -075	○	○	mm	TBGW TBGT TBMT 121_	7.5	6	5.4	110	11	0.5	3.75	0.5	10°	0.3	SB-1STR	
C08X-STXPR/L08 -09	○	○		TPGB TPET TPGH TPGT TPMH 1515_	9.0	8	7.0	143	14	0.6	4.6	0.5	10°	0.3	SB-1TR	
C10X-STXPR/L09 -11	○	○		TPGB TPGH TPMH TPMT 1815_	11.0	10	9.0	164	17	0.6	5.6	0.5	10°	0.3	SB-2TR	
C06J-STZBR/L06 -085	○	○		TBGW TBGT TBMT 121_	8.5	6	5.4	110	5	5.7	5.1	2.0	10°	0.3	SB-1STR	

C···STXP(B) Boring Bar Cutting Conditions

(Work Material : 4140)

Toolholder Description	Insert Description(Grade)	V(SFM)	d(in)	f(ipr)	Coolant
C06J-STXBR/L06-075	TBGT0601003 L/R (PR930)	100~330	.0008~.004	.0008~.0016	Yes
C08X-STXPR/L08-09	TPGH080201 L/R (PR930)	100~330	.002~.006	.0012~.0032	Yes
C10X-STXPR/L09-11	TPGH090201 L/R (PR930)	100~330	.002~.006	.0012~.0032	Yes

Applicable Inserts

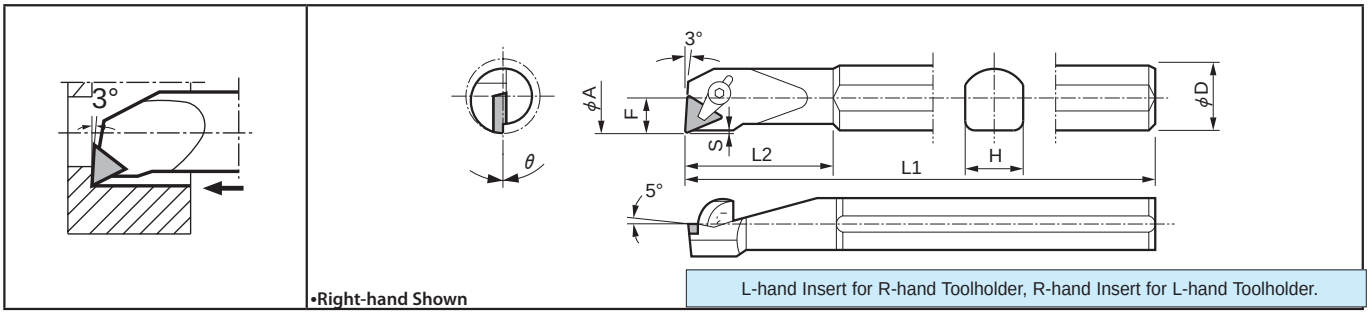
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
TB_	B66-B71	-	C13-C14	C21-C22
TP_				

Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

S...CTUP Steel Bar

Max. Overhang-Length L/D=~3



•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Clamp Assembly	Wrench		Shim	Shim Screw
S10X-CTUP□2	●	○	inch	TPG TPGR TPM TPMR 22_	0.625	0.625	0.584	7.00	1.25	0.313	0.03	0°	1/64	CPS-2S	FT-15		-	-
S12X-CTUP□2	●	○			1.060	0.750	0.710	7.00	1.50	0.520	0.05	0°		CPS-2	-	LW-2.5		
S16R-CTUP□3	●	○		TPG TPGR TPM TPMR TPU 32_	1.350	1.00	0.910	8.00	2.10	0.669	0.04	0°	1/32	CPS-3	-	LW-3	-	-
S20S-CTUP□3	●				1.700	1.250	1.181	10.00	2.50	0,846	0.04	0°					KPT-32	SP3X10
S12L-CTUP□09-16	○	○	mm	TPG TPGR 1815_	16	12	11	140	32	8	0.5	0°	0.4	CPS-1	FH-2	-	-	-
S16N-CTUP□11-20	○	○		TPG TPGR TPM TPMR 22_	20	16	14	160	30	10	0.5	0°	0.4	CPS-2			-	-
S20Q-CTUP□11-27	○	○			27	20	18	180	40	13.5	1.3	0°						
S25X-CTUP□16-34	○	○		TPG TPGR TPM TPMR TPU 32_	34	25	23	220	70	17	1	0°	0.8	CPS-3	-	LW-3	-	-
S32S-CTUP□16-43	○	○			43	32	30	250	80	21.5	1	0°					KPT-32	SP3X10
S40X-CTUP□16-50	○	○			50	40	37	315	80	25	1	0°						

Applicable Inserts

Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
TP_	B70-B71	-	C16	C21-C22, C24

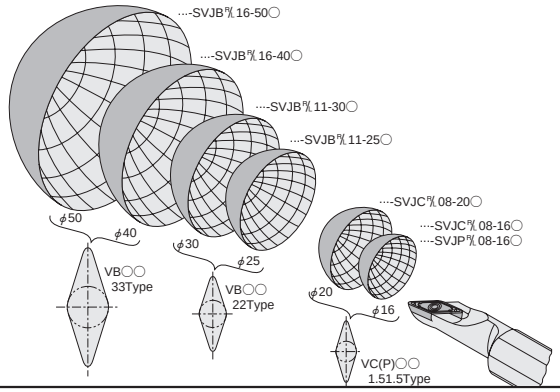
Recommended Cutting Conditions F93~F94

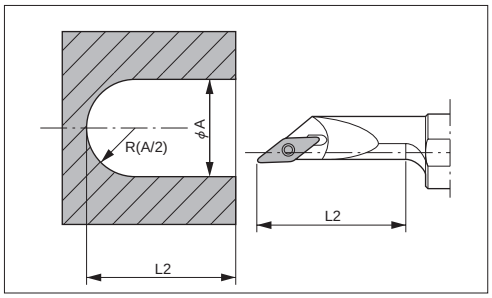
● : Std. Stock ○ : World Express

Boring Bars [VB□□, VC□□, VP□□ Insert]

Application of ○···SVJB(C)-○ / ....SVJP-○ **Ref.Page for Toolholder ➡ F38(Dynamic Bar),F66**

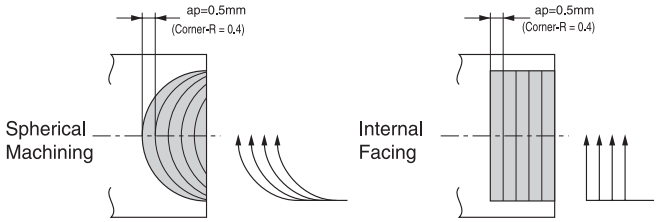
1. Application Range





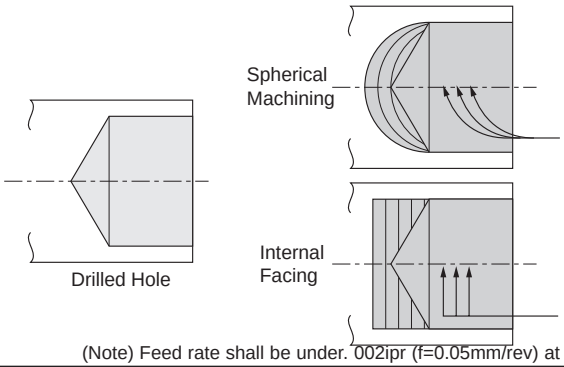
2. Machining Method

Case with No Existing Hole



(Note) Feed rate shall be under. 002ipr (f=0.05mm/rev) at internal facing.

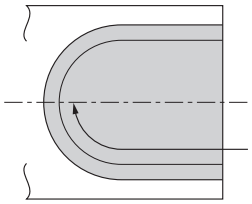
Case with Drilled Hole



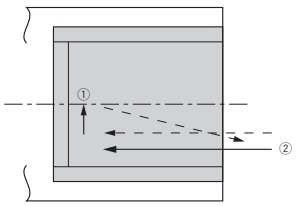
(Note) Feed rate shall be under. 002ipr (f=0.05mm/rev) at internal facing.

Finishing

Spherical Machining

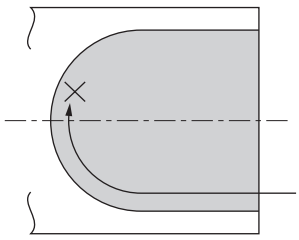


Internal Facing

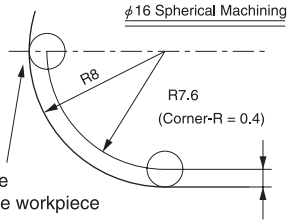


Machining Process
①Finish the internal face first.
②Next, finish the internal diameter.

3. Caution

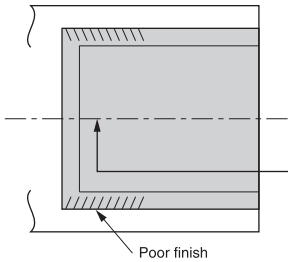


When machining past the center of the workpiece, insert breakage may occur.



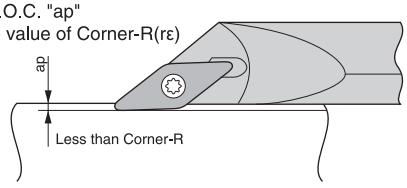
Fix the insert edge at the center of the workpiece

Adjust the machining program of radius smaller by corner-R(rε) value.



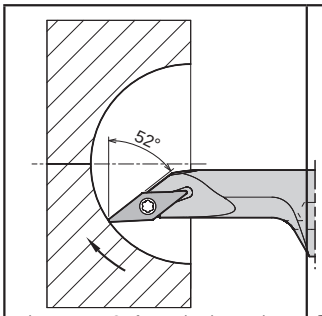
Machining of this kind is available, but the oblique part may be scratched by chips.

For internal profiling, D.O.C. "ap" should be less than the value of Corner-R(rε)



Burrs may occur, if D.O.C. "ap" is bigger than Corner-R.

A-SVJP(C)(B)-AE Excellent Bar (Internal Spherical Machining/Internal Facing) Max. Overhang Length L/D=~5.5



Please see **F37** for cutting instructions

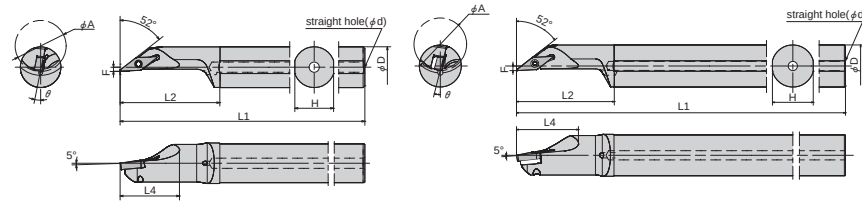


Fig.1 Fig.2

shank dia. φD	straight hole dia. (φd)
φ12	φ4
φ16	φ5
φ20	
φ25	
φ32	
φ40	

❖No shim for SVJP(C)R/L08 & SVJBR/L11

•**Right-hand Shown**

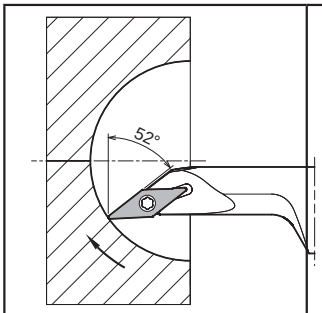
L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
A12S-SVJBR/L2AE	●	●	inch	VBGT VBET VBMT VBGW 22_	0.984	0.750	0.711	10	1.476	1.173	0.079	-	5°	1/64	Yes	Fig.1	SB-2050TR	FT-6
A16T-SVJBR/L2AE	●	●			1.180	1.000	0.961	12	1.772	1.280	0.138	-	5°					
A12M-SVJPR/L08-16AE	○	○	mm	VPET 1515_	16	12	11	150	26	21	2	-	5°	0.2	Yes	Fig.1	SB-2050TR	FT-6
A12M-SVJCR/L08-16AE	○	○			16	12	11	150	26	20	2	-	5°	0.4				
A16Q-SVJCR/L08-20AE	○	○			20	16	15	180	36	22	2	-	5°					
A20R-SVJBR/L11-25AE	○	○		VBGT VBET VBMT VBGW 22_	25	20	19	200	37.5	30	2	-	5°				SB-2570TR	FT-8
A25S-SVJBR/L11-30AE	○	○			30	25	24	250	45	33	3.5	-	5°					
A32S-SVJBR/L16-40AE	○	○		VBGT VBMT VCGT VCMT VBGW VCGW VBMW VCMW 33_	40	32	31	250	60	45	3.5	-	8°			Fig.2	SB-40125TRN	FT-15
A40T-SVJBR/L16-50AE	○	○			50	40	39	300	75	49	4.5	-	7°					

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

Max. Overhang Length L/D=~4



Please see **F37** for cutting instructions

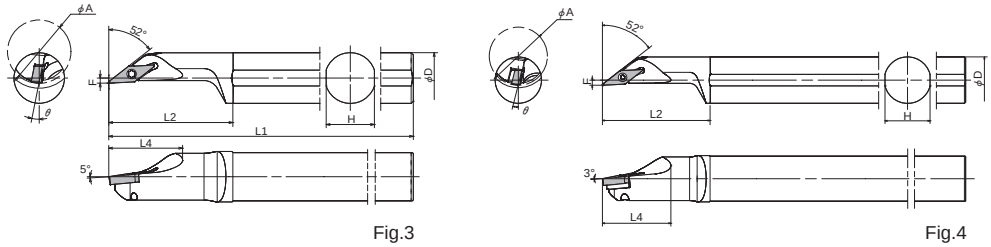


Fig.3 Fig.4

❖No shim for SVJP(C)R/L08 & SVJBR/L11

•**Right-hand Shown**

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

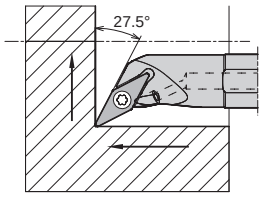
Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	F	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
S12M-SVJPR/L08-16A	○	○	mm	VPET 1515_	16	12	11	150	26	-	2	5°	0.2	8No	Fig.3	SB-2050TR	FT-6
S12M-SVJCR/L08-16A	○	○			16	12	11	150	26	-	2	5°	0.4				
S16Q-SVJCR/L08-20A	○	○			20	16	15	180	36	-	2	5°					
S20R-SVJBR/L11-25A	○	○		VBGT VBET VBMT VBGW VBMT 22_	25	20	19	200	37.5	-	2	5°				SB-2570TR	FT-8
S25S-SVJBR/L11-30A	○	○			30	25	24	250	45	-	3.5	5°						
S32S-SVJBR/L16-40A	○	○		VBGT VBMT VCGT VCMT VBGW VCGW VBMW VCMW 33_	40	32	31	250	60	-	3.5	8°			Fig.4	SB-40125TRN	FT-15
S40T-SVJBR/L16-50A	○	○			50	40	39	300	75	-	4.5	7°						

● : Std. Stock ○ : World Express

Applicable Inserts Page Reference F62

A-SVPC(B)-AE Excellent Bar (Copying/Undercutting)

Max. Overhang Length L/D=~5.5



•Right-hand Shown

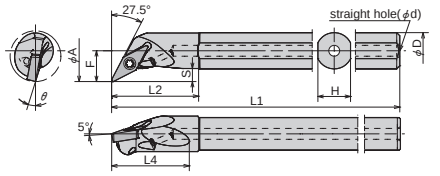


Fig.5

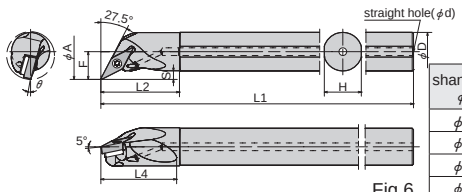


Fig.6

shank dia. ϕD	straight hole dia. (ϕd)
ϕ10	ϕ3
ϕ12	ϕ4
ϕ16	ϕ5
ϕ20	
ϕ25	
ϕ32	

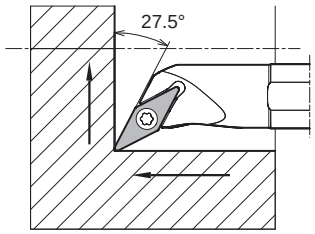
❖No shim for SVPC□08 & SVPB□11

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. ϕA	Dimension ϕD	H	L1	L2	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
A06M-SVPC□1.5AE	●	●	inch	VCMT VCGT 1515_	0.630	0.375	0.336	6	0.945	0.843	0.335	0.118	8°	1/64	Yes	Fig.5	SB-2570TR	FT-8
A08M-SVPB□2AE	●	●		VBGT VBET VBMT VCGT VBGW VBMT 22_	0.790	0.500	0.461	6	1.142	1.000	0.433	0.177	8°					
A10R-SVPB□2AE	●	●			0.980	0.625	0.586	8	1.378	1.283	0.531	0.197	5°					
A12S-SVPB□2AE	●	●			1.180	0.750	0.711	10	1.575	1.528	0.610	0.197	5°					
A16T-SVPB□3AE	●	●		VBMT 33_	1.240	1.000	0.961	12	2.008	1.937	0.709	0.197	13°			Fig.6	SB-40125TRN	FT-15
A10L-SVPC□08-14AE	○	○	mm	VCMT VCGW VCMT 1515_	14	10	9	140	24	21	8.5	3	8°	0.4	Yes	Fig.5	SB-2050TR	FT-6
A12M-SVPB□11-18AE	○	○		VBGT VBET VBMT VBGW VBMT 22_	18	12	11	150	29	26	11	4.5	8°				SB-2570TR	FT-8
A16Q-SVPB□11-22AE	○	○			22	16	15	180	35	33	13.5	5	5°					
A20R-SVPB□11-26AE	○	○			26	20	19	200	41	39	15.5	5	5°					
A25S-SVPB□16-31AE	○	○		VBGT VBMT VCGT VCMT VBGW VCGW VBMW VCMW 33_	31	25	24	250	51	49	18	5	13°			Fig.6	SB-40125TRN	FT-15
A32S-SVPB□16-40AE	○	○			40	32	31	250	54	53	23	6.5	9°					

S-SVPC(B)-A Steel Bar (Copying/Undercutting)

Max. Overhang Length L/D=~4



●Right-hand Shown

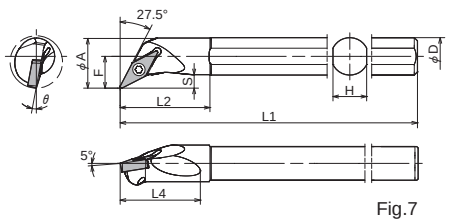


Fig.7

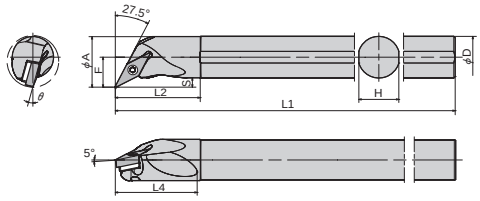


Fig.8

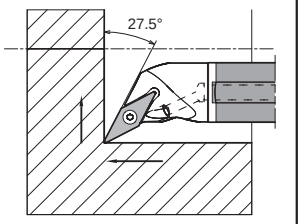
❖No shim for SVPC□08 & SVPB□11

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. ϕA	Dimension ϕD	H	L1	L2	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
S10L-SVPC□08-14A	○	○	mm	VCMT VCGW VCMT 1515_	14	10	9	140	24	21	8.5	3	8°	0.4	No	Fig.7	SB-2050TR	FT-6
S12M-SVPB□11-18A	○	○		VBGT VBET VBMT VBGW VBMT 22_	18	12	11	150	29	26	11	4.5	8°				SB-2570TR	FT-8
S16Q-SVPB□11-22A	○	○			22	16	15	180	35	33	13.5	5	5°					
S20R-SVPB□11-26A	○	○			26	20	19	200	41	39	15.5	5	5°					
S25S-SVPB□16-31A	○	○		VBGT VBMT VCGT VCMT VBGW VCGW VBMW VCMW 33_	31	25	24	250	51	49	18	5	13°			Fig.8	SB-40125TRN	FT-15
S32S-SVPB□16-40A	○	○			40	32	31	250	54	53	23	6.5	9°					

E-SVPC(B)-A Carbide Shank Bar (Copying/Undercutting)

Max. Overhang Length L/D=~7



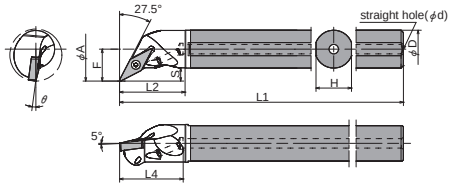


Fig.1

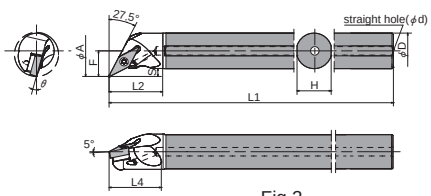


Fig.2

shank dia. φD	straight hole dia. (φd)
φ10	φ3
φ12	φ4
φ16	
φ20	φ6
φ25	

❖No shim for SVPC□08 & SVPB□11

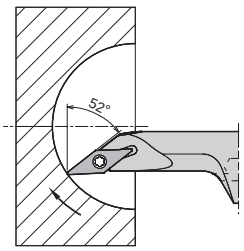
•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
E10N-SVPC□08-14A	○		mm	VCMT VCGW VCMT 1515_	14	10	9	160	20	18.5	8.5	3	8°	0.4	Yes	Fig.9	SB-2050TR	FT-6
E12Q-SVPB□11-18A	○			VBGT VBET VBMT VCGT VCMT VBGW 22_	18	12	11	180	23	22	11	4.5	8°				SB-2570TR	FT-8
E16X-SVPB□11-22A	○				22	16	15	220	28	27	13.5	5	5°					
E20S-SVPB□11-26A	○				26	20	19	250	32	31	15.5	5	5°					
E25T-SVPB□16-31A	○			VBGT VBMT VCGT VCMT VBGW VCGW VBMW VBMT VCMW 33_	31	25	24	300	38	37	18	5	13°			Fig.10	SB-40125TRN	FT-15

A-SVJP(C)(B)-AE Excellent Bar (Internal Spherical Machining/Internal Facing) Max. Overhang Length L/D=~5.5



Please see **F37** for cutting instructions

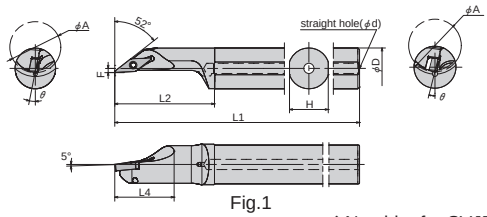


Fig.1

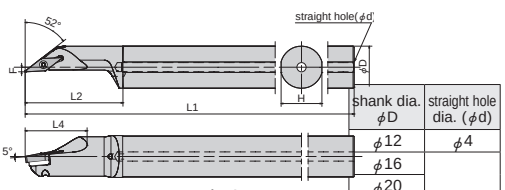


Fig.2

shank dia. φD	straight hole dia. (φd)
φ12	φ4
φ16	φ5
φ20	
φ25	
φ32	

❖No shim for SVJP(C)R/L08 & SVJBR/L11

•**Right-hand Shown**

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	L4	F	θ	Std. Corner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
A12S-SVJBR/L2AE	●	●	inch	VBGT VBGW VBET VBMT 22_	0.984	0.750	0.711	10	1.476	-	1.173	0.079	5°	1/64	Yes	Fig.1	SB-2050TR	FT-6
A16T-SVJBR/L2AE	●	●			1.180	1.000	0.961	12	1.772	-	1.280	0.138	5°					
A12M-SVJPR/L08-16AE	○	○	mm	VPET 1515_	16	12	11	150	26	-		2	5°	0.2	Yes	Fig.1	SB-2050TR	FT-6
A12M-SVJCR/L08-16AE	○	○		VCMT VCGW 1515_	16	12	11	150	26	-		2	5°	0.4				
A16Q-SVJCR/L08-20AE	○	○			20	16	15	180	36	-		2	5°					
A20R-SVJBR/L11-25AE	○	○		VBGT VBGW VBET VBMT 22_	25	20	19	200	37.5	-		2	5°				SB-2570TR	FT-8
A25S-SVJBR/L11-30AE	○	○			30	25	24	250	45	-		3.5	5°					
A32S-SVJBR/L16-40AE	○	○		VBGT VBMT VCGT VCMT VBGW VCGW VBMW VCMW 33_	40	32	31	250	60	-		3.5	8°			Fig.2	SB-40125TRN	FT-15
A40T-SVJBR/L16-50AE	○	○			50	40	39	300	75	-		4.5	7°					

● Spare Parts

Description	Spare Parts: Shim	Spare Parts: Shim Screw	Spare Parts: Wrench
○**32S-SVJBR/L16-40A**○	SVN-32N	SS-4N	LW-4
○**40T-SVJBR/L16-50A**○			
○**25**○**-SVPBR/L16-31A**○			
○**32S-SVPBR/L16-40A**○			
A16T-SVPBR/L3AE			

Applicable Inserts

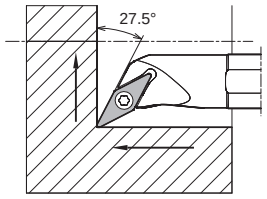
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
VB_	B72-B76	-	C15	C23
VC_				
VP_				

Recommended Cutting Conditions ➡ **F93~F94**

● : Std. Stock ○ : World Express

S-SVPC(B)-A Steel Bar (Copying/Undercutting)

Max. Overhang Length L/D=~4



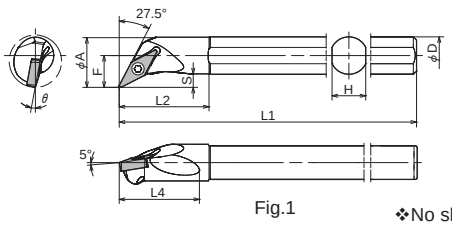


Fig.1

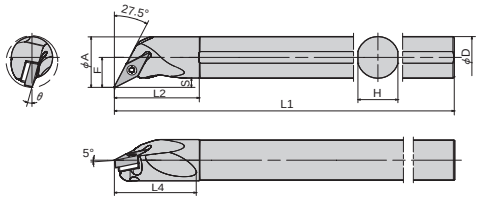


Fig.2

❖No shim for SVPC□08 & SVPB□11

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

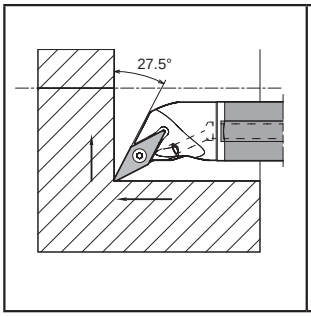
● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
S10L-SVPC□08-14A	○	○	mm	VCMT VCGW 1515_	14	10	9	140	24	21	8.5	3	8°	0.4	No	Fig.1	SB-2050TR	FT-6
S12M-SVPB□11-18A	○	○		VBGT VBET VBMT VCGT VCMT VBGW 22_	18	12	11	150	29	26	11	4.5	8°				SB-2570TR	FT-8
S16Q-SVPB□11-22A	○	○			22	16	15	180	35	33	13.5	5	5°					
S20R-SVPB□11-26A	○	○			26	20	19	200	41	39	15.5	5	5°					
S25S-SVPB□16-31A	○	○		VBGT VBMT VCGT VCMT VBGW VCGW VBMW VCMW 33_	31	25	24	250	51	49	18	5	13°			Fig.2	SB-40125TRN	FT-15
S32S-SVPB□16-40A	○	○			40	32	31	250	54	53	23	6.5	9°					

Applicable Inserts Page Reference F62

E-SVPC(B)-A Carbide Shank Bar (Copying/Undercutting)

Max. Overhang Length L/D=~7



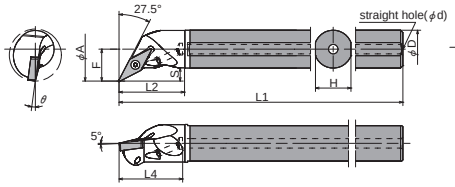


Fig.1

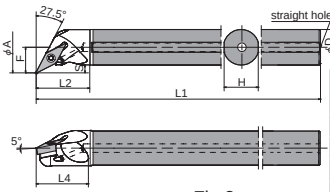


Fig.2

shank dia. ϕD	straight hole dia. (ϕd)
ϕ10	ϕ3
ϕ12	ϕ4
ϕ16	
ϕ20	ϕ6
ϕ25	

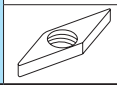
•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. ϕA	Dimension ϕD	H	L1	L2	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts Clamp Screw	Spare Parts Wrench
E10N-SVPC□08-14A	○	○	mm	VCMT VCGW 1515_	14	10	9	160	20	18.5	8.5	3	8°	0.4	Yes	Fig.1	SB-2050TR	FT-6
E12Q-SVPB□11-18A	○	○		VBGT VBET VBMT VCGT VCMT VBGW 22_	18	12	11	180	23	22	11	4.5	8°				SB-2570TR	FT-8
E16X-SVPB□11-22A	○	○			22	16	15	220	28	27	13.5	5	5°					
E20S-SVPB□11-26A	○	○			26	20	19	250	32	31	15.5	5	5°					
E25T-SVPB□16-31A	○	○		VBGT VBMT VCGT VCMT VBGW VCGW VBMW VCMW 33_	31	25	24	300	38	37	18	5	13°			Fig.2	SB-40125TRN	FT-15

● Spare Parts

Description	Spare Parts Shim	Spare Parts Shim Screw	Spare Parts Wrench
			
○32S-SVJB□16-40A○ ○40T-SVJB□16-50A○ ○25○-SVPB□16-31A○ ○32S-SVPB□16-40A○ A16T-SVPB□3AE	SVN-32N	SS-4N	LW-4

Applicable Inserts

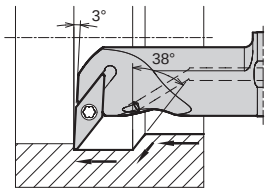
Insert Type	Reference Pages Cermet/Carbide	Ceramic	CBN	PCD
VB_	B72-B76	-	C15	C23
VC_				
VP_				

Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

A-SVUC(B)-AE Excellent Bar (Copying)

Max. Overhang Length L/D=~5.5



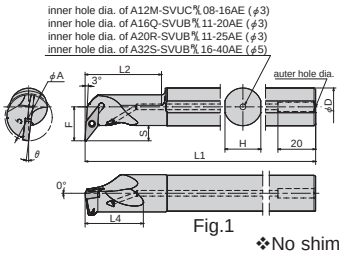


Fig.1

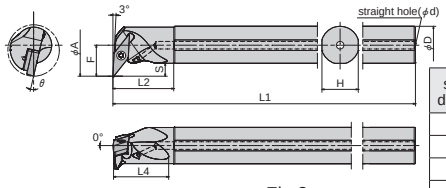


Fig.2

shank dia. φD	outer hole dia.	straight hole dia. (φd)
φ12	φ4	-
φ16	φ5	
φ20		
φ25	-	φ5
φ32		

❖No shim for SVUC□08 and SVUB□11

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts Clamp Screw	Spare Parts Wrench
A08M-SVUC□1.5AE	●	●	inch	VCMT VCGW 1515_	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	●	●		VBGT VBET VBMT VCGT VCMT VBGW 22_	0.790	0.625	0.586	8	1.280	1.063	0.630	0.315	8°				SB-2570TR	FT-8
A12S-SVUB□2AE	●	●			0.980	0.750	0.711	10	0.000	0.000	0.000	0.315	7°					
A16T-SVUB□3AE	●	●		VBGT VBMT VCGT VCMT VBGW VCGW 33_	1.340	1.000	0.961	12	1.583	1.453	0.807	0.335	13°			Fig.2	SB-40125TRN	FT-15
A12M-SVUC□08-16AE	○	○	mm	VCMT VCGW 1515_	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	○	○		VBGT VBET VBMT VCGT VCMT VBGW 22_	20	16	15	180	32.5	27	16	8	8°				SB-2570TR	FT-8
A20R-SVUB□11-25AE	○	○			25	20	19	200	40.5	31	18	8	7°					
A25S-SVUB□16-34AE	○	○		VBGT VBMT VCGT VCMT VBGW VCGW 33_	34	25	24	250	40	37	20.5	8.5	13°			Fig.2	SB-40125TRN	FT-15
A32S-SVUB□16-40AE	○	○			40	32	31	250	84	47	28	12	9°			Fig.1		
A08M-SVZC□1.5AE	●	●	inch	VCMT VCGW 1515_	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	●	●		VBGT VBET VBMT VCGT VCMT VBGW 22_	0.790	0.625	0.586	8	1.673	0.799	0.630	0.315	8°				SB-2570TR	FT-8
A12S-SVZB□2AE	●	●			0.980	0.750	0.711	10	1.988	0.894	0.709	0.315	7°					
A16T-SVZB□3AE	●	●		VBGT VBMT VCGT VCMT VBGW VCGW 33_	1.340	1.000	0.961	12	1.870	1.362	0.807	0.335	13°			Fig.2	SB-40125TRN	FT-15

● Spare Parts

Description	Spare Parts Shim	Spare Parts Shim Screw	Spare Parts Wrench
○25S-SVUB□16-34A○	SVN-32N	SS-4N	LW-4
○32S-SVUB□16-40A○			
○25S-SVZB□16-34A○			
○32S-SVZB□16-40A○			

Applicable Inserts

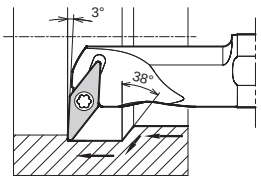
Insert Type	Reference Pages Cermet/Carbide	Ceramic	CBN	PCD
VB_	B76-B77	-	C14	C22
VC_				
VP				

Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

S-SVUC(B)-A Steel Bar (Copying)

Max. Overhang Length L/D=~4



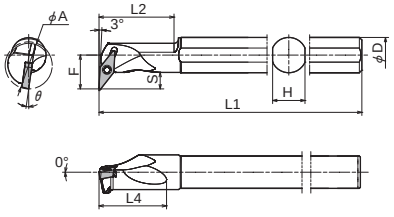


Fig.1

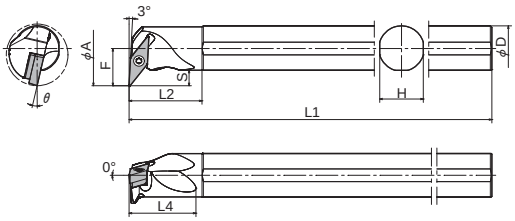


Fig.2

❖No shim for SVUC08 and SVUB11

•Right-hand Shown

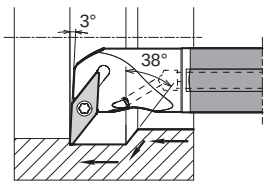
L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

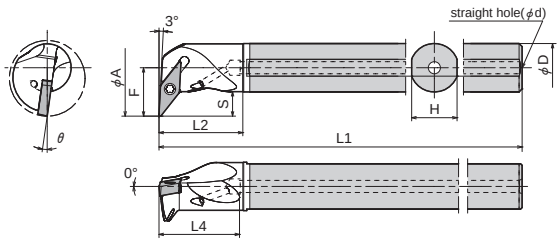
● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
S12M-SVUC[R/L]08-16A	○	○	mm	VCMT VCGW 1515_	16	12	11	150	25.5	23	11.5	5.5	8°	0.4	No	Fig.1	SB-2050TR	FT-6
S16Q-SVUB[R/L]11-20A	○	○		VBGT VBET VBMT VCGT VCMT VBGW 22_	20	16	15	180	32.5	27	16	8	8°				SB-2570TR	FT-8
S20R-SVUB[R/L]11-25A	○	○			25	20	19	200	40.5	31	18	8	7°					
S25S-SVUB[R/L]16-34A	○	○		VBGT VBMT VCGT VCMT VBGW VCGW 33_	34	25	24	250	40	37	20.5	8.5	13°			Fig.2	SB-40125TRN	FT-15
S32S-SVUB[R/L]16-40A	○	○			40	32	31	250	84	47	28	12	9°			Fig.1		

E-SVUC(B)-A Carbide Shank Bar (Copying)

Max. Overhang Length L/D=~7





shank dia. φD	straight hole dia. (φd)
φ12	φ4
φ16	
φ20	φ6
φ25	

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L4	F	S	θ	Std. Coner R (rε)	Coolant Hole	Spare Parts: Clamp Screw	Spare Parts: Wrench
E12Q-SVUC[R/L]08-18A	○	○	mm	VCMT VCGW 1515_	18	12	11	180	23	22	11.5	5.5	8°	0.4	Yes	SB-2050TR	FT-6
E16X-SVUB[R/L]11-25A	○	○		VBGT VBET VBMT VCGT VCMT VBGW 22_	25	16	15	220	28	27	16	8	8°			SB-2570TR	FT-8
E20S-SVUB[R/L]11-29A	○	○			29	20	19	250	32	30	18	8	7°				
E25T-SVUB[R/L]16-34A	○	○		VBGT VBMT VCGT VCMT VBGW VCGW 33_	34	25	24	300	38	37	21	8.5	13°			SB-40125TRN	FT-15

Applicable Inserts Page Reference ➡ F64

● : Std. Stock ○ : World Express

A-SVZC(B)-AE Excellent Bar (Back Boring)

Max. Overhang Length L/D=~5.5

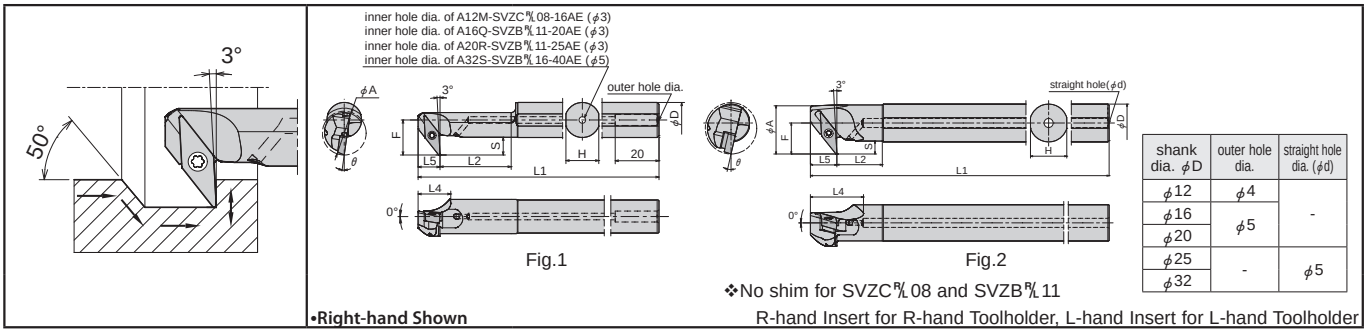


Fig.1 Fig.2

❖No shim for SVZCR/L08 and SVZBR/L11

shank dia. ϕD	outer hole dia.	straight hole dia. (ϕd)
ϕ12	ϕ4	-
ϕ16	ϕ5	
ϕ20		
ϕ25	-	ϕ5
ϕ32		

•Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. ϕA	Dimension ϕD	H	L1	L2	L5	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
A12M-SVZCR/L08-16AE	○	○	mm	VCMT VCGW 1515_	16	12	11	150	25.5	7.5	11.5	5.5	8°	0.4	Yes	Fig.1	SB-2050TR	FT-6
A16Q-SVZBR/L11-20AE	○	○		VBGT VBET VBMT VCGT VCMT VBGW 22_	20	16	15	180	32.5	10	16	8	8°				SB-2570TR	FT-8
A20R-SVZBR/L11-25AE	○	○			25	20	19	200	40.5	10	18	8	7°					
A25S-SVZBR/L16-34AE	○	○		VBGT VBMT VCGT VCMT VBGW VCGW 33_	34	25	24	250	30	17.5	20.5	8.5	13°			Fig. 2	SB-40125TRN	FT-15
A32S-SVZBR/L16-40AE	○	○			40	32	31	250	72.5	17.5	28	12	9°			Fig.1		

S-SVZC(B)-A Steel Bar (Back Boring)

Max. Overhang Length L/D=~4

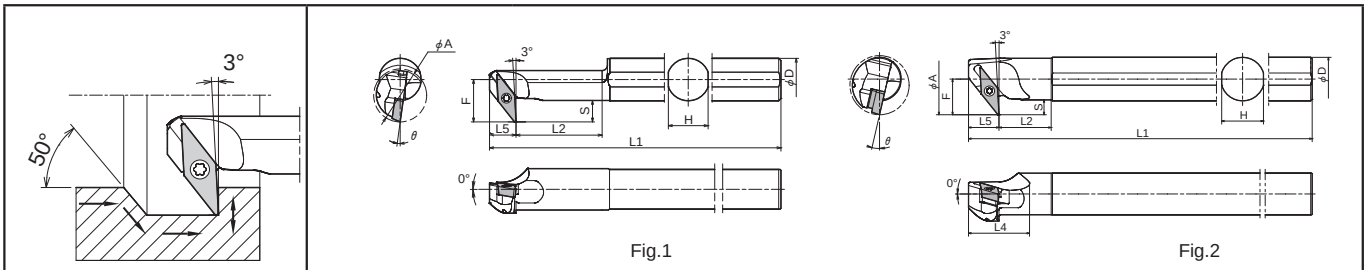


Fig.1 Fig.2

❖No shim for SVZCR/L08 and SVZBR/L11

•Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

● Toolholder Dimensions

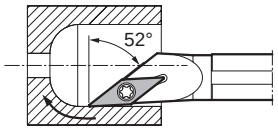
Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. ϕA	Dimension ϕD	H	L1	L2	L5	F	S	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
S12M-SVZCR/L08-16A	○	○	mm	VCMT VCGW 1515_	16	12	11	150	25.5	7.5	11.5	5.5	8°	0.4	No	Fig.1	SB-2050TR	FT-6
S16Q-SVZBR/L11-20A	○	○		VBGT VBET VBMT VCGT VCMT VBGW 22_	20	16	15	180	32.5	10	16	8	8°				SB-2570TR	FT-8
S20R-SVZBR/L11-25A	○	○			25	20	19	200	40.5	10	18	8	7°					
S25S-SVZBR/L16-34A	○	○		VBGT VBMT VCGT VCMT VBGW VCGW 33_	34	25	24	250	30	17.5	20.5	8.5	13°			Fig.2	SB-40125TRN	FT-15
S32S-SVZBR/L16-40A	○	○			40	32	31	250	72.5	17.5	28	12	9°			Fig.1		

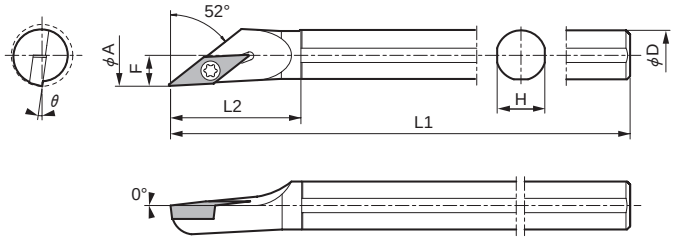
● : Std. Stock ○ : World Express

Applicable Inserts Page Reference F64

S...SVJB Steel Bar (Internal Spherical Machining / Internal Facing)

Max. Overhang-Length L/D=~3





•Right-hand Shown

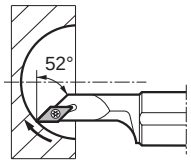
L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

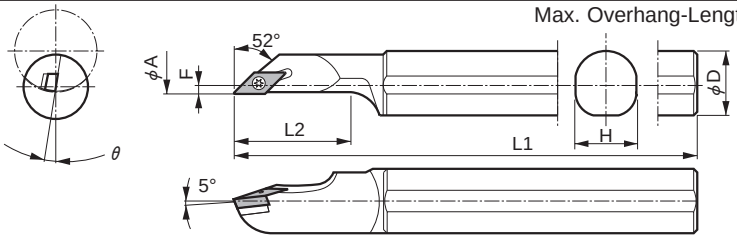
● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
S08M-SVJBR/L2	●	●	inch	VBGT VBET VBMT VBGW 22_	0.620	0.500	0.480	6.00	1.25	-	0.310	-		1/64	SB-2570TR	FT-8
S10X-SVJBR/L2	●	●			0.780	0.625	0.584	7.00	1.44	-	0.390	-				
S12R-SVJBR/L3	●	●		VBGT VBMT VCGT VCMT VBGW VBMW VCGW VBMT 33_	0.984	0.750	0.710	8.00	1.86	-	0.492	-	8°	1/32	SB-4085TR	FT-15

S...SVJB (C)-E / S...SVJP-E Excellent Bar (Internal Spherical Machining/Internal Facing)

Max. Overhang-Length L/D=~5





❖No shim for SVJC(P)R/L08 and SVJBR/L11

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

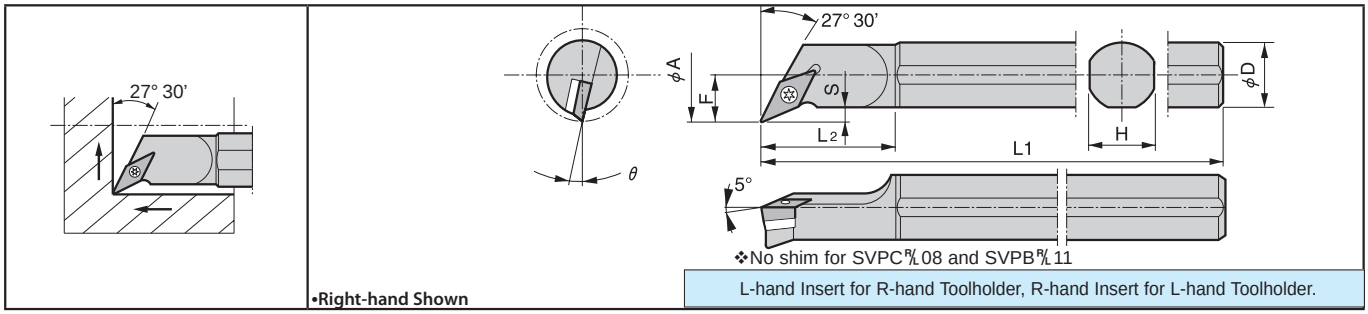
Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Wrench
S16S-SVJBR/L2E	●	●	inch	VBGT VBMT VCGT VCMT VBGW VBMW VCGW 22_	1.18	1.00	0.97	10.0	1.77	-	5°	0.4	SB-2570TR	FT-8	-	-
S20S-SVJBR/L3E	●	●		33_	1.57	1.25	1.18	10.0	2.92	-	8°	0.8	SB40115TR	FT-15	SVN-32	FT-6
S12M-SVJCR/L08-16E	○	○	mm	VCMT VCGW 1515_	16	12	11	150	26	2	5°	0.4	SB-2050TR	FT-6	-	-
S16Q-SVJCR/L08-20E	○	○			20	16	15	180	36	2	5°					
S20R-SVJBR/L11-25E	○	○		VBGT VBMT VCGT VCMT VBGW VBMW VCGW 22_	25	20	19	200	37.5	2	5°	0.4	SB-2570TR	FT-8	-	-
S25S-SVJBR/L11-30E	○	○			30	25	24	250	45	3.5	5°					
S32S-SVJBR/L16-40E	○	○		33_	40	32	31	250	60	3.5	8°	0.8	SB-40115TR	FT-15	SVN-32	FT-6
S40T-SVJBR/L16-50E	○	○			50	40	39	300	75	4.5	7°					
S32S-SVJBR/L16-40EN	○	○			40	32	31	250	60	3.5		0.8	SB-40125TRN	FT-15	SVN-32N	LW-4
S40T-SVJBR/L16-50EN	○	○			50	40	39	300	75	4.5						
S12M-SVJPR/L08-16E	○	○		VPET 1515_	16	12	11	150	26	2	5°	0.2	SB-2050TR	FT-6	-	-

Applicable Inserts Page Reference F64

● : Std. Stock ○ : World Express

S...SVPB (C)-E Excellent Bar (Copying/Undercutting)

Max. Overhang-Length L/D=~5

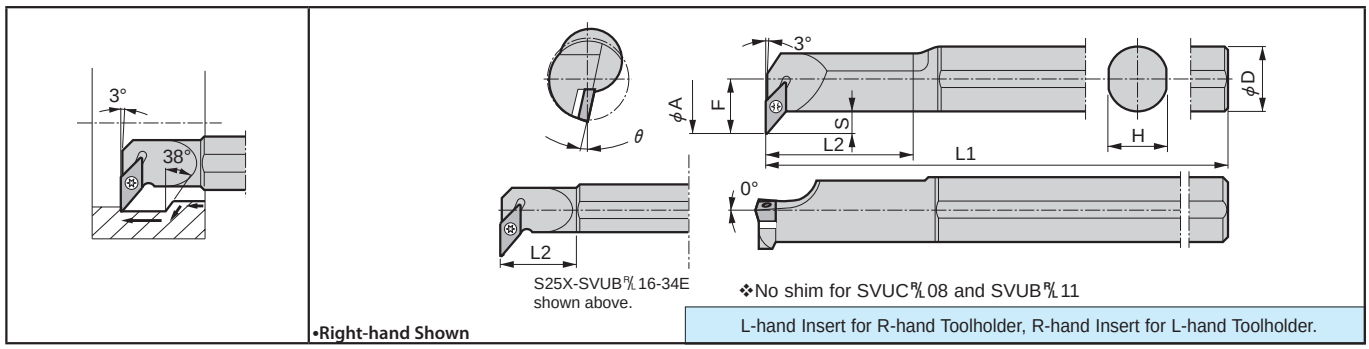


● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Wrench	Shim	Shim Screw	Wrench
S10M-SVPC□08-16E	○	○	mm	VCMT VCGW 1515_	16	10	9	150	25	8	3	8°	0.4	SB-2050TR	FT-6	-	-	-
S06M-SVPC□1.5E	●	●	inch		0.63	0.38	0.33	6.0	0.98	0.315	0.138	8°	0.4	SB-2050TR	FT-6	-	-	-
S12M-SVPB□11-20E	○	○	mm	VBGT VBET VBMT VBGW VBMW VCGT VCMT VCGW VCMT VCMW 22_	20	12	10.6	150	28	10	4.5	8°	0.4	SB-2570TR	FT-8	-	-	-
S16Q-SVPB□11-25E	○	○			25	16	14.6	180	28	12.5	5	5°						
S08M-SVPB□2E	●	●	inch		0.79	0.50	0.46	6.00	1.10	0.315	0.163	8°	0.4	SB-2570TR	-	-	-	-
S10Q-SVPB□2E	●	●			0.98	0.63	0.59	7.00	1.10	0.492	0.194	5°						
S25X-SVPB□16-34E	○	○	mm	33_	34	25	23.6	220	50	17	5	13°	0.8	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S32S-SVPB□16-40E	○	○			40	32	30.6	250	55	22	6.5	9°						
S25X-SVPB□16-34EN	○	○			34	25	23.6	220	50	17	5	13°	0.8	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4
S32S-SVPB□16-40EN	○	○			40	32	30.6	250	55	22	6.5	9°						
S16X-SVPB□3E	●	●	inch		1.34	1.0	0.97	9.00	2.26	0.807	0.335	13°	0.8	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S20S-SVPB□3E	●	●			1.57	1.25	1.18	10.0	2.17	0.866	0.256	9°						

S...SVUC-E Excellent Bar (Copying)

Max. Overhang-Length L/D=~5



Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Wrench	Shim	Shim Screw	Wrench
S12M-SVUC□08-16E	○	○	mm	VCMT VCGW 1515_	16	12	11	150	25.5	11	5.5	8°	0.4	SB-2050TR	FT-6	-	-	-
S08M-SVUC□1.5E	●	●	inch		0.63	0.50	0.46	6.00	1.10	0.433	-	8°	0.4	SB-2050TR	FT-6	-	-	-

Applicable Inserts

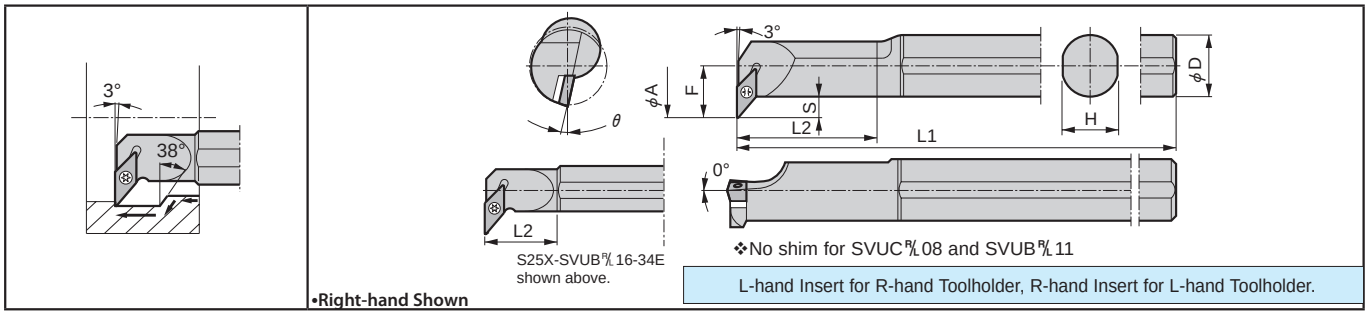
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
VB_ VC_	B72-B74	-	C15	C23

Recommended Cutting Conditions ➔ F93~F94

● : Std. Stock ○ : World Express

S...SVUB-E Excellent Bar (Copying)

Max. Overhang-Length L/D=~5



S25X-SVUBR/L16-34E shown above.

❖No shim for SVUCR/L08 and SVUBR/L11

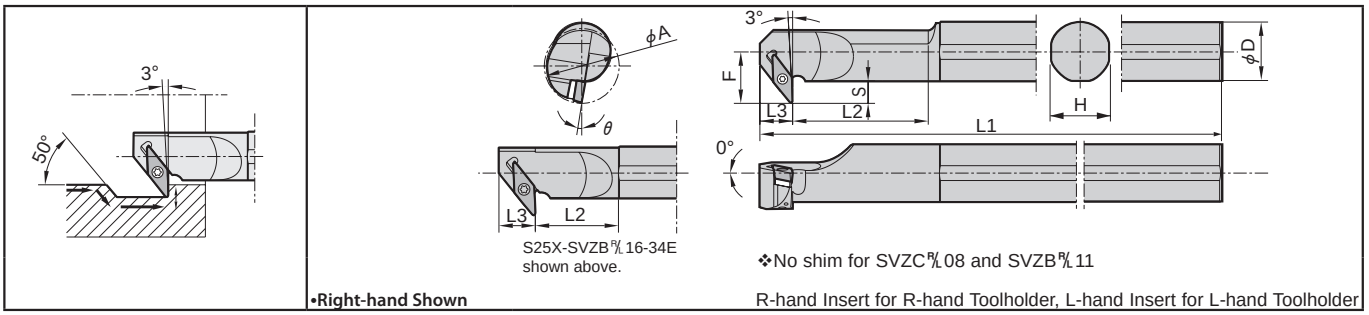
•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Wrench	Shim	Shim Screw	Wrench
S16Q-SVUBR/L11-20E	○	○	mm	VBET VBGT VBGW VBMT VCGT VCMT 22_	20	16	14.6	180	32.5	15.5	8	8°	0.4	SB-2570TR	FT-8	-	-	-
S20R-SVUBR/L11-25E	○	○			25	20	18.6	200	40.5	17.5	8	7°						
S10Q-SVUBR/L2E	●	●	inch		0.79	0.63	0.59	7.00	1.28	0.610	0.315	8°	0.4	SB-2570TR	FT-8	-	-	-
S12R-SVUBR/L2E	●	●			0.98	0.75	0.71	8.00	1.59	0.689	0.355	7°						
S25X-SVUBR/L16-34E	○	○	mm	VBGT VGMT VCGT VCMT VCMW VBGW VBMW VCGW 33_	34	25	23.6	220	40	20.5	8.5	13°	0.8	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S32S-SVUBR/L16-40E	○	○			40	32	30.6	250	84	27.5	12	9°						
S16X-SVUBR/L3E	●	●	inch		1.34	1.0	0.97	9.00	1.97	0.689	0.195	13°	0.8	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S20S-SVUBR/L3E	●	●			1.57	1.25	1.18	10.0	3.31	1.08	0.472	9°						

S...SVZB (C)-E Excellent Bar (Back Boring)

Max. Overhang-Length L/D=~5



S25X-SVZBR/L16-34E shown above.

❖No shim for SVZCR/L08 and SVZBR/L11

•Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

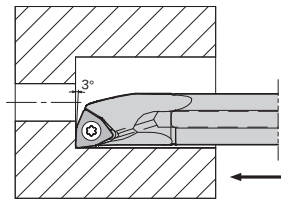
Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Wrench	Shim	Shim Screw	Wrench
S08M-SVZCR/L1.5E	●	●	inch	VCMT VCGW 1515_	0.63	0.50	0.46	6.00	1.10	0.295	0.433		8°	0.4	SB-2050TR	FT-6	-	-	-
S12M-SVZCR/L08-16E	○	○	mm		16	12	11	150	25.5	7.5	11	5.5	8°	0.4	SB-2050TR	FT-6	-	-	-
S16Q-SVZBR/L11-20E	○	○		VBGT VBET VBMT VBGW VCGT VCMT 22_	20	16	15	180	32.5	10	15.5	8	8°	0.4	SB-2570TR	FT-8	-	-	-
S20R-SVZBR/L11-25E	○	○			25	20	19	200	40.5	10	17.5	8	7°						
S10Q-SVZBR/L2E	●	●	inch		0.79	0.63	0.59	7.00	1.50		0.610	0.315	8°	0.4	SB-2570TR	FT-8	-	-	-
S12R-SVZBR/L2E	●	●			0.98	0.75	0.71	8.00	1.73		0.689	0.355	7°						
S25X-SVZBR/L16-34E	○	○	mm	VBGT VBMT VBGW VBMW VCGT VCGW VCMT 33_	34	25	24	220	40	17.5	20.5	8.5	13°	0.8	SB-40115TR	FT-15	-	SB-2050TR	FT-6
S32S-SVZBR/L16-40E	○	○			40	32	31	250	72.5	17.5	27.5	12	9°						
S16X-SVZBR/L3E	●	●	inch		1.34	1.0	0.97	9.00	2.26		0.669	0.195	13°		SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S20S-SVZBR/L3E	●	●			1.57	1.25	1.18	10.0	2.85		1.08	0.472	9°						
S25X-SVZBR/L16-34EN	○	○	mm		34	25	24	220	40	17.5	20.5	8.5	13°	0.8	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4
S32S-SVZBR/L16-40EN	○	○			40	32	31	250	72.5		27.5	12	9°						

Applicable Inserts Page Reference F69

● : Std. Stock ○ : World Express

S/A-SWUB(P)-AE Excellent Bar (Boring)

Max. Overhang Length L/D=~5.5



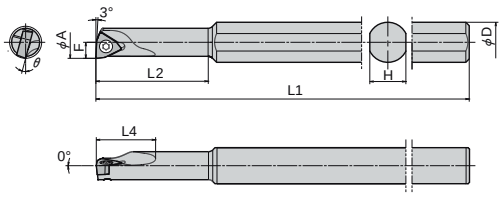
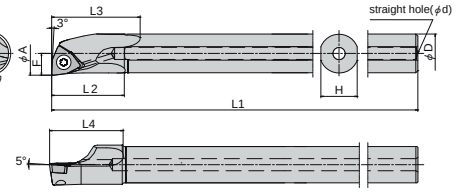


Fig.1



0° for A08X-SWUB□08-10AE, A10L-SWUB□08-12AE

Fig.2

shank dia. φD	straight hole dia. (φd)
φ8	φ2.5
φ10	φ3
φ12	φ4
φ16	φ5
φ20	

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	L4	F	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
S06H-SWUB□1.2AE	●	●	inch	WBGT WBGW WBMT 121_	0.240	0.375	0.336	4	0.827	-	0.504	0.118	15°	0.01	No	Fig.1	SB-2035TR	FT-6
S06H-SWUB□1.5AE	●	●		WBGT WBGW WBMT 1515_	0.312	0.375	0.336	4	1.102	-	0.583	0.157	15°					
A06M-SWUB□1.5AE	●	●			0.472	0.375	0.336	6	0.787	0.945	0.795	0.236	10°		Yes	Fig.2	SB-2050TR	
A08M-SWUP□2AE	●	●		WPGT WPMT WPGW WPMW 215_	0.630	0.500	0.461	6	0.945	1.220	0.957	0.276	4°	1/64			SB-2545TR	FT-8
A10R-SWUP□3AE	●	●		WPGT WPMT WPGW WPMW 32_	0.770	0.625	0.586	8	1.181	1.433	1.193	0.354	3.5°	1/32			SB-4065TR	FT-15
A12S-SWUP□3AE	●	●			0.930	0.750	0.711	10	1.417	1.740	1.425	0.413	2°					
A16T-SWUP□3AE	●	●			1.200	1.000	0.961	12	1.811	2.169	1.827	0.531	0°					
S10H-SWUB□06-06AE	○	○	mm	WBGT WBGW WBMT WPGT WPMT WPGW WPMW 121_	6	10	9	100	21	-	13	3	15°	0.2	No	Fig.1	SB-2035TR	FT-6
S10H-SWUB□06-07AE	○	○			7	10	9	100	24.5	-	15	3.5	13°					
S10H-SWUB□08-08AE	○	○			8	10	9	100	28	-	15	4	15°					
A08X-SWUB□08-10AE	○	○		1515_	10	8	7	120	16	21	16	5	13°		Yes	Fig.2	SB-2050TR	
A10L-SWUB□08-12AE	○	○			12	10	9	140	20	25	20	6	10°					
A12M-SWUP□11-14AE	○	○		WPGT WPMT WPGW WPMW 215_	14	12	11	150	24	30	24	7	4°	0.4			SB-2545TR	FT-8
A16Q-SWUP□11-18AE	○	○			18	16	15	180	30	37	30	9	1°					
A16Q-SWUP□16-18AE	○	○		WPGT WPMT WPGW WPMW 32_									3.5°	0.8			SB-4065TR	FT-15
A20R-SWUP□16-22AE	○	○			22	20	19	200	36	46	37	11	2°					

Applicable Inserts

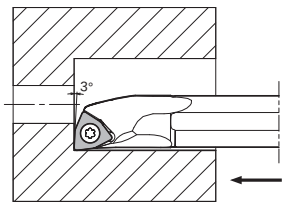
Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
WB_, WP_	B77-B79	-	-	C23

● : Std. Stock ○ : World Express

Recommended Cutting Conditions F93~F94

S-SWUB(P)-A Steel Bar (Boring)

Max. Overhang Length L/D=~4



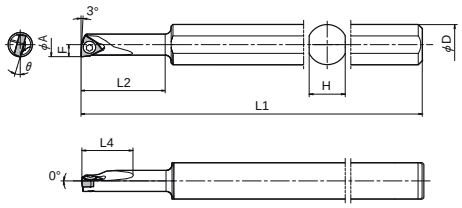
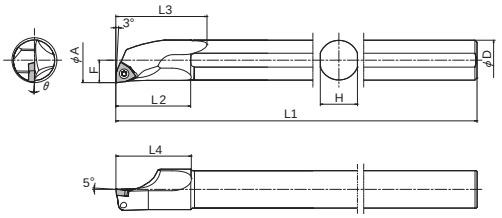


Fig.1



0° for S08X-SWUB□08-10A, S10L-SWUB□08-12A

Fig.2

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	L4	F	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
S10H-SWUB□06-06A	○	○	mm	WBGT WBGW WBMT 121_	6	10	9	100	21	-	13	3	15°	0.2	No	Fig.1	SB-2035TR	FT-6
S10H-SWUB□06-07A	○	○			7	10	9	100	25	-	15	3.5	13°					
S10H-SWUB□08-08A	○	○			8	10	9	100	28	-	15	4	15°					
S08X-SWUB□08-10A	○	○		WBGT WBGW WBMT 1515_	10	8	7	120	16	21	16	5	13°			Fig.2	SB-2050TR	
S10L-SWUB□08-12A	○	○			12	10	9	140	20	25	20	6	10°					
S12M-SWUP□11-14A	○	○		WPGT WPMT WPGW WPMW 215_	14	12	11	150	24	30	24	7	4°	0.4			SB-2545TR	FT-8
S16Q-SWUP□11-18A	○	○			18	16	15	180	30	37	30	9	1°					
S16Q-SWUP□16-18A	○	○		WPGT WPMT WPGW WPMW 32_									3.5°	0.8			SB-4065TR	FT-15
S20R-SWUP□16-22A	○	○			22	20	19	200	36	46	37	11	2°					

Applicable Inserts

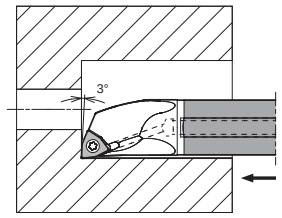
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
WB_, WP_	B77-B79	-	-	C23

Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

E(C)-SWUB(P)-A Carbide Shank Bar (Boring)

Max. Overhang Length L/D=~7



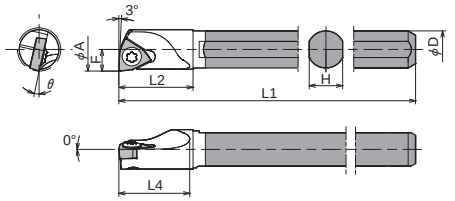
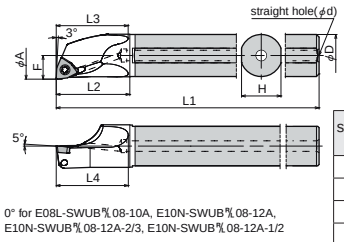


Fig.1



0° for E08L-SWUB□08-10A, E10N-SWUB□08-12A, E10N-SWUB□08-12A-2/3, E10N-SWUB□08-12A-1/2

Fig.2

shank dia. φD	straight hole dia. (φd)
φ5	-
φ6	
φ7	
φ8	φ3
φ10	
φ12	φ4
φ16	
φ20	φ6

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	L3	L4	F	θ	Std. Coner R (rε)	Coolant Hole	Shape	Spare Parts: Clamp Screw	Spare Parts: Wrench
C05H-SWUB□06-06A	○	○	mm	WBGT WBGW WBMT 121_	6	5	4.4	100	11	-	11	3	13°	0.2	No	Fig.1	SB-2035TR	FT-6
C06J-SWUB□06-07A	○	○			7	6	5.4	110	12	-	12	3.5	13°					
C07K-SWUB□08-08A	○	○			8	7	6.4	125	13	-	13	4	13°					
E08L-SWUB□08-10A	○	○		WBGT WBGW WBMT 1515_	10	8	7	140	16	15	15	5	13°		Yes		SB-2050TR	
E10N-SWUB□08-12A	○	○			12	10	9	160	20	19	19	6	10°					
E10N-SWUB□08-12A-2/3	○							105										
E10N-SWUB□08-12A-1/2	○							80										
E12Q-SWUP□11-14A	○	○		WPGT WPMT WPGW WPMW 215_	14	12	11	180	23	22	22	7	4°	0.4			SB-2545TR	FT-8
E12Q-SWUP□11-14A-2/3	○							120										
E12Q-SWUP□11-14A-1/2	○							90										
E16X-SWUP□11-18A	○	○			18	16	15	220	28	27	27	9	1°					
E16X-SWUP□11-18A-2/3	○							145										
E16X-SWUP□11-18A-1/2	○							110										
E16X-SWUP□16-18A	○	○		WPGT WPMT WPGW WPMW 32_				220					3.5°	0.8			SB-4065TR	FT-15
E16X-SWUP□16-18A-2/3	○							145										
E16X-SWUP□16-18A-1/2	○							110										
E20S-SWUP□16-22A	○	○			22	20	19	250	32	31	31	11	2°					
E20S-SWUP□16-22A-2/3	○							165										
E20S-SWUP□16-22A-1/2	○							125										

Applicable Inserts

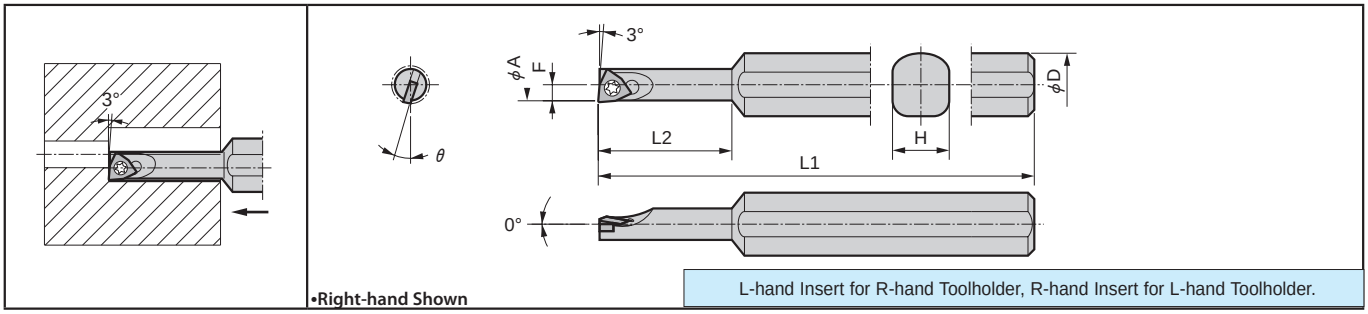
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
WB_, WP_	B77-B79	-	-	C23

Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

S...SWUB Steel Bar

Max. Overhang Length L/D=~5



•Right-hand Shown

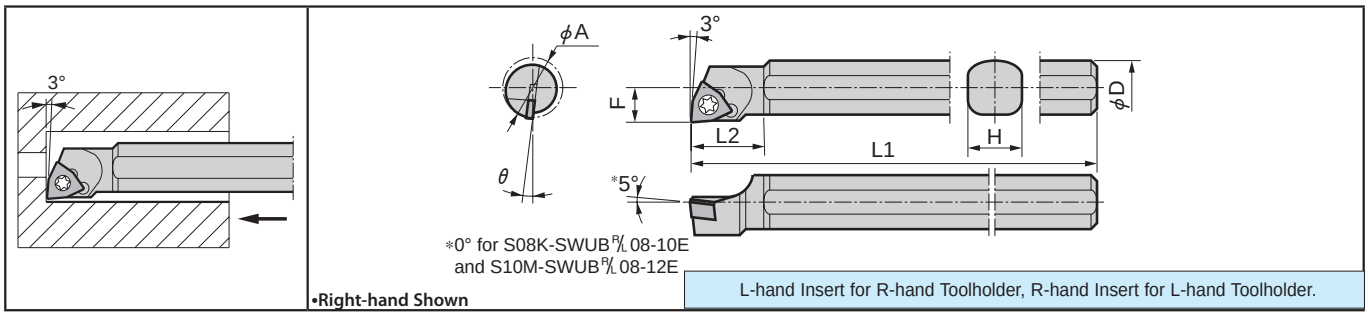
L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
S10H-SWUB[R/L]06-06E	○	○	mm	WBGT WBGW WBMT 121_	6	10	9	100	28	3	15°	0.2	SB-2040TR	FT-6
S10H-SWUB[R/L]06-07E	○	○			7	10	9	100	32	3.5	13°			
S10J-SWUB[R/L]08-08E	○	○		1515_	8	10	9	110	37	4	15°	0.2	SB-2050TR	FT-6

S...SWUP (B)-E Excellent Bar

Max. Overhang-Length L/D=~5



*0° for S08K-SWUB[R/L]08-10E and S10M-SWUB[R/L]08-12E

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
S08K-SWUB[R/L]08-10E	○	○	mm	WBGT WBGW WBMT 1515_	10	8	7	125	17	5	13°	0.2	SB-2050TR	FT-6
S10M-SWUB[R/L]08-12E	○	○			12	10	9	150	23	6	10°			
S12M-SWUP[R/L]11-14E	○	○		WPGT WPMT WPGW WPMW 215_	14	12	11	150	26	7	4°	0.4	SB-2545TR	FT-8
S12M-SWUP[R/L]11-16E	○	○			16	12	11	150	29	8	2°		SB-2560TR	FT-15
S16N-SWUP[R/L]11-18E	○	○			18	16	15	160	32	9	1°			
S16Q-SWUP[R/L]16-20E	○	○		32_	20	16	15	180	34	10	3°	0.8	SB-4065TR	FT-15
S20R-SWUP[R/L]16-25E	○	○			25	20	19	200	37	12.5	2°			

Applicable Inserts

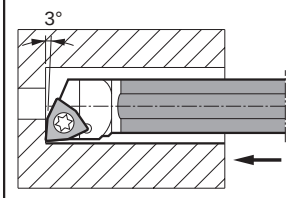
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
WB_, WP_	B77-B79	-	-	C23

Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

C...SWUP(B) Carbide Shank Bar

Max. Overhang Length L/D=~7



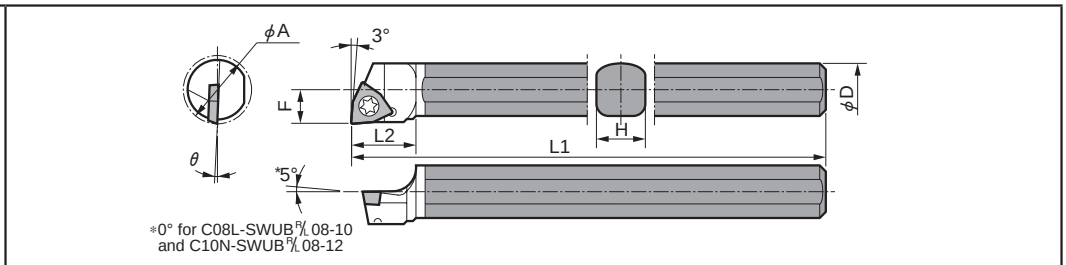


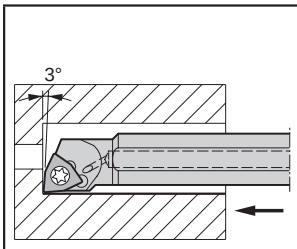
Fig.1

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

A...SWUP-E Excellent Bar, Twin Coolant Hole Bar

Max. Overhang Length-L/D=~5



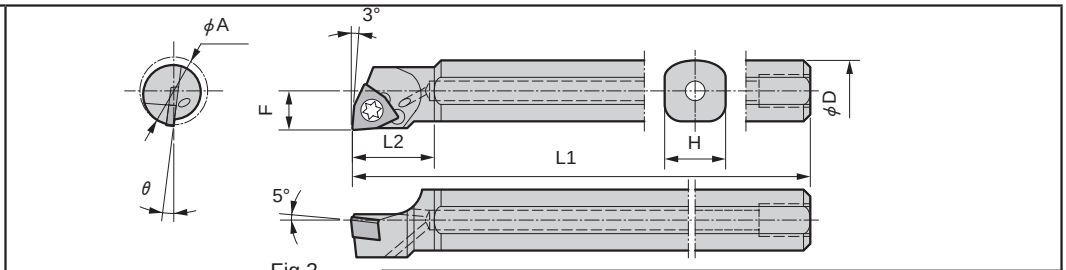


Fig.2

•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

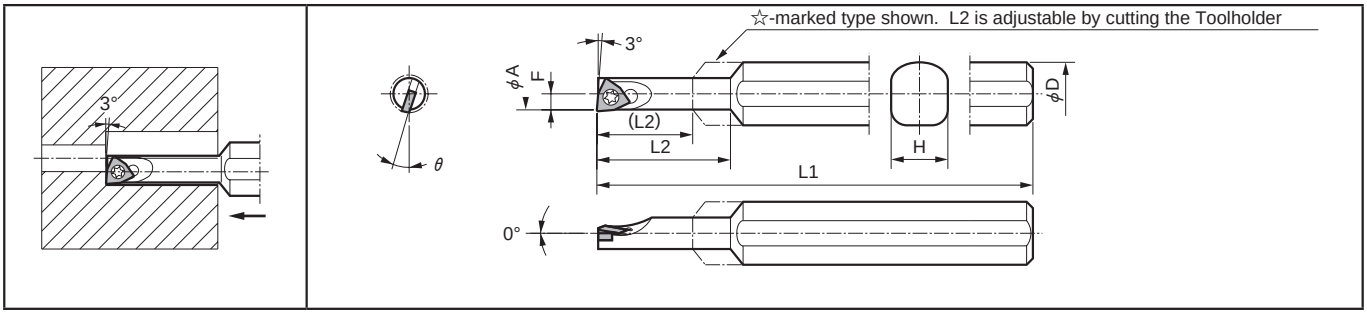
Description	Stock R	Stock L	Unit	Applicable Insert		Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	θ	Std. Coner R (rε)	Shape	Spare Parts: Insert Screw	Spare Parts: Wrench
C0325K-SWUB□1.2	●	●	inch	WBGT	121_	0.240	0.203	0.180	5.00	0.50	0.118	15°	1/64	Fig.1	SB-2040TR	FT-6
C045K-SWUB□1.5	●	●	inch	WBGT	1515_	0.312	0.281	0.252	5.00	0.55	0.157	15°	1/64	Fig.1	SB-2050TR	FT-6
C05H-SWUB□06-06	○	○	mm	WBGW WBMT	121_	6	5	4.4	100	8	3	15°	0.2	Fig.1	SB-2040TR	FT-6
C06J-SWUB□06-07	○	○	mm	WBGW WBMT	121_	7	6	5.4	110	9	3.5	13°	0.2	Fig.1	SB-2040TR	FT-6
C07K-SWUB□08-08	○	○	mm	WBGW WBMT	1515_	8	7	6.4	125	11	4	15°	0.2	Fig.1	SB-2050TR	FT-6
C08L-SWUB□08-10	○	○	mm	WPGT WPMT WPGW WPMW	1515_	10	8	7	140	17	5	13°	0.2	Fig.1	SB-2050TR	FT-6
C10N-SWUB□08-12	○	○	mm	WPGT WPMT WPGW WPMW	1515_	12	10	9	160	23	6	10°	0.2	Fig.1	SB-2050TR	FT-6
C10N-SWUB□08-12-1/2	○	○	mm	WPGT WPMT WPGW WPMW	1515_	12	10	9	80	23	6	10°	0.2	Fig.1	SB-2050TR	FT-6
C10N-SWUB□08-12-2/3	○	○	mm	WPGT WPMT WPGW WPMW	1515_	12	10	9	105	23	6	10°	0.2	Fig.1	SB-2050TR	FT-6
C12Q-SWUP□11-14	○	○	mm	WPGT WPMT WPGW WPMW	215_	14	12	11	180	26	7	4°	0.4	Fig.1	SB-2545TR	FT-8
C12Q-SWUP□11-14-1/2	○	○	mm	WPGT WPMT WPGW WPMW	215_	14	12	11	90	26	7	4°	0.4	Fig.1	SB-2545TR	FT-8
C12Q-SWUP□11-14-2/3	○	○	mm	WPGT WPMT WPGW WPMW	215_	14	12	11	120	26	7	4°	0.4	Fig.1	SB-2545TR	FT-8
C12Q-SWUP□11-16	○	○	mm	WPGT WPMT WPGW WPMW	215_	16	12	11	180	29	8	2°	0.4	Fig.1		FT-8
C12Q-SWUP□11-16-1/2	○	○	mm	WPGT WPMT WPGW WPMW	215_	16	12	11	90	29	8	2°	0.4	Fig.1		FT-8
C12Q-SWUP□11-16-2/3	○	○	mm	WPGT WPMT WPGW WPMW	215_	16	12	11	120	29	8	2°	0.4	Fig.1		FT-8
C16X-SWUP□11-18	○	○	mm	WPGT WPMT WPGW WPMW	215_	18	16	15	220	32	9	1°	0.4	Fig.1		FT-8
C16X-SWUP□11-18-1/2	○	○	mm	WPGT WPMT WPGW WPMW	215_	18	16	15	110	32	9	1°	0.4	Fig.1		FT-8
C16X-SWUP□11-18-2/3	○	○	mm	WPGT WPMT WPGW WPMW	215_	18	16	15	145	32	9	1°	0.4	Fig.1		FT-8
C16X-SWUP□16-20	○	○	mm	WPGT WPMT WPGW WPMW	32_	20	16	15	220	34	10	3°	0.8	Fig.1	SB-4065TR	FT-15
C16X-SWUP□16-20-1/2	○	○	mm	WPGT WPMT WPGW WPMW	32_	20	16	15	110	34	10	3°	0.8	Fig.1	SB-4065TR	FT-15
C16X-SWUP□16-20-2/3	○	○	mm	WPGT WPMT WPGW WPMW	32_	20	16	15	145	34	10	3°	0.8	Fig.1	SB-4065TR	FT-15
C20S-SWUP□16-25	○	○	mm	WPGT WPMT WPGW WPMW	32_	25	20	19	250	37	12.5	2°	0.8	Fig.1	SB-4065TR	FT-15
C20S-SWUP□16-25-1/2	○	○	mm	WPGT WPMT WPGW WPMW	32_	25	20	19	125	37	12.5	2°	0.8	Fig.1	SB-4065TR	FT-15
C20S-SWUP□16-25-2/3	○	○	mm	WPGT WPMT WPGW WPMW	32_	25	20	19	165	37	12.5	2°	0.8	Fig.1	SB-4065TR	FT-15
A12X-SWUP□11-14E	○	○	mm	WPGT WPMT	215_	14	12	11	120	26	7	4°	0.4	Fig. 2	SB-2545TR	FT-8
A12X-SWUP□11-16E	○	○	mm	WPGT WPMT	215_	16	12	11	120	29	8	2°	0.4	Fig. 2	SB-2560TR	FT-8
A16M-SWUP□11-18E	○	○	mm	WPGT WPMT	215_	18	16	15	150	32	9	1°	0.4	Fig. 2	SB-2560TR	FT-8
A16M-SWUP□16-20E	○	○	mm	WPGW WPMW	32_	20	16	15	150	34	10	3°	0.8	Fig. 2	SB-4065TR	FT-15
A20Q-SWUP□16-25E	○	○	mm	WPGW WPMW	32_	25	20	19	180	37	12.5	2°	0.8	Fig. 2	SB-4065TR	FT-15

Applicable Inserts Page Reference F74

● : Std. Stock ○ : World Express

S...SWUB Steel Bar

Max. Overhang Length L/D=~3

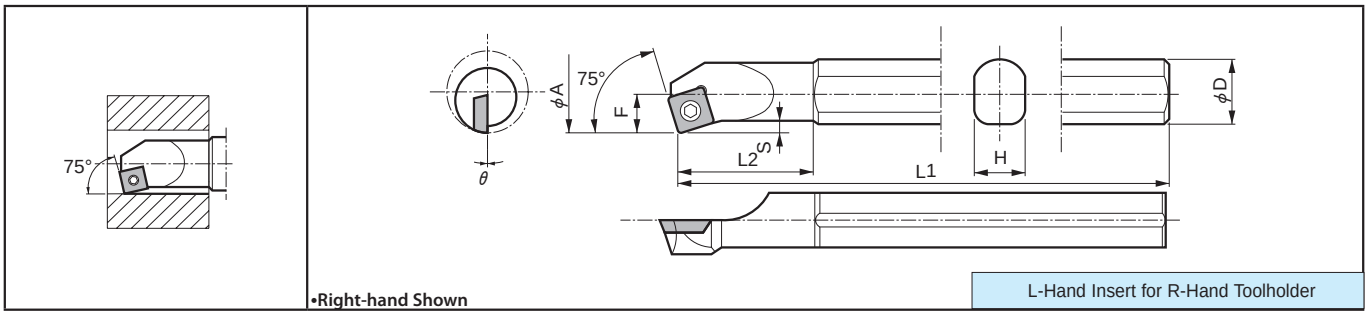


● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert		Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
S06H-SWUBR/L1.2	●	●	inch	WBGT WBGW WBMT	121_	0.240	0.375	0.356	4.00	0.825	0.115	15°	0.004	SB-2040TR	FT-6
S06X-SWUBR/L1.5	●	●	inch		1515_	0.312	0.375	0.356	4.33	1.102	0.156	15°	1/64	SB-2050TR	FT-6
S10H-SWUBR/L06-06	○	○	mm		121_	6	10	9	100	21	3	15°	0.2	SB-2040TR	FT-6
S10H-SWUBR/L06-06-15	○	○	mm			6	10	9	100	(15)	3	15°			
S10H-SWUBR/L06-07	○	○	mm			7	10	9	100	24.5	3.5	13°			
S10J-SWUBR/L08-08	○	○	mm		1515_	8	10	9	110	28	4	15°	0.2		FT-6
S10J-SWUBR/L08-08-20	○	○	mm			8	10	9	110	(20)	4	15°			

S...SSKP Steel Bar (Thru Boring)

Max. Overhang-Length L/D=~3



● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert		Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Insert Screw	Spare Parts: Wrench
S16Q-SSKPR/L09-20	○		mm	SPGH 32_		20	16	14	180	30	10	2.0	-3°	0.8	SB-4TR	FT-8
S20R-SSKPR/L09-25	○		mm			25	20	18	200	35	12.5	2.5	0°			
S25X-SSKPR/L12-32	○		mm	SPGH 42_		32	25	23	220	45	16	3.5	0°	0.8	GS-50S	FT-15
S32S-SSKPR/L12-40	○		mm			40	32	30	250	60	20	4.0	0°		GS-50	

Applicable Inserts

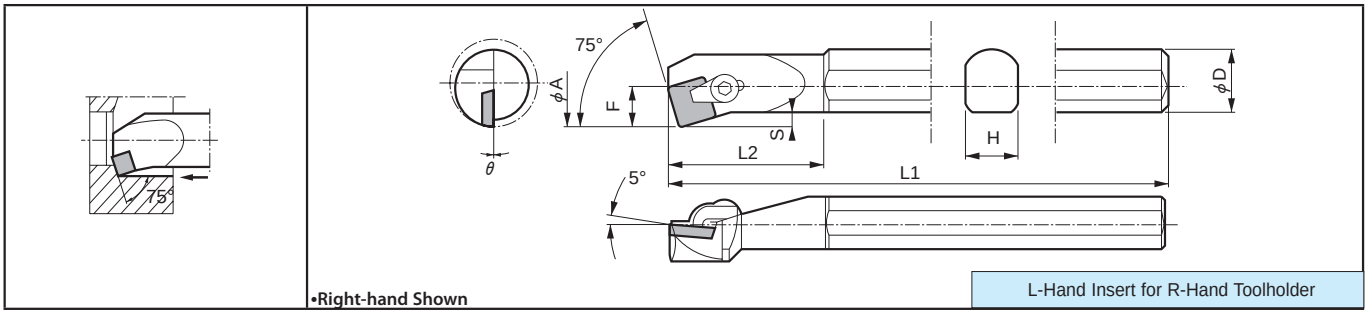
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
WB_	B77-B79	-	-	C23
SP_	B61-B62	B92	-	C24

Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

S...CSKP Steel Bar (Thru Boring)

Max. Overhang-Length L/D=~3

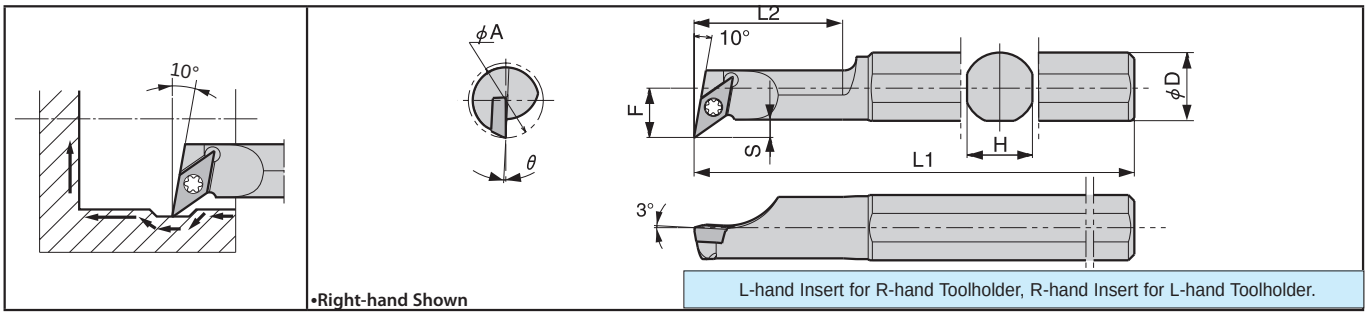


● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Clamp Set	Wrench		Shim	Shim Screw
S16N-CSKP□09-20	○		mm	SPG SPGR SPM SPMR SPU 32_	20	16	14	160	40	10	2.0	0°	0.8	CPS-2	FH-2.5	-	-	-
S20Q-CSKP□09-27	○				27	20	18	180	45	13.5	3.5	0°						
S25X-CSKP□12-34	○			SPG SPGR SPM SPMR 42_	34	25	23	220	60	17	4.5	0°	0.8	CPS-3	-	LW-3	-	-
S32S-CSKP□12-43	○				43	32	30	250	75	21.5	5.5	0°					KPS-42	SP3X10

S...SYXP-E Excellent Bar (Boring/Internal Facing/Copying)

Max. Overhang-Length L/D=~5



● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Wrench
S12M-SYXP□06-12E	○	○	mm	YPGT 1515_	12	12	11	150	25	8.3	3	3°	0.2	FT-6
S16Q-SYXP□06-16E	○	○			16	16	15	180	30	10	3			

Applicable Inserts

Insert Type	Reference Pages: Cermet/Carbide	Ceramic	CBN	PCD
YP_	B80	-	-	-
SP_	B61-B62	-	-	C24

Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

Identification System for Interchangeable Heads

Head changeable type	Clamp type	Shape	Hand	Minimum bore dia.
	P : Pin lock(Lever lock) S : Screw clamp type	C : 80° Diamond D : 55° Diamond T : Triangle	R : Right hand L : Left hand	

H	A	32	P	C	L	N	R	12	–	40

Type of head

A	Steel head with coolant hole

Applicable adapters diameter

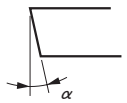
Edge shape

F: 90°

L: 95°, 95°

U: 93°

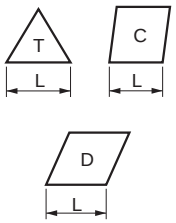
Relief angle



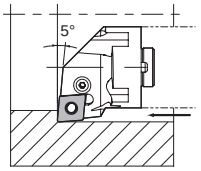
C : 7° Positive

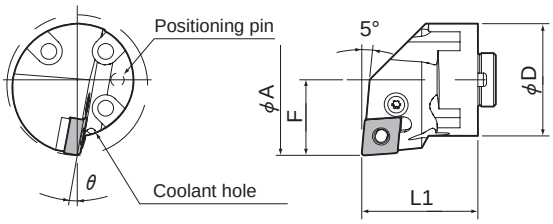
N : 0° Negative

Edge length



HA...PCLN12 Type (Internal / Facing : With Coolant Hole)





●Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)			θ	Std.Corner-R (re)	Spare Parts						Applicable Boring Adapter F81
	R	L	ϕA	ϕD	L1	F			Lever	Lock Screw	Shim	Shim Pin	*Punch	Wrench	
HA32PCLN R/L 12-40	○	○	40	32	41	22	10°	0.8	LL-2K	LS-2P	LC-4K	LSP-3K	*PC-2K	LTP-15	AD32U
HA40PCLN R/L 12-50	○	○	50	40		27									AD40V
HA50PCLN R/L 12-63	○	○	63	50		35									AD50W

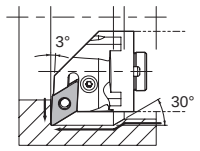
*Punch is not included. Purchase separately.

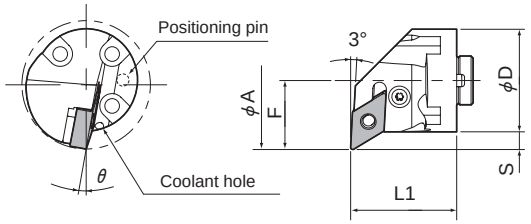
● Applicable Inserts

Toolholder Description	Insert Description		Ref. Page			
			Cermet · Cabide	Ceramic	CBN	PCD
HA32PCLN R/L 12-40	CN○A	43..	B14~B19	B85	C5-C7	C18
HA40PCLN R/L 12-50	CN○G					
HA50PCLN R/L 12-63	CN○M					

● : Std. Stock ○ : World Express

HA...PDUN15 Type (Copying : With Coolant Hole)





•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

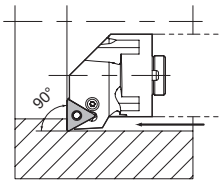
Description	Stock		Min. Bore Dia.	Dimension (mm)				θ	Std.Corner-R (rε)	Spare Parts						Applicable Boring Adapter ➡F81
	R	L	φA	φD	L1	F	S			Lever	Lock Screw	Shim	Shim Pin	*Punch	Wrench	
HA32PDUNR/L15-43	○	○	43	32	41	25	9	12°	0.8	LL-3K	LS-3P	LD-4K43 (LD-4K)	LSP-3K	*PC-2K	LTP-15	AD32U
HA40PDUNR/L15-50	○	○	50	40		27	7	10°								AD40V
HA50PDUNR/L15-63	○	○	63	50		35	10									AD50W

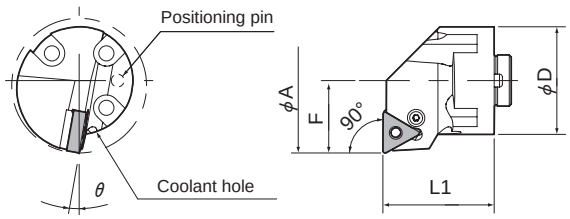
*Punch is not included. Purchase separately.
*Shim:LD-4K43 is included in the boringhead as standard parts. If you use DN□□1506 Type inserts, please purchase LD-4K separately.

● Applicable Inserts

Toolholder Description	Insert Description				Ref. Page			
	Shim :**LD-4K43**		Shim :**LD-4K**		Cermet · Cabide	Ceramic	CBN	PCD
HA32PDUNR/L15-43	DN○A	43..	DN○A	44..	**B23~B28**	**B92**	**C6**	**C17**
HA40PDUNR/L15-50	DN○G		DN○G					
HA50PDUNR/L15-63	DN○M		DN○M					

HA...PTFN16 Type (Internal : With Coolant Hole)





•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)			θ	Std.Corner-R (rε)	Spare Parts						Applicable Boring Adapter ➡F81
	R	L	φA	φD	L1	F			Lever	Lock Screw	Shim	Shim Pin	*Punch	Wrench	
HA32PTFNR/L16-40	○	○	40	32	41	22	10°	0.8	LL-1K	LS-1P	LT-3K	LSP-2K	*PC-2K	LTP-10	AD32U
HA40PTFNR/L16-50	○	○	50	40		27									AD40V
HA50PTFNR/L16-63	○	○	63	50		35	8°								AD50W

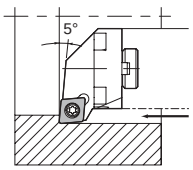
*Punch is not included. Purchase separately.

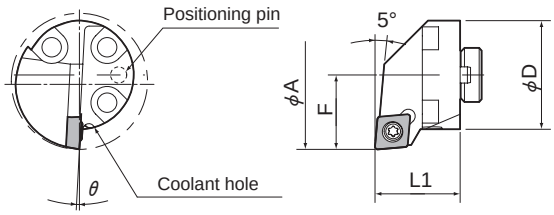
● Applicable Inserts

Toolholder Description	Insert Description		Ref. Page			
			Cermet · Cabide	Ceramic	CBN	PCD
HA32PTFNR/L16-40	TN○A	33..	**B30~B35**	**B90-B91**	**C7-C8, C10**	**C18**
HA40PTFNR/L16-50	TN○G					
HA50PTFNR/L16-63	TN○M					

● : Std. Stock ○ : World Express

HA...SCLC09 Type (Internal / Facing : with Coolant hole)





•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

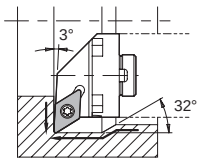
● Toolholder Dimensions

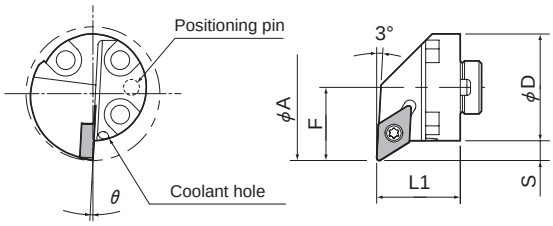
Description	Stock		Min. Bore Dia.	Dimension (mm)				θ	Std.Corner-R (rε)	Spare Parts		Applicable Boring Adapter ➡F81	Applicable Insert
	R	L	ϕA	ϕD	L1	F	S			Clamp Screw	Wrench		
HA32SCLC℞09-40	○	○	40	32	25	22	-	3°	0.8	SB-3580TR	FTS-15	AD32U	CC..325..

● Applicable Inserts

Insert Description	Ref. Page		
	Cermet · Cabide	CBN	PCD
CC..325..	B45~B49	C11	C19

HA...SDUC11 Type (Copying : With Coolant Hole)





•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock		Min. Bore Dia.	Dimension (mm)				θ	Std.Corner-R (rε)	Spare Parts		Applicable Boring Adapter ➡F81	Applicable Insert
	R	L	ϕA	ϕD	L1	F	S			Clamp Screw	Wrench		
HA32SDUC℞11-40	○	○	40	32	25	22	6	3°	0.8	SB-3580TR	FTS-15	AD32U	DC..325..

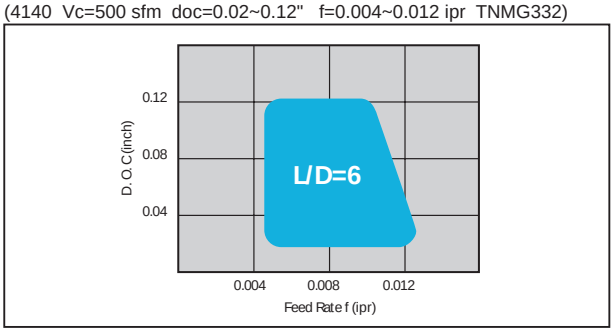
● Applicable Inserts

Insert Description	Ref. Page		
	Cermet · Cabide	CBN	PCD
DC..325..	B52~B58	C12	C20

Possible Machining Area

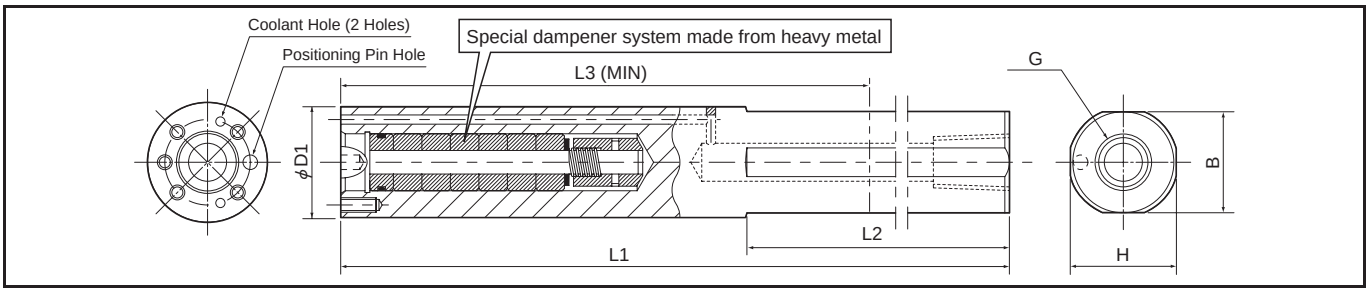
(Guide Line for Overhang Length)

(4140 Vc=500 sfm doc=0.02~0.12" f=0.004~0.012 ipr TNMG332)



● : Std. Stock ○ : World Express

Boring Adapter (With Coolant Hole)



● Dimensions

Description	Stock	Dimension (mm)							Spare Parts		
									Clamp Bolt		Wrench
		φD1	H	B	L1	L2	L3 (MIN)	G			
AD 32U	○	32	31	29	310	200	200	Rp3/8	HH5×20 (3pcs)	HH5×30 (1pc)	LW-4
AD 40V	○	40	39	37	360	248	228				
AD 50W	○	50	47	47	410	280	276		HH6×20 (3pcs)	HH6×30 (1pc)	LW-5

*Remark:In case of using back portion of boaring adapter with short cut, L3 (MIN) dimension indicates minimum length.
Please do not apply shorter length dimension than L3 (MIN) dimension.

Combinations of Boring Adapter and Changeable Head

Changeable head Description			Boring adapter Description	Clamp Bolt		Wrench
HA32	**PCLN**R/L	**12-40**	AD32U	HH5×20	HH5×30	LW-4
	PDUNR/L	**15-43**				
	PTFNR/L	**16-40**				
	SCLCR/L	**09-40**		HH5×20		
	SDUCR/L	**11-40**				
HA40	**PCLN**R/L	**12-50**	AD40V	HH5×20	HH5×30	
	PDUNR/L	**15-50**				
	PTFNR/L	**16-50**				
HA50	**PCLN**R/L	**12-63**	AD50W	HH6×20	HH6×30	LW-5
	PDUNR/L	**15-63**				
	PTFNR/L	**16-63**				

How to Change a Head



1. Remove the boring head.



2. Align the boring head with the installing position.



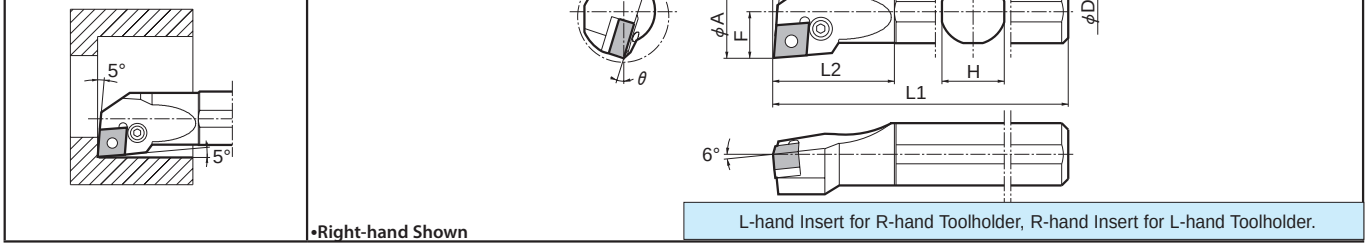
3. Tighten three screws to clamp the boring head.

   Use short screws for upper clamping hole and long screw for bottom clamping hole.

● : Std. Stock ○ : World Express

Steel Bar (Boring/Internal Facing)

Max. Overhang-Length L/D=~3

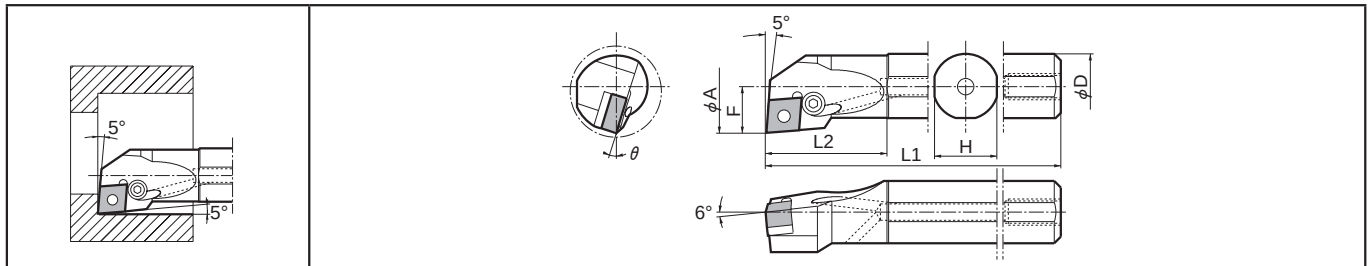


•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

A...PCLN

Max. Overhang-Length L/D=~3



•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	θ	Std. Coner R (rε)	Spare Parts: Lever	Lock Screw		Shim Pin		Wrench
S16M-PCLNR/L09-20	○	○	mm	CNGG CNMG 33_	20	16	15	150	34	11	16°		LL-03SN	LS-035N	-	P-03S	-	FH-2.5
S20Q-PCLNR/L09-27	○	○	mm	CNGG CNMG 33_	27	20	19	180	37	14.2	17°		LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	FH-2.5
S25R-PCLNR/L09-32	○	○	mm	CNGG CNMG 33_	32	25	24	200	42	15.7	15°		LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	FH-2.5
S20S-PCLNR/L4	●		inch	CNGA CNGG CNMA CNMG CNMM CNMP 43_	1.55	1.25	1.17	10.00	2.00	0.75	10°	1/32	LL-2N	LS-2N	LC-42NR/L	LSP-2	PC-2	LW-3
S24T-PCLNR/L4	●		inch	CNGA CNGG CNMA CNMG CNMM CNMP 43_	2.02	1.50	1.42	12.00	2.50	1.00	10°	1/32	LL-2N	LS-2N	LC-42NR/L	LSP-2	PC-2	LW-3
S32S-PCLNR/L12-40	○	○	mm	CNGA CNGG CNMA CNMG CNMM CNMP 43_	40	32	30	250	50	21	10°	0.8	LL-2N	LS-2N	LC-42NR/L	LSP-2	PC-2	LW-3
S40T-PCLNR/L12-50	○	○	mm	CNGA CNGG CNMA CNMG CNMM CNMP 43_	50	40	37	300	60	25	10°	0.8	LL-2N	LS-2N	LC-42NR/L	LSP-2	PC-2	LW-3
A10M-PCLNR/L3	●	●	inch	CNGG CNMG 33_	0.79	0.63	0.59	6.00	1.34	-	16°	1/32	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
A12Q-PCLNR/L3	●	●	inch	CNGG CNMG 33_	1.06	0.75	0.71	7.00	1.46	-	17°	1/32	LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	FH-2.5
A16Q-PCLNR/L3	●	●	inch	CNGG CNMG 33_	1.26	1.00	0.97	7.00	1.65	-	15°	1/32	LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	FH-2.5
A16M-PCLNR/L09-20	○		mm	CNGG CNMG 33_	20	16	15	150	34	11	16°	0.8	LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	FH-2.5
A20Q-PCLNR/L09-27	○		mm	CNGG CNMG 33_	27	20	19	180	37	14.2	17°	0.8	LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	FH-2.5
A25R-PCLNR/L09-32	○		mm	CNGG CNMG 33_	32	25	24	200	42	15.7	15°	0.8	LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	FH-2.5

Applicable Inserts

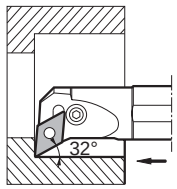
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
CN_	B14-B19	B85	C5-C6	C18

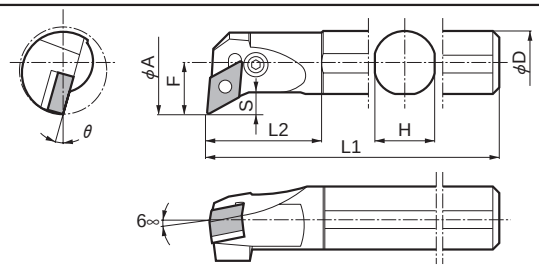
Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

S...PDUN Steel Bar (Boring/Internal Facing)

Max. Overhang-Length L/D=e3



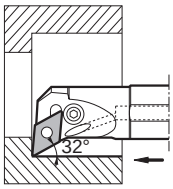


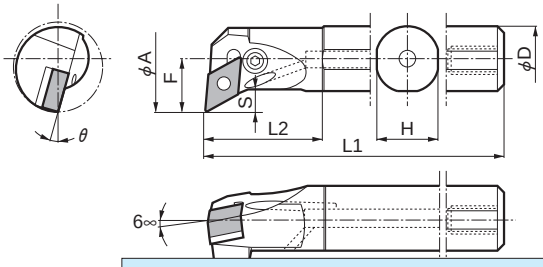
•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

A...PDUN Steel Twin Coolant Hole Bar (Copying)

Max. Overhang-Length L/D=e3





•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Lever	Lock Screw	Shim	Shim Pin	Wrench
S20Q-PDUNR/L11-27	○	○	mm	DNGG DNMG 33_	27	20	19	180	35	16	7.6	17°	0.8	LL-1D	LS-1S	LD-32	LSP-1	FH-2.5
S25R-PDUNR/L11-32	○	○			32	25	24	200	40	17	7.6	15°						
S32S-PDUNR/L11-40	○	○			40	32	31	250	45	22	8.5	12°						
A20Q-PDUNR/L11-27	○		mm		27	20	19	180	35	16	7.6	17°	0.8	LL-1D	LS-1S	LD-32	LSP-1	FH-2.5
A25R-PDUNR/L11-32	○				32	25	24	200	40	17	7.6	15°						
A32S-PDUNR/L11-40	○				40	32	31	250	45	22	8.5	12°						
A12Q-PDUNR/L3	●	●	inch		1.06	0.75	0.71	7.00	1.37			17°	0.8	LL-1D	LS-1S	LD-32	LSP-1	FH-2.5
A16R-PDUNR/L3	●	●			1.26	1.00	0.97	8.00	1.37	-	-	15°						
A20S-PDUNR/L3	●	●			1.57	1.25	1.18	10.00	1.37			12°						

Applicable Inserts

Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
DN_	B20-B24	B86	C6-C7	C18

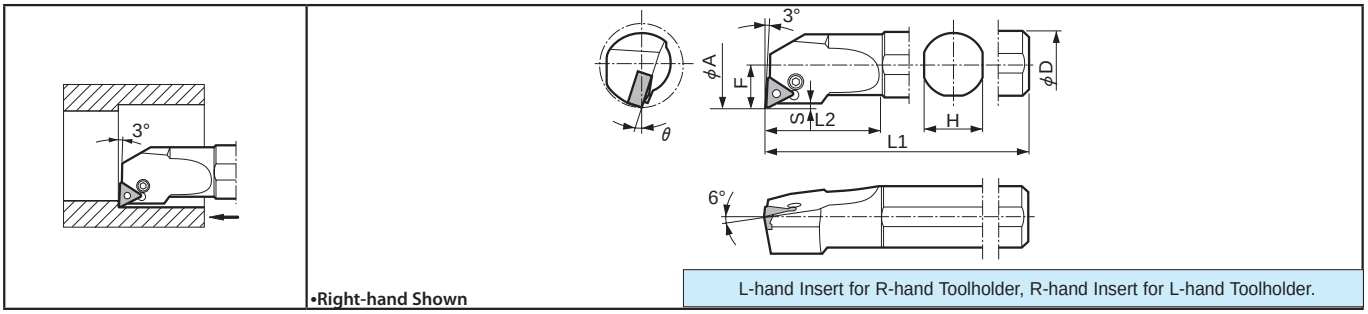
Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

Boring Bars [TN□□ Insert]

Steel Bar

Max. Overhang-Length L/D=~3

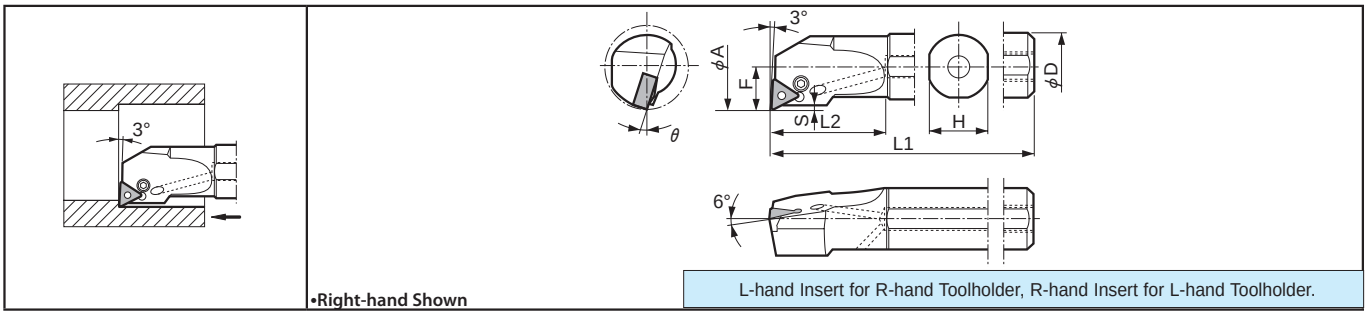


•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

A...PTUN Steel Twin Coolant Hole Bar

Max. Overhang-Length L/D=~3



•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

F

Boring

● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	S	θ	Std. Coner R (rε)	Spare Parts: Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
S16M-PTUNR/L11-20	○	○	mm	TNGG TNMG 23_	20	16	15	150	34	11	0.3	18°	0.8	LL-03T	LS-03S	-	P-03S	-	FH-2.5
S20Q-PTUNR/L11-25	○	○			25	20	19	180	37	13.2	0.2	17°							
S25R-PTUNR/L11-32	○	○			32	25	24	200	42	15.7	0.3	16°							
S25R-PTUNR/L16-30	○	○	mm	TNGA TNGG TNMA TNMG TNMM 33_	30	25	24	200	42	15.5	1.5		0.8	LL-03S	LS-03S	-	P-03S	-	FH-2.5
S32S-PTUNR/L16-40	○	○			40	32	30	250	50	22	2			LL-1	-	LT-32	LSP-1	PC-1	FH-2.5
S40T-PTUNR/L16-50	○	○			50	40	37	300	60	27	1.8								
A16M-PTUNR/L11-20	○	○	mm	TNGG TNMG 23_	20	16	15	150	34	11	0.3	15°	0.8	LL-03T	LS-03S	-	P-03S	-	FH-2.5
A20Q-PTUNR/L11-25	○	○			25	20	19	180	37	13.2	0.2	14°							
A25R-PTUNR/L11-32	○	○			32	25	24	200	42	15.7	0.3	13°							

Applicable Inserts

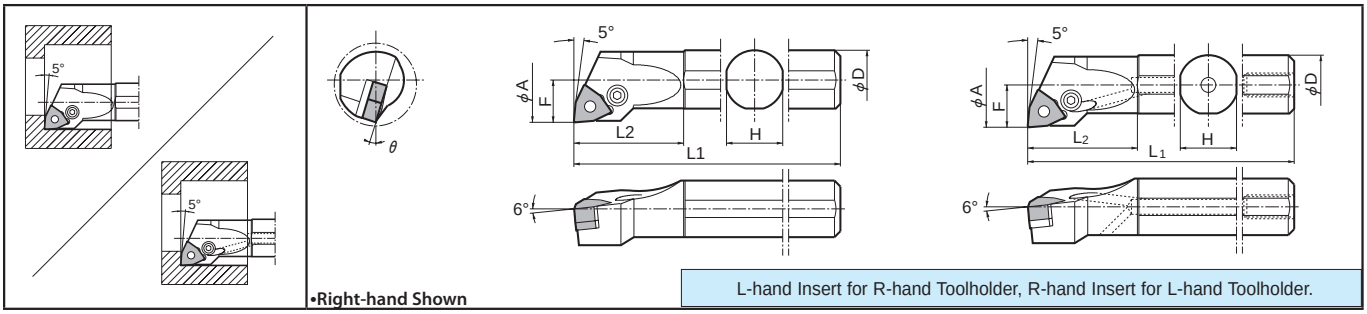
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
TN_	B30-B35	B90-B91	C7-C8	C18

Recommended Cutting Conditions ➡ F93~F94

● : Std. Stock ○ : World Express

S(A)...PWLN Steel Bar (Boring/Internal Facing)

Max. Overhang-Length L/D=~3

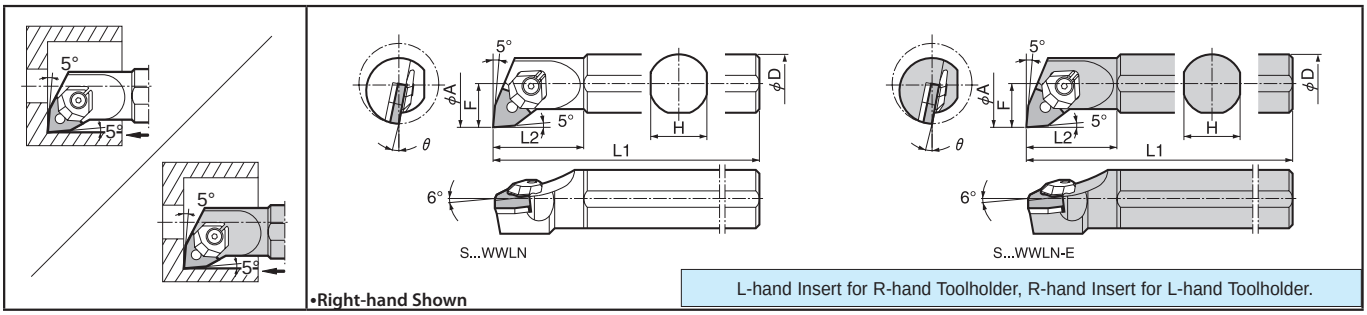


● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	φD	H	L1	L2	F	θ	Std. Coner R (rε)	Spare Parts: Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
S16M-PWLN□06-20	○	○	mm	WNMG 33_ WNGG	20	16	15	150	34	11	16°	0.8	LL-03N	LS-03N	-	P-03S	-	FH-2.5
S20Q-PWLN□06-27	○	○	mm	WNMG 33_ WNGG	27	20	19	180	37	14.2	17°	0.8	LL-1N	LS-1SN	LW-32N	LSP-1	PC-1	FH-2.5
S25R-PWLN□06-32	○	○	mm	WNMG 33_ WNGG	32	25	24	200	42	15.7	15°	0.8	LL-1N	LS-1SN	LW-32N	LSP-1	PC-1	FH-2.5
A16M-PWLN□06-20	○		mm	WNMG 33_ WNGG	20	16	15	150	34	11	16°	0.8	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
A20Q-PWLN□06-27	○		mm	WNMG 33_ WNGG	27	20	19	180	37	14.2	17°	0.8	LL-1N	LS-1SN	LW-32N	LSP-1	PC-1	FH-2.5
A25R-PWLN□06-32	○		mm	WNMG 33_ WNGG	32	25	24	200	42	15.7	15°	0.8	LL-1N	LS-1SN	LW-32N	LSP-1	PC-1	FH-2.5
S32S-PWLN□08-40	○	○	mm	WNMG 33_ WNGG	40	32	30	250	50	22	10°	0.8	LL-2N	LS-2N	LW-42N□	LSP-2	PC-2	LW-3
S40T-PWLN□08-50	○	○	mm	WNMG 33_ WNGG	50	40	37	300	60	27	10°	0.8	LL-2N	LS-2N	LW-42N□	LSP-2	PC-2	LW-3

S...WWLN /S...WWLN-E Steel Bar/Excellent Bar (Boring/Facing)

Max. Overhang-Length L/D=~3/~5



● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Applicable Insert	Min. Bore Dia. φA	φD	H	L1	L2	F	θ	Std. Coner R (rε)	Spare Parts: Clamp Set	Wrench	Shim	Shim Pin	Wrench
S25S-WWLN□08-34	○	○	mm	WNGA WNMG WNMA WNMM WNMP 43_	34	25	24	250	40	17	11°	0.8	WCS-8	LW-3	WWP-42	WP5X11	LW-2
S32S-WWLN□08-40	○	○	mm	WNGA WNMG WNMA WNMM WNMP 43_	40	32	30	250	50	20	10°	0.8	WCS-8	LW-3	WWP-42	WP5X11	LW-2
S25S-WWLN□08-28E	○	○	mm	WNGA WNMG WNMA WNMM WNMP 43_	28	25	24	250	36	14	13°	0.8	WCS-8	LW-3	WWP-42	WP5X11	LW-2
S25S-WWLN□08-34E	○	○	mm	WNGA WNMG WNMA WNMM WNMP 43_	34	25	24	250	40	17	11°	0.8	WCS-8	LW-3	WWP-42	WP5X11	LW-2
S32S-WWLN□08-40E	○	○	mm	WNGA WNMG WNMA WNMM WNMP 43_	40	32	30	250	50	20	10°	0.8	WCS-8	LW-3	WWP-42	WP5X11	LW-2

Applicable Inserts

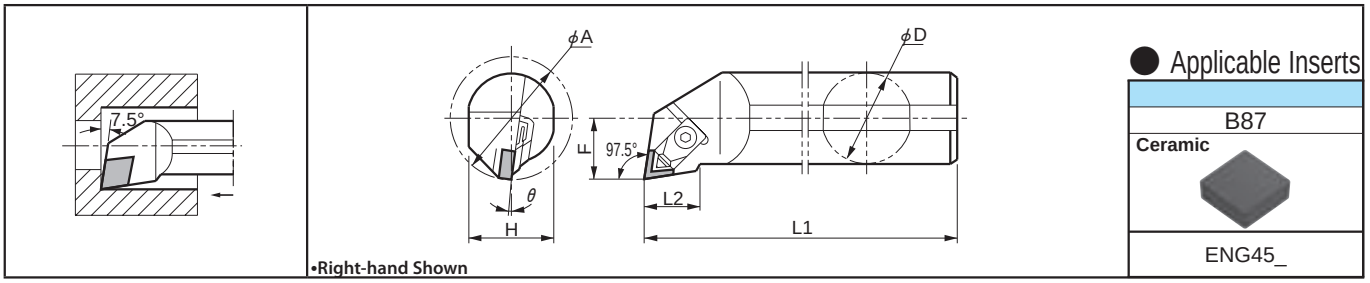
Insert Type	Reference Pages			
	Cermet/Carbide	Ceramic	CBN	PCD
WN_	B38-B41	B91	C9	C18

Recommended Cutting Conditions F93~F94

● : Std. Stock ○ : World Express

S...CELN Steel Bar (Boring/Facing)

Max. Overhang-Length L/D=~3



Applicable Inserts

B87
Ceramic
ENG45_

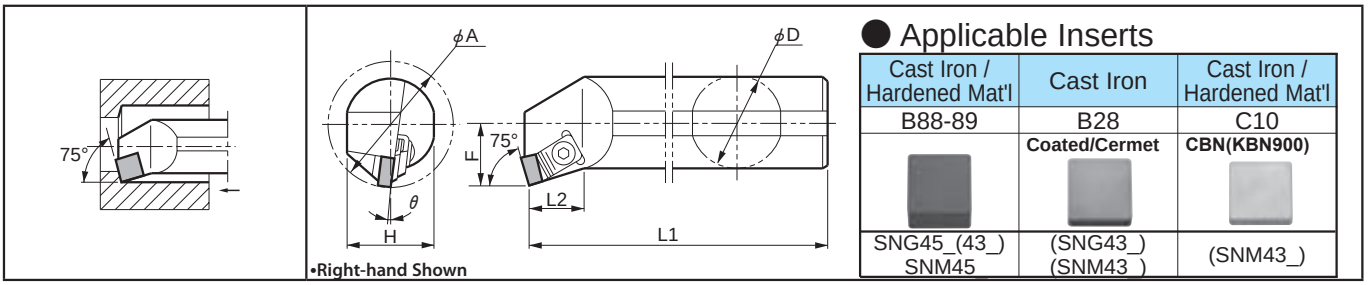
Toolholder Dimensions

Recommended Cutting Conditions ➡ F93~F94

Description	(Old Description)	Stock R	Stock L	Min. Bore Dia. ϕA	Dimension (mm) ϕD	H	L1	L2	F	θ	Std. Corner-R (rε)	Spare Parts: Chipbreaker	Clamp Set	Wrench		Shim Screw
S40T -CELNR/L13 -50	CELNR/L 5040B-13	○		50	40	37	300	32	27	12°	0.8	CB-16	CE-010	LW-4	SP-341P	M3X8

S...CSKN Steel Bar (Thru Boring)

Max. Overhang-Length L/D=~3



Applicable Inserts

Cast Iron / Hardened Mat'l	Cast Iron	Cast Iron / Hardened Mat'l
B88-89	B28	C10
	Coated/Cermet	CBN(KBN900)
SNG45_(43_) SNM45_	(SNG43_) (SNM43_)	(SNM43_)

Toolholder Dimensions

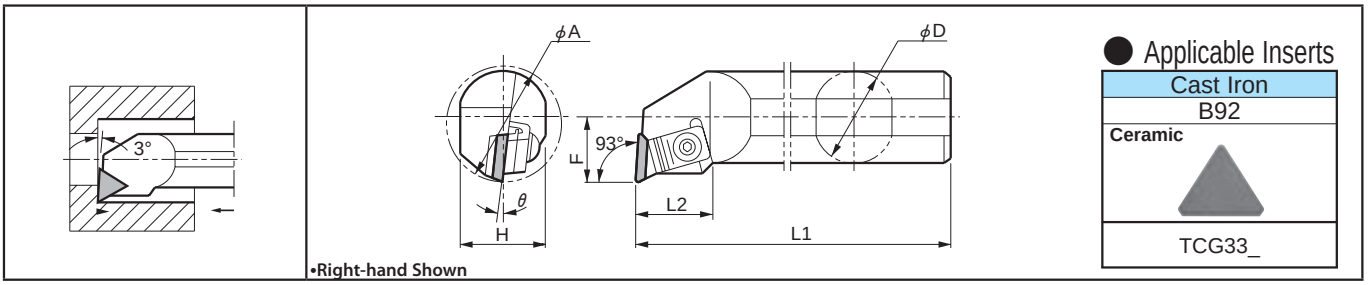
Recommended Cutting Conditions ➡ F93~F94

Description	(Old Description)	Stock R	Stock L	Unit	Min. Bore Dia. ϕA	Dimension ϕ	H	L1	L2	F	θ	Std. Corner-R (rε)	Spare Parts: Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
S40T-CSKNR/L12-50	CSKNR/L 5040B-12	○		mm	50	40	37	300	26	27	10.5°	0.8	CB-13/12	CE-320	LW-4	SP-141P (SP-43P)	M3X8 (M3X12)
S16X-CSKNR/L3		●	●	inch	1.18	1.00	.97	9.00	1.65	.591	10°	0.8	-	CE-360S	LW-4	SP-130A	BH3X12
S20S-CSKNR/L3		●	●		1.57	1.25	1.18	10.0	2.05	.866	8°	0.8					

- Chipbreaker: CB-13 for R-hand Toolholder, CB-12 for L-hand Toolholder
- Shim & Shim Screw: Spare Parts in ( ) are needed to use for SN□□43○○ Insert

S...CTUC Steel Bar

Max. Overhang-Length L/D=~3



Applicable Inserts

Cast Iron
B92
Ceramic
TCG33_

Toolholder Dimensions

Recommended Cutting Conditions ➡ F93~F94

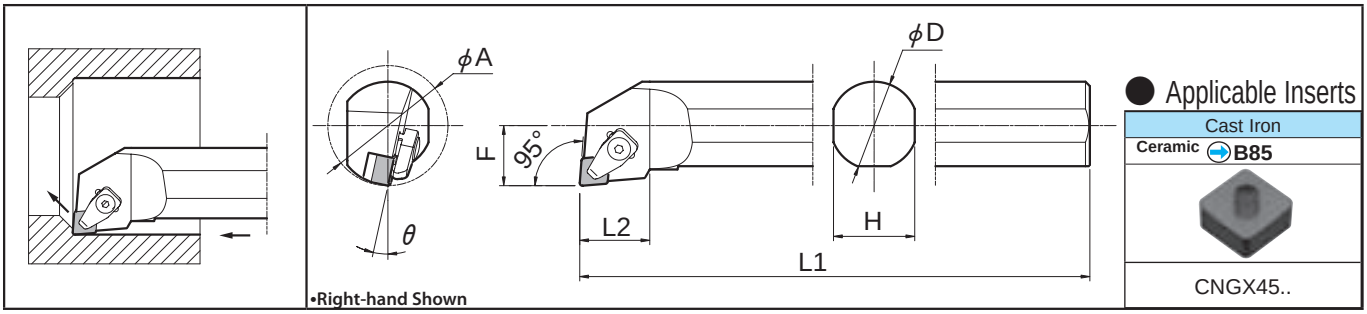
Description	(Old Description)	Stock R	Stock L	Min. Bore Dia. ϕA	Dimension (mm) ϕD	H	L1	L2	F	θ	Std. Corner-R (rε)	Spare Parts: Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
S32S-CTUCR/L16-40	CTUCR/L 4032B-16	○		40	32	30	250	27	22	6.5°	0.8	CB-13/12	CE-320	LW-4	SP-230P	SP3X10

- Chipbreaker: CB-13 for R-hand Toolholder, CB-12 for L-hand Toolholder

● : Std. Stock ○ : World Express

S...CCLN-GX Steel Bar (Boring/Internal Facing)

Max. Overhang Length L/D=~3



Applicable Inserts

Cast Iron
Ceramic → B85

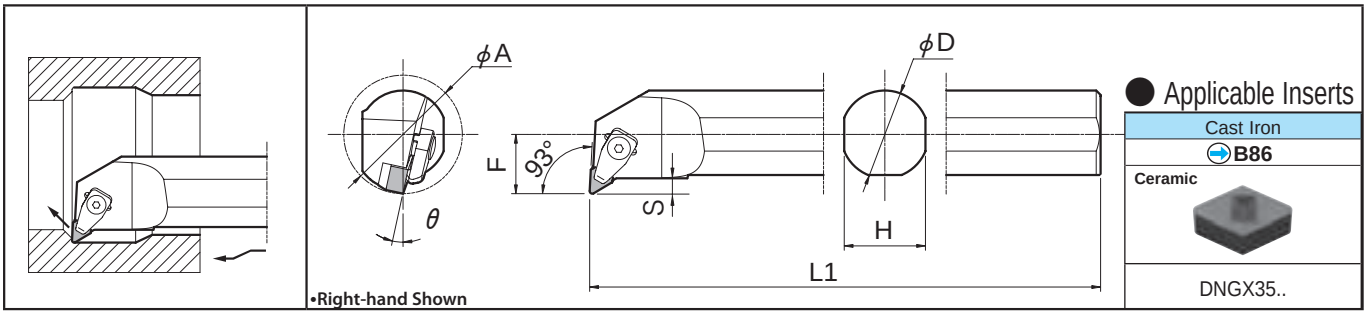
CNGX45..

Toolholder Dimension

Description	Stock R	Stock L	Min. Bore Dia. φA	Dimension (mm) φD	H	L1	L2	F	θ	Std. Corner-R (rε)	Spare Parts: Clamp Set	Wrench	Shim	Shim Screw	Recommended Cutting Conditions
S32S- CCLN[R/L] 12-40GX	○	○	40	32	30	250	32	22	14°	1.2	CE-410	LW-4	-	-	F93-F94
S40T- CCLN[R/L] 12-50GX	○	○	50	40	37	300	32	27	12°	1.2	CE-410	LW-4	SP-441P	M3X8	

S...CDUN-GX Steel Bar (Boring/Copying)

Max. Overhang Length L/D=~3



Applicable Inserts

Cast Iron
→ B86
Ceramic

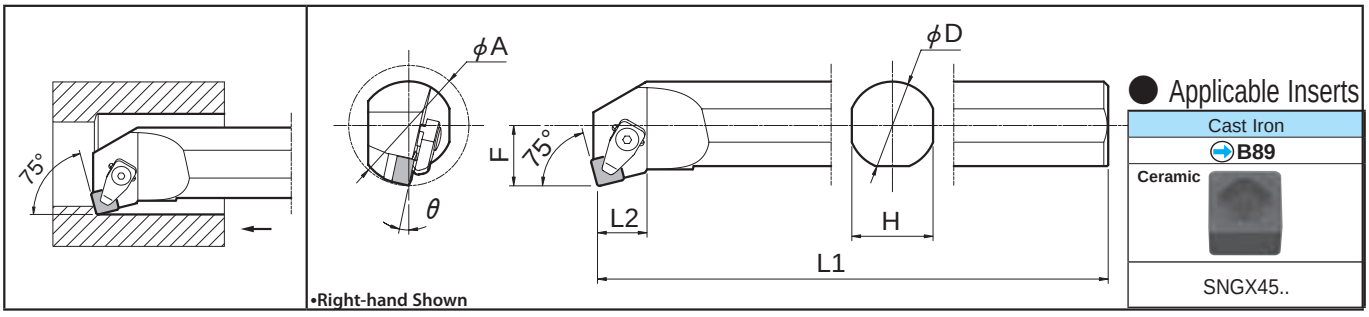
DNGX35..

Toolholder Dimension

Description	Stock R	Stock L	Min. Bore Dia. φA	Dimension (mm) φD	H	L1	S	F	θ	Std. Corner-R (rε)	Spare Parts: Clamp Set	Wrench	Shim	Shim Screw	Recommended Cutting Conditions
S32S- CDUN[R/L] 12-40GX	○	○	40	32	30	250	7.5	22	14°	1.2	CE-410	LW-4	-	-	F93-F94
S40T- CDUN[R/L] 12-50GX	○	○	50	40	37	300	7.5	27	12°	1.2	CE-410	LW-4	SP-521P	M3X8	

S...CSKN-GX Steel Bar (Boring)

Max. Overhang Length L/D=~3



Applicable Inserts

Cast Iron
→ B89
Ceramic

SNGX45..

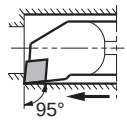
Toolholder Dimension

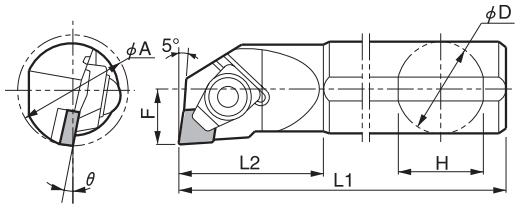
Description	Stock R	Stock L	Min. Bore Dia. φA	Dimension (mm) φD	H	L1	L2	F	θ	Std. Corner-R (rε)	Spare Parts: Clamp Set	Wrench	Shim	Shim Screw	Recommended Cutting Conditions
S32S- CSKN[R/L]12-40GX	○	○	40	32	30	250	22.5	22	14°	1.2	CE-410	LW-4			F93-94
S40T- CSKN[R/L]12-50GX	○	○	50	40	37	300	22.5	27	12°	1.2			SP-141P	M3X8	

● : Std. Stock ○ : World Express

Boring Bars [CN□□/SN□□/TN□□ Insert]

S...CCLN-A (Boring / Internal Facing)





•Right-hand Shown

Applicable Insert

Hardened Mat'l/Cast Iron
C10
CBN(KBN900)

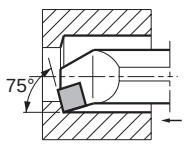
CNMN32..

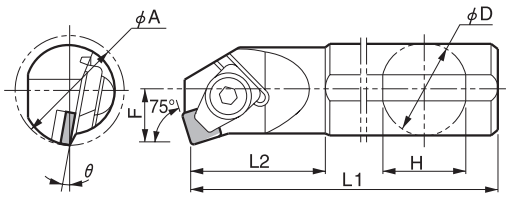
Recommended Cutting Conditions F93~F94

Toolholder Dimensions

Description	Stock R	Stock L	Unit	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	θ	Std. Corner-R (rε)	Spare Parts: Clamp Set	Wrench	Shim	Shim Screw
S25X-CCLN□09-30A	○	○	mm	30	25	24	220	40	15	10°	0.8	CE-360S	LW-4	-	BH3X6
S32S-CCLN□09-40A	○	○	mm	40	32	30	250	50	22	8°	0.8	CE-360S	LW-4	-	BH3X6
S16X-CCLN□3	●	●	inch	1.18	1.0	.97	9.0	1.57	.591	10°	1/32	CE-360S	LW-4	SP-420A	BH3X6
S20S-CCLN□3	●	●	inch	1.57	1.25	1.18	10.0	1.97	.866	8°	1/32	CE-360S	LW-4	SP-420A	BH3X6

(Thru Boring)





•Right-hand Shown

Applicable Insert

Hardened Mat'l / Cast Iron
C10
CBN(KBN900)

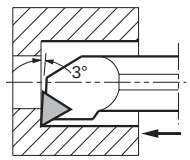
SNM32..

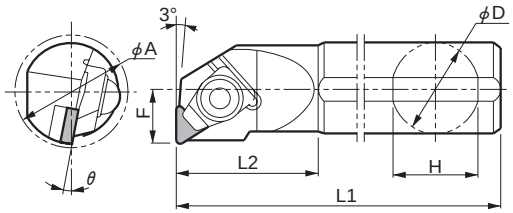
Recommended Cutting Conditions F93~F94

Toolholder Dimensions

Description	Stock R	Stock L	Unit	Min. Bore Dia. φ	Dimension φD	H		L2	F	θ	Std. Corner-R (rε)	Spare Parts: Clamp Set	Wrench	Shim	Shim Screw
S25X-CSKN□09-30A	○		mm	30	25	24	220	40	15	10°	1.2	CE-360S	LW-4	-	
S32S-CSKN□09-40A	○		mm	40	32	30	250	50	22	8°	1.2	CE-360S	LW-4	-	

S...CTUN-A (Boring)





•Right-hand Shown

Applicable Inserts

Hardened Mat'l / Cast Iron	Cast Iron / Hardened Mat'l
C10	B90
CBN(KBN900)	Ceramic
	
TNM22..	TNG22..

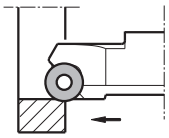
Recommended Cutting Conditions F93~F94

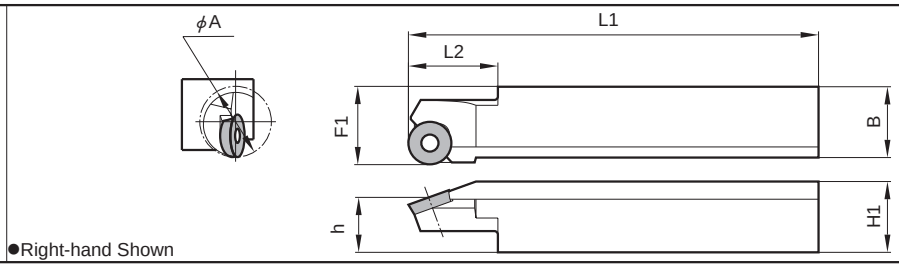
Toolholder Dimensions

Description	Stock R	Stock L	Unit	Min. Bore Dia. φA	Dimension φD	H	L1	L2	F	θ	Std. Corner-R (rε)	Spare Parts: Clamp Set	Wrench	Shim	
S25X-CTUN□11-30A	○		mm	30	25		220		15		0.8	CE-360S	LW-4	SP-210A	BH3X6
S16X-CTUN□2	●	●	inch	1.18	1.00	.97	9.0	1.57	.591	10°	0.8	CE-360S	LW-4	SP-210A	BH3X6

● : Std. Stock ○ : World Express

SRCP-B (Thru Boring)



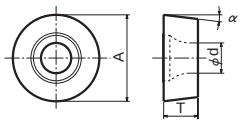


●Right-hand Shown

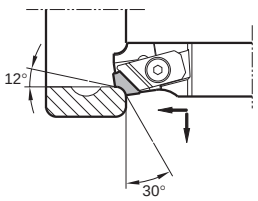
● Toolholder Dimensions

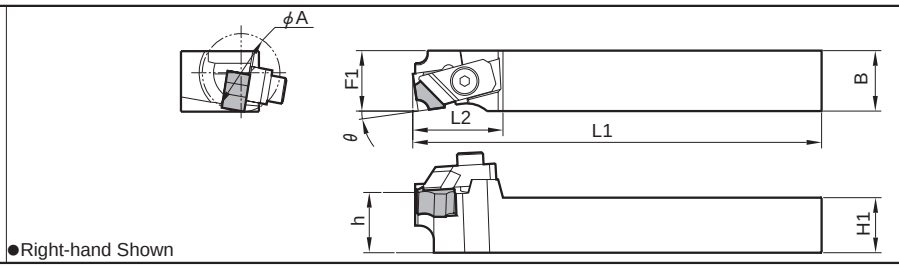
Description		Stock R	Stock L	Min. Bore Dia. ϕA	Dimension (mm)	h	B	L1	L2	F1	Spare Parts: Insert Screw	Spare Parts: Wrench	Spare Parts: Wrench	Applicable Inserts ⇒B80
SRCP℞	2020B-12-A20	○	○	20	20	15.5	20	125	25	22	SB-4TR	FT-15	-	RPMT1203M0-BB
	2525B-16-A32	○	○	32	25	20	25	150	31	27	SB-5090TR	-	LTW-20	RPMT1604M0-BB

● Applicable Insert

Insert	Description	Dimension(mm) A	T	ϕd	Angle (°) 1
 	RPMT 1203M0-BB	12.0	3.18	4.4	11°
	RPMT 1604M0-BB	16.0	4.76	5.5	

CBSN-B (Internal Round-Chamfering)





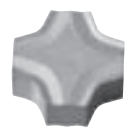
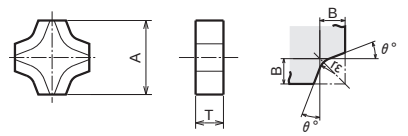
●Right-hand Shown

● Toolholder Dimensions

Description		Stock R	Stock L	Min. Bore Dia. ϕA	Dimension (mm) H1	h	B	L1	L2	F1	θ	Spare Parts: Clamp Set	Spare Parts: Wrench	Spare Parts	Applicable Inserts ⇒B80
CBSN℞	2020B-12-A20	○	○	20	20	21	20	125	30	20	9°	CP-RC℞	LW-5		SNMF1204○○-21
	2525B-12-A20	○	○	20	25	26	25	150	30	25					

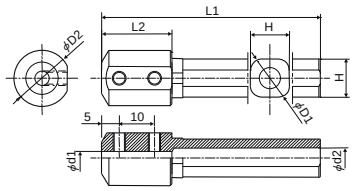
● Clamp Set: CP-RCR for R-hand Toolholder, CP-RCL for L-hand Toolholder

● Applicable Insert

Insert	Description	Dimension(mm) A	T	B	rε	Angle (°) θ
 	SNMF 120406-21	12.70	4.76	1.5	0.6	21°
	SNMF 120410-21			3.0	1.0	
	SNMF 120416-21			3.1	1.6	
	SNMF 120421-21			3.2	2.1	
	SNMF 120426-21			3.3	2.6	

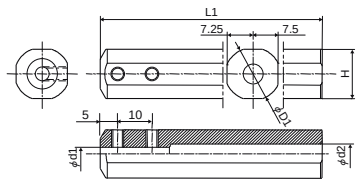
● : Std. Stock ○ : World Express

Sleeve for Double Sided Micro-Bar



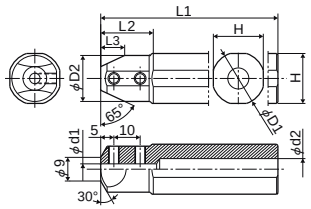
Double sided
Micro-Bar installation side

Fig.1



Double sided
Micro-Bar installation side

Fig.2



Double sided
Micro-Bar installation side

Fig.3

Description		Stock	Dimension (mm)								Shape	Spare Parts		Applicable Machine Manufacturer	Ref.Page for Holders
			*φd1	φD1	φD2	φd2	H	L1	L2	L3		Screw	Wrench		
PSH	0212-80	○	2	12	16	6	11	80	20	-	Fig.1	HS3×4P	LW-1.5	general use	Boring (HPB) F24 Back Boring (HPBT) F24 Grooving (HPG) G66 Face Grooving (HPFG) G87 Threading (HPT) J31
	0312-80	○	3												
	0412-80	○	4									HS4×4P	LW-2		
	0512-80	○	5												
	0612-80	○	6			8									
	0712-80	○	7												
PSH	0216-100	○	2	16	-	6	15	100	-	-	Fig.2	HS3×4P	LW-1.5		
	0316-100	○	3												
	0416-100	○	4									HS4×4P	LW-2		
	0516-100	○	5												
	0616-100	○	6			8									
	0716-100	○	7												
PSH	0220-120	○	2	20	17.5	6	19	120	20	11	Fig.3	HS3×4P	LW-1.5	Amada Wasino Eguro Citizen Machinery Precision Tsugami Miyano general use	
	0320-120	○	3												
	0420-120	○	4							9		HS4×4P	LW-2		
	0520-120	○	5												
	0620-120	○	6			8				7.5					
	0720-120	○	7												
PSH	0225.0-135	○	2	25	18	6	24	135	23	11.5	Fig.3	HS3×4P	LW-1.5	Amada Wasino Eguro Precision Tsugami Miyano general use	
	0325.0-135	○	3												
	0425.0-135	○	4							9.5		HS4×4P	LW-2		
	0525.0-135	○	5												
	0625.0-135	○	6			8				8					
	0725.0-135	○	7												
PSH	0219-120	○	2	19.05 (.75")	17.5	6	18	120	20	11	Fig.3	HS3×4P	LW-1.5	Citizen Machinery	
	0319-120	○	3												
	0419-120	○	4							9		HS4×4P	LW-2		
	0519-120	○	5												
	0619-120	○	6			8				7.5					
	0719-120	○	7												
PSH	0225-120	○	2	25.4 (1")	18	6	24.4	120	23	11.5	Fig.3	HS3×4P	LW-1.5		
	0325-120	○	3												
	0425-120	○	4							9.5		HS4×4P	LW-2		
	0525-120	○	5												
	0625-120	○	6			8				8					
	0725-120	○	7												
PSH	0222-135	○	2	22	18	6	21	135	22	11.5	Fig.3	HS3×4P	LW-1.5	Star Micronics Nomura	
	0322-135	○	3												
	0422-135	○	4							9.5		HS4×4P	LW-2		
	0522-135	○	5												
	0622-135	○	6			8				8					
	0722-135	○	7												
PSH	0223-120	○	2	23	18	6	22	120	22	11.5	Fig.3	HS3×4P	LW-1.5	Nomura	
	0323-120	○	3												
	0423-120	○	4							9.5		HS4×4P	LW-2		
	0523-120	○	5												
	0623-120	○	6			8				8					
	0723-120	○	7												

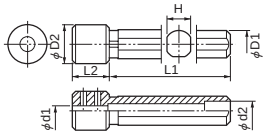
*: Length of φd1 portion···20mm PH02,PH03,PH04)
···25mm PH05,PH06,PH07)

·Choose sleeves (φd1) to meet with φD dimension of tip-bar.

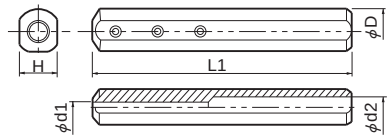
·Machine manufacturers in random order.

● : Std. Stock ○ : World Express

Sleeve for Micro-Bar

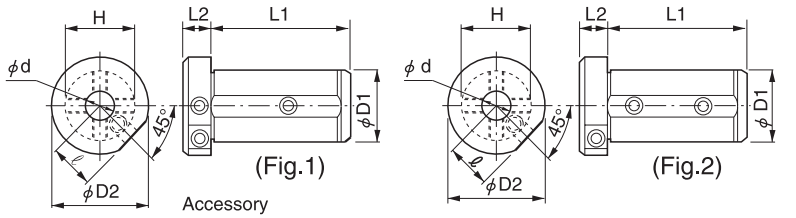
Shape	Description	(Old Description)	Stock	ϕD1	ϕD2	ϕd1	ϕd2	H	L1		Spare Parts:	Spare Parts: Wrench	Applicable Micro Bar ➔F26
	PH 0212-60	PH -0212	○	12	19	1.8	6	11	60	20	HS3X4	LW-1.5	PSBR(L)0202-50S/NBS
	0312-60	-0312	○			2.8							PSBR(L)0303-50S/NBS
	0412-60	-0412	○			3.8					HS4X4	LW-2	PSBR(L)0404-60S/NBS PSBTR(L)0415-60S
	0512-60	-0512	○										PSBR(L)0505-70S/NBS PSBTR(L)0515-70S
	0612-60	-0612	○			5.8	8						PSBR(L)0606-70S/NBS
	0712-60	-0712	○			6.8							PSBR(L)0707-80S/NBS
	PH 0216-80	PH -0216	○		22	1.8	Rp1/4 (PS1/4)	14	80	20	HS3X4	LW-1.5	PSBR(L)0202-50S/NBS
	0316-80	-0316	○			2.8							PSBR(L)0303-50S/NBS
	0416-80	-0416	○			3.8					HS4X4	LW-2	PSBR(L)0404-60S/NBS PSBTR(L)0415-60S
	0516-80	-0516	○										PSBR(L)0505-70S/NBS PSBTR(L)0515-70S
	0616-80	-0616	○			5.8							PSBR(L)0606-70S/NBS
		-0716	○			6.8							PSBR(L)0707-80S/NBS
	10-2MM	- Unit(inch)		0.625	0.750	0.071 (1.8mm)	3/8-24 UNF	0.575	3.213	0.787	SLS-1	LW-2	PSBR(L)0202-50S/NBS
	10-3MM		●			0.110 (2.8mm)							PSBR(L)0303-50S/NBS
	10-4MM		●		0.875								PSBR(L)0404-60S/NBS PSBTR(L)0415-60S
	10-5MM					0.189 (4.8mm)							PSBR(L)0505-70S/NBS PSBTR(L)0515-70S
	10-6MM		●			0.228 (5.8mm)							PSBR(L)0606-70S/NBS
			●			0.268 (6.8mm)							PSBR(L)0707-80S/NBS

Sleeves for Boring-Bar

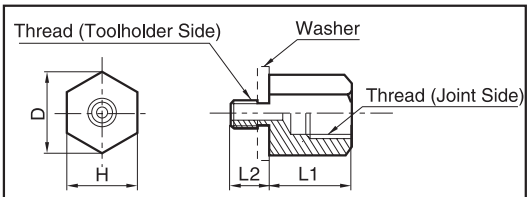
Shape	Description	(Old Description)	Stock	Dimension (mm, inch) ϕD	ϕ	ϕd2	H	L1	Spare Parts: Screw	Spare Parts: Wrench
	SH 0416-100	SH -0516	○	16	4	5		100	HS4X4	LW-2
	0516-100	-0616	○		5	6	14			
	0616-100	-0716	○		6	7	14			
	0716-100	-0816	○		7	8	14			
	SH 0820-120	SH -1020	○	20		9	18	120	HS4X4	LW-2
	1020-120	-1220	○	20	10	11	18			
	1225-150	-1625	○	25	12	13	23	150	HS5X5	LW-2.5
	1632-180	-2032	○	32	16	18	30			
	2032-180	-2532	○	32	20	22	30	180		
	SL -1	- Unit(inch)	○	0.625	0.203			4.00		
	-2		○		0.281					
	-2.5-10		○		0.156					

● : Std. Stock ○ : World Express

Coolant Joint



Accessory
- Back Cover/SHL-4···SHC○○40-70 SHL-5···SHC○○50-95
- Back Cover Screw
- Shank Clamp Screw (Front / Back Screw)



Accessory
- Washer WB-5···SJS-5
  WB-6···SJS-6
  WB-8···SJS-8

(Note) To stabilize the Toolholder and avoid Coolant Leaks, Tighten all Screws firmly

Toolholder	Applicable Coolant Sleeve	Applicable Joint
A08-	SHC0840-70/SHC0850-95	SJS-5
A10-	SHC1040-70/SHC1050-95	SJS-5
A12-	SHC1240-70/SHC1250-95	SJS-6
A16-	SHC1640-70/SHC1650-95	SJS-8
A20-	SHC2040-70/SHC2050-95	SJS-8
A25-	SHC2540-70/SHC2550-95	SJS-8

Toolholder	Applicable Coolant Sleeve	Applicable Joint
E08-	SHC0840-70/SHC0850-95	SJS-5
E10-	SHC1040-70/SHC1050-95	SJS-5
E12-	SHC1240-70/SHC1250-95	SJS-6
E16-	SHC1640-70/SHC1650-95	SJS-8
E20-	SHC2040-70/SHC2050-95	SJS-8

● Coolant Sleeve Dimensions

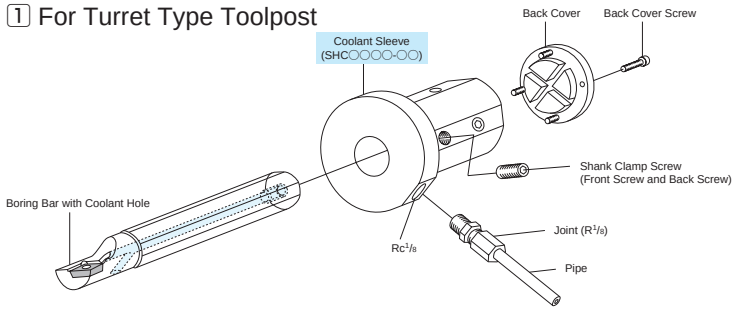
Description	(Old Description)	Stock	Dimension (mm) ϕD1	ϕD2	qd	L1	L2	H	ℓ	Shape	Spare Parts: Screw	Wrench	Back Screw	Wrench	Back Cover	Back Cover Screw	Wrench
SHC 0840-70	SHC -084070	○	40	56	8		16	38	27	Fig.1	HS6X22	LW-3	HS6X14	LW-3	SHL-4	HH3X6	LW-2.5
1040-70	-104070	○		56	10	70		38	27								
1240-70	-124070	○	40	56	12	70	16	38	27		HS10X10	LW-5	HS10X10	LW-5	SHL-4	HH3X6	LW-2.5
1640-70	-164070	○		56	16	70	16	38	27								
	-204070	○	40	56	20	70	16		27		HS10X10	LW-5	HS6X6	LW-3	SHL-4	HH3X6	LW-2.5
2540-70	-254070	○		56		70	16	38	27								
SHC 0850-95	SHC -085095	○		65	8	95	16	47	30.5		HS6X22	LW-3	HS6X14	LW-3	SHL-5	HH3X12	LW-2.5
1050-95	-105095	○	50	65	10	95	16	47	30.5								
1250-95	-125095	○	50	65	12	95		47	30.5		HS10X10	LW-5	HS10X10	LW-5	SHL-5	HH3X12	LW-2.5
1650-95	-165095	○	50	65	16	95	16	47	30.5								
2050-95	-205095	○	50	65	20	95		47	30.5								
2550-95	-255095	○	50	65	25	95	16	47	30.5								

● Coolant Joint Dimensions

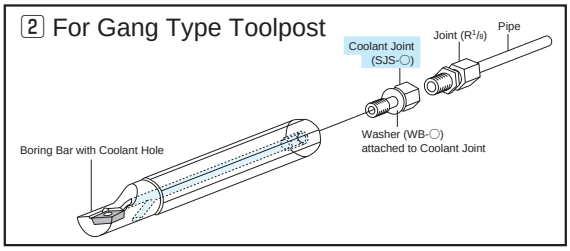
Description	Stock	Dimension (mm) D	L1	L2	H	Thread (Toolholder Side)	Thread (Joint Side)	Spare Parts: Washer
SJS-5	○	15	15	7	13	M5XP0.8	Rc1/8 (PT1/8)	WB-5
SJS-6	○	15	15	9	13	M6XP1.0	Rc1/8 (PT1/8)	WB-6
SJS-8	○	15	15	13	13	M8XP1.25	Rc1/8 (PT1/8)	WB-8

Installation of Coolant Sleeve / Collant Joint

1 For Turret Type Toolpost



2 For Gang Type Toolpost



F

Boring

● : Std. Stock ○ : World Express

Recommended Cutting Conditions - Boring (Positive Insert: Cutting Dia under 0.375")

ISO Classification	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Grade	Corner R (rε)	Lower Limit - Recommendation - Upper Limit		
								Vc(sfm)	doc (inch)	f(ipr)
P	Low-carbon Steel Low-carbon Alloy	HB ≦ 1000	Finishing (Solid Type)	Continuous	(VNB)	PR930	0.001	100 - 200 - 330	0.002 - 0.003 - 0.004	0.001 - 0.002 - 0.003
				Interruption			0.008	100 - 200 - 270	0.002 - 0.004 - 0.006	0.001 - 0.003 - 0.004
			Finishing	Continuous	F , FSF	PR1025	0.004	100 - 200 - 330	0.002 - 0.003 - 0.004	0.001 - 0.002 - 0.003
				Interruption			0.008	100 - 200 - 270	0.002 - 0.004 - 0.006	0.001 - 0.003 - 0.004
			Finishing-Medium	Continuous	GQ	PR1025	0.008	100 - 200 - 330	0.004 - 0.008 - 0.012	0.001 - 0.002 - 0.003
				Interruption			1/64	100 - 200 - 270	0.004 - 0.008 - 0.012	0.001 - 0.003 - 0.004
	Medium-carbon Steel Medium-carbon Alloy	HB ≦ 1000	Finishing (Solid Type)	Continuous	(VNB)	PR930	0.001	100 - 200 - 330	0.002 - 0.003 - 0.004	0.001 - 0.002 - 0.003
				Interruption			0.008	100 - 200 - 270	0.002 - 0.004 - 0.006	0.001 - 0.003 - 0.004
			Finishing	Continuous	F , FSF	PR1025	0.004	100 - 200 - 330	0.002 - 0.003 - 0.004	0.001 - 0.002 - 0.003
				Interruption			0.008	100 - 200 - 270	0.002 - 0.004 - 0.006	0.001 - 0.003 - 0.004
			Finishing-Medium cutting	Continuous	GQ	PR1025	0.008	100 - 200 - 330	0.004 - 0.008 - 0.012	0.001 - 0.002 - 0.003
				Interruption			1/64	100 - 200 - 270	0.004 - 0.008 - 0.012	0.001 - 0.003 - 0.004
	High-carbon Alloy	HB ≦ 2270	Finishing (Solid Type)	Continuous	(VNB)	PR930	0.001	100 - 200 - 330	0.002 - 0.003 - 0.004	0.001 - 0.002 - 0.003
				Interruption			0.008	100 - 170 - 270	0.002 - 0.004 - 0.006	0.001 - 0.003 - 0.004
			Finishing	Continuous	F , FSF	PR1225	0.004	100 - 200 - 330	0.002 - 0.003 - 0.004	0.001 - 0.002 - 0.003
				Interruption			0.008	100 - 170 - 270	0.002 - 0.004 - 0.006	0.001 - 0.003 - 0.004
			Finishing-Medium	Continuous	GQ	PR1225	0.008	100 - 200 - 330	0.004 - 0.008 - 0.012	0.001 - 0.002 - 0.003
				Interruption			1/64	100 - 170 - 270	0.004 - 0.008 - 0.012	0.001 - 0.003 - 0.004
M	Stainless Steel	HB ≦ 220	Finishing (Solid Type)	Continuous	(VNB)	PR930	0.001	100 - 200 - 330	0.002 - 0.003 - 0.004	0.001 - 0.002 - 0.003
				Interruption			0.008	100 - 170 - 250	0.002 - 0.004 - 0.006	0.001 - 0.003 - 0.004
			Finishing	Continuous	F , FSF	PR1225	0.004	100 - 200 - 330	0.002 - 0.003 - 0.004	0.001 - 0.002 - 0.003
				Interruption			0.008	100 - 170 - 250	0.002 - 0.004 - 0.006	0.001 - 0.003 - 0.004
			Finishing-Medium	Continuous	GQ	PR1225	0.008	100 - 200 - 330	0.004 - 0.008 - 0.012	0.001 - 0.002 - 0.003
				Interruption			1/64	100 - 170 - 250	0.004 - 0.008 - 0.012	0.001 - 0.003 - 0.004
	Stainless Steel	HB ≦ 1000	Finishing (Solid Type)	Continuous	(VNB)	PR930	0.001	100 - 200 - 270	0.002 - 0.003 - 0.004	0.001 - 0.002 - 0.003
				Interruption			0.008	20 - 125 - 200	0.002 - 0.004 - 0.006	0.001 - 0.003 - 0.004
			Finishing	Continuous	F , FSF	PR1225	0.004	100 - 200 - 270	0.002 - 0.003 - 0.004	0.001 - 0.002 - 0.003
				Interruption			0.008	70 - 125 - 200	0.002 - 0.004 - 0.006	0.001 - 0.003 - 0.004
			Finishing-Medium	Continuous	GQ	PR1225	0.008	100 - 200 - 270	0.004 - 0.008 - 0.012	0.001 - 0.002 - 0.003
				Interruption			1/64	70 - 125 - 200	0.004 - 0.008 - 0.012	0.001 - 0.003 - 0.004
K	Gray Cast Iron	HB ≦ 250	Finishing (Solid Type)	Continuous	(VNB) (VNB-NB)	KW10	0.001	100 - 200 - 330	0.002 - 0.003 - 0.004	0.001 - 0.002 - 0.003
				Interruption			0.008	100 - 200 - 330	0.002 - 0.004 - 0.006	0.001 - 0.003 - 0.004
			Finishing	Continuous	F	KW10	0.004	100 - 200 - 330	0.002 - 0.003 - 0.004	0.001 - 0.002 - 0.003
				Interruption			0.008	100 - 200 - 270	0.002 - 0.004 - 0.006	0.001 - 0.003 - 0.004
			Finishing-Medium	Continuous	HQ	CA4505 CA4515	0.008	100 - 200 - 330	0.004 - 0.008 - 0.012	0.001 - 0.002 - 0.003
				Interruption			1/64	100 - 200 - 270	0.004 - 0.008 - 0.012	0.001 - 0.003 - 0.004
	Nodular Cast Iron	HB ≦ 270	Finishing (Solid Type)	Continuous	(VNB) (VNB-NB)	KW10	0.001	100 - 200 - 270	0.002 - 0.003 - 0.004	0.001 - 0.002 - 0.003
				Interruption			0.008	100 - 200 - 270	0.002 - 0.004 - 0.006	0.001 - 0.003 - 0.004
			Finishing	Continuous	F , U	KW10	0.004	100 - 200 - 270	0.002 - 0.003 - 0.004	0.001 - 0.002 - 0.003
				Interruption			0.008	100 - 200 - 270	0.002 - 0.004 - 0.006	0.001 - 0.003 - 0.004
			Finishing-Medium	Continuous	Standard	CA4505 CA4515	0.008	100 - 200 - 330	0.004 - 0.008 - 0.012	0.001 - 0.002 - 0.003
				Interruption			1/64	100 - 200 - 270	0.004 - 0.008 - 0.012	0.001 - 0.003 - 0.004
N	Non-ferrous Metals	HB ≦ 330	High Speed Cutting (Rainbow Surface Gross)	Continuous	Without Chipbreaker	KPD001	0.002	500 - 660 - 990	0.002 - 0.004 - 0.012	0.002 - 0.004 - 0.006
			Finishing	Continuous	F , U	KW10	0.004	330 - 500 - 660	0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.008
				Interruption			0.008	330 - 500 - 660	0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.008
S	Titanium Alloy	HB ≦ 400	Precision Cutting (Rainbow Surface Gross)	Continuous	Without Chipbreaker	KPD001	0.004	330 - 400 - 500	0.002 - 0.004 - 0.012	0.001 - 0.003 - 0.004
				Interruption			0.008	250 - 330 - 400	0.002 - 0.004 - 0.012	0.001 - 0.003 - 0.004
			Finishing	Continuous	F , U	KW10	0.004	40 - 100 - 170	0.002 - 0.008 - 0.020	0.001 - 0.004 - 0.008
				Interruption			0.008	40 - 100 - 170	0.002 - 0.008 - 0.020	0.001 - 0.004 - 0.008
	Heat-resistant Alloys	HB ≦ 350	Finishing (Solid Type)	Continuous	(VNB)	KW10	0.008	40 - 100 - 170	0.002 - 0.004 - 0.012	0.001 - 0.002 - 0.004
				Interruption			0.008	40 - 100 - 170	0.002 - 0.004 - 0.012	0.001 - 0.002 - 0.003
			Finishing	Continuous	F , U	KW10	0.008	10 - 100 - 170	0.002 - 0.008 - 0.016	0.001 - 0.002 - 0.004
				Interruption			0.008	10 - 100 - 170	0.002 - 0.008 - 0.016	0.001 - 0.002 - 0.004
H	Hard Materials	40~50 HRC	Finishing	Continuous	(VNB)	PR930	0.008	200 - 270 - 330	0.002 - 0.004 - 0.016	0.01 - 0.008 - 0.002
				Interruption			0.008	100 - 200 - 270	0.002 - 0.004 - 0.008	0.01 - 0.008 - 0.001
		45~68 HRC	Finishing	Continuous	SE SET	KBN25M	0.008	200 - 330 - 400	0.002 - 0.004 - 0.008	0.008 - 0.002 - 0.004
				Interruption			1/64	200 - 270 - 330	0.002 - 0.004 - 0.008	0.008 - 0.002 - 0.004

* Please use it with PR3305 set to Vc=150m/min or below, for machining of free-cutting steel such as small size 11SMn (SUM). For ap and feed, see low carbon steel.

Recommended Cutting Conditions - Boring (Positive Insert: Cutting Dia over 0.375")

ISO Classification	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Grade	Corner R (rε)	Lower Limit - Recommendation - Upper Limit Vc(sfm)	doc (inch)	f(ipr)
P	Low-carbon Steel Low-carbon Alloy	HB ≦ 1000	Precision Cutting	Continuous	FSF, USF	TN6020	0.004	830 - 1000 - 1500	0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.006
				Interruption		PR1025	0.008	330 - 500 - 200	0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.006
			Finishing	Continuous	XP	PV7010	1/64	200 - 830 - 1000	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.008
				Interruption		CA5525	1/64	500 - 200 - 830	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.008
			Finishing-Medium	Continuous	XQ	PV7010	1/64	500 - 200 - 830	0.020 - 0.040 - 0.080	0.004 - 0.006 - 0.010
				Interruption		CA5525	1/64	330 - 500 - 200	0.020 - 0.040 - 0.060	0.004 - 0.006 - 0.008
			Medium cutting	Continuous	Standard	PV7020	1/32	330 - 500 - 200	0.040 - 0.060 - 0.100	0.004 - 0.006 - 0.012
				Interruption		CA5525	1/32	270 - 400 - 500	0.040 - 0.060 - 0.080	0.004 - 0.006 - 0.008
	Medium-carbon Steel Medium-carbon Alloy	HB ≦ 1000	Precision Cutting	Continuous	FSF, USF	TN6020	0.008	500 - 200 - 830	0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.006
				Interruption		PR1025	1/64	330 - 400 - 500	0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.006
			Finishing	Continuous	GP	PV7010	1/64	500 - 200 - 830	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.008
				Interruption		CA5525	1/64	400 - 600 - 200	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.008
			Finishing-Medium	Continuous	HQ	PV7010	1/64	400 - 600 - 220	0.020 - 0.040 - 0.080	0.004 - 0.006 - 0.010
				Interruption		CA5525	1/64	330 - 500 - 200	0.020 - 0.040 - 0.060	0.004 - 0.006 - 0.008
			Medium cutting	Continuous	Standard	PV7020	1/32	330 - 500 - 200	0.040 - 0.060 - 0.100	0.004 - 0.006 - 0.012
				Interruption		CA5525	1/32	270 - 400 - 500	0.040 - 0.060 - 0.080	0.004 - 0.006 - 0.008
	High-carbon Alloy	HB ≦ 2270	Precision Cutting	Continuous	FSF, USF	TN6020	0.008	400 - 500 - 600	0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.006
				Interruption		PR1025	1/64	330 - 400 - 500	0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.006
			Finishing	Continuous	GP	PV7010	1/64	400 - 500 - 600	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.008
				Interruption		CA5525	1/64	330 - 400 - 500	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.008
			Finishing-Medium	Continuous	HQ	PV7010	1/64	400 - 500 - 600	0.020 - 0.040 - 0.080	0.004 - 0.006 - 0.010
				Interruption		CA5525	1/64	330 - 400 - 500	0.020 - 0.040 - 0.060	0.004 - 0.006 - 0.008
			Medium cutting	Continuous	Standard	CA5515	1/32	330 - 400 - 500	0.040 - 0.060 - 0.100	0.004 - 0.006 - 0.012
				Interruption		CA5525	1/32	270 - 330 - 400	0.040 - 0.060 - 0.080	0.004 - 0.006 - 0.008
M	Stainless Steel	HB ≦ 220	Finishing	Continuous	MQ	CA6525	1/64	400 - 500 - 600	0.008 - 0.020 - 0.033	0.002 - 0.08 - 0.004
				Interruption			1/32	330 - 400 - 500	0.008 - 0.020 - 0.033	0.002 - 0.08 - 0.004
			Medium cutting	Continuous	Standard	CA6525	1/64	400 - 500 - 600	0.020 - 0.040 - 0.060	0.002 - 0.004 - 0.008
				Interruption			1/32	330 - 400 - 500	0.020 - 0.040 - 0.060	0.002 - 0.004 - 0.008
	Stainless Steel	HB ≦ 1000	Finishing	Continuous	MQ	CA6525	1/64	270 - 330 - 400	0.008 - 0.028 - 0.040	0.002 - 0.004 - 0.006
				Interruption			1/32	200 - 270 - 330	0.008 - 0.028 - 0.040	0.002 - 0.004 - 0.006
			Medium cutting	Continuous	Standard	CA6525	1/64	270 - 330 - 400	0.020 - 0.040 - 0.060	0.002 - 0.004 - 0.008
				Interruption			1/32	200 - 270 - 330	0.020 - 0.040 - 0.060	0.002 - 0.004 - 0.008
K	Gray Cast Iron	HB ≦ 250	High Speed Cutting	Continuous	Without Chipbreaker	KBN60M	1/64	400 - 500 - 2000	0.002 - 0.008 - 0.020	0.002 - 0.004 - 0.006
				Interruption		PT600M	1/32	200 - 830 - 1500	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.006
			Finishing (Gloss Oriented)	Continuous	Standard	PV7005	1/32	200 - 830 - 1000	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.008
				Interruption		TN6020	1/32	330 - 500 - 200	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.008
			Finishing	Continuous	Standard	CA4505	1/64	500 - 600 - 200	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.008
				Interruption		CA4515	1/32	330 - 500 - 600	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.008
			Medium cutting	Continuous	Conventional Without Chipbreaker	CA4505	1/32	330 - 500 - 200	0.020 - 0.040 - 0.080	0.004 - 0.006 - 0.008
				Interruption		CA4515	1/32	270 - 400 - 500	0.020 - 0.040 - 0.080	0.002 - 0.004 - 0.006
	Nodular Cast Iron	HB ≦ 270	High Speed Cutting	Continuous	Without Chipbreaker	KBN60M	1/64	200 - 1000 - 400	0.002 - 0.008 - 0.020	0.001 - 0.002 - 0.004
				Interruption		PT600M	1/32	500 - 200 - 830	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.006
			Finishing (Gloss Oriented)	Continuous	Standard	PV7005	1/32	500 - 200 - 830	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.008
				Interruption		TN6020	1/32	330 - 400 - 500	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.008
			Finishing	Continuous	Standard	CA4505	1/64	400 - 500 - 600	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.008
				Interruption		CA4515	1/32	330 - 400 - 500	0.008 - 0.020 - 0.040	0.002 - 0.004 - 0.008
			Medium cutting	Continuous	Standard	CA4505	1/32	330 - 400 - 500	0.020 - 0.040 - 0.080	0.002 - 0.004 - 0.008
				Interruption		CA4515	1/32	270 - 330 - 400	0.020 - 0.040 - 0.080	0.002 - 0.004 - 0.006
N	Non-ferrous Metals	HB ≦ 330	High Speed Cutting (Rainbow Surface Gross)	Continuous	Without Chipbreaker	KPD001	0.008	660 - 1300-3300	0.002 - 0.004 - 0.012	0.002 - 0.004 - 0.006
			Finishing	Continuous	FSF, USF	KW10	1/64	330 - 200 - 400	0.002 - 0.020 - 0.040	0.001 - 0.004 - 0.008
				Interruption			1/64	330 - 200 - 400	0.002 - 0.020 - 0.040	0.001 - 0.004 - 0.008
S	Titanium Alloy	HB ≦ 400	Precision Cutting (Rainbow Surface Gross)	Continuous	Without Chipbreaker	KPD001	0.008	330 - 400 - 500	0.002 - 0.004 - 0.012	0.001 - 0.07 - 0.004
				Interruption			1/64	240 - 330 - 400	0.002 - 0.004 - 0.012	0.001 - 0.07 - 0.004
			Finishing	Continuous	F , U	KW10	0.008	100 - 50 - 70	0.002 - 0.020 - 0.040	0.001 - 0.004 - 0.008
				Interruption			1/64	100 - 50 - 70	0.002 - 0.020 - 0.040	0.001 - 0.004 - 0.008
	Heat-resistant Alloys	HB ≦ 350	Finishing	Continuous	F , U	KW10	1/64	40 - 100 - 170	0.002 - 0.020 - 0.040	0.001 - 0.004 - 0.008
				Interruption			1/64	40 - 100 - 170	0.002 - 0.020 - 0.040	0.001 - 0.004 - 0.008
			Finishing	Continuous	MQ	PR1310	1/64	125 - 200 - 275	0.004 - 0.012 - 0.020	0.001 - 0.002 - 0.004
				Interruption			1/32	125 - 200 - 275	0.004 - 0.012 - 0.020	0.001 - 0.002 - 0.004
H	Hard Materials	40 ~ 50 HRC	Finishing	Continuous	HQ Without Chipbreaker	CA5515	1/32	200 - 270 - 330	0.002 - 0.012 - 0.020	0.002 - 0.003 - 0.004
				Interruption			1/32	100 - 170 - 240	0.002 - 0.012 - 0.020	0.002 - 0.003 - 0.004
		45 ~ 68 HRC	Finishing	Continuous	Without Chipbreaker	KBN05M	1/64	270 - 400 - 500	0.004 - 0.008 - 0.012	0.001 - 0.003 - 0.004
				Interruption	SET, MET	KBN25M	1/32	200 - 330 - 400	0.004 - 0.008 - 0.012	0.001 - 0.003 - 0.004
			Medium cutting	Continuous	Without Chipbreaker (Negative)	KBN900	1/32	200 - 270 - 330	0.012 - 0.028 - 0.040	0.001 - 0.004 - 0.006

Grooving



G1~G103

Summary of External, Internal and Face Grooving G2~G9

Featured Grooving Systems

GBA Grooving System G10~G17

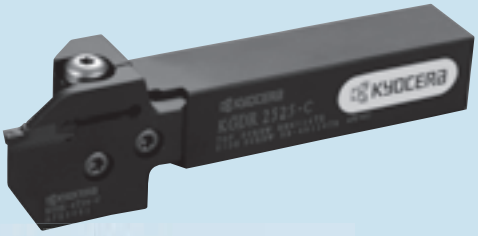
GBA Grooving Inserts G10-G14
KGBA External Shallow Grooving Toolholder G15
KGBAS External Shallow Grooving Toolholder G16
KIGBA Internal Grooving Toolholder G17

KGD Grooving System G18~G47

GDM/GDG/GDMS Grooving Inserts G20-G21
KGD Integral-Style Toolholder G22-G23
KGD-S SwitchBlade-Style Toolholder G24-G28
KGDF Face Grooving System Overview G29
GDFM/GDFMS Face Grooving Inserts G30
KGDF Face Grooving 0° Toolholders G31-G37
KGDF Face Grooving 90° Toolholders G38-G45
KGDF Face Grooving Recommended Cutting Conditions G46-G47

G







External Grooving G48~G64

KKC Cera-Notch Toolholder & KCG Inserts G48-G49
KTG-F/KTGF/S-KTGF Toolholder & TGF Inserts G50-G51
KGH/KGHS Grooving Toolholder & GH Inserts G52-G53
EGT Toolholder & GG Inserts G54
KDG Toolholder & DB Inserts G55
KGM/KGM-T/KGMM/KGMS Toolholders G56-G59
GMM/GMG/FGG/GM/GMN Inserts G60-G63
KGMW Aluminum Wheel G64

Internal Grooving G65~G84

VNG Swiss IQ Bar G65
HPG 2-Edge Tip Bar G66
SIGE Toolholders & GE™ Inserts G67-G75
SIGE Recommended Cutting Conditions G76-G77
GIV/GIV-E/GIV-W Toolholders & GV™ Inserts G78-G80
KIGH™ Toolholders & GH Inserts G81
KIGM-V Toolholders & GMM Inserts G82
A-KKC Toolholders & KCG_/KCPP Inserts G83-G84

Face Grooving G85-G88

KKCE Toolholders & KCFP Inserts G85
VNFG Swiss IQ Bar G86
HPFG Double Sided Micro-Bar & PSH Sleeve G87
GFVS/GFVT Toolholders & GFV Inserts G88-G91
KFMS Toolholders & FMM Inserts G92-G93
KFMS-8 Toolholders & GM_ Inserts G94
GIFV Toolholders G95

Technical Information G96~G103

Recommended Cutting Conditions G96-G100
Guide for Grooving G101-103

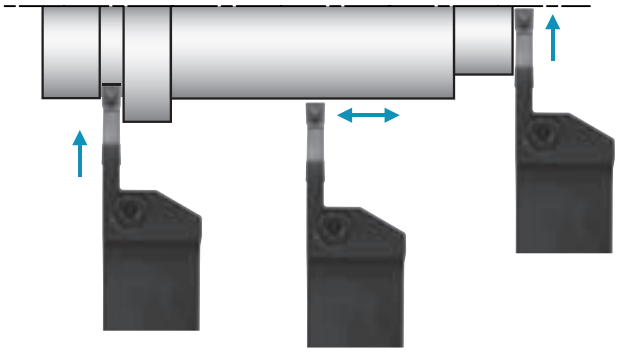
Summary of KGD Style Grooving

NEW

External Grooving (G22~G31)

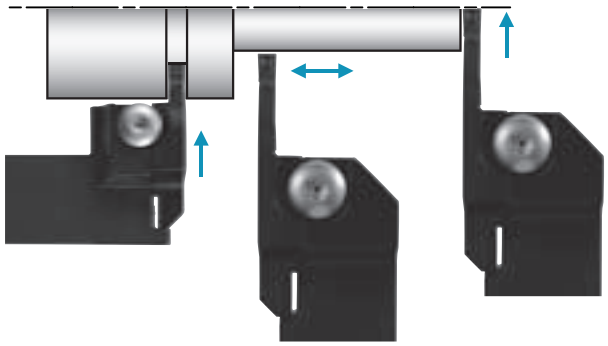
• Integral Style

Type	KGD
Width	0.078 ~ 0.315" (2.0~8.0mm)
Grooving Depth	0.236 ~ 1.18" (6~30)
Ref. Page	**G22**



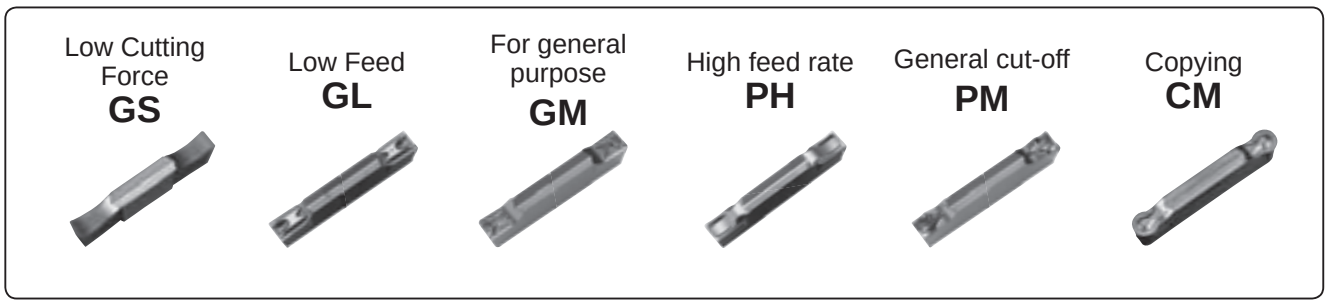
• SwitchBlade-Style

Type	* KGDS-S
Width (mm)	0.118" (3.0mm)
Grooving Depth (mm)	0.394" (10mm)
Ref. Page	**G26**

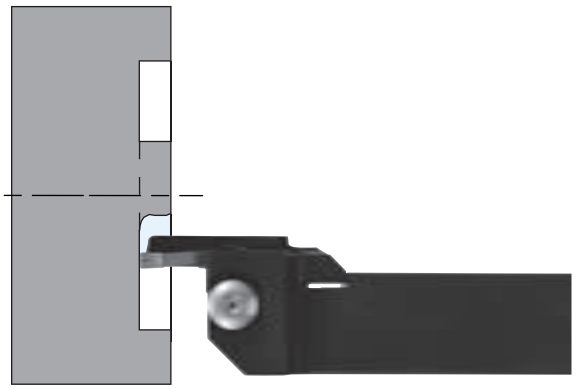


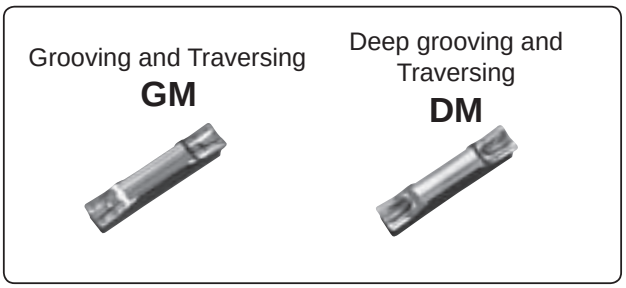
• SwitchBlade-Style

Type	* KGD-S
Width	0.078 ~ 0.197" (2.0~5.0mm)
Grooving Depth	0.394~ 0.984" (10~25mm)
Ref. Page	**G27**



Face Grooving ø0.984" (25mm)~ (G29)





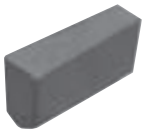
Type	* KGDF
Min. Face Groove Dia.	ø0.984 (ø25mm)
Width	0.118 ~ 0.236" (3.0~6.0mm)
Grooving Depth	0.512 ~ 1.26" (13~32mm)
Ref. Page	**G29**

External Grooving (G48-G64)


Ground Chipbreaker

Molded Chipbreaker

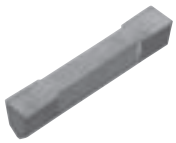
Type	KGH
Width	0.157 ~ 0.472" (4.0~12.0mm)
Grooving Depth	0.512~ 0.669" (13~17mm)
Ref. Page	G20


Ceramic

Width : .157~.197in
Depth : .67in

EGT

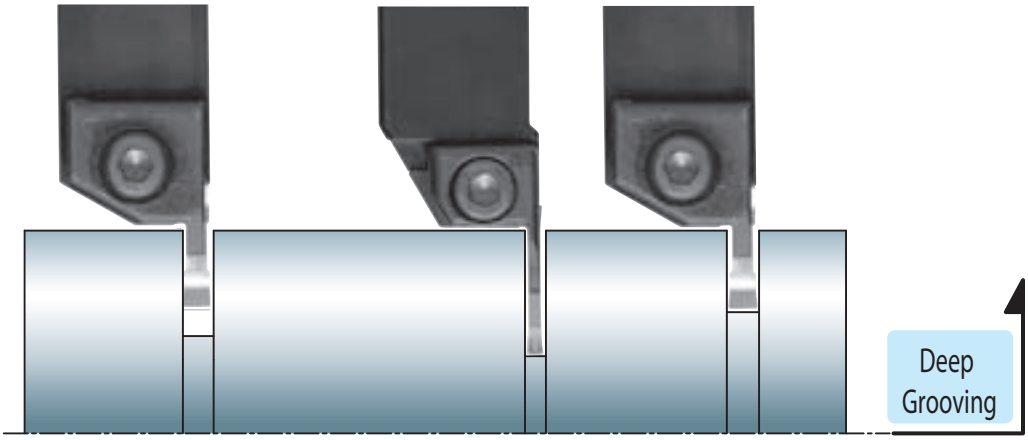
➡G21

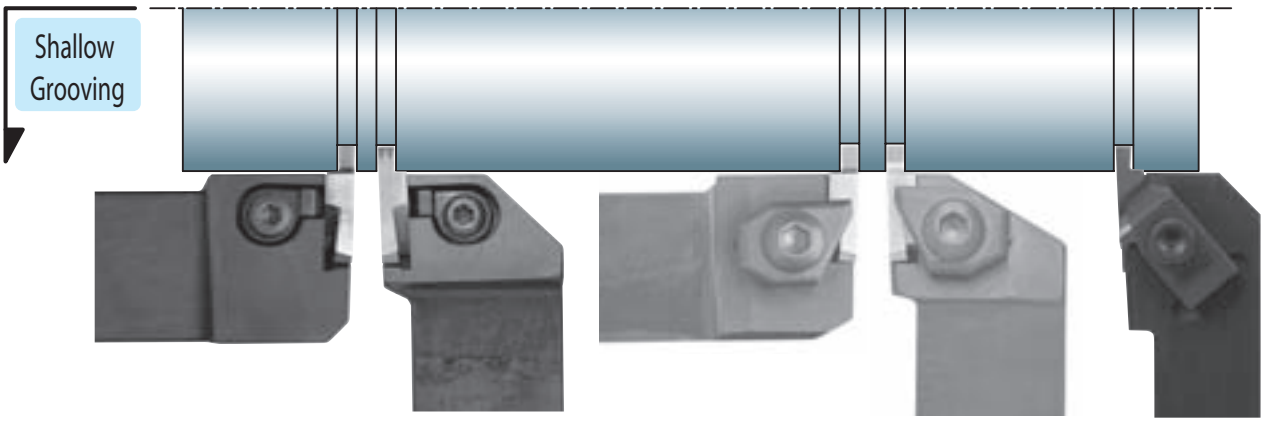

Deep Grooving

Width : .125~.375in
Depth : .75in

KDB

➡G21





➡G16

KGBAS

Width : .013~.189in
Depth : .03~.20in

➡G15

KGBA

Width : .013~.189in
Depth : .03~.20in


Ground Chipbreaker

Ground Chipbreaker Full-R

MY Chipbreaker

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

➡G48

KKC

Width : .031~.250in
Depth : .050~.250in

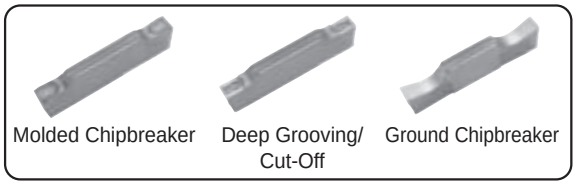

Ground Chipbreaker

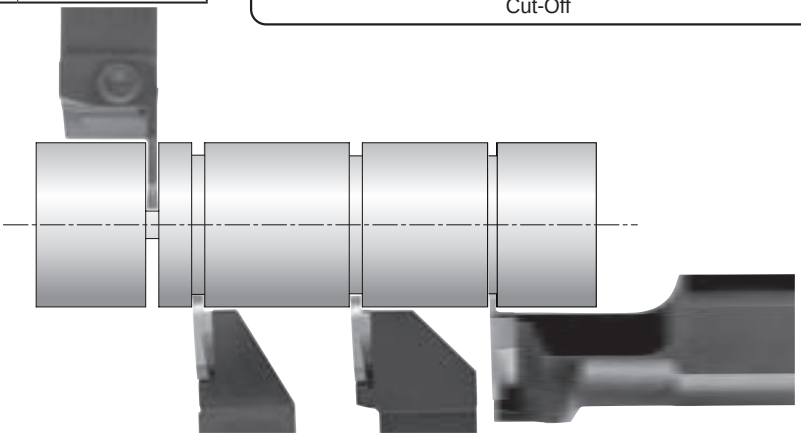
Summary of External Grooving

External Grooving of Precision Parts (G16~G17, G36)

Small Shank

Type	KGM
Width	0.059~0.157" (1.5~4.0mm)
Grooving Depth	0.197~0.630" (5~16mm)
Ref. Page	**G56**



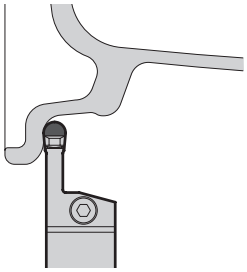


Type	KTGF-F	KTGF
Width	0.013~0.098" (0.33~2.5mm)	
Grooving Depth	0.032~0.098" (0.8~2.5mm)	
Ref. Page	**G50**	

S-KTGF
0.013~0.098" (0.33~2.5mm)
0.032~0.098" (0.8~2.5mm)
G50


Ground Chipbreaker

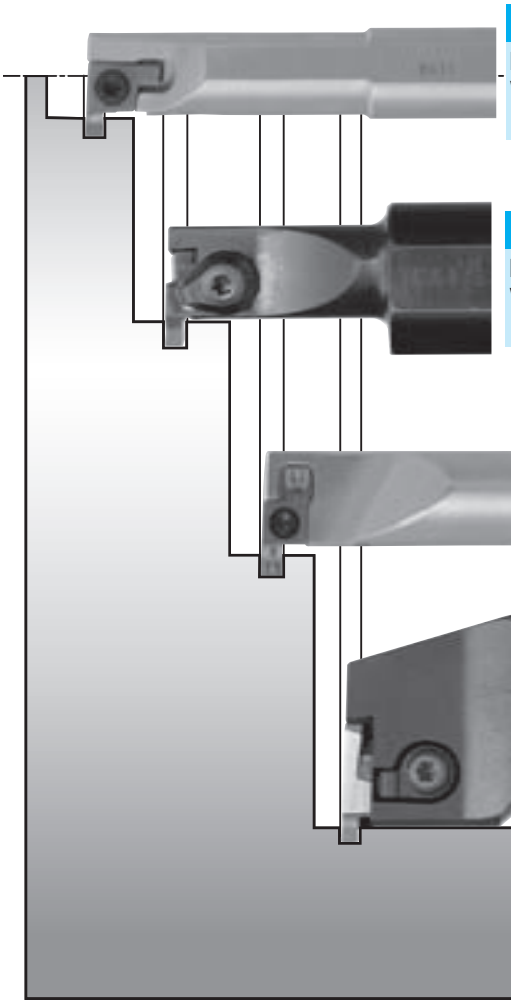
For Aluminum Wheel External Grooving (External / Facing / Copying) (G40)



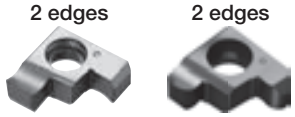
Type	KGMW
Width	0.236~0.315" (6.0~8.0mm)
Grooving Depth	0.984" (25mm)
Ref. Page	**G40**


1-Edge PCD

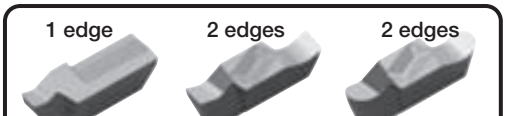
Internal Grooving ϕ.315in~



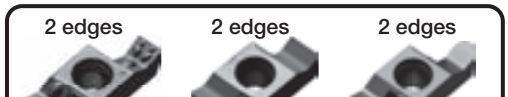
SIGE
Min. Cutting Dia.:ϕ.315~.472in
Width:.031~.122in
Depth:.037~.087in
➡G68



GIV
Min. Cutting Dia.:ϕ.47~1.57in
Width:.031~.200in
Depth:.067~.210in
➡G78

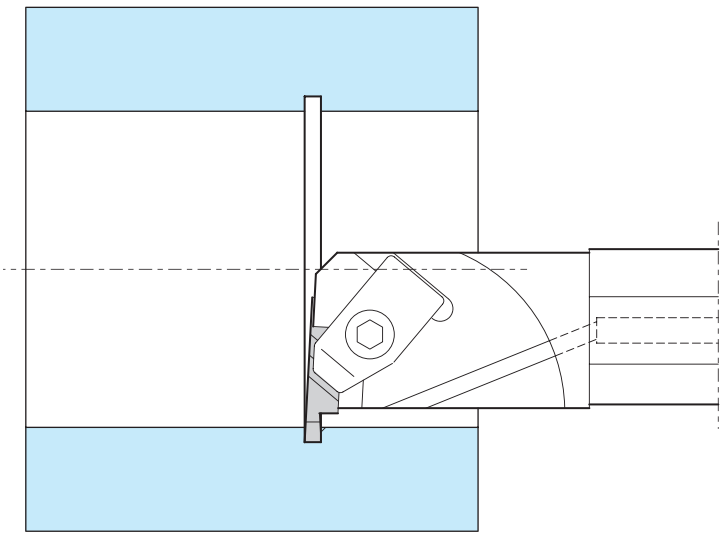


SIGE
Min. Cutting Dia.:ϕ.551~.575in
Width:.039~.197in
Depth:.098~.256in
➡G68



KIGBA
Min. Cutting Dia.:ϕ1.37~1.57in
Width:.020~.190in
Depth:.040~.110in
➡G17





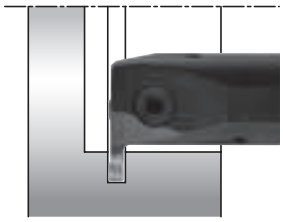
A-KKC
Min. Cutting Dia.:ϕ1.00~2.75in
Width:0.31~.189in
Depth:.040~.140in
➡G83



Summary of Internal Grooving

Internal Grooving & Traversing ϕ.78in～

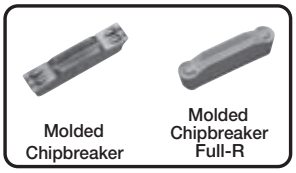
Multi-Function CERACUT Plunge & Turn



➡G82

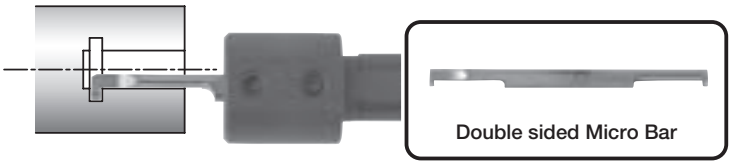
KIGM-V

Min. Cutting Dia.: ϕ.78~1.57in
Width:.120～.200in
Depth:.210～.430in



Small Diameter Internal Grooving ϕ.157～

Double sided Micro Bar & Swiss IQ Bar



HPG

Min. Cutting Dia.: ϕ.157～.31in
Width:.040～.080in
Depth:.040～.080in

➡G66

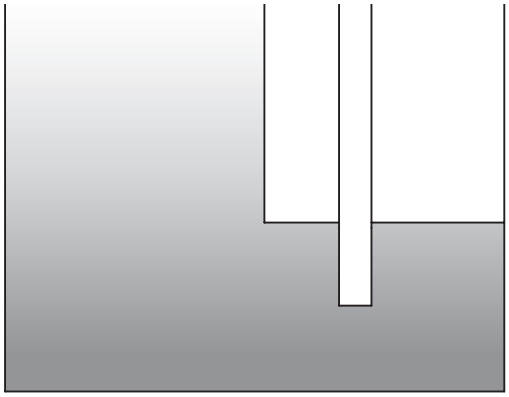


VNG

Min. Cutting Dia.: ϕ.157～.276in
Width:.040～.080in
Depth:.030～.080in

➡G65

Deep Grooving



Type	KIGH
Min.Bore Dia.	1.77"~2.56" (ø45~ø65)
Width (mm)	0.157"~0.315" (4.0~8.0mm)
Grooving Depth (mm)	0.472" (12mm)
Ref. Page	**G81**



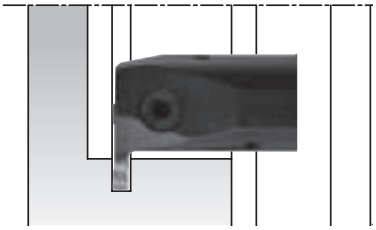
Ground Chipbreaker



Molded Chipbreaker

Internal Grooving R/L Traversing ø20~

CERACUT Plunge & Turn



Type	KIGM-V
Min.Bore Dia.	ø0.787~ø1.575" (ø20~ø40mm)
Width (mm)	0.118~0.197" (3.0~5.0mm)
Grooving Depth (mm)	0.217~0.433" (5.5~11.0mm)
Ref. Page	**G82**

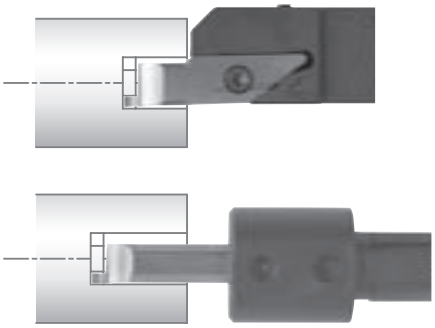


Molded Chipbreaker



Molded Chipbreaker
Full-R

Small Dia. Face Grooving ø8~



Type	VNFG
Min. Face Groove Dia.	ø0.315" (ø8mm)
Width (mm)	0.039~0.118" (1.0~3.0mm)
Grooving Depth (mm)	0.079~0.118" (2.0~3.0mm)
Ref. Page	G86



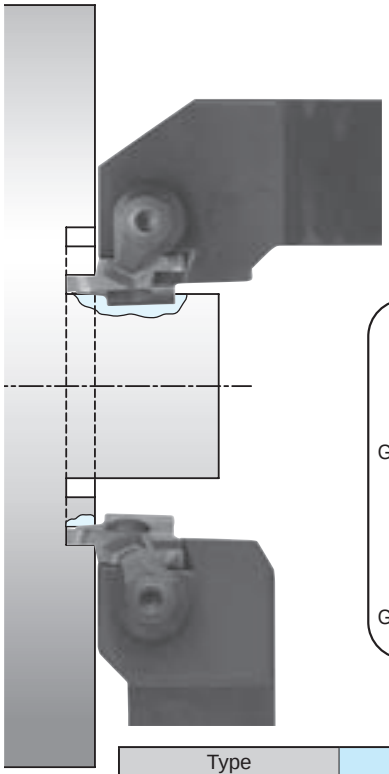
System Tip-bars

Type	HPFG
Min. Face Groove Dia.	ø0.315" (ø8mm)
Width (mm)	0.039~0.118" (1.0~3.0mm)
Grooving Depth (mm)	0.079~0.118" (2.0~3.0mm)
Ref. Page	G87



2-Edge Tip-Bar

General Purpose Face Grooving ø20~



Type	GFVS
Min. Face Groove Dia.	ø1.38~ø5.91" (ø35~ø150mm)
Width (mm)	0.098~0.236" (2.5~6.0mm)
Grooving Depth (mm)	0.181~0.319" (4.6~8.1mm)
Ref. Page	**G88**



Ground Chipbreaker



Ground Chipbreaker Full-R

Type	GFVT
Min. Face Groove Dia.	ø1.38~ø5.91" (ø35~ø150mm)
Width (mm)	0.098~0.236" (2.5~6.0mm)
Grooving Depth (mm)	0.181~0.319" (4.6~8.1mm)
Ref. Page	**G89**

GBA Inch-Size Inserts

(inch)

Description	A	T	ød
GBA32_	0.375	0.125	0.173
GBA43_	0.500	0.187	0.217
GBA43R/L480	0.500	0.197	0.217

P	Carbon Steel / Alloy Steel	●
M	Stainless Steel	★
K	Cast Ilon	
N	Non-ferrous Material	
S	Titanium Alloy	
H	Hardened Material(<40HRC)	★
	Hardened Material(<40HRC)	

Classification of usage

●: Continuous-Light Int. /1st Choice
◔: Continuous-Light Int. /2nd Choice
★: Continuous / 1st Choice
☆: Continuous / 2nd Choice

Shape (Right-Handed Insert Shown)	Description		Previous Description	Unit	Dimensions (inch) W	B	rε	MEGACOAT NEW PR1215	Applicable External Toolholder → G15-G16	Applicable Internal Toolholder → G17
	GBA32R/L	031N	-	inch	0.031	0.079	0.002	●	KGBAR/L...3 KGBAR/L...16 KGBASR/L...16	KIGBAR/L...16-3 KGBASR/L...3525-16
		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	●		
	GBA43R/L	031N			0.031	0.079	0.008	●	KGBAR/L...4-15 KGBAR/L...22-15 KGBASR/L...22-15	KIGBAR/L...20-4 KIGBASR/L...4032-22
		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	●	KGBAR/L...4-25 KGBAR/L...22-25 KGBASR/L...22-25 KGBAR/L...22-25T5 KGBASR/L...22-25T5	
		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	●	KGBAR/L...4-35 KGBAR/L...22-35 KGBASR/L...22-35	
		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	●		
	GBA43R/L	078MYN	-	inch	0.078	0.138	0.008	●	KGBAR/L...4-15 KGBAR/L...22-15 KGBASR/L...22-15	KIGBAR/L...20-4 KIGBASR/L...4032-22
		094MYN	-		0.094	0.157	0.012	●	KGBAR/L...4-25 KGBAR/L...22-25 KGBASR/L...22-25 KGBAR/L...22-25T5 KGBASR/L...22-25T5	
		125MYN	-		0.125	0.157	0.012	●		
		156MYN	-		0.156	0.197	0.016	●	KGBAR/L...4-35 KGBAR/L...22-35 KGBASR/L...22-35	
 Full-R (Round)	GBA32R	031R	-	inch	0.062	0.079	0.031	●	KGBAR/L...3 KGBAR/L...16 KGBASR/L...16	KIGBAR/L...16-3 KGBASR/L...3525-16
		047R	-		0.094	0.098	0.047	●		
		062R	-		0.125	0.098	0.062	●		
	GBA43R/L	031R	-		0.062	0.138	0.031	●	KGBAR/L...4-15 KGBAR/L...22-15 KGBASR/L...22-15	KIGBAR/L...20-4 KIGBASR/L...4032-22
		047R	-		0.094	0.157	0.047	●	KGBAR/L...4-25 KGBAR/L...22-25 KGBASR/L...22-25 KGBAR/L...22-25T5 KGBASR/L...22-25T5	
		062R	-		0.125	0.157	0.062	●		
		078R	-		0.156	0.197	0.078	●	KGBAR/L...4-35 KGBAR/L...22-35 KGBASR/L...22-35	
		094R	-		0.188	0.197	0.094	●		

Dimension B shows available grooving depth.

●: Std Stock ○: World Express

GBA Metric-Size Inserts

(inch)

Description	A	T	ød
GBA32_	0.375	0.125	0.173
GBA43_	0.500	0.187	0.217
GBA43R/L 480	0.500	0.197	0.217

		Cermet		MEGACOAT	PVD Coated Carbide			Carbide
		TC40	TN90	PR1215 (NEW)	PR1115	PR905	PR930	KW10
P	Carbon Steel / Alloy Steel			●	○		○	
M	Stainless Steel			★	●		○	
K	Cast Iron					●		○
N	Non-ferrous Material							●
S	Titanium Alloy							●
H	Hardened Material(<40HRC)			★	☆		☆	
	Hardened Material(<40HRC)							

Classification of usage

●: Continuous-Light Int. /1st Choice
○: Continuous-Light Int. /2nd Choice
★: Continuous / 1st Choice
☆: Continuous / 2nd Choice

Shape (Right-Handed Insert Shown)	Description	Previous Description	Unit	W	B	rε	Applicable External Toolholder (G15-G16)	Applicable Internal Toolholder (G17)
	GBA32R/L 033-005	-	mm	0.33	0.8	0.05	KGBAR/L...3 KGBAR/L...16 KGBASR/L...16	KIGBAR/L...16-3 KGBASR/L...3525-16
	GBA32R/L 050-005 ※	GBA32R/L 050 ※		0.50	1.0			
	GBA32R/L 050-005 ※	-		0.50	1.2			
	GBA32R/L 075-005	GBA32R/L 075		0.75	2.0			
	GBA32R/L 095-005	095		0.95				
	GBA32R/L 100-005	100		1.00				
	GBA32R/L 110-005	110		1.10				
	GBA32R/L 120-005	120		1.20				
	GBA32R/L 125-020	125		1.25		0.2		
	GBA32R/L 130-020	130		1.30				
	GBA32R/L 140-020	140		1.40	2.5			
	GBA32R/L 145-020	145		1.45	2.0			
	GBA32R/L 145-020	-		1.45	2.5			
	GBA32R/L 150-020	GBA32R/L 150		1.50	2.0			
	GBA32R/L 150-020	-		1.50				
	GBA32R/L 160-020	GBA32R/L 160		1.60	2.5			
	GBA32R/L 170-020	170		1.70				
	GBA32R/L 175-020	GBA32R/L 175		1.75	2.0			
	GBA32R/L 175-020	-		1.75				
	GBA32R/L 200-020	GBA32R/L 200		2.00				
	GBA32R/L 225-020	225		2.25	2.5			
	GBA32R/L 250-020	250		2.50				
	GBA32R/L 300-020	300		3.00				
	GBA43R/L 125-010	-	mm	1.25	2.0	0.1	KGBAR/L...22-15 KGBASR/L...22-15	KIGBAR/L...20-4 KIGBASR/L...4032-22
	GBA43R/L 125-020	GBA43R/L 125		1.25		0.2		
	GBA43R/L 140-020	140		1.40	3.5			
	GBA43R/L 145-020	145		1.45	2.0			
	GBA43R/L 145-020	-		1.45				
	GBA43R/L 150-010	-		1.50		0.1		
	GBA43R/L 150-020	GBA43R/L 150		1.50		0.2		
	GBA43R/L 170-020	170		1.70				
	GBA43R/L 175-020	175		1.75				
	GBA43R/L 185-020	185		1.85	3.5			
	GBA43R/L 195-020	195		1.95				
	GBA43R/L 200-010	-		2.00		0.1		
	GBA43R/L 200-020	GBA43R/L 200		2.00		0.2		
	GBA43R/L 225-020	225		2.00				
	GBA43R/L 230-020	230		2.30				
	GBA43R/L 250-010	-		2.50	5.0	0.1	KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	GBA43R/L 250-030	GBA43R/L 250		2.50	4.0	0.2	KGBAR/L...22-25 KGBASR/L...22-25 KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	GBA43R/L 250-030	-		2.50	5.0	0.3	KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	GBA43R/L 265-030	GBA43R/L 265		2.65	4.0		KGBAR/L...22-25 KGBASR/L...22-25 KGBAR/L...22-25T5 KGBASR/L...22-25T5	

Dimension B shows available grooving depth.

The edge width tolerance GBA32R/L 050 is different:0.50$^{+0.05}_{-0.10}$

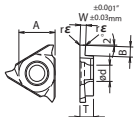
●: Std Stock ○: World Express

GBA Metric-Size Inserts

(inch)

Description	A	T	ød
GBA32_	0.375	0.125	0.173
GBA43_	0.500	0.187	0.217
GBA43R/L480	0.500	0.197	0.217

P	Carbon Steel / Alloy Steel		●	◔		◔		Classification of usage
M	Stainless Steel		★	●		◔		
K	Cast Ilon				●		◔	●: Continuous-Light Int. /1st Choice ◔: Continuous-Light Int. /2nd Choice ★: Continuous / 1st Choice ☆: Continuous / 2nd Choice
N	Non-ferrous Material						●	
S	Titanium Alloy						●	
H	Hardened Material(<40HRC)		★	☆		☆		
	Hardened Material(<40HRC)							

Shape Right-Handed Insert Shown	Description	Previous Description	Dimensions (mm) W	B	rε	Cermet TC40	Cermet TN90	MEGACOAT PR1215 (NEW)	PVD Coated Carbide PR1115	PVD Coated Carbide PR905	PVD Coated Carbide PR930	Carbide KW10	Applicable External Toolholder ⇒G15-G16	Applicable Internal Toolholder ⇒G17
 	GBA43R/L 265-030	-	2.65	5.0	0.3	○	○				●	○	KGBAR/L...22-25T5 KGBASR/L...22-25T5	KIGBAR/L...20-4 KIGBASR/L...4032-22
	280-030	GBA43R/L 280	2.80	4.0	0.3			●	●	○			KGBAR/L...22-25 KGBASR/L...22-25 KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	280-030	-	2.80	5.0		○	○	●	●	○	●	○	KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	300-010	-	3.00	5.0	0.1			●	○					
	300-030	GBA43R/L 300	3.00	4.0	0.3	○	○	●	○	○	●	○	KGBAR/L...22-25 KGBASR/L...22-25 KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	300-030	-	3.00	5.0		○	○	●	○	○	●	○	KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	325-030	GBA43R/L 325	3.25	5.0									KGBAR/L...22-25 KGBASR/L...22-25	
	330-030	330	3.30	4.0		○	○	●	○	○	●	○	KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	330-030	-	3.30	5.0		○	○	●	○	○	●	○	KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	350-010	-	3.50	5.0	0.1			●	○					
	350-030	GBA43R/L 350	3.50		0.3	○	○	●	○	○	●	○		
	400-010	-	4.00		0.1			●	○					
	400-040	GBA43R/L 400	4.00	5.0	0.4	○	○	●	○	○	●	○	KGBAR/L...22-35 KGBASR/L...22-35	
	430-040	430	4.30			○	○	●	○	○	●	○		
	450-040	450	4.50			○	○	●	○	○	●	○		
	480-040	480	4.80			○	○	●	○	○	●	○		

Dimension B shows available grooving depth.

●: Std Stock ○: World Express

GBA Metric-Size Inserts Featuring MY Chipbreaker

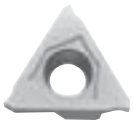
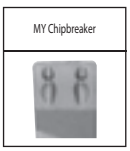
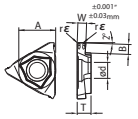
(inch)

Description	A	T	ød
GBA32_	0.375	0.125	0.173
GBA43_	0.500	0.187	0.217
GBA43R/L 480	0.500	0.197	0.217

P	Carbon Steel / Alloy Steel		●	◔		◔
M	Stainless Steel		★	●		◔
K	Cast Ilon				●	
N	Non-ferrous Material					
S	Titanium Alloy					
H	Hardened Material(<40HRC)		★	☆		☆
	Hardened Material(<40HRC)					

Classification of usage

●: Continuous-Light Int. /1st Choice
◔: Continuous-Light Int. /2nd Choice
★: Continuous / 1st Choice
☆: Continuous / 2nd Choice

Shape (Right-Handed Insert Shown)	Description	Previous Description	Dimensions (mm) W	B	rε	TN6020	MEGACOAT PR1215 (NEW)	PVD Coated Carbide PR1115	PR905	PR930	Applicable External Toolholder (G15-G16)	Applicable Internal Toolholder (G17)
 Molded Chipbreaker  MY Chipbreaker	 GBA43R/L 175-020MY	GBA43R/L 175MY	1.75	3.5	0.2	○	●	○		○	KGBAR/L…22-15 KGBASR/L…22-15	KIGBAR/L…20-4 KIGBASR/L…4032-22
	185-020MY	185MY	1.85			○	●	○		○		
	200-020MY	200MY	2.00			○	●	○		○		
	230-020MY	230MY	2.30			○	●	●		○		
	250-030MY	GBA43R/L 250MY	2.50	4.0						○	KGBAR/L…22-25 KGBASR/L…22-25 KGBAR/L…22-25T5 KGBASR/L…22-25T5	
	250-030MY	-	2.50	5.0			●	○			KGBAR/L…22-25T5 KGBASR/L…22-25T5	
	265-030MY	GBA43R/L 265MY	2.65	4.0		○				○	KGBAR/L…22-25 KGBASR/L…22-25 KGBAR/L…22-25T5 KGBASR/L…22-25T5	
	265-030MY	-	2.65	5.0			●	○			KGBAR/L…22-25T5 KGBASR/L…22-25T5	
	300-030MY	GBA43R/L 300MY	3.00	4.0	0.3	○	●	○		○	KGBAR/L…22-25 KGBASR/L…22-25 KGBAR/L…22-25T5 KGBASR/L…22-25T5	
	300-030MY	-	3.00	5.0		○	●	○		○	KGBAR/L…22-25T5 KGBASR/L…22-25T5	
	330-030MY	GBA43R/L 330MY	3.30	4.0		R				R	KGBAR…22-25 KGBASL…22-25 KGBAR…22-25T5 KGBASL…22-25T5	
	330-030MY	-	3.30	5.0			●	○			KGBAR/L…22-25T5 KGBASR/L…22-25T5	
	350-030MY	GBA43R/L 350MY	3.50	5.0		○	●	○		○	KGBAR/L…22-35 KGBASR/L…22-35	
	400-040MY	400MY	4.00		0.4	○	●	○		○		

Dimension B shows available grooving depth.

●: Std Stock ○: World Express

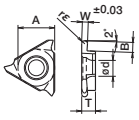
GBA Metric-Size Inserts

(inch)

Description	A	T	ød
GBA32_	0.375	0.125	0.173
GBA43_	0.500	0.187	0.217
GBA43R/L480	0.500	0.197	0.217

		Classification of usage
P	Carbon Steel / Alloy Steel	● ◔
M	Stainless Steel	★ ●
K	Cast Ilon	● ◔
N	Non-ferrous Material	●
S	Titanium Alloy	●
H	Hardened Material(<40HRC)	★ ☆
	Hardened Material(<40HRC)	

●: Continuous-Light Int. /1st Choice
◔: Continuous-Light Int. /2nd Choice
★: Continuous / 1st Choice
☆: Continuous / 2nd Choice

Shape Right-Handed Insert Shown	Description	Previous Description	Dimensions (mm) W	B	rε	MEGACOAT NEW PR1215	PVD Coated Carbide PR1115	PR905	Carbide KW10	Applicable External Toolholder → G15-G16	Applicable Internal Toolholder → G17
 Full-R Full-R (Round) 	GBA32R/L 200-100R	-	2.00	2.5	1.00	●	○			KGBAR...16 KGBASL...16	KIGBAR/L...16-3 KGBASR/L...3525-16
	300-150R		3.00		1.50	●	○				
	GBA43R/L 100-050R	GBA43R/L 050R	1.00	2.0	0.50	●	○	○		KGBAR/L...22-15 KGBASR/L...22-15	KIGBAR/L...20-4 KIGBASR/L...4032-22
	150-075R	075R	1.50	3.5	0.75	●	○	○			
	200-100R	100R	2.00		1.00	●	●	○			
	250-125R	125R	2.50	4.0	1.25	●	○	○		KGBAR/L...22-25 KGBASR/L...22-25 KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	300-150R	150R	3.00		1.50	●	○	○			
	400-200R	200R	4.00	5.0	2.00	●	○	○		KGBAR/L...22-35 KGBASR/L...22-35	

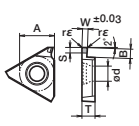
GBA Metric-Size Inserts

(inch)

Description	A	T	ød
GBA32_	0.375	0.125	0.173
GBA43_	0.500	0.187	0.217
GBA43R/L480	0.500	0.197	0.217

		Classification of usage
P	Carbon Steel / Alloy Steel	
M	Stainless Steel	
K	Cast Ilon	
N	Non-ferrous Material	★
S	Titanium Alloy	★
H	Hardened Material(<40HRC)	
	Hardened Material(<40HRC)	☆ ★

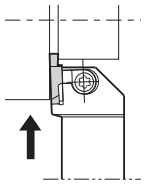
●: Continuous-Light Int. /1st Choice
◔: Continuous-Light Int. /2nd Choice
★: Continuous / 1st Choice
☆: Continuous / 2nd Choice

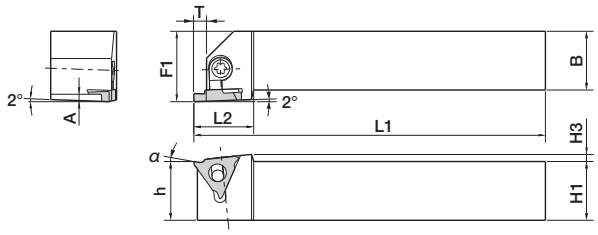
Shape Right-Handed Insert Shown	Description	Previous Description	Dimensions (mm) W	B	rε	CBN KBN510	CBN KBN525	PCD KPD001	PCD KPD010	Applicable External Toolholder → G15-G16	Applicable Internal Toolholder → G17
 1-edge  GBA32 S=1.7 GBA43 S=1.9	GBA32R/L 125-010	GBA32R/L 125	1.25	2.0	0.1				○	KGBAR...16 KGBASL...16	KIGBAR/L...16-3 KGBASR/L...3525-16
	150-010	150	1.50					○	○		
	GBA43R/L 125-010	GBA43R/L 125	1.25	2.0	0.1				○	KGBAR/L...22-15 KGBASR/L...22-15	KIGBAR/L...20-4 KIGBASR/L...4032-22
	125-020	125			0.2	○					
	150-010	150	1.50	3.5	0.1			○	○		
	150-020	150			0.2	○	○				
	200-010	200	2.00		0.1			○	○		
	200-020	200			0.2	○	○				
	250-010	250	2.50	4.0	0.1					KGBAR/L...22-25 KGBASR/L...22-25 KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	250-020	250			0.2						
	300-010	300	3.00		0.1						
	300-020	300			0.2						

Dimension B shows available grooving depth.

●: Std Stock ○: World Express

KGBA External Shallow Grooving Toolholder





• Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder.

■ Toolholder Dimension~

Description		Stock R	Stock L	Unit	Dimension H1=h	H3	B	L1	L2	F1	A	T	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Insert
KGBA R/L	12-3	●	●	inch	0.750	0.160	0.750	5.00	0.945	1.000	-	0.098	LGBA-16 R/L S	FT-15	GBA32 R/L Type
	16-3	●	●		1.000		1.000	6.00		1.250					
	12-4-15	●	●		0.750	0.160	0.750	5.00	1.004	1.000	0.039	0.157	LGBA-22 R/L S		GBA43 R/L 03~05... GBA43 R/L 05MY
	16-4-15	●	●		1.000		1.000	6.00		1.250					
	12-4-25	●			0.750	0.160	0.750	5.00	1.004	1.000	0.079	0.177			GBA43 R/L 06~08... GBA43 R/L 06MY~**08MY**
	16-4-25	●	●		1.000		1.000	6.00		1.250					
	12-4-25T				0.750	0.160	0.750	5.00	1.004	1.000	0.079	0.217			
	16-4-25T				1.000		1.000	6.00		1.250					
	12-4-35	●	●		0.750	0.160	0.750	5.00	1.004	1.000	0.118	0.217			GBA43 R/L 09~12 GBA43 R/L 10**MY**
	16-4-35	●	●		1.000		1.000	6.00		1.250					
KGBA R/L	2020K-16	○	○	mm	20	4.0	20	125	24	25	-	2.5	LGBA-16 R/L S	FT-15	GBA32 R/L Type
	2525M-16	○	○		25		25	150		30					
	2020K22-15	○	○		20	4.0	20	125	25.5	25	1.0	4.0	LGBA-22 R/L S		GBA43 R/L 125~230... GBA43 R/L 200-020MY GBA43 R/L 100-050R~200-100R
	2525M22-15	○	○		25		25	150		30					
	2020K22-25	○	○		20	4.0	20	125	25.5	25	2.0	4.5			GBA43 R/L 250~330 GBA43 R/L 250-030MY~**330-030MY** GBA43 R/L 250-125R~**300-150R**
	2525M22-25	○	○		25		25	150		30					
	2020K22-25T5				20	4.0	20	125	25.5	25	2.0	5.5			
	2525M22-25T5				25		25	150		30					
	2020K22-35	○	○		20	4.0	20	125	25.5	25	3.0				GBA43 R/L 350-480... GBA43 R/L 350-030MY~**400-040MY** GBA43 R/L 400-200R
	2525M22-35	○	○		25		25	150		30					

Dimension T shows the distance from the Toolholder to the cutting edge Dimension B shows available grooving depth

• Clamp Set : KGBA R/L ...LGBA-○RS for Right-hand Toolholder. and LGBA-○LS for Left-hand Toolholder
KGBAS R/L ...LGBA-○LS for Right-hand Toolholder. and LGBA-○RS for Left-hand Toolholder

■ GBA Rake Angle after Installment of GBA(α)

For GBA32 R/L ○○○-○○○		For GBA43 R/L ○○○-○○○		For GBA43 R/L ○○○-○○○ R(Full R)		
α	Insert Grade	α	Insert Grade	α	Insert Grade	Full-R
10°	TN90 PR1215 PR930 PR1115 PR905 KPD001, KPD010	0°	KBN510, KBN525	10°	TN90 PR1215 PR930 PR1115 PR905	050R~150R
		10°	TC40N, TN90 PR1215 PR930 PR1115 PR905 KPD001, KPD010	14°	TN90 PR1215 PR930 PR1115 PR905	200R
20°	KW10	20°	KW10		KW10	050R~200R

■ GBA-MY

Rake Angle sfter Installment of GBA-MY (α)

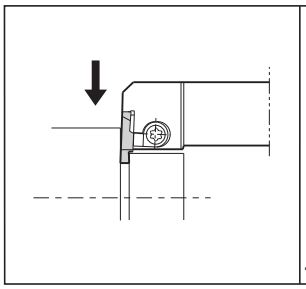
α	Insert
15°	GBA43 R/L 175MY ~ GBA43 R/L 350MY
14°	GBA43 R/L 400MY

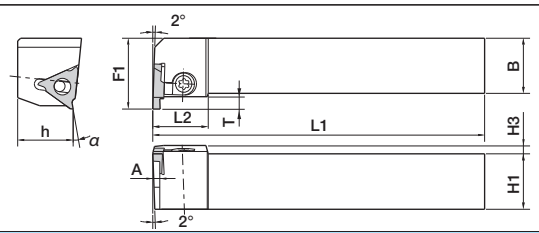
α indicates the rake angle at the center of the edge width after installing insert

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.

■ KGBAS





•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

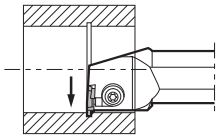
■ Toolholder Dimension

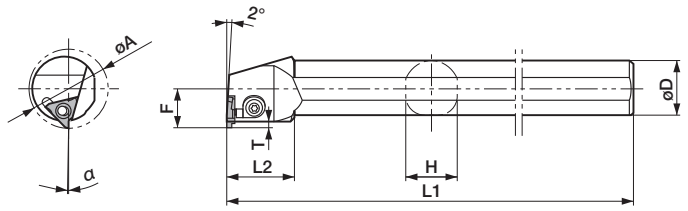
Description		Stock R	Stock L	Unit	Dimension H1=h	H3	B	L1	L2	F1	A	T			Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Insert (G10-G14)
KGBAS R/L	12-3	●		Inch	0.750	0.152	0.750	5.000	0.984	0.984	-	0.098			LGBA-16LS	FT-15	GBA32L Type
NEW	16-3	●			1.000	0.172	1.000	6.000	0.984	1.181	-	0.098					
	12-4-15	●			0.750	0.160	0.750	5.000	0.984	1.062	0.039	0.157			LGBA-22LS		GBA43L Type
	16-4-15	●			1.000	0.180	1.000	6.000	0.984	1.260	0.039	0.157					
	12-4-25	●			0.750	0.160	0.750	5.000	0.984	1.062	0.079	0.177					
	16-4-25	●			1.000	0.197	1.000	6.000	0.984	1.250	0.079	0.177					
	12-4-35	●			0.750	0.160	0.750	5.000	0.984	1.062	0.118	0.217					
	16-4-35	●			1.000	0.180	1.000	6.000	0.984	1.260	0.118	0.217					
KGBAS R/L	2020K-16	○	○	mm	20	4.0	20	125	25	25	-	2.5			LGBA-16 R/L S	FT-15	GBA32 R/L Type
NEW	2525M-16	○	○		25	4.5	25	150		30							
	2020K22-15	○	○		20	4.5	20	125	25	27	1.0	4.0			LGBA-22 R/L S		GBA43 R/L Type
	2525M22-15	○	○		25	5.0	25	150		32							
	2020K22-25	○	○		20	4.5	20	125	25	27	2.0	4.5					
	2525M22-25	○	○		25	5.0	25	150		32							
	2020K22-25T5		○		20	4.5	20	125	25	27	2.0	5.5					
	2525M22-25T5				25	5.0	25	150		32							
	2020K22-35	○	○		20	4.5	20	125	25	27	3.0						
	2525M22-35	○	○		25	5.0	25	150		32							

Dimension T shows the distance from the Toolholder to the cutting edge
Dimension B shows available grooving depth
•Clamp Set : KGBA R/L …LGBA-○RS for Right-hand Toolholder and LGBA-○LS for Left-hand Toolholder
KGBAS R/L …LGBA-○LS for Right-hand Toolholder and LGBA-○RS for Left-hand Toolholder

●: Std Stock ○: World Express

■ KIGBA





•Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

■Toolholder Dimension

Description		Stock R	Stock L	Unit	Min.Cutting Dia. øA	Dimension øD	H	L1	L2	F	T	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Insert (G10-G14)
KIGBA R/L	16-3	●	●	inch	1.38	1.00	0.92	9.0	1.18	0.69	0.12	LGBA-16 R/L S	FT-15	GBA32 R/L Type
NEW 20-4		●	●	inch	1.57	1.25	1.18	10.0	1.18	0.90	0.12	LGBA-22 R/L S	FT-15	GBA43 R/L Type
3525-16		○	○	mm	35	25	23	220	30	17.5	2.8	LGBA-16 R/L S	FT-15	GBA32 R/L Type
4032-22		○	○	mm	40	32	30	250	30	23.0	3.0	LGBA-22 R/L S	FT-15	GBA43 R/L Type

•Dimension T Shows the distance from the Toolholder to the cutting edge.
Available Groove Depth KIGBA R/L 3525-16…"B" Dimension of the Applicable Insert
KIGBA R/L 4032-22…2.0mm for GBA43 R/L 125-020, 145-020, 100-050R.
2.8mm for the Inserts except the above

•Clamp Set : LGBA-□LS for Right-hand Toolholder and LGBA-□RS for Left-hand Toolholder.

■ GBA Rake Angle after Installment of GBA (α)

For GBA32 R/L○○○-○○○ α	For GBA32 R/L○○○-○○○ Insert Grade	For GBA43 R/L○○○-○○○ α	For GBA43 R/L○○○-○○○ Insert Grade	For GBA43 R/L○○○-○○○ R(Full R) α	For GBA43 R/L○○○-○○○ R(Full R) Insert Grade	For GBA43 R/L○○○-○○○ R(Full R) Full-R
+1°	TN90 PR1215 PR930 PR1115 PR905 KPD001, KPD010	-9°	KBN510, KBN525	+1°	TN90 PR1215 PR930 PR1115 PR905	050R~150R
		+1°	TC40, TN90 PR1215 PR930 PR1115 PR905 KPD001, KPD010	+5°	TN90 PR1215 PR930 PR1115 PR905	200R
+11°	KW10	+11°	KW10		KW10	050R~200R

■ GBA-MY Rake Angle after Installment of GBA-MY (α)

α	Insert
+6°	GBA43 R/L175MY ~ GBA43 R/L350MY
+5°	GBA43 R/L400MY

α indicates the rake angle at the center of the edge width after installing insert

●: Std Stock ○: World Express

KGD Grooving System for Improved Grooving Peformance

- **Good chip control**
  - Expanded lineup of chipbreakers cover a wide variety of work materials.
- **High precision edge preparation**
  - High precision molding technology tolerance ±0.03mm (Edge width 2,3,4mm type)
- **MEGACOAT technology**
  - Long tool life and high efficiency machining through high oxidation resistance and wear resistance
- **Comprehensive Toolholder lineup**
  - Integral-style Toolholder with multiple groove width & depth capabilities and SwitchBlade-style Toolholder for more economical replacement costs and quicker changeovers

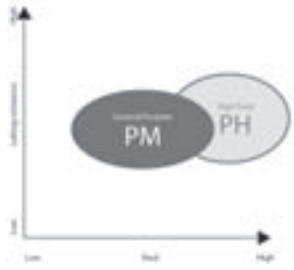
Insert Lineup for External grooving, Traversing and Cut-off

•Application Maps

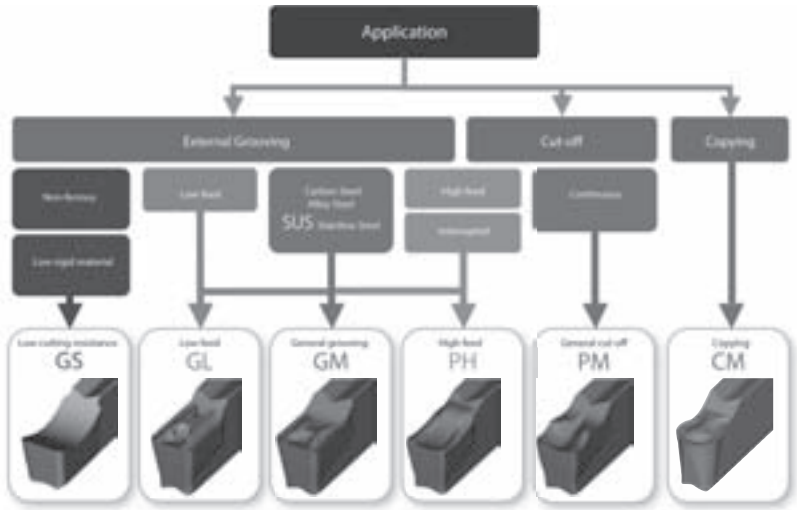
External Grooving & Traversing



Cut-off

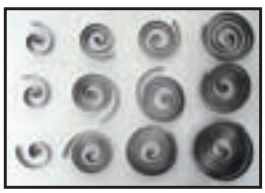


• Chipbreaker Selection



Good chip control contributes to productivity improvement

●SCM415 Vc=490 sfm, f=0.006 ipr (Comparison of chip control)



GM Chipbreaker

Better chip control than competitors



Comp.A

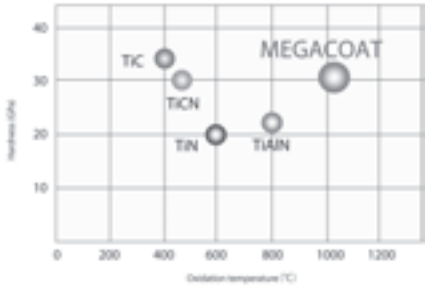


Comp.B

Less chip biting trouble

MEGACOAT
Advanced Coating Techonology

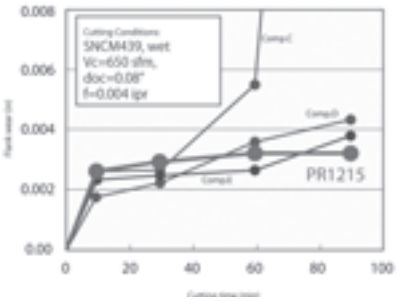
Features of MEGACOAT



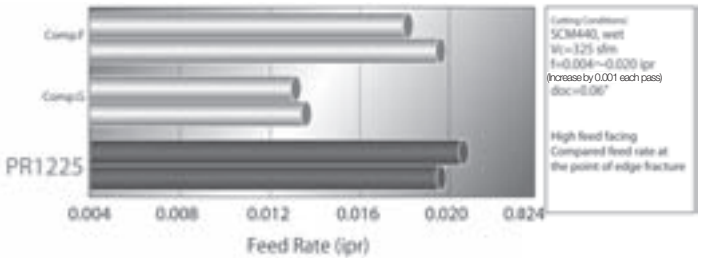
PR1225
First recommendation for cut-off , grooving and traversing.

PR1215
Superior wear resistance, recommended for grooving and cut-off under stable conditions.
First recommendation for machining of cast iron.

Comparison of wear resistance



Comparison of fracture resistance



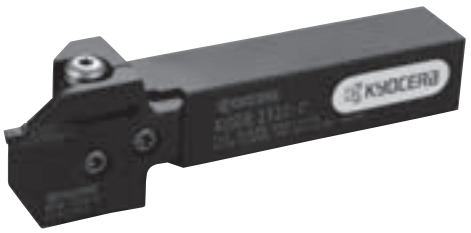
Good wear resistance and fracture resistance
Stable cutting and long tool life for grooving and cut-off

Toolholder Lineup

Two available types: Integral-Style and SwitchBlade-Style.



Integral-Style Toolholder
Featuring a wide variety of available groove widths and depths ▲



SwitchBlade-Style Toolholder
Featuring interchangeable blades for more economical replacment costs and quicker changeovers

Face Grooving Toolholder and Inserts



Only Swap-Style Toolholders with interchangeable blades are available for face grooving

Features of new W-Grip insert clamping system

The new "W-Grip" is applied for more rigid clamping and stable machining.

- Prevents the insert from side-slip causing unstable machining and insert brakage.
- Improved indexability accuracy
- High rigidity, reliability and clamping strength

Insert for GDFM/GDFMS is not compatible with KGD holder.



W-Grip

GDM/GDG/GDMS Inserts for Grooving and Cut-Off

Classification of usage							
● : Continuous-Light Interruption / 1st Choice ◔ : Continuous-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 ~)					

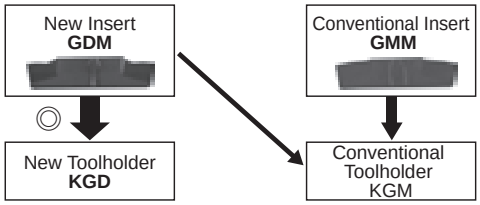
Shape (Handed insert shows R-hand.)	Description		Dimension (mm) W inch	W mm	W tolerance	rε	M	L	H	Angle θ	Cermet TN90	MEGACOAT PR1225	MEGACOAT PR1215	Carbide GW15	Ref. Page for Toolholder
Grooving and Traversing	GDM NEW	2420N-020GM	0.094	2.4	±0.03	0.2	1.95	20	4.3	-	○	●	●		G22 ~ G25
		3020N-020GM	0.118	3.0		0.2	2.3				○	●	●		
		3020N-040GM				0.4					○	●	●		
		4020N-020GM	0.157	4.0		0.2	3.3				○	●	●		
		4020N-040GM				0.4					○	●	●		
		4020N-080GM				0.8					○	●	●		
		5020N-040GM	0.197	5.0	±0.04	0.4	4.2				○	●	●		
		5020N-080GM				0.8					○	●	●		
		6020N-040GM	0.236	6.0		0.4	5.2				○	●	●		
		6020N-080GM				0.8					○	●	●		
For general purpose 2-Edge		8030N-080GM	0.315	8.0	±0.05	0.8	6.0	30	5.5			●	●		
	GDMS NEW	2220N-020GM	0.087	2.2	±0.03	0.2	1.75	20	4.3	-	○	●	●		
		3020N-040GM	0.118	3.0		0.4	2.3				○	●	●		
		4020N-040GM	0.157	4.0		0.4	3.3				○	●	●		
		5020N-080GM	0.197	5.0	±0.04	0.8	4.2				○	●	●		
For general purpose 1-Edge		6020N-080GM	0.236	6.0		0.8	5.2				○	●	●		
	GDM NEW	2420N-020GL	0.094	2.4	±0.03	0.2	1.95	20	4.3	-	○	●	●		
		3020N-020GL	0.118	3.0		0.2	2.3				○	●	●		
		3020N-040GL				0.4					○	●	●		
		4020N-020GL	0.157	4.0		0.2	3.3				○	●	●		
		4020N-040GL				0.4					○	●	●		
		5020N-040GL	0.197	5.0	±0.04	0.4	4.2				○	●	●		
Low Feed 2-Edge		6020N-040GL	0.236	6.0		0.4	5.2				○	●	●		
Grooving	GDG NEW	2520N-020GS	0.098	2.5	±0.02	0.2	2.0	20	4.3	-	○	●	●	●	
		3020N-020GS	0.118	3.0			2.3				○	●	●	●	
		3520N-020GS	0.138	3.5			2.8				○	●	●	●	
		4020N-040GS	0.157	4.0		0.4	3.3				○	●	●	●	
		5020N-040GS	0.197	5.0			4.2				○	●	●	●	
		6020N-040GS	0.236	6.0			5.2				○	●	●	●	
Low cutting force 2-Edge		8030N-040GS	0.315	8.0			6.0	30	5.5		○	●	●	●	
Full-R / Copying	GDM NEW	3020N-150R-CM	0.118	3.0	±0.03	1.5	2.3	20	4.3	-	○	●	●		
		4020N-200R-CM	0.157	4.0		2.0	3.3				○	●	●		
		5020N-250R-CM	0.197	5.0	±0.04	2.5	4.2				○	●	●		
2-Edge		6020N-300R-CM	0.236	6.0		3.0	5.2				○	●	●		
Grooving and Cut-Off	GDM NEW	2020N-020PH	0.079	2.0	±0.03	0.2	1.5	20	4.3	-		●	●		
		3020N-030PH	0.118	3.0		0.3	2.3					●	●		
		4020N-030PH	0.157	4.0		0.3	3.3					●	●		
High feed rate 2-Edge	GDMS NEW	2020N-020PH	0.079	2.0	±0.03	0.2	1.5	20	4.3	-		●	●		
		3020N-030PH	0.118	3.0		0.3	2.3					●	●		
High feed rate 1-Edge		4020N-030PH	0.157	4.0		0.3	3.3					●	●		

Recommended Cutting Conditions ➡ G27

◆Note for the holder and insert combination of KGD type (new) and KGM type (conventional)

●Insert setting angle for grooving toolholders

KGD···0°	Conventional tools KGM···5°
	



Installing conventional inserts to the new toolholder is not recommended.

●: Std Stock ○: World Express

GDM / GDMS Inserts for Grooving and Cut-Off

Classification of usage						Ref. Page for Toolholder
● : Continuous-Light Interruption / 1st Choice ◔ : Continuous-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 ～)				

Shape (Handed insert shows R-hand.)		Description		Dimension (mm) W inch	W mm	W tolerance	rε	M	L	H	Angle (°) θ	Cermet TN90	MEGACOAT PR1225	MEGACOAT PR1215	Carbide GW15	Ref. Page for Toolholder
Cut-Off	2-Edge	GDM NEW	2020N-020PM	0.079	2.0	±0.03	0.2	1.5	20	4.3	-		●	●		G22 ~ G25
			2520N-020PM	0.098	2.5		0.2	1.95					●	●		
			3020N-025PM	0.118	3.0		0.25	2.3					●	●		
			4020N-030PM	0.157	4.0		0.3	3.3					●	●		
	2-Edge	GDM NEW	2020R-020PM-6D	0.079	2.0	±0.03	0.2	1.5	20		6°		●	●		
			2520R-020PM-6D	0.098	2.5		0.2	1.95					●	●		
			3020R-025PM-6D	0.118	3.0		0.25	2.3					●	●		
	1-Edge	GDMS NEW	2020N-020PM	0.079	2.0	±0.03	0.2	1.5	20		-		●	●		
			3020N-025PM	0.098	3.0		0.25	2.3					●	●		
			4020N-030PM	0.118	4.0		0.3	3.3					●	●		
	1-Edge	GDMS NEW	2020R-020PM-6D	0.079	2.0	±0.03	0.2	1.5	20		6°		●	●		
			3020R-025PM-6D	0.098	3.0		0.25	2.3					●	●		
			4020R-030PM-6D	0.118	4.0		0.3	3.3					●	●		

Note) 1. Using the PM chipbreaker (for cut-off) for grooving cannot create a flat bottom (See the right figure).

Groove bottom created by PM chipbreaker

Recommended Cutting Conditions ➡ G27

Indication of Description

①Series	②Tolerance Symbol	③No. of corners	④Width	⑤Insert Length	⑥Hand of Tool	⑦Corner-R(rε)	⑧Chipbreaker symbol	⑨Lead Angle
GD	M : Class M G : Class G	Without Indication : 2-Edge S : 1-Edge	20 : 2mm 30 : 3mm 40 : 4mm	20 : 20mm 30 : 30mm	R : R-hand L : L-hand N : Neutral	0.20 : 0.2mm 0.40 : 0.4mm 150R : 1.5mm(Full-R)	GM : Grooving and Traversing GL : Low Feed CM : Copying	6D : 6°

Example: GDMS 30 20 N – 025 GM – 6D

Installing the inserts

1. Completely eliminate chips from the insert mounting part (see Fig. 1).
2. Put the insert into the toolholder and push until it contacts with the holder's surface for fixing the insert's back end (see Fig. 2 and 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 and 3).

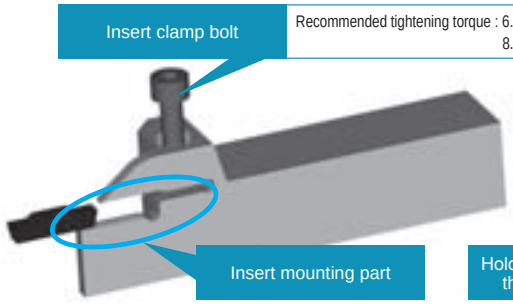


Fig. 1

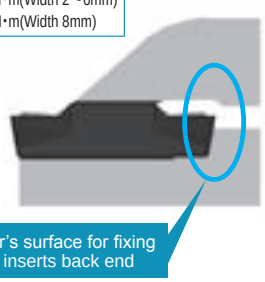


Fig. 2

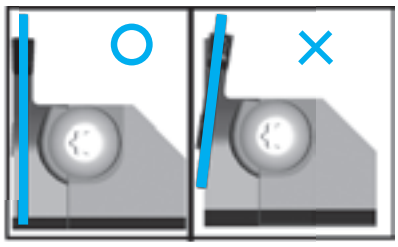
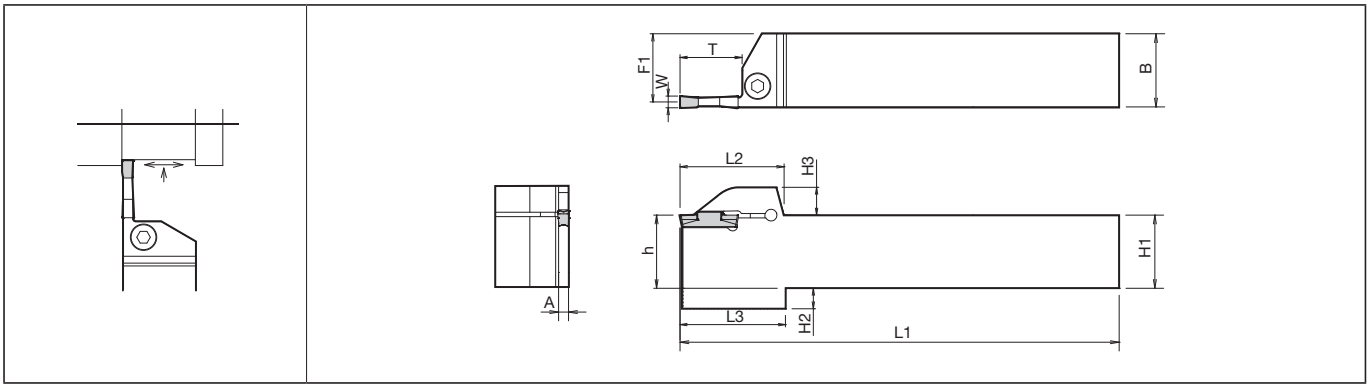


Fig. 3

●: Std Stock ○: World Express

KGD Integral-Style Toolholder (Inch-Size) NEW



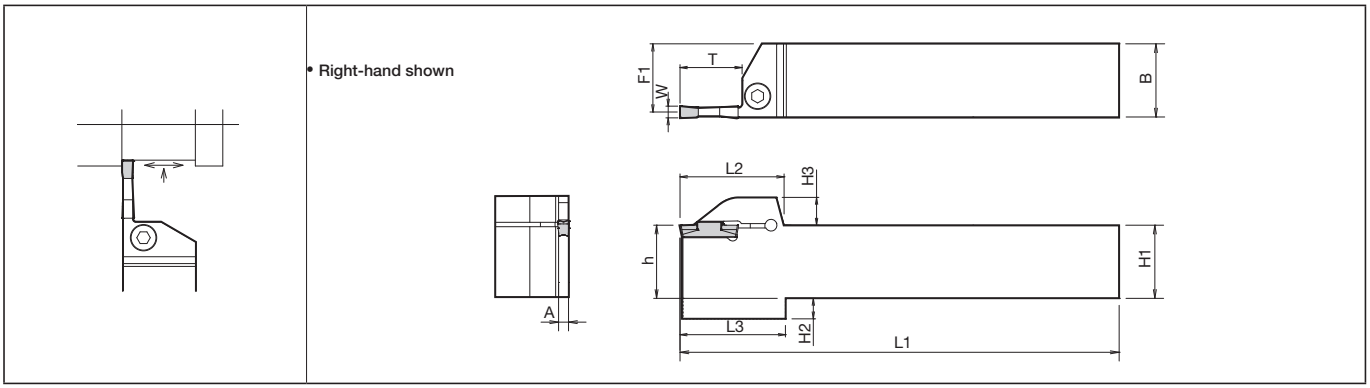
●Toolholder dimensions

Width mm	Max. Grooving Depth	Description	Stock R	Stock L	Dimension H1=h	H2	H3	B	L1	L2	L3	F1	A	T	Insert Width W (mm) MIN	Insert Width W (mm) MAX	Spare parts: Clamp Bolt	Spare parts: Wrench
2	0.669 (17mm)	KGD 12-2T17	●	●	0.75	-	0.374	0.75	4.92	1.28	-	0.71	0.067	0.669 (17mm)	2.0	3.0	BH6X10TR	LTW-25
		KGD 16-2T17	●	●	1.00	-		1.00	5.90			0.96						
3	0.393 (10mm)	KGD 12-3T10	●	●	0.75	-		0.75	4.92	1.20		0.70	0.094	0.393 (10mm)	3.0	4.0		
		KGD 16-3T10	●	●	1.00	-		1.00	5.90			0.95						
	0.787 (20mm)	KGD 12-3T20	●	●	0.75	-		0.75	4.92	1.35		0.70		0.669 (17mm)				
		KGD 16-3T20	●	●	1.00	-		1.00	5.90	1.39		0.95						
4	0.393 (10mm)	KGD 12-4T10	●	●	0.75	-		0.75	4.92	1.20		0.68	0.133	0.393 (10mm)	4.0	5.0		
		KGD 16-4T10	●	●	1.00	-		1.00	5.90			0.93						
	0.787 (20mm)	KGD 12-4T20	●	●	0.75	-		0.75	4.92	1.35		0.68		0.790 (20mm)				
		KGD 16-4T20	●	●	1.00	-		1.00	5.90	1.39		0.93						
	0.984 (25mm)	KGD 16-4T25	●	●	1.00	-		1.00	5.90	1.59		0.93		0.990 (25mm)				
5	0.393 (10mm)	KGD 12-5T10	●	●	0.75	-		0.75	4.92	1.20		0.66	0.173	0.393 (10mm	5.0	6.0		
		KGD 16-5T10	●	●	1.00	-		1.00	5.90			0.91						
	0.669 (17mm)	KGD 12-5T17	●	●	0.75	-		0.75	4.92	1.28		0.66		0.790 (17mm)				
		KGD 16-5T17	●	●	1.00	-		1.00	5.90			0.91						
	0.984 (25mm)	KGD 16-5T25	●	●	1.00	-		1.00	5.90	1.59		0.91		0.990 (25mm)				
6	0.591 (15mm)	KGD 16-6T15	●	●	1.00	-		1.00	5.90	1.28		0.89	0.208	0.590 (15mm)	6.0	6.0		
	1.181 (30mm)	KGD 16-6T30	●	●	1.00	-		1.00	5.90	1.79		0.89		1.181 (30mm)				
8	0.984 (25mm)	KGD 16-8T25	●	●	1.00	0.26		1.00	5.90	1.65	1.69	0.88	0.236	0.990 (25mm)	8.0	8.0		

T dimension shows the distance from the Toolholder to the cutting edge.(When using 2-edge insert, set the groove depth under 18mm.)

●: Std Stock ○: World Express

KGD Integral-Style Toolholder (Metric-Size) NEW



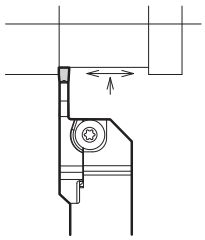
●Toolholder dimensions

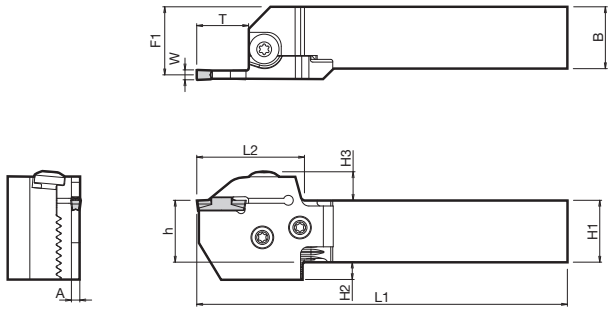
Width mm	Max. Grooving Depth mm	Description	Stock R	Stock L	Dimension H1=h	H2	H3	B	L1	L2	L3	F1	A	T	Insert Width W (mm) G20-G21 MIN	Insert Width W (mm) G20-G21 MAX	Spare parts: Clamp Bolt	Spare parts: Wrench
2	6	KGDR/L 1616H-2T06	○	○	16	4.0	9.5	16	100	27.7	28.0	15.2	1.7	6	2.0	3.0	HH5X16	LW-4
		2020K-2T06	○	○	20	-		20	125	28.0	-	19.2						
		2525M-2T06	○	○	25			25	150	28.0		24.2					HH5X25	
	10	KGDR/L 1616H-2T10	○	○	16	4.0		16	100	30.2	30.5	15.2		10			HH5X16	
		2020K-2T10	○	○	20	-		20	125	30.5	-	19.2						
		2525M-2T10	○	○	25			25	150	30.5		24.2					HH5X25	
	17	KGDR/L 1616H-2T17	○	○	16	4.0		16	100	31.2	31.5	15.2		17			HH5X16	
		2012K-2T17	○	○	20	-		12	125	32.5	-	11.2						
		2020K-2T17	○	○				20	125			19.2						
		2525M-2T17	○	○	25			25	150			24.2					HH5X25	
3	6	KGDR/L 1616H-3T06	○	○	16	4.0		16	100	27.7	28.0	14.8	2.4	6	3.0	4.0	HH5X16	LW-4
		2020K-3T06	○	○	20	-		20	125	28.0	-	18.8						
		2525M-3T06	○	○	25			25	150	28.0		23.8					HH5X25	
	10	KGDR/L 1616H-3T10	○	○	16	4.0		16	100	30.2	30.5	14.8		10			HH5X16	
		2020K-3T10	○	○	20	-		20	125	30.5	-	18.8						
		2525M-3T10	○	○	25			25	150			23.8					HH5X25	
	20	KGDR/L 1616H-3T20	○	○	16	4.0		16	100	34.2	34.5	14.8		20			HH5X16	
		2012K-3T20	○	○	20	-		12	125	34.5	-	10.8						
		2020K-3T20	○	○				20	125			18.8						
		2525M-3T20	○	○	25			25	150	35.5		23.8					HH5X25	
4	10	KGDR/L 2020K-4T10	○	○	20	-		20	125	30.5	-	18.3	3.4	10	4.0	5.0	HH5X16	LW-4
		2525M-4T10	○	○	25			25	150			23.3					HH5X25	
	20	KGDR/L 2020K-4T20	○	○	20			20	125	34.5	-	18.3		20			HH5X16	
		2525M-4T20	○	○	25			25	150	35.5		23.3					HH5X25	
	25	KGDR/L 2525M-4T25	○	○	25			25	150	40.5		23.3		25				
5	10	KGDR/L 2020K-5T10	○	○	20	-		20	125	30.5	-	17.8	4.4	10	5.0	6.0	HH5X16	LW-4
		2525M-5T10	○	○	25			25	150			22.8					HH5X25	
	17	KGDR/L 2020K-5T17	○	○	20			20	125	37.5	-	17.8		17				
		2525M-5T17	○	○	25			25	150			22.8						
	25	KGDR/L 2525M-5T25	○	○	25			25	150	40.5		22.8		25				
6	15	KGDR/L 2525M-6T15	○	○	25	-		25	150	32.5	-	22.4	5.3	15	6.0	6.0	HH5X25	LW-4
	30	KGDR/L 2525M-6T30	○	○	25			25	150	45.5		22.4		30				
8	25	KGDR/L 2525M-8T25	○	○	25	7.0		25	150	43.3	44.2	22.0	6.0	25	8.0	8.0	HH6X25	LW-5
		3232P-8T25	○	○	32	-		32	170		-	29.0						

(T dimension shows the distance from the Toolholder to the cutting edge.
(When using 2-edge insert, set the groove depth under 18mm.)

●: Std Stock ○: World Express

KGD-S 0° SwitchBlade Toolholder (Inch-Size) NEW





• Right-hand shown

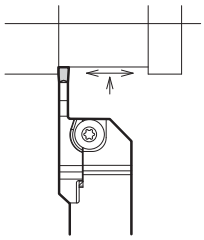
●Toolholder dimensions (toolholder and blade)

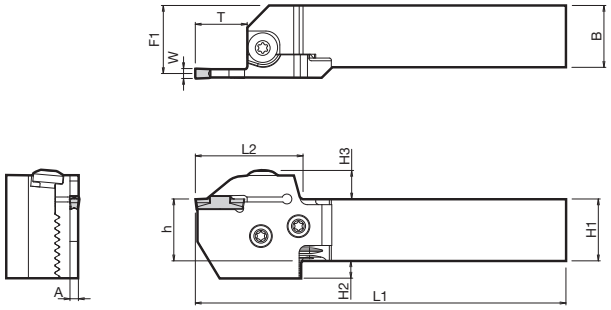
Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Description	Stock R	Stock L	Toolholder Description ➔ G26	Blade Description ➔ G26	Dimension(mm) H1=h	H2	H3	B	L1	L2	L3	F1	A	T	Insert Width W (mm) ➔ G20-G21 MIN	MAX
0°	2	0.669 (17mm)	KGDR/L 12X-2T17S	●	●	KGDR/L12-C	KGDR/L-2T17-C	0.75	0.472	0.456	0.75	4.80	1.57	-	0.88	0.067	0.669 (17mm)	2.0	3.0
			16X-2T17S	●	●	KGDR/L16-C		1.00	0.275		1.00	5.78			1.13				
	3	0.393 (10mm)	KGDR/L 12X-3T10S	●	●	KGDR/L12-C	KGDR/L-3T10-C	0.75	0.472		0.75	4.52	1.29		0.86	0.094	0.393 (10mm)	3.0	4.0
			16X-3T10S	●	●	KGDR/L16-C		1.00	0.275		1.00	5.51			1.11				
		0.787 (20mm)	KGDR/L 12X-3T20S	●	●	KGDR/L12-C	KGDR/L-3T20-C	0.75	0.472		0.75	4.92	1.68		0.86		0.669 (17mm)		
			16X-3T20S	●	●	KGDR/L16-C		1.00	0.275		1.00	5.90			1.11				
	4	0.393 (10mm)	KGDR/L 12X-4T10S	●	●	KGDR/L12-C	KGDR/L-4T10-C	0.75	0.472		0.75	4.52	1.29		0.84	0.133	0.393 (10mm)	4.0	5.0
			16X-4T10S	●	●	KGDR/L16-C		1.00	0.275		1.00	5.51			1.09				
		0.787 (20mm)	KGDR/L 12X-4T20S	●	●	KGDR/L12-C	KGDR/L-4T20-C	0.75	0.472		0.75	4.92	1.68		0.84		0.790 (20mm)		
			16X-4T20S	●	●	KGDR/L16-C		1.00	0.275		1.00	5.90			1.09				
		0.984 (25mm)	KGDR/L 12X-4T25S	●	●	KGDR/L12-C	KGDR/L-4T25-C	0.75	0.472		0.75	5.11	1.88		0.84		0.990 (25mm)		
			16X-4T25S	●	●	KGDR/L16-C		1.00	0.275		1.00	6.10			1.09				
	5	0.393 (10mm)	KGDR/L 12X-5T10S	●	●	KGDR/L12-C	KGDR/L-5T10-C	0.75	0.472		0.75	4.52	1.29		0.82	0.173	0.393 (10mm)	5.0	6.0
			16X-5T10S	●	●	KGDR/L16-C		1.00	0.275		1.00	5.51			1.07				
		0.984 (25mm)	KGDR/L 16X-5T25S	●	●	KGDR/L16-C	KGDR/L-5T25-C	1.00	0.275		1.00	6.10	1.88		1.07		0.990 (25mm)		

Note) 1. In case of normal mounting position, toolholder body may interfere with tool presetter
2. Toolholder description and blade description are printed on toolholder body. (Unit description is not indicated.)
KGD-S : R-hand Blade for R-hand Toolholder, L-hand Blade for L-hand Toolholder.
KGDS-S : L-hand Blade for R-hand Toolholder, R-hand Blade for L-hand Toolholder.
The toolholder is applicable for all blade with suitable hand.
3. T dimension shows the distance from the Toolholder to the cutting edge.(When using 2-edge insert, set the groove depth under 0.71inches)

●: Std Stock ○: World Express

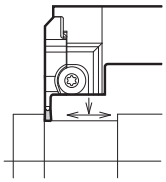
KGD-S 0° SwitchBlade Toolholder (Metric-Size) NEW

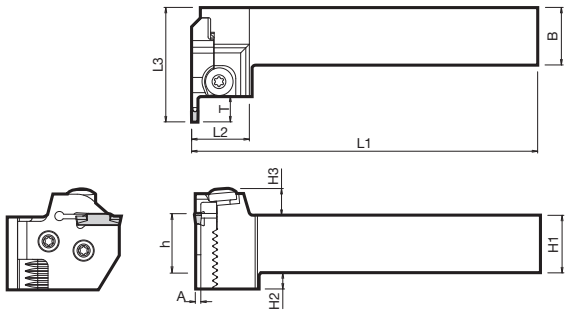




• Right-hand shown

KGDS-S 90° SwitchBlade Toolholder (Metric Size)





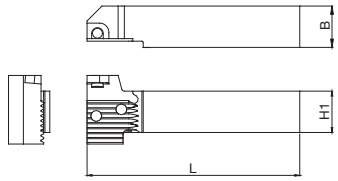
• Right-hand shown

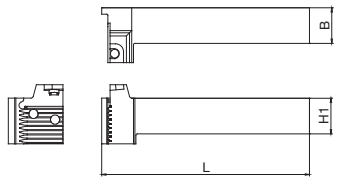
●Toolholder dimensions (toolholder and blade)

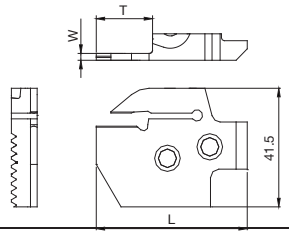
Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Unit Description Std. Stock Description	Stock R	Stock L	Toolholder Description ➔G26	Blade Description ➔G26	Dimension(mm) H1=h	H2	H3	B	L1	L2	L3	F1	A	T	Insert Width W (mm) ➔G20-G21 MIN	MAX
0°	2	17	KGD[R/L] 2020X-2T17S	●	●	KGD[R/L] 2020-C	KGD[R/L]-2T17-C	20	12	11.6	20	122	39.9	-	23.4	1.7	17	2.0	3.0
			2525X-2T17S	●	●	KGD[R/L] 2525-C		25	7		25	147			28.4				
	3	10	KGD[R/L] 2020X-3T10S	●	●	KGD[R/L] 2020-C	KGD[R/L]-3T10-C	20	12		20	115	32.9		23.0	2.4	10	3.0	4.0
			2525X-3T10S	●	●	KGD[R/L] 2525-C		25	7		25	140			28.0				
			3232X-3T10S	●	●	KGD[R/L] 3232-C		32	-		32	160			33.0				
		20	KGD[R/L] 2020X-3T20S	●	●	KGD[R/L] 2020-C	KGD[R/L]-3T20-C	20	12		20	125	42.9		23.0		20		
			2525X-3T20S	●	●	KGD[R/L] 2525-C		25	7		25	150			28.0				
			3232X-3T20S	●	●	KGD[R/L] 3232-C		32	-		32	170			33.0				
	4	10	KGD[R/L] 2020X-4T10S	●	●	KGD[R/L] 2020-C	KGD[R/L]-4T10-C	20	12		20	115	32.9		22.5	3.4	10	4.0	5.0
			2525X-4T10S	●	●	KGD[R/L] 2525-C		25	7		25	140			27.5				
			3232X-4T10S	●	●	KGD[R/L] 3232-C		32	-		32	160			32.5				
		20	KGD[R/L] 2020X-4T20S	●	●	KGD[R/L] 2020-C	KGD[R/L]-4T20-C	20	12		20	125	42.9		22.5		20		
			2525X-4T20S	●	●	KGD[R/L] 2525-C		25	7		25	150			27.5				
			3232X-4T20S	●	●	KGD[R/L] 3232-C		32	-		32	170			32.5				
		25	KGD[R/L] 2020X-4T25S	●	●	KGD[R/L] 2020-C	KGD[R/L]-4T25-C	20	12		20	130	47.9		22.5		25		
			2525X-4T25S	●	●	KGD[R/L] 2525-C		25	7		25	155			27.5				
			3232X-4T25S	●	●	KGD[R/L] 3232-C		32	-		32	175			32.5				
	5	10	KGD[R/L] 2020X-5T10S	●	●	KGD[R/L] 2020-C	KGD[R/L]-5T10-C	20	12		20	115	32.9		22.0	4.4	10	5.0	6.0
			2525X-5T10S	●	●	KGD[R/L] 2525-C		25	7		25	140			27.0				
			3232X-5T10S	●	●	KGD[R/L] 3232-C		32	-		32	160			32.0				
		25	KGD[R/L] 2020X-5T25S	●	●	KGD[R/L] 2020-C	KGD[R/L]-5T25-C	20	12		20	130	47.9		22.0		25		
			2525X-5T25S	●	●	KGD[R/L] 2525-C		25	7		25	155			27.0				
			3232X-5T25S	●	●	KGD[R/L] 3232-C		32	-		32	175			32.0				
90°	3	10	KGDS[R/L] 2020X-3T10S	●	●	KGDS[R/L] 2020-C	KGD[L/R]-3T10-C	20	12		20	125	25.1	49.7	-	2.4	10	3.0	4.0
			2525X-3T10S	●	●	KGDS[R/L] 2525-C		25	7		25	150							

●: Std Stock ○: World Express

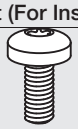
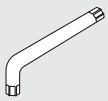
Note) 1. In case of normal mounting position, toolholder body may interfere with tool presetter
2. Toolholder description and blade description are printed on toolholder body. (Unit description is not indicated.)
KGD-S : R-hand Blade for R-hand Toolholder, L-hand Blade for L-hand Toolholder.
KGDS-S : L-hand Blade for R-hand Toolholder, R-hand Blade for L-hand Toolholder.
The toolholder is applicable for all blade with suitable hand.
3. T dimension shows the distance from the Toolholder to the cutting edge.(When using 2-edge insert, set the groove depth under 0.71inches)

0° SwitchBlade-Style Shape Right-hand Shown	Description of Toolholder		Stock		Dimension		
			R	L	L	B	H1
	KGDR/L	12-C	●	●	4.09"	0.75"	0.75"
		16-C	●	●	5.08"	1.00"	1.00"
	KGDR/L	2020-C	◭	○	104	20	20
		2525-C	○	◭	129	25	25
		3232-C	○	◭	149	32	32

90° SwitchBlade-Style Shape Right-hand Shown	Description of Toolholder		Stock		Dimension		
			R	L	L	B	H1
	KGDSR/L	12-C	●	●	4.80"	0.75"	0.75"
		16-C	●	●	5.79"	1.00"	1.00"
	KGDSR/L	2020-C	◭▲	◭	122	20	20
		2525-C	○	◭	147	25	25

Blade shape Right-hand Shown	Description of Blade		Stock		Dimension (inch)		
			R	L	L	T	W
	KGDR/L	-2T17-C	◭	◭	2.02	0.677	0.07
		-3T10-C	◭	◭	1.74	0.402	0.09
		-3T20-C	◭	◭	2.09	0.795	0.09
		-4T10-C	◭	◭	1.74	0.402	0.13
		-4T20-C	◭	◭	2.13	0.795	0.13
		-4T25-C	◭	◭	2.33	0.992	0.13
		-5T10-C	◭	◭	1.74	0.402	0.17
		-5T25-C	◭	◭	2.33	0.992	0.17

●Spare parts

Unit Description	Spare parts		
	Clamp bolt (For Insert Clamp)	Fixing bolt(For Blade)	Wrench
			
KGDR/L.....S	BH6X10TR	SB-60120TR	LTW-25

■ Installing the blade (SwitchBlade Style Holder)

1.Completely eliminate chips and dust from the serration part (See Fig.4).

2.Fit the serration joints of the blade and toolholder (See Fig.5).

3.Tighten the blade fixing bolts at an appropriate torque (Recommended tightening torque : 8 N·m). You can tighten them in any order (See Fig.5).

4.Install the insert after setting the blade.

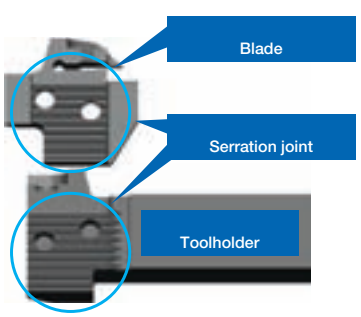


Fig.4

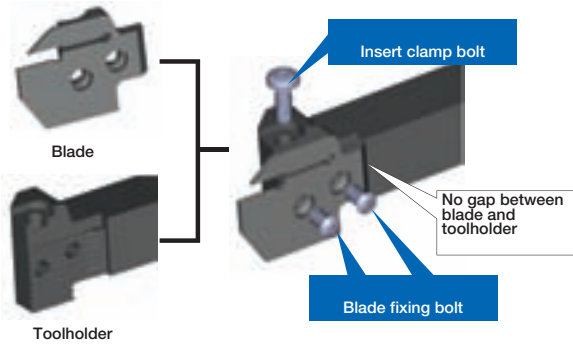


Fig.5

●: Std Stock ○: World Express

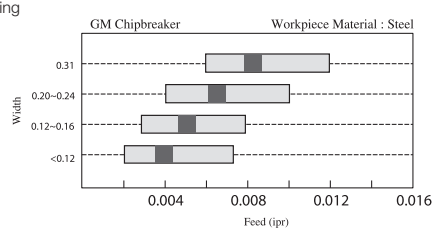
● Recommended Cutting Conditions (Grooving, Cut-off)

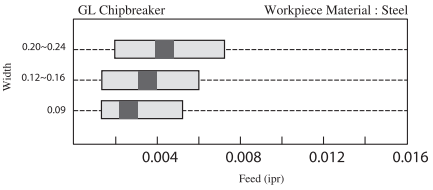
Workpiece Material		Recommended Insert Grade (Cutting Speed: sfm)				Remark
		Cermet	MEGACOAT		Uncoated Carbide	
		TN90	PR1225	PR1215	GW15	
Carbon Steel (SxxC)	GM	☆ 325~720	★ 260~650	☆ 325~650	-	Coolant Recommended
Alloy Steel (SCM)	GL PM	☆ 260~650	★ 230~590	☆ 260~590	-	
Stainless Steel (SUS304)	PH CM	☆ 230~590	★ 200~500	☆ 200~500	-	
Cast Iron (FC FCD)	GS	-	-	★ 325~650	-	
Aluminum	GS	-	-	-	★ 650~1650	
Brass		-	-	-	★ 325~720	

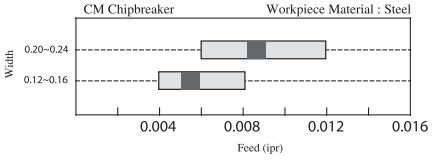
★: 1st. Recommendation ☆:2nd. Recommendation

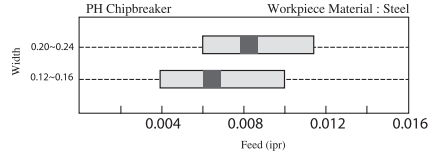
● Recommended Cutting Conditions Based on Insert Width (feed rate/ DOC)

■ Grooving

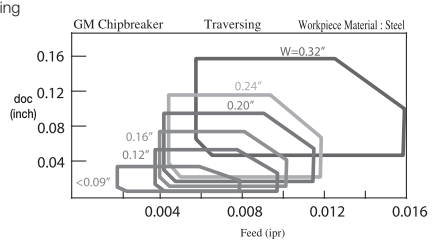


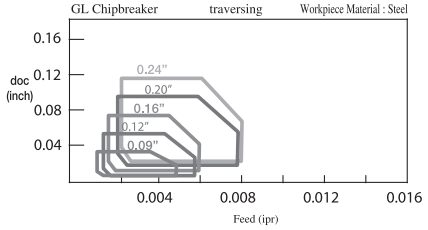


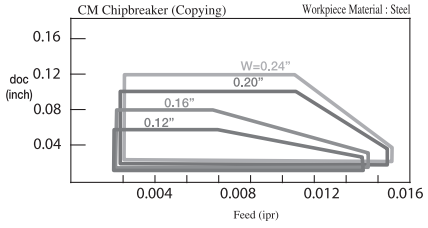


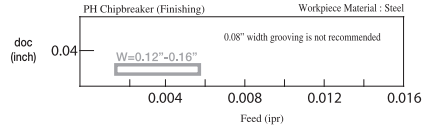


■ traversing







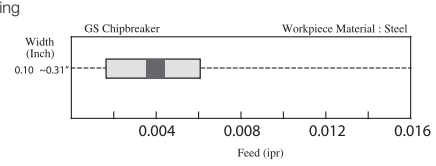


1) Above conditions are when toolholder's T dimension is under 17mm

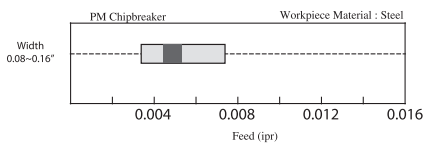
2) When T dimension is more than 17mm (for all toolholders except 8mm insert width type) use up to 90% of recommended cutting conditions at traversing

● Recommended Cutting Conditions (Feed)

■ Grooving



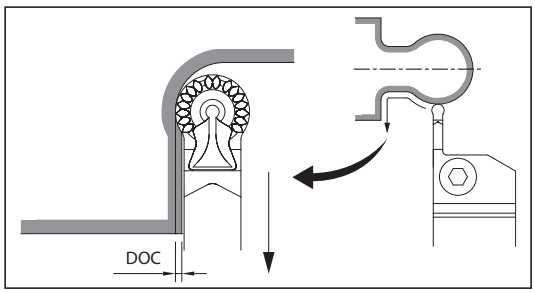
■ Cut-off



Set up depth of cut (ap) for traversing less than radius size.

● CM chip-breaker [about max. a.p. for pulling up] Recommended DOC for pulling up

Description		Max D.O.C. (inch)				
		Description of Toolholder				
		KGD...-2T...	KGD...-3T...	KGD...-4T...	KGD...-5T...	KGD...-6T...
GDM	3020N-150R-CM	0.009	0.008	-	-	-
	4020N-200R-CM	-	0.009	0.007	-	-
	5020N-250R-CM	-	-	0.012	0.008	-
	6020N-300R-CM	-	-	-	0.012	0.010



● Point of OD Turning

Point (I) (Traversing after grooving)

1 Over 0.020" of groove depth : For Roughing (Refer to fig 1)

Before traversing, pull the tool back by 0.004" after grooving. (Put the load on edge from single direction.)

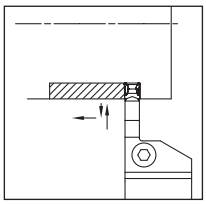


fig 1

Pull back the tool by 0.004" before traversing
(over 0.020" of groove depth for roughing)

2 Less than 0.020" of groove depth : For Finishing (Refer to fig 2)

Available to traverse continuously after grooving. (Dwell motion is not required)

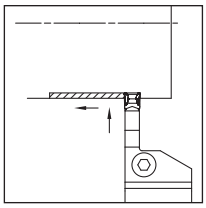


fig 2

Traversing continuously after grooving
(Less than 0.020" of groove depth for finishing)

Point (II)

1 In case of expanding groove width (Refer to fig. 3)

Please program to make steps at each pass.

2 For finishing

(Leave the material more than 0.020" total to get better chip control.)

Caution: It is recommend not to feed the tool toward the center when traversing without center.

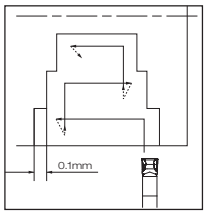
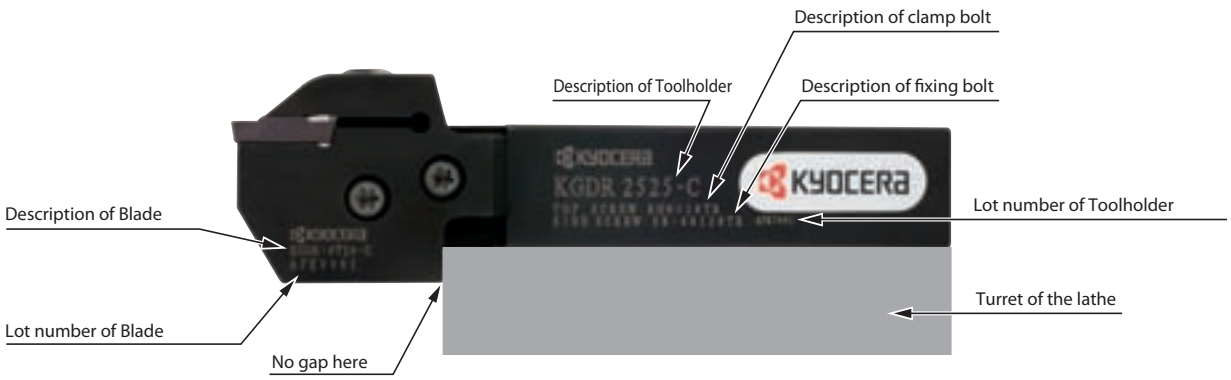


fig 3

● Descriptions of Swap-Style Toolholder and indication of setting up to machine.

No gap between blade and tool block.



KGDF Face Grooving System

Features

● SwitchBlade Style toolholder (toolholder + blade) is available.

Adaptable to wide applications of facing grooving by changing blades



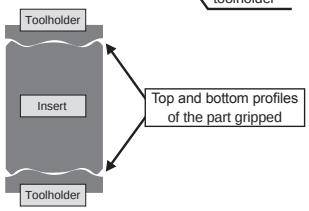
● New insert clamping system "**W** Grip"

Unique "**W** Grip" (insert anti-slip structure) provides stable machining quality

1) Prevents abnormal machining surface and/or insert breakage resulting from slip of insert.

2) Improves repetitive installation accuracy of insert

"GDFM type and GDFMS type inserts cannot be used with a KGD type external grooving toolholder."

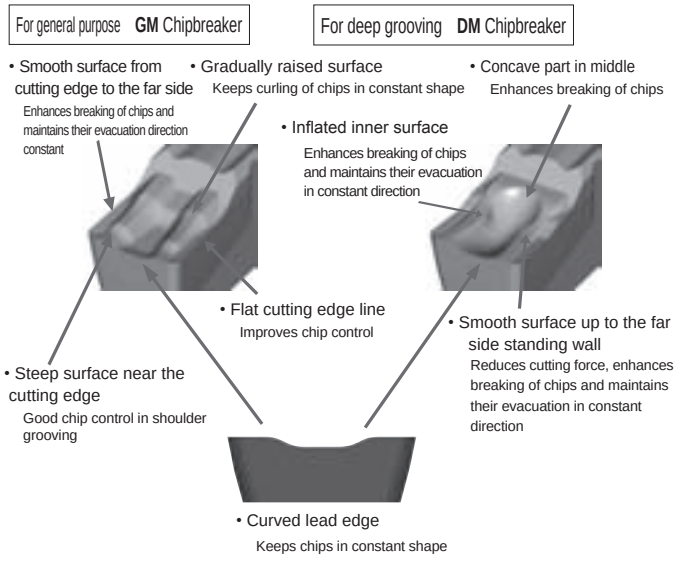


W Grip technology

● Smooth chip control

For general purpose **GM** Chipbreaker For deep grooving **DM** Chipbreaker

Advantages of Chipbreaker





Chip Control of GM Chipbreaker

<Cutting Conditions>
V c=150m/min f =0.05~ 0.2mm/rev
GDFM5020N-040GM SCM415 Wet

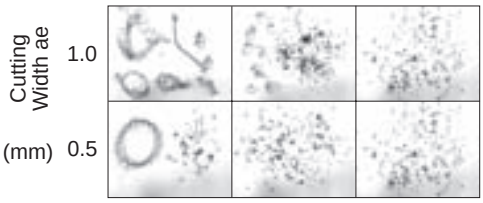
● Face Grooving (ø**62**)



0.05 0.08 0.1

Feed Rate f (mm/rev)

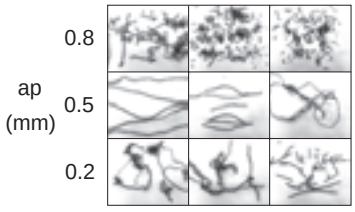
● Side Grooving



0.1 0.15 0.2

Feed Rate f (mm/rev)

● Traversing



0.05 0.1 0.15

Feed Rate f (mm/rev)

● High precision edge preparation

➡ High precision molding technology with tolerance ±0.03 mm (Edge width 3, 4 mm types)

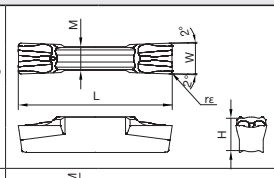
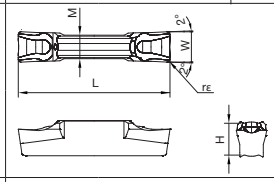
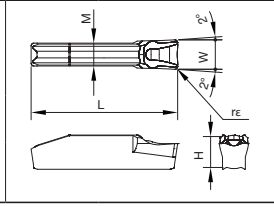
● Highly-reputed MEGACOAT technology

➡ Long tool life and high efficiency machining achieved by superior oxidation resistance and wear resistance.

KGDF Face Grooving Inserts NEW

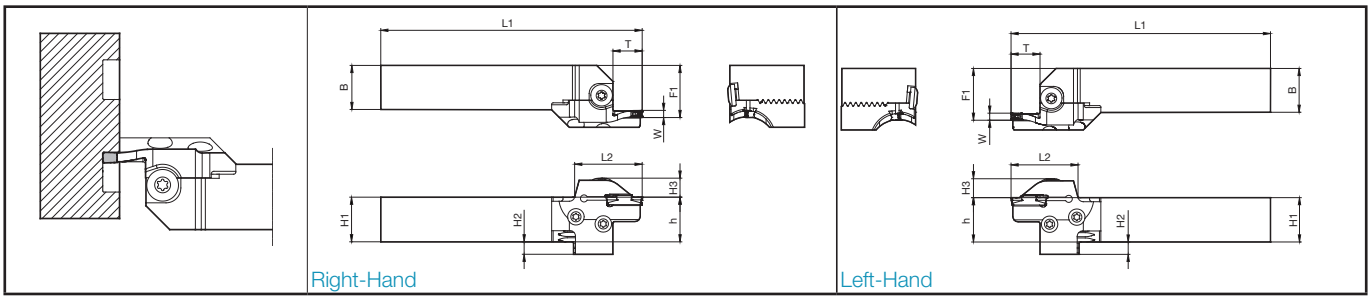
GDFM/GDFMS

Classification of usage					
● : Continuous - Interruption / 1st Choice ◔ : Continuous - Interruption / 2nd Choice ● : Continuous / 1st Choice	P	Carbon steel, Alloy steel	●	●	◔
	M	Stainless Steel		●	◔
	K	Cast iron			●
	N	Non-ferrous Material			
	S	Titanium alloy			
	H	Hard materials (under 40HRC)			
		Hard materials (over 40HRC)			

Shape			Description		Dimension(mm)							Cermet	MEGACOAT	
					W			rε	M	L	H	TN90	PR1225	PR1215
					inch	mm	tolerance							
Grooving & Traversing	2-edge		GDFM	3020N-030GM	0.12	3.0	±0.03	0.3	2.3	20	4.3	○	●	●
				4020N-040GM	0.16	4.0		0.4	3.3			○	●	●
				5020N-040GM	0.20	5.0	±0.04		4.2			○	●	●
				6020N-040GM	0.24	6.0			5.2			○	●	●
Deep Grooving, traversing	2-edge		GDFM	3020N-030DM	0.12	3.0	±0.03	0.3	2.3	20	4.3	○	●	●
				4020N-040DM	0.16	4.0		0.4	3.3			○	●	●
				5020N-040DM	0.20	5.0	±0.04		4.2			○	●	●
				6020N-040DM	0.24	6.0			5.2			○	●	●
	1-edge		GDFMS	3020N-030DM	0.12	3.0	±0.03	0.3	2.3	20	4.3	○	●	●
				4020N-040DM	0.16	4.0		0.4	3.3			○	●	●
				5020N-040DM	0.20	5.0	±0.04		4.2			○	●	●
				6020N-040DM	0.24	6.0			5.2			○	●	●

●: Std Stock ○: World Express

KGDF Face Grooving 0° Toolholders (Inch-Size) NEW



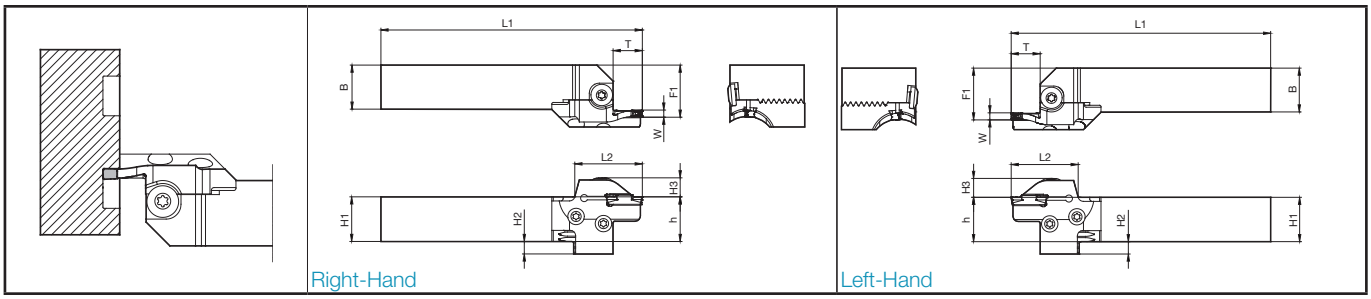
Toolholder Dimensions (3mm width)

Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Unit	Unit Description	Toolholder Description G26	Stock R	Stock L	Blade Description G46	Stock R	Stock L	H1=h	H2	H3	B	L1	L2	F1	T	Insert Width W (mm) G30 W	Face Grooving Dia. øD (mm) MIN	MAX
0°	3	13	Right Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDL12-C		●	KGDFR -25-3A-C	●		0.75	0.510	0.457	0.75	4.65	1.42	0.927	0.512	3	25	30
								-30-3A-C	●											30	40
								-40-3A-C	●											40	50
		15						-50-3B-C	●						4.72	1.50		0.591		50	65
								-65-3B-C	●											65	85
								-85-3B-C	●											85	110
								-110-3B-C	●											110	145
		22						-50-3C-C	●						5.00	1.77		0.866		50	65
								-65-3C-C	●											65	85
		25						-85-3C-C	●						5.12	1.89		0.984		85	110
								-110-3C-C	●											110	145
		13		No Unit Description. Please order Toolholder and Blade separately.	KGDL16-C		●	KGDFR -25-3A-C	●		1.00	0.260		1.00	5.63	1.42	1.177	0.512		25	30
								-30-3A-C	●											30	40
								-40-3A-C	●											40	50
		15						-50-3B-C	●						5.71	1.50		0.591		50	65
								-65-3B-C	●											65	85
								-85-3B-C	●											85	110
								-110-3B-C	●											110	145
		22						-50-3C-C	●						5.98	1.77		0.866		50	65
								-65-3C-C	●											65	85
		25						-85-3C-C	●						6.10	1.89		0.984		85	110
								-110-3C-C	●											110	145

Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Unit	Unit Description	Toolholder Description G26	Stock R	Stock L	Blade Description G46	Stock R	Stock L	H1=h	H2	H3	B	L1	L2	F1	T	Insert Width W (mm) G30 W	Face Grooving Dia. øD (mm) MIN	MAX
0°	3	13	Left Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDR12-C	●		KGDFL -25-3A-C		●	0.75	0.510	0.457	0.75	4.65	1.42	0.927	0.512	3	25	30
								-30-3A-C		●										30	40
								-40-3A-C		●										40	50
		15						-50-3B-C		●					4.72	1.50		0.591		50	65
								-65-3B-C		●										65	85
								-85-3B-C		●										85	110
								-110-3B-C		●										110	145
		22						-50-3C-C		●					5.00	1.77		0.866		50	65
								-65-3C-C		●										65	85
		25						-85-3C-C		●					5.12	1.89		0.984		85	110
								-110-3C-C		●										110	145
		13		No Unit Description. Please order Toolholder and Blade separately.	KGDR16-C	●		KGDFL -25-3A-C		●	1.00	0.260		1.00	5.63	1.42	1.177	0.512		25	30
								-30-3A-C		●										30	40
								-40-3A-C		●										40	50
		15						-50-3B-C		●					5.71	1.50		0.591		50	65
								-65-3B-C		●										65	85
								-85-3B-C		●										85	110
								-110-3B-C		●										110	145
		22						-50-3C-C		●					5.98	1.77		0.866		50	65
								-65-3C-C		●										65	85
		25						-85-3C-C		●					6.10	1.89		0.984		85	110
								-110-3C-C		●										110	145

- R-hand Blade for L-hand Toolholder, L-hand Blade for R-hand Toolholder
- Blade and tool holder are available to assemble when purchasing individually.
- Insert clamp bolt (BH6x10TR)/Blade fixing bolt(SB-60120TR) come with tool holder.

KGDF Face Grooving 0° Toolholders (Inch-Size) NEW



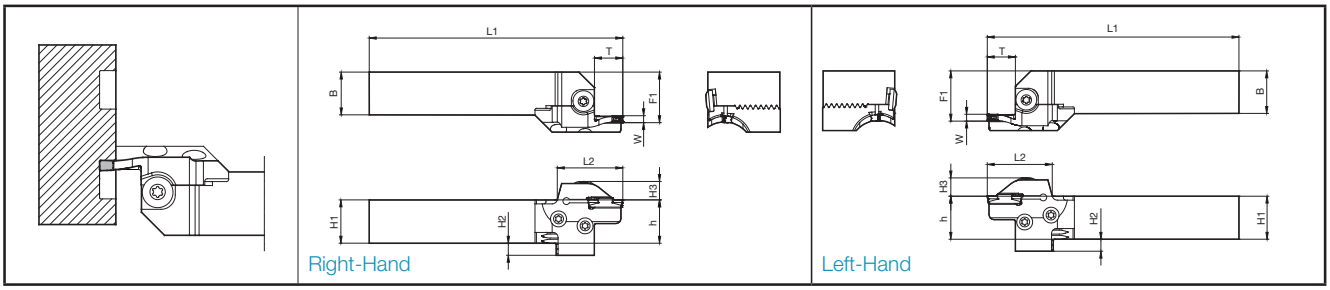
Toolholder Dimensions (4mm width)

Shank Angle	Width	Max. Grooving Depth	Unit	Unit Description	Toolholder Description → G26	Stock R	Stock L	Blade Description → G46	Stock R	Stock L	H1=h	H2	H3	B	L1	L2	F1	T	Insert Width W (mm) → G30	Face Grooving Dia. øD (mm) MIN	MAX
	(mm)	(mm)																			
0°	4	13	Right Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDL12-C		●	KGDFR-25-4A-C	●		0.75	0.510	0.457	0.75	4.65	1.42	0.927	0.512	4	25	35
								-35-4B-C	●											35	50
		15						-50-4B-C	●						4.72	1.50		0.591		50	70
								-70-4B-C	●											70	100
								-100-4B-C	●											100	150
								-150-4B-C	●											150	220
								-220-4B-C	●											220	∞
		25						-35-4C-C	●											35	50
								-50-4C-C	●											50	70
								-70-4C-C	●						5.12	1.89		0.984		70	100
								-100-4C-C	●											100	150
								-150-4C-C	●											150	220
								-220-4C-C	●											220	∞
		13		No Unit Description. Please order Toolholder and Blade separately.	KGDL16-C		●	KGDFR-25-4A-C	●		1.00	0.260		1.00	5.63	1.42	1.177	0.512		25	35
								-35-4B-C	●											35	50
		15						-50-4B-C	●						5.71	1.50		0.591		50	70
								-70-4B-C	●											70	100
								-100-4B-C	●											100	150
								-150-4B-C	●											150	220
								-220-4B-C	●											220	∞
		25						-35-4C-C	●											35	50
								-50-4C-C	●											50	70
								-70-4C-C	●						6.10	1.89		0.984		70	100
								-100-4C-C	●											100	150
								-150-4C-C	●											150	220
								-220-4C-C	●											220	∞
0°	4	13	Left Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDR12-C	●		KGDFL-25-4A-C		●	0.75	0.510	0.457	0.75	4.65	1.42	0.927	0.512	4	25	35
								-35-4B-C		●										35	50
		15						-50-4B-C		●					4.72	1.50		0.591		50	70
								-70-4B-C		●										70	100
								-100-4B-C		●										100	150
								-150-4B-C		●										150	220
								-220-4B-C		●										220	∞
		25						-35-4C-C		●										35	50
								-50-4C-C		●										50	70
								-70-4C-C		●					5.12	1.89		0.984		70	100
								-100-4C-C		●										100	150
								-150-4C-C		●										150	220
								-220-4C-C		●										220	∞
		13		No Unit Description. Please order Toolholder and Blade separately.	KGDR16-C	●		KGDFL-25-4A-C		●	1.00	0.260		1.00	5.63	1.42	1.177	0.512		25	35
								-35-4B-C		●										35	50
		15						-50-4B-C		●					5.71	1.50		0.591		50	70
								-70-4B-C		●										70	100
								-100-4B-C		●										100	150
								-150-4B-C		●										150	220
								-220-4B-C		●										220	∞
		25						-35-4C-C		●										35	50
								-50-4C-C		●										50	70
								-70-4C-C		●					6.10	1.89		0.984		70	100
								-100-4C-C		●										100	150
								-150-4C-C		●										150	220
								-220-4C-C		●										220	∞

- R-hand Blade for L-hand Toolholder, L-hand Blade for R-hand Toolholder
- Blade and tool holder are available to assemble when purchasing individually.
- Insert clamp bolt (BH6x10TR)/Blade fixing bolt(SB-60120TR) come with tool holder.

●: Std Stock ○: World Express

KGDF Face Grooving 0° Toolholders (Inch-Size) NEW



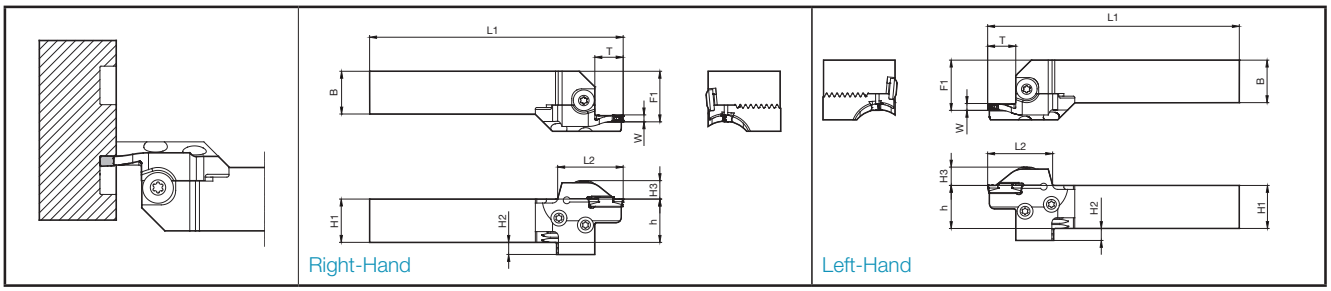
● Toolholder Dimensions (5mm width)

Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Unit	Unit Description	Toolholder Description G26	Stock R	Stock L	Blade Description G46	Stock R	Stock L	H1=h	H2	H3	B	L1	L2	F1	T	Insert Width W (mm) G30 W	Face Grooving Dia. øD (mm) MIN	MAX
0°	5	15	Right Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDL12-C		●	KGDFR -25-5B-C	●		0.75	0.510	0.457	0.75	4.72	1.50	0.927	0.591	5	25	35
								-35-5B-C	●											35	50
								-50-5B-C	●											50	75
								-75-5B-C	●											75	115
								-115-5B-C	●											115	180
								-180-5B-C	●											180	235
								-235-5B-C	●											235	∞
		20						-25-5C-C	●						4.92	1.69		0.787		25	35
		25						-35-5C-C	●						5.12	1.89		0.984		35	50
								-50-5C-C	●											50	75
								-75-5C-C	●											75	115
								-115-5C-C	●											115	180
								-180-5C-C	●											180	235
								-235-5C-C	●											235	∞
		15		No Unit Description. Please order Toolholder and Blade separately.	KGDL16-C		●	KGDFR -25-5B-C	●		1.00	0.260		1.00	5.70	1.50	1.177	0.591		25	35
								-35-5B-C	●											35	50
								-50-5B-C	●											50	75
								-75-5B-C	●											75	115
								-115-5B-C	●											115	180
								-180-5B-C	●											180	235
								-235-5B-C	●											235	∞
		20						-25-5C-C	●						5.90	1.69		0.787		25	35
		25						-35-5C-C	●						6.10	1.89		0.984		35	50
								-50-5C-C	●											50	75
								-75-5C-C	●											75	115
								-115-5C-C	●											115	180
								-180-5C-C	●											180	235
								-235-5C-C	●											235	∞
0°	5	15	Left Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDR12-C	●		KGDFL -25-5B-C		●	0.75	0.510	0.457	0.75	4.72	1.50	0.927	0.591	5	25	35
								-35-5B-C		●										35	50
								-50-5B-C		●										50	75
								-75-5B-C		●										75	115
								-115-5B-C		●										115	180
								-180-5B-C		●										180	235
								-235-5B-C		●										235	∞
		20						-25-5C-C		●					4.92	1.69		0.787		25	35
		25						-35-5C-C		●					5.12	1.89		0.984		35	50
								-50-5C-C		●										50	75
								-75-5C-C		●										75	115
								-115-5C-C		●										115	180
								-180-5C-C		●										180	235
								-235-5C-C		●										235	∞
		15		No Unit Description. Please order Toolholder and Blade separately.	KGDR16-C	●		KGDFL -25-5B-C		●	1.00	0.260		1.00	5.70	1.50	1.177	0.591		25	35
								-35-5B-C		●										35	50
								-50-5B-C		●										50	75
								-75-5B-C		●										75	115
								-115-5B-C		●										115	180
								-180-5B-C		●										180	235
								-235-5B-C		●										235	∞
		20						-25-5C-C		●					5.90	1.69		0.787		25	35
		25						-35-5C-C		●					6.10	1.89		0.984		35	50
								-50-5C-C		●										50	75
								-75-5C-C		●										75	115
								-115-5C-C		●										115	180
								-180-5C-C		●										180	235
								-235-5C-C		●										235	∞

- R-hand Blade for L-hand Toolholder, L-hand Blade for R-hand Toolholder
- Blade and tool holder are available to assemble when purchasing individually.
- Insert clamp bolt (BH6x10TR)/Blade fixing bolt(SB-60120TR) come with tool holder.

●: Std Stock ○: World Express

KGDF Face Grooving 0° Toolholders (Inch-Size) NEW



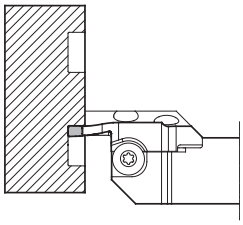
Toolholder Dimensions (6mm width)

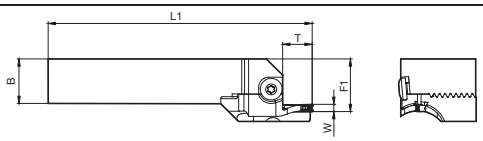
Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Unit	Unit Description	Toolholder Description ➔ G26	Stock R	Stock L	Blade Description ➔ G46	Stock R	Stock L	H1=h	H2	H3	B	L1	L2	F1	T	Insert Width W (mm) ➔ G30	Face Grooving Dia. øD (mm) MIN	MAX
0°	6	15	Right Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDL12-C		●	KGDFR-25-6B-C	●		0.75	0.510	0.457	0.75	4.72	1.50	0.927	0.591	6	25	35
								-35-6B-C	●											35	50
								-50-6B-C	●											50	75
								-75-6B-C	●											75	115
								-115-6B-C	●											115	180
								-180-6B-C	●											180	235
								-235-6B-C	●											235	∞
		20						-25-6C-C	●						4.92	1.69		0.787		25	35
								-35-6C-C	●											35	50
								-50-6C-C	●											50	75
		25						-75-6C-C	●						5.12	1.89		0.984		75	115
								-115-6C-C	●											115	180
								-180-6C-C	●											180	235
								-235-6C-C	●											235	∞
		15		No Unit Description. Please order Toolholder and Blade separately.	KGDL16-C		●	KGDFR-25-6B-C	●		1.00	0.260		1.00	5.70	1.50	1.177	0.591		25	35
								-35-6B-C	●											35	50
								-50-6B-C	●											50	75
								-75-6B-C	●											75	115
								-115-6B-C	●											115	180
								-180-6B-C	●											180	235
								-235-6B-C	●											235	∞
		20						-25-6C-C	●						5.90	1.69		0.787		25	35
								-35-6C-C	●											35	50
								-50-6C-C	●											50	75
		25						-75-6C-C	●						6.10	1.89		0.984		75	115
								-115-6C-C	●											115	180
								-180-6C-C	●											180	235
								-235-6C-C	●											235	∞
0°	6	15	Left Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDR12-C	●		KGDFL-25-6B-C		●	0.75	0.510	0.457	0.75	4.72	1.50	0.927	0.591	6	25	35
								-35-6B-C		●										35	50
								-50-6B-C		●										50	75
								-75-6B-C		●										75	115
								-115-6B-C		●										115	180
								-180-6B-C		●										180	235
								-235-6B-C		●										235	∞
		20						-25-6C-C		●					4.92	1.69		0.787		25	35
								-35-6C-C		●										35	50
								-50-6C-C		●										50	75
		25						-75-6C-C		●					5.12	1.89		0.984		75	115
								-115-6C-C		●										115	180
								-180-6C-C		●										180	235
								-235-6C-C		●										235	∞
		15		No Unit Description. Please order Toolholder and Blade separately.	KGDR16-C	●		KGDFL-25-6B-C		●	1.00	0.260		1.00	5.70	1.50	1.177	0.591		25	35
								-35-6B-C		●										35	50
								-50-6B-C		●										50	75
								-75-6B-C		●										75	115
								-115-6B-C		●										115	180
								-180-6B-C		●										180	235
								-235-6B-C		●										235	∞
		20						-25-6C-C		●					5.90	1.69		0.787		25	35
								-35-6C-C		●										35	50
								-50-6C-C		●										50	75
		25						-75-6C-C		●					6.10	1.89		0.984		75	115
								-115-6C-C		●										115	180
								-180-6C-C		●										180	235
								-235-6C-C		●										235	∞

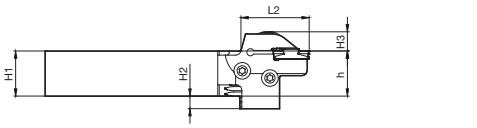
- R-hand Blade for L-hand Toolholder, L-hand Blade for R-hand Toolholder
- Blade and tool holder are available to assemble when purchasing individually.
- Insert clamp bolt (BH6x10TR)/Blade fixing bolt(SB-60120TR) come with tool holder.

●: Std Stock ○: World Express

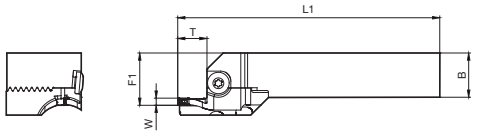
KGDF Face Grooving 0° Toolholders (Metric-Size) NEW

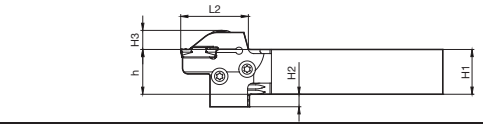






▲Right-hand shown





▲Left-hand shown

● Toolholder Dimensions

Shank Angle	Width	Max. Grooving Depth	Unit Description (Includes Applicable Toolholder and Blade)	Stock		Toolholder Description G26	Blade Description G46	Dimension(mm)								Insert Width W (mm) G30	øD (mm)	
				R	L			H1=h	H2	H3	B	L1	L2	F1	T	W	MIN	MAX
	(mm)	(mm)																
0°	3	13	KGDF R/L 2020X25-3AS	○	○	KGD L/R 2020-C	KGDF R/L -25-3A-C	20	12	11.6	20	118	36	24.2	13	3	25	30
			2020X30-3AS	○	○		-30-3A-C										30	40
			2020X40-3AS	○	○		-40-3A-C										40	50
		15	2020X50-3BS	○	○		-50-3B-C					120	38		15		50	65
			2020X65-3BS	○	○		-65-3B-C										65	85
			2020X85-3BS	○	○		-85-3B-C										85	110
			2020X110-3BS	○	○		-110-3B-C										110	145
		22	2020X50-3CS	○	○		-50-3C-C					127	45		22		50	65
			2020X65-3CS	○	○		-65-3C-C										65	85
		25	2020X85-3CS	○	○		-85-3C-C					130	48		25		85	110
			2020X110-3CS	○	○		-110-3C-C										110	145
		13	KGDF R/L 2525X25-3AS	○	○	KGD L/R 2525-C	KGD R/L -25-3A-C	25	17	11.6	25	143	36	29.2	13		25	30
			2525X30-3AS	○	○		-30-3A-C										30	40
			2525X40-3AS	○	○		-40-3A-C										40	50
		15	2525X50-3BS	○	○		-50-3B-C					145	38		15		50	65
			2525X65-3BS	○	○		-65-3B-C										65	85
			2525X85-3BS	○	○		-85-3B-C										85	110
			2525X110-3BS	○	○		-110-3B-C										110	145
		22	2525X50-3CS	○	○		-50-3C-C					152	45		22		50	65
			2525X65-3CS	○	○		-65-3C-C										65	85
		25	2525X85-3CS	○	○		-85-3C-C					155	48		25		85	110
			2525X110-3CS	○	○		-110-3C-C										110	145

● KGDF Description

Unit description (Unit description is not marked)		Toolholder (Toolholder description is marked)		Blade (Blade description is marked)	
Right-hand: KGDFR□□□S		Left-hand: KGDL□□□-C		Right-hand: KGDFR□□□-C	
	←		+		
Left-Hand: KGDFL□□□S		Left-hand: KGDR□□□-C		Left-hand: KGDFL□□□-C	
	←		+		

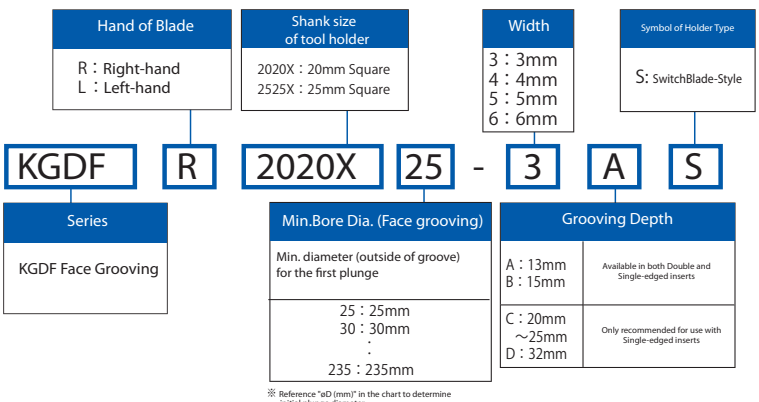
• Left-hand shown • Right-hand shown • Left-hand shown

●: Std Stock ○: World Express

● Toolholder dimensions

Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Unit Description	Stock R	Stock L	Toolholder Description → G26	Blade Description → G46	H1=h	H2	H3	B	L1	L2	F1	T	Insert Width W (mm) → G30 W	øD (mm) MIN	øD (mm) MAX
0°	4	13	KGDF R/L 2020X25-4AS	○	○	KGD L/R 2020-C	KGDF R/L -25-4A-C	20	12	11.6	20	118	36	24.2	13	4	25	35
		15	2020X35-4BS	○	○		-35-4B-C					120	38		15		35	50
			2020X50-4BS	○	○		-50-4B-C										50	70
			2020X70-4BS	○	○		-70-4B-C										70	100
			2020X100-4BS	○	○		-100-4B-C										100	150
			2020X150-4BS	○	○		-150-4B-C										150	220
			2020X220-4BS	○	○		-220-4B-C										220	∞
		25	2020X35-4CS	○	○		-35-4C-C					130	48		25		35	50
			2020X50-4CS	○	○		-50-4C-C										50	70
			2020X70-4CS	○	○		-70-4C-C										70	100
			2020X100-4CS	○	○		-100-4C-C										100	150
			2020X150-4CS	○	○		-150-4C-C										150	220
			2020X220-4CS	○	○		-220-4C-C										220	∞
		13	KGDF R/L 2525X25-4AS	○	○	KGD L/R 2525-C	KGDF R/L -25-4A-C	25	17	11.6	25	143	36	29.2	13		25	35
		15	2525X35-4BS	○	○		-35-4B-C					145	38		15		35	50
			2525X50-4BS	○	○		-50-4B-C										50	70
			2525X70-4BS	○	○		-70-4B-C										70	100
			2525X100-4BS	○	○		-100-4B-C										100	150
			2525X150-4BS	○	○		-150-4B-C										150	220
			2525X220-4BS	○	○		-220-4B-C										220	∞
		25	2525X35-4CS	○	○		-35-4C-C					155	48		25		35	50
			2525X50-4CS	○	○		-50-4C-C										50	70
			2525X70-4CS	○	○		-70-4C-C										70	100
			2525X100-4CS	○	○		-100-4C-C										100	150
			2525X150-4CS	○	○		-150-4C-C										150	220
			2525X220-4CS	○	○		-220-4C-C										220	∞
	5	15	KGDF R/L 2020X25-5BS	○	○	KGD L/R 2020-C	KGDF R/L -25-5B-C	20	12	11.6	20	120	38	24.2	15	5	25	35
			2020X35-5BS	○	○		-35-5B-C										35	50
			2020X50-5BS	○	○		-50-5B-C										50	75
			2020X75-5BS	○	○		-75-5B-C										75	115
			2020X115-5BS	○	○		-115-5B-C										115	180
			2020X180-5BS	○	○		-180-5B-C										180	235
			2020X235-5BS	○	○		-235-5B-C										235	∞
		20	2020X25-5CS	○	○		-25-5C-C					125	43		20		25	35
		25	2020X35-5CS	○	○		-35-5C-C					130	48		25		35	50
			2020X50-5CS	○	○		-50-5C-C										50	75
			2020X75-5CS	○	○		-75-5C-C										75	115
			2020X115-5CS	○	○		-115-5C-C										115	180
			2020X180-5CS	○	○		-180-5C-C										180	235
			2020X235-5CS	○	○		-235-5C-C										235	∞
		15	KGDF R/L 2525X25-5BS	○	○	KGD L/R 2525-C	KGDF R/L -25-5B-C	25	17	11.6	25	145	38	29.2	15		25	35
			2525X35-5BS	○	○		-35-5B-C										35	50
			2525X50-5BS	○	○		-50-5B-C										50	75
			2525X75-5BS	○	○		-75-5B-C										75	115
			2525X115-5BS	○	○		-115-5B-C										115	180
			2525X180-5BS	○	○		-180-5B-C										180	235
			2525X235-5BS	○	○		-235-5B-C										235	∞
		20	2525X25-5CS	○	○		-25-5C-C					150	43		20		25	35
		25	2525X35-5CS	○	○		-35-5C-C					155	48		25		35	50
			2525X50-5CS	○	○		-50-5C-C										50	75
		32	2525X75-5DS	○	○		-75-5C-C					162	55		32		75	115
			2525X115-5DS	○	○		-115-5C-C										115	180
			2525X180-5DS	○	○		-180-5C-C										180	235
			2525X235-5DS	○	○		-235-5C-C										235	∞

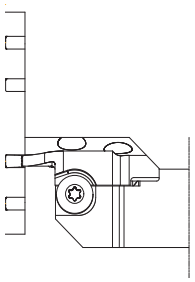
● Face Grooving tool Unit Description



※ Reference "øD (mm)" in the chart to determine initial plunge diameter

→ What does ØD MIN and ØD MAX indicate?

It indicates the available range for the 1st plunge.
Outside diameter of the groove is shown



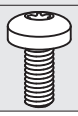
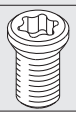
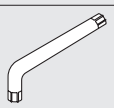
●: Std Stock ○: World Express

KGDF Face Grooving 0° Toolholders (Metric-Size) NEW

Toolholder dimensions

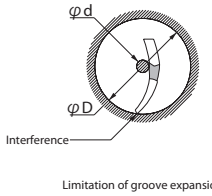
Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Unit Description	Stock R	Stock L	Toolholder Description → G26	Blade Description → G46	H1=h	H2	H3	B	L1	L2	F1	T	Insert Width W (mm) → G30 W	øD (mm) MIN	øD (mm) MAX
0°	6	15	KGDF R/L 2020X25-6BS	○	○	KGD L/R 2020-C	KGDF R/L -25-6B-C	20	12	11.6	20	120	38	24.2	15	6	25	35
			2020X35-6BS	○	○		-35-6B-C										35	50
			2020X50-6BS	○	○		-50-6B-C										50	75
			2020X75-6BS	○	○		-75-6B-C										75	115
			2020X115-6BS	○	○		-115-6B-C										115	180
			2020X180-6BS	○	○		-180-6B-C										180	235
			2020X235-6BS	○	○		-235-6B-C										235	∞
		20	2020X25-6CS	○	○		-25-6C-C					125	43		20		25	35
		25	2020X35-6CS	○	○		-35-6C-C					130	48		25		35	50
			2020X50-6CS	○	○		-50-6C-C										50	75
			2020X75-6CS	○	○		-75-6C-C										75	115
			2020X115-6CS	○	○		-115-6C-C										115	180
			2020X180-6CS	○	○		-180-6C-C										180	235
			2020X235-6CS	○	○		-235-6C-C										235	∞
		15	KGDF R/L 2525X25-6BS	○	○	KGD L/R 2525-C	KGDF R/L -25-6B-C	25	17	11.6	25	145	38	29.2	15		25	35
			2525X35-6BS	○	○		-35-6B-C										35	50
			2525X50-6BS	○	○		-50-6B-C										50	75
			2525X75-6BS	○	○		-75-6B-C										75	115
			2525X115-6BS	○	○		-115-6B-C										115	180
			2525X180-6BS	○	○		-180-6B-C										180	235
			2525X235-6BS	○	○		-235-6B-C										235	∞
		20	2525X25-6CS	○	○		-25-6C-C					150	43		20		25	35
		25	2525X35-6CS	○	○		-35-6C-C					155	48		25		35	50
			2525X50-6CS	○	○		-50-6C-C										50	75
		32	2525X75-6DS	○	○		-75-6C-C					162	55		32		75	115
			2525X115-6DS	○	○		-115-6C-C										115	180
			2525X180-6DS	○	○		-180-6C-C										180	235
			2525X235-6DS	○	○		-235-6C-C										235	∞

Spare parts

Unit Description	Spare parts		
	Clamp bolt (For Insert Clamp)	Fixing bolt(For Blade)	Wrench
			
KGDF R/L·····S	BH6X10TR	SB-60120TR	LTW-25

Limitation of groove expansion for small diameter.

Please be aware of the limit diameter when expanding the groove to the center. There is no limit diameter to expand the groove outside.



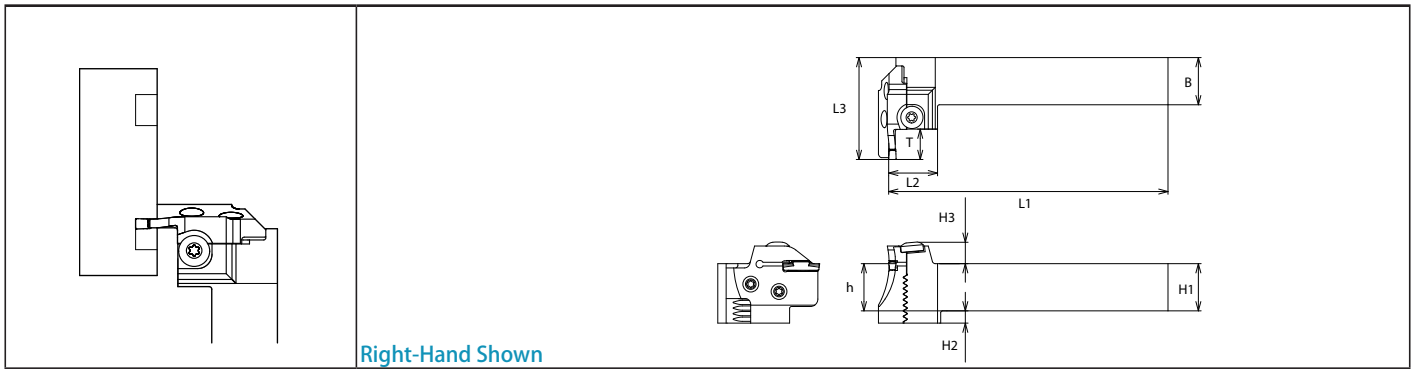
Limitation of groove expansion

Description		øD 25	26	27	28 over
		ød			
KGDF R/L	2020X25-3AS	4	2	0	0 No remaining Boss
	2525X25-3AS				
	2020X25-4AS	6	3	0	
	2525X25-4AS				
	2020X25-5AS	7	4	1	
	2525X25-5AS				
	2020X25-6AS	9	4	1	
	2525X25-6AS				

KGDFR2020X25-3AS with ø25mm as first cut towards the center, it will encounter rubbing of the holder cartridge when ød is 4.0mm. However, if the first cut øD was 27mm and above, it will be able to transverse cut towards the center without interference.

●: Std Stock ○: World Express

KGDF Face Grooving 90° Toolholders (Inch-Size) NEW



Right-Hand Shown

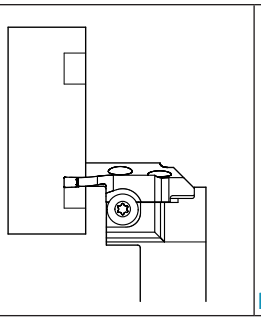
● Toolholder Dimensions (3mm width)

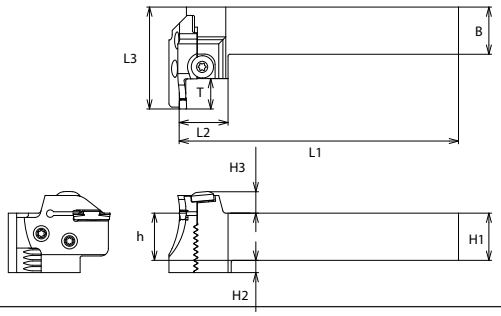
Shank Angle	Width	Max. Grooving Depth	Unit	Unit Description	Toolholder Description → G26	Stock R	Stock L	Blade Description → G46	Stock R	Stock L	H1=h	H2	H3	B	L1	L2	L3	T	Insert Width W (mm) → G30 W	Face Grooving Dia. øD (mm) MIN	MAX
	(mm)	(mm)																			
90°	3	13	Right Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSR12-C	●		KGDFR -25-3A-C	●		0.75	0.510	0.457	0.75	4.93	0.99	2.07	0.512	3	25	30
								-30-3A-C	●											30	40
								-40-3A-C	●											40	50
		15						-50-3B-C	●								2.15	0.591		50	65
								-65-3B-C	●											65	85
								-85-3B-C	●											85	110
								-110-3B-C	●											110	145
		22						-50-3C-C	●								2.43	0.866		50	65
								-65-3C-C	●											65	85
		25						-85-3C-C	●								2.55	0.984		85	110
								-110-3C-C	●											110	145
		13		No Unit Description. Please order Toolholder and Blade separately.	KGDSR16-C	●		KGDFR -25-3A-C	●		1.00	0.260		1.00	5.91		2.07	0.512		25	30
								-30-3A-C	●											30	40
								-40-3A-C	●											40	50
		15						-50-3B-C	●								2.15	0.591		50	65
								-65-3B-C	●											65	85
								-85-3B-C	●											85	110
								-110-3B-C	●											110	145
		22						-50-3C-C	●								2.43	0.866		50	65
								-65-3C-C	●											65	85
		25						-85-3C-C	●								2.55	0.984		85	110
								-110-3C-C	●											110	145
90°	3	13	Left Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSL12-C		●	KGDFL -25-3A-C		●	0.75	0.510	0.457	0.75	4.93	0.99	2.07	0.512	3	25	30
								-30-3A-C		●										30	40
								-40-3A-C		●										40	50
		15						-50-3B-C		●							2.15	0.591		50	65
								-65-3B-C		●										65	85
								-85-3B-C		●										85	110
								-110-3B-C		●										110	145
		22						-50-3C-C		●							2.43	0.866		50	65
								-65-3C-C		●										65	85
		25						-85-3C-C		●							2.55	0.984		85	110
								-110-3C-C		●										110	145
		13		No Unit Description. Please order Toolholder and Blade separately.	KGDSL16-C		●	KGDFL -25-3A-C		●	1.00	0.260		1.00	5.91		2.07	0.512		25	30
								-30-3A-C		●										30	40
								-40-3A-C		●										40	50
		15						-50-3B-C		●							2.15	0.591		50	65
								-65-3B-C		●										65	85
								-85-3B-C		●										85	110
								-110-3B-C		●										110	145
		22						-50-3C-C		●							2.43	0.866		50	65
								-65-3C-C		●										65	85
		25						-85-3C-C		●							2.55	0.984		85	110
								-110-3C-C		●										110	145

- R-hand Blade for R-hand Toolholder, L-hand Blade for L-hand Toolholder
- Blade and tool holder are available to assemble when purchasing individually.
- Insert clamp bolt (BH6x10TR)/Blade fixing bolt(SB-60120TR) come with tool holder.

●: Std Stock ○: World Express

KGDF Face Grooving 90° Toolholders (Inch-Size) NEW





Right-Hand Shown

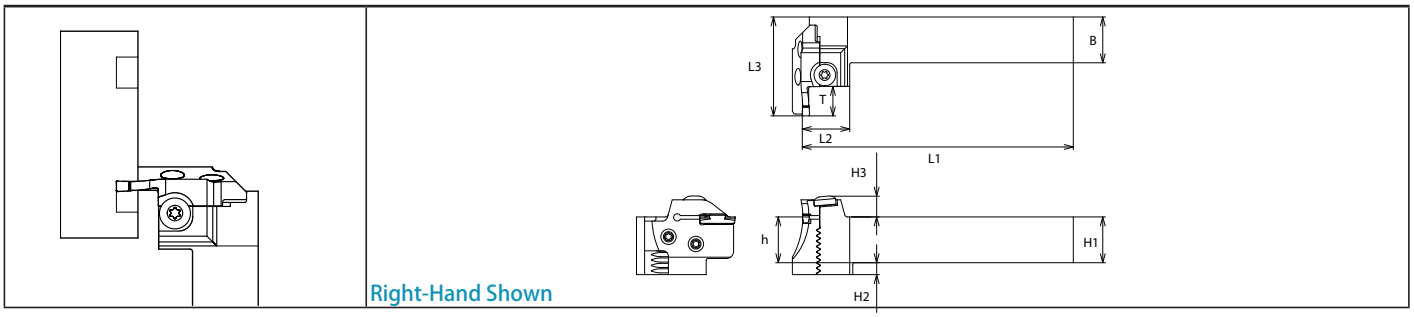
Toolholder Dimensions (4mm width)

Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Unit	Unit Description	Toolholder Description G26	Stock R	Stock L	Blade Description G46	Stock R	Stock L	H1=h	H2	H3	B	L1	L2	L3	T	Insert Width W (mm) G30	Face Grooving Dia. øD (mm) MIN	MAX
90°	4	13	Right Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSR12-C	●		KGDFR -25-4A-C	●		0.75	0.510	0.457	0.75	4.93	0.988	2.07	0.512	4	25	35
								-35-4B-C	●											35	50
		15						-50-4B-C	●								2.15	0.591		50	70
								-70-4B-C	●											70	100
								-100-4B-C	●											100	150
								-150-4B-C	●											150	220
								-220-4B-C	●											220	∞
								-35-4C-C	●											35	50
								-50-4C-C	●											50	70
		25						-70-4C-C	●								2.55	0.984		70	100
								-100-4C-C	●											100	150
								-150-4C-C	●											150	220
								-220-4C-C	●											220	∞
		13		No Unit Description. Please order Toolholder and Blade separately.	KGDSR16-C	●		KGDFR -25-4A-C	●		1.00	0.260		1.00	5.91		2.07	0.512		25	35
								-35-4B-C	●											35	50
		15						-50-4B-C	●								2.15	0.591		50	70
								-70-4B-C	●											70	100
								-100-4B-C	●											100	150
								-150-4B-C	●											150	220
								-220-4B-C	●											220	∞
								-35-4C-C	●											35	50
		25						-50-4C-C	●											50	70
								-70-4C-C	●								2.55	0.984		70	100
								-100-4C-C	●											100	150
								-150-4C-C	●											150	220
								-220-4C-C	●											220	∞
90°	4	13	Left Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSL12-C		●	KGDFL -25-4A-C		●	0.75	0.510	0.457	0.75	4.93	0.988	2.07	0.512	4	25	35
								-35-4B-C		●										35	50
		15						-50-4B-C		●							2.15	0.591		50	70
								-70-4B-C		●										70	100
								-100-4B-C		●										100	150
								-150-4B-C		●										150	220
								-220-4B-C		●										220	∞
								-35-4C-C		●										35	50
		25						-50-4C-C		●										50	70
								-70-4C-C		●							2.55	0.984		70	100
								-100-4C-C		●										100	150
								-150-4C-C		●										150	220
								-220-4C-C		●										220	∞
		13		No Unit Description. Please order Toolholder and Blade separately.	KGDSL16-C		●	KGDFL -25-4A-C		●	1.00	0.260		1.00	5.91		2.07	0.512		25	35
								-35-4B-C		●										35	50
		15						-50-4B-C		●							2.15	0.591		50	70
								-70-4B-C		●										70	100
								-100-4B-C		●										100	150
								-150-4B-C		●										150	220
								-220-4B-C		●										220	∞
								-35-4C-C		●										35	50
		25						-50-4C-C		●										50	70
								-70-4C-C		●							2.55	0.984		70	100
								-100-4C-C		●										100	150
								-150-4C-C		●										150	220
								-220-4C-C		●										220	∞

- R-hand Blade for R-hand Toolholder, L-hand Blade for L-hand Toolholder
- Blade and tool holder are available to assemble when purchasing individually.
- Insert clamp bolt (BH6x10TR)/Blade fixing bolt(SB-60120TR) come with tool holder.

●: Std Stock ○: World Express

KGDF Face Grooving 90° Toolholders (Inch-Size) NEW



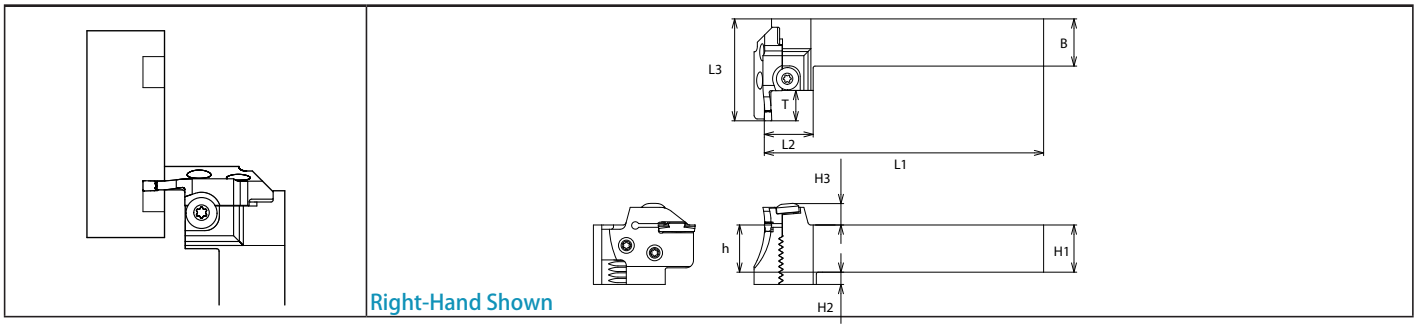
● Toolholder Dimensions (5mm width)

Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Unit	Unit Description	Toolholder Description → G26	Stock R	Stock L	Blade Description → G46	Stock R	Stock L	H1=h	H2	H3	B	L1	L2	F1	T	Insert Width W (mm) → G30	Face Grooving Dia. øD (mm) MIN	MAX
0°	5	15	Right Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSR12-C		●	KGDFR -25-5B-C	●		0.75	0.510	0.457	0.75	4.72	1.50	0.927	0.591	5	25	35
								-35-5B-C	●											35	50
								-50-5B-C	●											50	75
								-75-5B-C	●											75	115
								-115-5B-C	●											115	180
								-180-5B-C	●											180	235
								-235-5B-C	●											235	∞
		20						-25-5C-C	●						4.92	1.69		0.787		25	35
								-35-5C-C	●											35	50
								-50-5C-C	●											50	75
		25						-75-5C-C	●						5.12	1.89		0.984		75	115
								-115-5C-C	●											115	180
								-180-5C-C	●											180	235
								-235-5C-C	●											235	∞
		15		No Unit Description. Please order Toolholder and Blade separately.	KGDSR16-C		●	KGDFR -25-5B-C	●		1.00	0.260		1.00	5.70	1.50	1.177	0.591		25	35
								-35-5B-C	●											35	50
								-50-5B-C	●											50	75
								-75-5B-C	●											75	115
								-115-5B-C	●											115	180
								-180-5B-C	●											180	235
								-235-5B-C	●											235	∞
		20						-25-5C-C	●						5.90	1.69		0.787		25	35
								-35-5C-C	●											35	50
								-50-5C-C	●											50	75
		25						-75-5C-C	●						6.10	1.89		0.984		75	115
								-115-5C-C	●											115	180
								-180-5C-C	●											180	235
								-235-5C-C	●											235	∞
0°	5	15	Left Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSL12-C	●		KGDFL -25-5B-C		●	0.75	0.510	0.457	0.75	4.72	1.50	0.927	0.591	5	25	35
								-35-5B-C		●										35	50
								-50-5B-C		●										50	75
								-75-5B-C		●										75	115
								-115-5B-C		●										115	180
								-180-5B-C		●										180	235
								-235-5B-C		●										235	∞
		20						-25-5C-C		●					4.92	1.69		0.787		25	35
								-35-5C-C		●										35	50
								-50-5C-C		●										50	75
		25						-75-5C-C		●					5.12	1.89		0.984		75	115
								-115-5C-C		●										115	180
								-180-5C-C		●										180	235
								-235-5C-C		●										235	∞
		15		No Unit Description. Please order Toolholder and Blade separately.	KGDSL16-C	●		KGDFL -25-5B-C		●	1.00	0.260		1.00	5.70	1.50	1.177	0.591		25	35
								-35-5B-C		●										35	50
								-50-5B-C		●										50	75
								-75-5B-C		●										75	115
								-115-5B-C		●										115	180
								-180-5B-C		●										180	235
								-235-5B-C		●										235	∞
		20						-25-5C-C		●					5.90	1.69		0.787		25	35
								-35-5C-C		●										35	50
								-50-5C-C		●										50	75
		25						-75-5C-C		●					6.10	1.89		0.984		75	115
								-115-5C-C		●										115	180
								-180-5C-C		●										180	235
								-235-5C-C		●										235	∞

- R-hand Blade for R-hand Toolholder, L-hand Blade for L-hand Toolholder
- Blade and tool holder are available to assemble when purchasing individually.
- Insert clamp bolt (DHX×10TP)/Blade fixing bolt(SB-6910TP)/ comes with tool holder

●: Std Stock ○: World Express

KGDF Face Grooving 90° Toolholders (Inch-Size) NEW



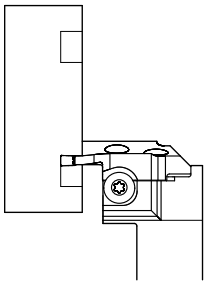
● Toolholder Dimensions (6mm width)

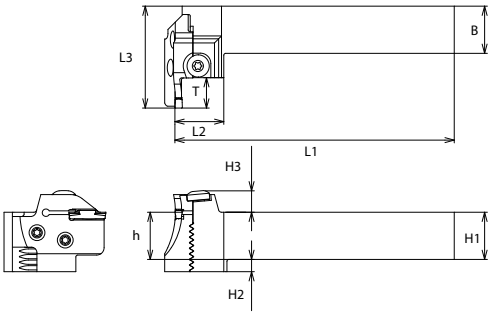
Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Unit	Unit Description	Toolholder Description → G26	Stock R	Stock L	Blade Description → G46	Stock R	Stock L	Dimension(inch) H1=h	H2	H3	B	L1	L2	L3	T	Insert Width W (mm) → G30 W	Face Grooving Dia. øD (mm) MIN	MAX
90°	6	15	Right Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSR12-C	●		KGDFR-25-6B-C	●		0.75	0.510	0.457	0.75	4.93	0.988	2.15	0.591	6	25	35
								-35-6B-C	●											35	50
								-50-6B-C	●											50	75
								-75-6B-C	●											75	115
								-115-6B-C	●											115	180
								-180-6B-C	●											180	235
								-235-6B-C	●											235	∞
		20						-25-6C-C	●								2.35	0.787		25	35
								-35-6C-C	●											35	50
		25						-50-6C-C	●											50	75
								-75-6C-C	●											75	115
								-115-6C-C	●								2.55	0.984		115	180
								-180-6C-C	●											180	235
								-235-6C-C	●											235	∞
		15		No Unit Description. Please order Toolholder and Blade separately.	KGDSR16-C	●		KGDFR-25-6B-C	●		1.00	0.260		1.00	5.91		2.15	0.591		25	35
								-35-6B-C	●											35	50
								-50-6B-C	●											50	75
								-75-6B-C	●											75	115
								-115-6B-C	●											115	180
								-180-6B-C	●											180	235
								-235-6B-C	●											235	∞
		20						-25-6C-C	●								2.35	0.787		25	35
								-35-6C-C	●											35	50
		25						-50-6C-C	●											50	75
								-75-6C-C	●											75	115
								-115-6C-C	●								2.55	0.984		115	180
								-180-6C-C	●											180	235
								-235-6C-C	●											235	∞
90°	6	15	Left Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSL12-C		●	KGDFL-25-6B-C		●	0.75	0.510	0.457	0.75	4.93	0.988	2.15	0.591	6	25	35
								-35-6B-C		●										35	50
								-50-6B-C		●										50	75
								-75-6B-C		●										75	115
								-115-6B-C		●										115	180
								-180-6B-C		●										180	235
								-235-6B-C		●										235	∞
		20						-25-6C-C		●							2.35	0.787		25	35
								-35-6C-C		●										35	50
		25						-50-6C-C		●										50	75
								-75-6C-C		●										75	115
								-115-6C-C		●							2.55	0.984		115	180
								-180-6C-C		●										180	235
								-235-6C-C		●										235	∞
		15		No Unit Description. Please order Toolholder and Blade separately.	KGDSL16-C		●	KGDFL-25-6B-C		●	1.00	0.260		1.00	5.91		2.15	0.591		25	35
								-35-6B-C		●										35	50
								-50-6B-C		●										50	75
								-75-6B-C		●										75	115
								-115-6B-C		●										115	180
								-180-6B-C		●										180	235
								-235-6B-C		●										235	∞
		20						-25-6C-C		●							2.35	0.787		25	35
								-35-6C-C		●										35	50
		25						-50-6C-C		●										50	75
								-75-6C-C		●										75	115
								-115-6C-C		●							2.55	0.984		115	180
								-180-6C-C		●										180	235
								-235-6C-C		●										235	∞

- R-hand Blade for L-hand Toolholder, L-hand Blade for R-hand Toolholder
- Blade and tool holder are available to assemble when purchasing individually.
- Insert clamp bolt (BH6x10TB)/Blade fixing bolt(SB-60120TB) come with tool holder.

●: Std Stock ○: World Express

KGDF Face Grooving 90° Toolholders (Metric-Size) NEW





Right-Hand Shown

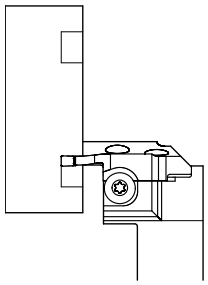
Toolholder Dimensions (3mm width)

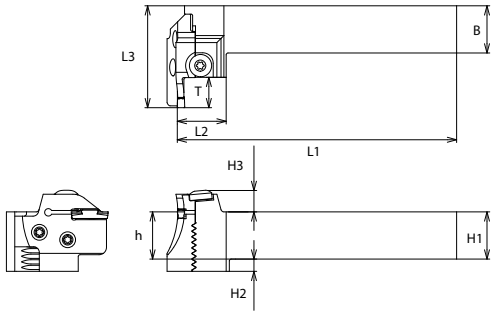
Shank Angle	Width	Max. Grooving Depth	Unit	Unit Description	Toolholder Description → G26	Stock R	Stock L	Blade Description → G46	Stock R	Stock L	Dimension (mm) H1=h	H2	H3	B	L1	L2	L3	T	Insert Width W (mm) → G30 W	Face Grooving Dia. øD (mm) MIN	MAX
	(mm)	(mm)																			
90°	3	13	Right Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSR2020-C	○		KGDFR -25-3A-C	●		20	12	11.6	20	125	27.7	52.7	13	3	25	30
								-30-3A-C	●											30	40
								-40-3A-C	●											40	50
		15						-50-3B-C	●								54.7	15		50	65
								-65-3B-C	●											65	85
								-85-3B-C	●											85	110
								-110-3B-C	●											110	145
		22						-50-3C-C	●								61.7	22		50	65
								-65-3C-C	●											65	85
		25						-85-3C-C	●								64.7	25		85	110
								-110-3C-C	●											110	145
		13		No Unit Description. Please order Toolholder and Blade separately.	KGDSR2525-C	○		KGDFR -25-3A-C	●		25	7		25	150		52.7	13		25	30
								-30-3A-C	●											30	40
								-40-3A-C	●											40	50
		15						-50-3B-C	●								54.7	15		50	65
								-65-3B-C	●											65	85
								-85-3B-C	●											85	110
								-110-3B-C	●											110	145
		22						-50-3C-C	●								61.7	22		50	65
								-65-3C-C	●											65	85
		25						-85-3C-C	●								64.7	25		85	110
								-110-3C-C	●											110	145
90°	3	13	Left Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSL2020-C		○	KGDFL -25-3A-C		●	20	12	11.6	20	125	27.7	52.7	13	3	25	30
								-30-3A-C		●										30	40
								-40-3A-C		●										40	50
		15						-50-3B-C		●							54.7	15		50	65
								-65-3B-C		●										65	85
								-85-3B-C		●										85	110
								-110-3B-C		●										110	145
		22						-50-3C-C		●							61.7	22		50	65
								-65-3C-C		●										65	85
		25						-85-3C-C		●							64.7	25		85	110
								-110-3C-C		●										110	145
		13		No Unit Description. Please order Toolholder and Blade separately.	KGDSL2525-C		○	KGDFL -25-3A-C		●	25	7		25	150		52.7	13		25	30
								-30-3A-C		●										30	40
								-40-3A-C		●										40	50
		15						-50-3B-C		●							54.7	15		50	65
								-65-3B-C		●										65	85
								-85-3B-C		●										85	110
								-110-3B-C		●										110	145
		22						-50-3C-C		●							61.7	22		50	65
								-65-3C-C		●										65	85
		25						-85-3C-C		●							64.7	25		85	110
								-110-3C-C		●										110	145

- R-hand Blade for R-hand Toolholder, L-hand Blade for L-hand Toolholder
- Blade and tool holder are available to assemble when purchasing individually.
- Insert clamp bolt (BH6x10TR)/Blade fixing bolt(SB-60120TR) come with tool holder.

●: Std Stock ○: World Express

KGDF Face Grooving 90° Toolholders (Metric-Size) NEW





Right-Hand Shown

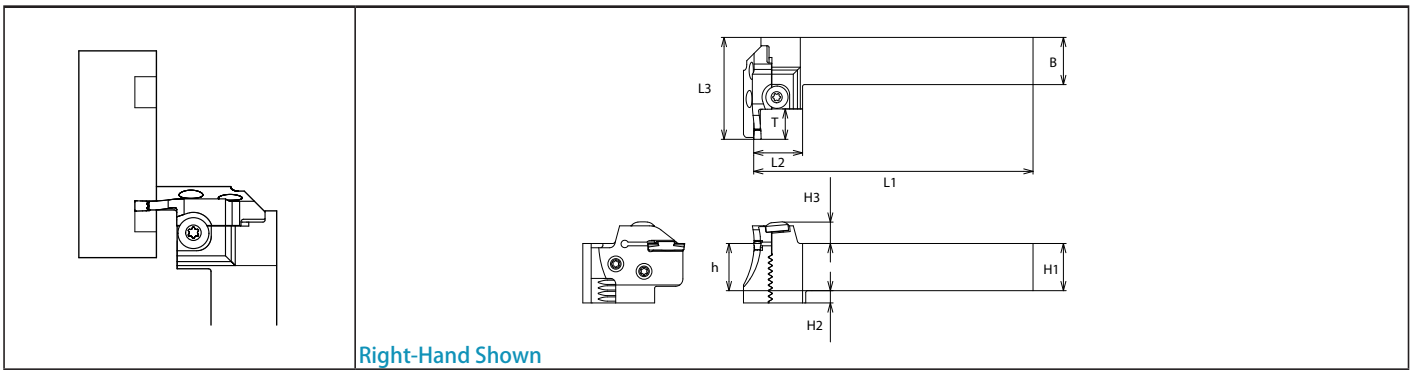
● Toolholder Dimensions (4mm width)

Shank Angle	Width	Max. Grooving Depth	Unit	Unit Description	Toolholder Description → G26	Stock R	Stock L	Blade Description → G46	Stock R	Stock L	H1=h	H2	H3	B	L1	L2	L3	T	Insert Width W (mm) → G30 W	Face Grooving Dia. øD (mm) MIN	MAX
	(mm)	(mm)																			
90°	4	13	Right Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSR2020-C	○		KGDFR -25-4A-C	●		20	12	11.6	20	125	27.7	52.7	13	4	25	35
								-35-4B-C	●											35	50
		15						-50-4B-C	●								54.7	15		50	70
								-70-4B-C	●											70	100
								-100-4B-C	●											100	150
								-150-4B-C	●											150	220
								-220-4B-C	●											220	∞
								-35-4C-C	●											35	50
								-50-4C-C	●											50	70
		25						-70-4C-C	●								64.7	25		70	100
								-100-4C-C	●											100	150
								-150-4C-C	●											150	220
								-220-4C-C	●											220	∞
		13		No Unit Description. Please order Toolholder and Blade separately.	KGDSR2525-C	○		KGDFR -25-4A-C	●		25	7		25	150		52.7	13		25	35
								-35-4B-C	●											35	50
		15						-50-4B-C	●								54.7	15		50	70
								-70-4B-C	●											70	100
								-100-4B-C	●											100	150
								-150-4B-C	●											150	220
								-220-4B-C	●											220	∞
								-35-4C-C	●											35	50
								-50-4C-C	●											50	70
		25						-70-4C-C	●								64.7	25		70	100
								-100-4C-C	●											100	150
								-150-4C-C	●											150	220
								-220-4C-C	●											220	∞
90°	4	13	Left Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSL2020-C		○	KGDFL -25-4A-C		●	20	12	11.6	20	125	27.7	52.7	13	4	25	35
								-35-4B-C		●										35	50
		15						-50-4B-C		●							54.7	15		50	70
								-70-4B-C		●										70	100
								-100-4B-C		●										100	150
								-150-4B-C		●										150	220
								-220-4B-C		●										220	∞
								-35-4C-C		●										35	50
								-50-4C-C		●										50	70
		25						-70-4C-C		●							64.7	25		70	100
								-100-4C-C		●										100	150
								-150-4C-C		●										150	220
								-220-4C-C		●										220	∞
		13		No Unit Description. Please order Toolholder and Blade separately.	KGDSL2525-C		○	KGDFL -25-4A-C		●	25	7		25	150		52.7	13		25	35
								-35-4B-C		●										35	50
		15						-50-4B-C		●							54.7	15		50	70
								-70-4B-C		●										70	100
								-100-4B-C		●										100	150
								-150-4B-C		●										150	220
								-220-4B-C		●										220	∞
								-35-4C-C		●										35	50
								-50-4C-C		●										50	70
		25						-70-4C-C		●							64.7	25		70	100
								-100-4C-C		●										100	150
								-150-4C-C		●										150	220
								-220-4C-C		●										220	∞

- R-hand Blade for R-hand Toolholder, L-hand Blade for L-hand Toolholder
- Blade and tool holder are available to assemble when purchasing individually.
- Insert clamp bolt (BH6x10TR)/Blade fixing bolt(SB-60120TR) come with tool holder.

●: Std Stock ○: World Express

KGDF Face Grooving 90° Toolholders (Metric-Size) NEW



Right-Hand Shown

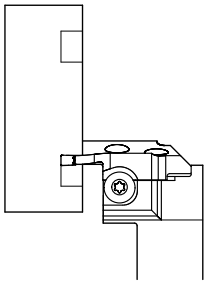
Toolholder Dimensions (5mm width)

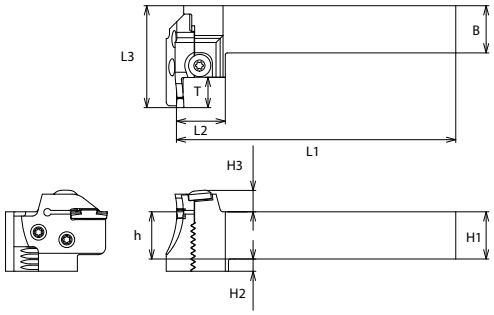
Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Unit	Unit Description	Toolholder Description → G26	Stock R	Stock L	Blade Description → G46	Stock R	Stock L	Dimension (mm) H1=h	H2	H3	B	L1	L2	L3	T	Insert Width W (mm) → G30 W	Face Grooving Dia. øD (mm) MIN	MAX
90°	5	15	Right Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSR2020-C	○		KGDFR-25-5B-C	●		20	12	11.6	20	125	27.7	54.7	15	5	25	35
								-35-5B-C	●											35	50
								-50-5B-C	●											50	75
								-75-5B-C	●											75	115
								-115-5B-C	●											115	180
								-180-5B-C	●											180	235
								-235-5B-C	●											235	∞
		20						-25-5C-C	●								59.7	20		25	35
		25						-35-5C-C	●								64.7	25		35	50
								-50-5C-C	●											50	75
								-75-5C-C	●											75	115
								-115-5C-C	●											115	180
								-180-5C-C	●											180	235
								-235-5C-C	●											235	∞
		15		No Unit Description. Please order Toolholder and Blade separately.	KGDSR2525-C	○		KGDFR-25-5B-C	●		25	7		25	150		54.7	15		25	35
								-35-5B-C	●											35	50
								-50-5B-C	●											50	75
								-75-5B-C	●											75	115
								-115-5B-C	●											115	180
								-180-5B-C	●											180	235
								-235-5B-C	●											235	∞
		20						-25-5C-C	●								59.7	20		25	35
		25						-35-5C-C	●								64.7	25		35	50
								-50-5C-C	●											50	75
								-75-5C-C	●											75	115
								-115-5C-C	●											115	180
								-180-5C-C	●											180	235
								-235-5C-C	●											235	∞
90°	5	15	Left Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSL2020-C		○	KGDFL-25-5B-C		●	20	12	11.6	20	125	27.7	54.7	15	5	25	35
								-35-5B-C		●										35	50
								-50-5B-C		●										50	75
								-75-5B-C		●										75	115
								-115-5B-C		●										115	180
								-180-5B-C		●										180	235
								-235-5B-C		●										235	∞
		20						-25-5C-C		●							59.7	20		25	35
		25						-35-5C-C		●							64.7	25		35	50
								-50-5C-C		●										50	75
								-75-5C-C		●										75	115
								-115-5C-C		●										115	180
								-180-5C-C		●										180	235
								-235-5C-C		●										235	∞
		15		No Unit Description. Please order Toolholder and Blade separately.	KGDSL2525-C		○	KGDFL-25-5B-C		●	25	7		25	150		54.7	15		25	35
								-35-5B-C		●										35	50
								-50-5B-C		●										50	75
								-75-5B-C		●										75	115
								-115-5B-C		●										115	180
								-180-5B-C		●										180	235
								-235-5B-C		●										235	∞
		20						-25-5C-C		●							59.7	20		25	35
		25						-35-5C-C		●							64.7	25		35	50
								-50-5C-C		●										50	75
								-75-5C-C		●										75	115
								-115-5C-C		●										115	180
								-180-5C-C		●										180	235
								-235-5C-C		●										235	∞

- R-hand Blade for L-hand Toolholder, L-hand Blade for R-hand Toolholder
- Blade and tool holder are available to assemble when purchasing individually.
- Insert clamp bolt (BH6x10TR)/Blade fixing bolt(SB-60120TR) come with tool holder.

●: Std Stock ○: World Express

KGDF Face Grooving 90° Toolholders (Metric-Size) NEW





Right-Hand Shown

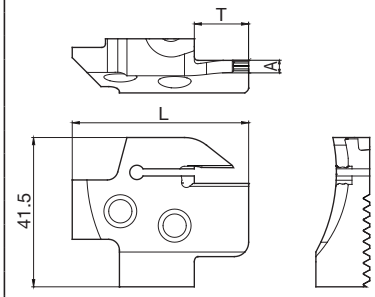
● Toolholder Dimensions (6mm width)

Shank Angle	Width	Max. Grooving Depth	Unit	Unit Description	Toolholder Description → G26	Stock R	Stock L	Blade Description → G46	Stock R	Stock L	Dimension (mm) H1=h	H2	H3	B	L1	L2	L3	T	Insert Width W (mm) → G30 W	Face Grooving Dia. øD (mm) MIN	MAX
	(mm)	(mm)																			
90°	6	15	Right Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSR2020-C	○		KGDFR-25-6B-C	●		20	12	11.6	20	125	27.7	54.7	15	5	25	35
								-35-6B-C	●											35	50
								-50-6B-C	●											50	75
								-75-6B-C	●											75	115
								-115-6B-C	●											115	180
								-180-6B-C	●											180	235
								-235-6B-C	●											235	∞
		20						-25-6C-C	●								59.7	20		25	35
		25						-35-6C-C	●								64.7	25		35	50
								-50-6C-C	●											50	75
								-75-6C-C	●											75	115
								-115-6C-C	●											115	180
								-180-6C-C	●											180	235
								-235-6C-C	●											235	∞
		15		No Unit Description. Please order Toolholder and Blade separately.	KGDSR2525-C	○		KGDFR-25-6B-C	●		25	7		25	150		54.7	15		25	35
								-35-6B-C	●											35	50
								-50-6B-C	●											50	75
								-75-6B-C	●											75	115
								-115-6B-C	●											115	180
								-180-6B-C	●											180	235
								-235-6B-C	●											235	∞
		20						-25-6C-C	●								59.7	20		25	35
		25						-35-6C-C	●								64.7	25		35	50
								-50-6C-C	●											50	75
								-75-6C-C	●											75	115
								-115-6C-C	●											115	180
								-180-6C-C	●											180	235
								-235-6C-C	●											235	∞
90°	6	15	Left Hand	No Unit Description. Please order Toolholder and Blade separately.	KGDSL2020-C		○	KGDFL-25-6B-C		●	20	12	11.6	20	125	27.7	54.7	15	5	25	35
								-35-6B-C		●										35	50
								-50-6B-C		●										50	75
								-75-6B-C		●										75	115
								-115-6B-C		●										115	180
								-180-6B-C		●										180	235
								-235-6B-C		●										235	∞
		20						-25-6C-C		●							59.7	20		25	35
		25						-35-6C-C		●							64.7	25		35	50
								-50-6C-C		●										50	75
								-75-6C-C		●										75	115
								-115-6C-C		●										115	180
								-180-6C-C		●										180	235
								-235-6C-C		●										235	∞
		15		No Unit Description. Please order Toolholder and Blade separately.	KGDSL2525-C		○	KGDFL-25-6B-C		●	25	7		25	150		54.7	15		25	35
								-35-6B-C		●										35	50
								-50-6B-C		●										50	75
								-75-6B-C		●										75	115
								-115-6B-C		●										115	180
								-180-6B-C		●										180	235
								-235-6B-C		●										235	∞
		20						-25-6C-C		●							59.7	20		25	35
		25						-35-6C-C		●							64.7	25		35	50
								-50-6C-C		●										50	75
								-75-6C-C		●										75	115
								-115-6C-C		●										115	180
								-180-6C-C		●										180	235
								-235-6C-C		●										235	∞

- R-hand Blade for R-hand Toolholder, L-hand Blade for L-hand Toolholder
- Blade and tool holder are available to assemble when purchasing individually.
- Insert clamp bolt (BH6x10TR)/Blade fixing bolt(SB-60120TR) come with tool holder.

●: Std Stock ○: World Express

KGDF Blade Dimensions NEW

Shape	Description of Blade		Stock R	Stock L	Dimension (inch) L	T	A	Face Grooving Dia. øD (inch) MIN	MAX	Applicable Inserts G30	Toolholder Description G26
	KGDF R/L	-25-3A-C	●	●	1.86	0.512	0.08	0.98	1.18	GDFM 3020N-030GM GDFM 3020N-030DM GDFMS 3020N-030DM	KGD R/L ····-C KGDS R/L ····-C
		-30-3A-C	●	●				1.18	1.57		
		-40-3A-C	●	●				1.57	1.97		
		-50-3B-C	●	●	1.94	0.591		1.97	2.56		
		-65-3B-C	●	●				2.56	3.35		
		-85-3B-C	●	●				3.35	4.33		
		-110-3B-C	●	●				4.33	5.71		
		-50-3C-C	●	●	2.22	0.866		1.97	2.56		
		-65-3C-C	●	●				2.56	3.35		
		-85-3C-C	●	●	2.34	0.984		3.35	4.33		
		-110-3C-C	●	●				4.33	5.71		
	KGDF R/L	-25-4A-C	●	●	1.86	0.512	0.12	0.98	1.38	GDFM 4020N-040GM GDFM 4020N-040DM GDFMS 4020N-040DM	
		-35-4B-C	●	●	1.94	0.591		1.38	1.97		
		-50-4B-C	●	●				1.97	2.76		
		-70-4B-C	●	●				2.76	3.94		
		-100-4B-C	●	●				3.94	5.91		
		-150-4B-C	●	●				5.91	8.66		
		-220-4B-C	●	●				8.66	∞		
		-35-4C-C	●	●	2.34	0.984		1.38	1.97		
		-50-4C-C	●	●				1.97	2.76		
		-70-4C-C	●	●				2.76	3.94		
		-100-4C-C	●	●				3.94	5.91		
		-150-4C-C	●	●				5.91	8.66		
		-220-4C-C	●	●				8.66	∞		
	KGDF R/L	-25-5B-C	●	●	1.94	0.591	0.16	0.98	1.38	GDFM 5020N-040GM GDFM 5020N-040DM GDFMS 5020N-040DM	
		-35-5B-C	●	●				1.38	1.97		
		-50-5B-C	●	●				1.97	2.95		
		-75-5B-C	●	●				2.95	4.53		
		-115-5B-C	●	●				4.53	7.09		
		-180-5B-C	●	●				7.09	9.25		
		-235-5B-C	●	●				9.25	∞		
		-25-5C-C	●	●	2.14	0.787		0.98	1.38		
		-35-5C-C	●	●	2.34	0.984		1.38	1.97		
		-50-5C-C	●	●				1.97	2.95		
		-75-5C-C	●	●				2.95	4.53		
		-115-5C-C	●	●				4.53	7.09		
		-180-5C-C	●	●				7.09	9.25		
		-235-5C-C	●	●				9.25	∞		
		-75-5D-C	●	●	2.61	1.260		2.95	4.53		
		-115-5D-C	●	●				4.53	7.09		
		-180-5D-C	●	●				7.09	9.25		
		-235-5D-C	●	●				9.25	∞		
	KGDF R/L	-25-6B-C	●	●	1.94	0.591	0.20	0.98	1.38	GDFM 6020N-040GM GDFM 6020N-040DM GDFMS 6020N-040DM	
		-35-6B-C	●	●				1.38	1.97		
		-50-6B-C	●	●				1.97	2.95		
		-75-6B-C	●	●				2.95	4.53		
		-115-6B-C	●	●				4.53	7.09		
		-180-6B-C	●	●				7.09	9.25		
		-235-6B-C	●	●				9.25	∞		
		-25-6C-C	●	●	2.14	0.787		0.98	1.38		
		-35-6C-C	●	●	2.34	0.984		1.38	1.97		
		-50-6C-C	●	●				1.97	2.95		
		-75-6C-C	●	●				2.95	4.53		
		-115-6C-C	●	●				4.53	7.09		
		-180-6C-C	●	●				7.09	9.25		
		-235-6C-C	●	●				9.25	∞		
		-75-6D-C	●	●	2.61	1.260		2.95	4.53		
		-115-6D-C	●	●				4.53	7.09		
		-180-6D-C	●	●				7.09	9.25		
		-235-6D-C	●	●				9.25	∞		

Right-hand Shown

● Indication of blade for face groove

Hand of Blade	Width	Symbol of Blade Type
R : Right-hand L : Left-hand	3 : 3mm 4 : 4mm 5 : 5mm 6 : 6mm	C : Compatible with 20 & 25mm square shank

KGDF R - 25 - 3 A - C

Series	Min.Bore Dia. (Face grooving)	Grooving Depth	
KGDF Face grooving	Indicates available outside groove dia. for the 1st plunge 25 : 25mm 30 : 30mm · · 235 : 235mm	A : 13mm B : 15mm	Available in both Double and Single-edged inserts
		C : 20mm ~25mm D : 32mm	Only recommended for use with Single-edged inserts

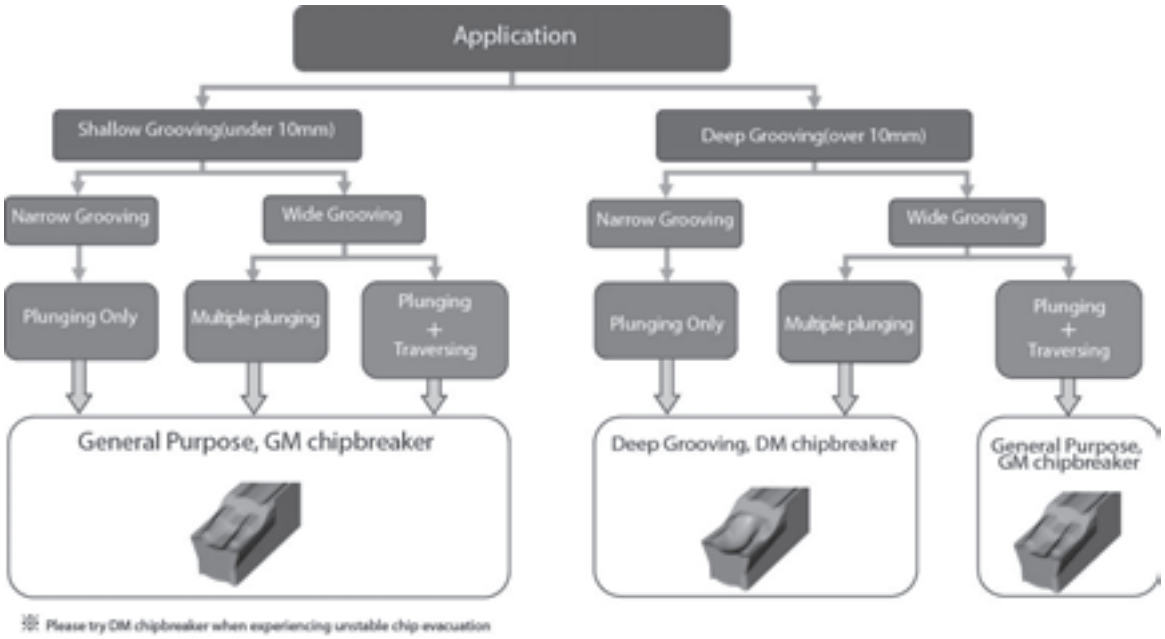
●: Std Stock ○: World Express

■ Recommended Cutting Conditions (Face grooving)

Workpiece Material	Recommended Insert Grade Cutting Speed (sfm)			Remarks
	Cermet	MEGACOAT		
	TN90	PR1225	PR1215	
Carbon Steel (SxxC)	☆ 325~720	★ 260~650	☆ 325~650	Coolant Recommended
Alloy Steel (SCM)	☆ 260~650	★ 230~590	☆ 260~590	
Stainless Steel (SUS304)	☆ 230~790	★ 200~500	☆ 200~500	
Cast Iron (FC FCD)	-	-	★ 325~650	
Aluminum	-	-	-	
Brass	-	-	-	

★:1st. Recommendation ☆ 2nd. Recommendation

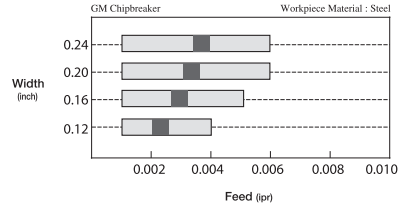
● Chipbreaker Selection(Face grooving)

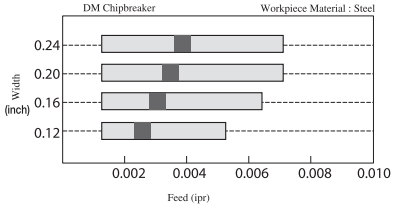


※ Please try DM chipbreaker when experiencing unstable chip evacuation

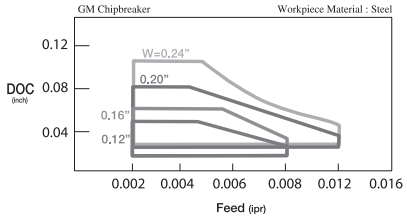
● Recommended Cutting Conditions (f, ap)

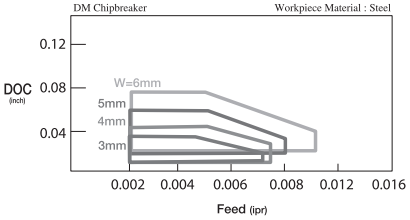
■ Grooving





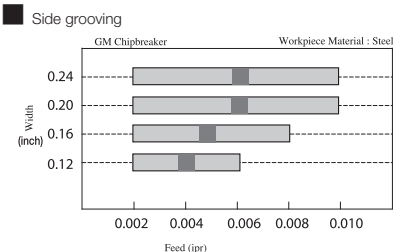
■ Traversing





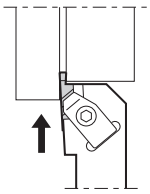
※ DM Chipbreaker Max. Depth of Cut: Edge width x 0.3

■ Side grooving



●: Std Stock ○: World Express

KKC



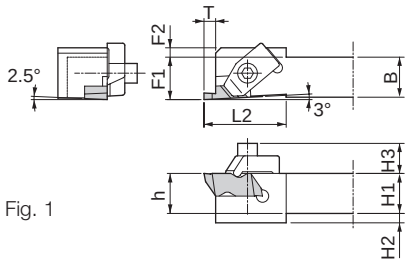


Fig. 1

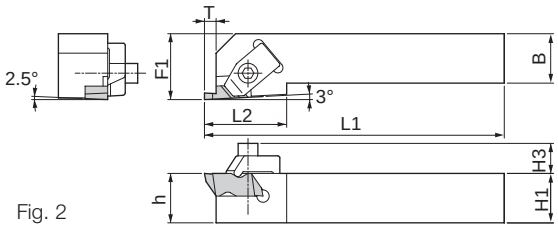


Fig. 2

●Right-hand Shown

● Toolholder Dimensions

Description		Stock R	Stock L	Unit	Dimension H1=h	H2	H3	B	L1	L2	F1	F2	T	Fig	Spare Parts: Clamp	Clamp Screw	Wrench
KKC R/L	1212M-2-150F	●		mm inch	12mm 0.472	- -	9.2mm 0.362	12mm 0.472	150mm 5.906	19.05mm 0.75	12.25mm 0.482	- -	3.5mm 0.126	1	CKC-2R/L	SKC-2	7/64 Hex
KKC R/L	6-2X	●	●	inch	0.375	-	0.362	0.375	2.50	0.750	0.562	-	0.138	2	CKC-2R/L	SKC-2	7/64 Hex
	6-2CF	●	●		0.375	0.125	0.362	0.375	5.00	0.750	0.385	0.125	0.138	1			
	8-2X	●	●		0.500	-	0.362	0.500	3.50	0.750	0.750	-	0.138	2			
	8-2DF	●	●		0.500	-	0.362	0.500	6.00	0.750	0.510	-	0.138	1			
	10-2DF	●	●		0.625	-	0.362	0.625	6.00	0.750	0.635	-	0.138	1			
	12-2B	●	●		0.750	-	0.362	0.750	4.50	0.750	1.000	-	0.138	2			
	12-2C	●	●		0.750	-	0.362	0.750	5.00	0.750	1.000	-	0.138	2			
	16-2C	●	●		1.000	-	0.362	1.000	5.00	0.750	1.250	-	0.138	2			
	16-2D	●	●		1.000	-	0.362	1.000	6.00	0.750	1.250	-	0.138	2			
	12-3B	●	●	inch	0.750	-	0.465	0.750	4.50	1.250	1.000	-	0.210	2	CKC-3R/L	SKC-3	LW-156
	12-3C	●	●		0.750	-	0.465	0.750	5.00	1.250	1.000	-	0.210	2			
	16-3C	●	●		1.000	-	0.465	1.000	5.00	1.250	1.250	-	0.210	2			
	16-3D	●	●		1.000	-	0.465	1.000	6.00	1.250	1.250	-	0.210	2			
	20-3D	●	●		1.250	-	0.465	1.250	6.00	1.250	1.500	-	0.210	2			
	16-4D	●	●		1.000	-	0.465	1.000	6.00	1.380	1.250	-	0.294	2			
	20-4D	●	●		1.250	-	0.465	1.250	6.00	1.380	1.500	-	0.294	2			

● T dimension shows the distance from toolholder to the cutting edge.

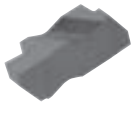
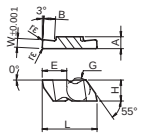
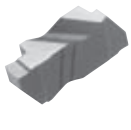
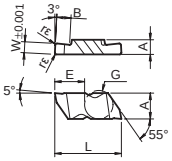
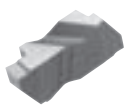
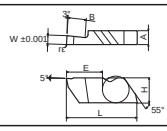
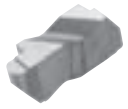
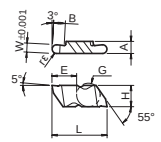
● Note: Right hand bars require right hand inserts and clamps
Left hand bars require left hand inserts and clamps

● Applicable Inserts

Toolholder	Insert ⇒ G49	
	2-Edge Use	1-Edge Use
KKC R/L ...-2	KCGP-2, KCG-2, KCRP-2	
KKC R/L ...-3	KCGP-3, KCG-3, KCRP-3	KCGDP-3
KKC R/L ...-4	KCGP-4, KCRP-4	

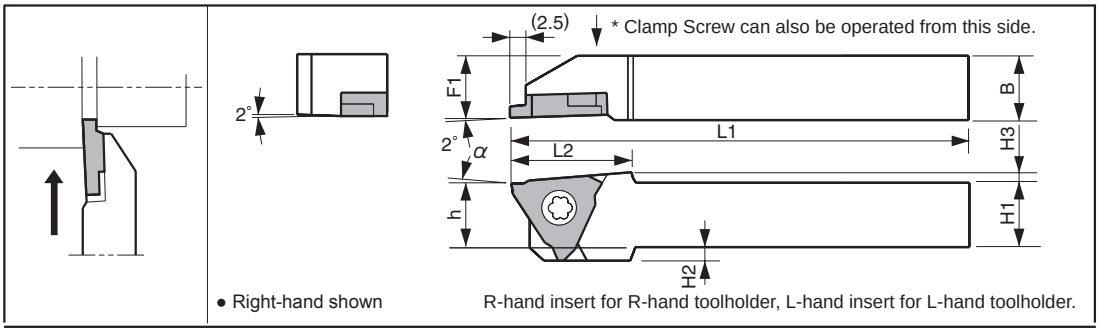
●: Std Stock ○: World Express

KCG/KCGP/KCGDP/KCRP

Shape (Handed Insert shows Right-hand)	Description		Unit	Dimension W (inch)	Dimension W (mm)	Dimension B	Dimension rε	Dimension A	Dimension L	Dimension H	Dimension E	Insert Grade: Cermet TC40	Cermet TC60	PVD Coated PR660	PVD Coated PR930	Carbide KW10	Ceramic A65
  KCG2··:G=ϕ.1875 KCG3··:G=ϕ.3750	KCG	2062R/L	inch	.062	-	.110	.008	.150	.540	.219	.270						●
		2094R/L		.094													
		2125R/L		.125													L
		3062R/L		.062		.094	.008	.195	.810	.344	.405						R
		3094R/L		.094		.150											●
		3125R/L		.125													R
		3156R/L		.156													●
  KCGP2··:G=ϕ.1875 KCGP3··:G=ϕ.3750 KCGP4··:G=ϕ.3750	KCGP	2031R/L	inch	.031	-	.050	.003	.150	.540	.219	.270	●	●	●	●	●	
		2041R/L		.041								●	●		●		
		2047R/L		.047								●	●	●	●	●	
		2058R/L		.058		.110	.008					●			●		
		2062R/L		.062								●	●	●	●	●	
		2094R/L		.094								●		●	●	●	
		2125R/L		.125								●		●	●	R	
		3031R/L		.031		.050						●			●		
		3047R/L		.047		.075		.195	.810	.344	.405	●	●	●	●	●	
		3062R/L		.062		.094						●	●	●	●	●	
		3072R/L		.072								●	●		●		
		3078R/L		.078								●	R	●	●		
		3088R/L		.088								●	L		●		
		3094R/L		.094		.150						●	●	●	●	●	
		3097R/L		.097								●			●		
		3105R/L		.105								●			●		
		3110R/L		.110								●			●		
		3122R/L		.122								●			●		
		3125R/L		.125								●	●	●	●	●	
		3142R/L		.142								●			●		
		3156R/L		.156								●	R	L	●		
		3178R/L		.178								●			●		
		3185R/L		.185								●			●		
		3189R/L		.189								●	●	●	●	●	
		4125R/L		.125		.150	.008	.255	1.272	.453	.636	●			●		
		4189R/L		.189		.250	.018					●			●		
		4213R/L		.213								●			●		
		4219R/L		.219								●			●		
		4250R/L		.250								●			●		
 	KCGDP	3062R/L	inch	.062	-	.125	.008	.195	.886	.344	.405	●			●		
		3094R/L		.094		.250			.990		.505	●			●		
		3125R/L		.125								●			●		
		3189R/L		.189			.023					●			●		
  KCRP2··:G=ϕ.1875 KCRP3··:G=ϕ.3750 KCRP4··:G=ϕ.3750	KCRP	2031R/L	inch	.062	-	.094	.031	.150	.507	.219	.270		R	R	R		
		2047R/L		.094		.150	.047										
		2062R/L		.125			.062						R				
		3031R/L		.062		.094	.031	.195	.890	.344	.405	●	R	●	●		
		3047R/L		.094		.150	.047					●		●	●		
		3062R/L		.125			.062					●		●	●		
		3078R/L		.156			.078					●					
		3094R/L		.188			.094					●			R		
		4125R/L		.250		.250	.125	.255	1.121	.453	.636	●		R	●		

• Dimension B shows available Grooving Depth.

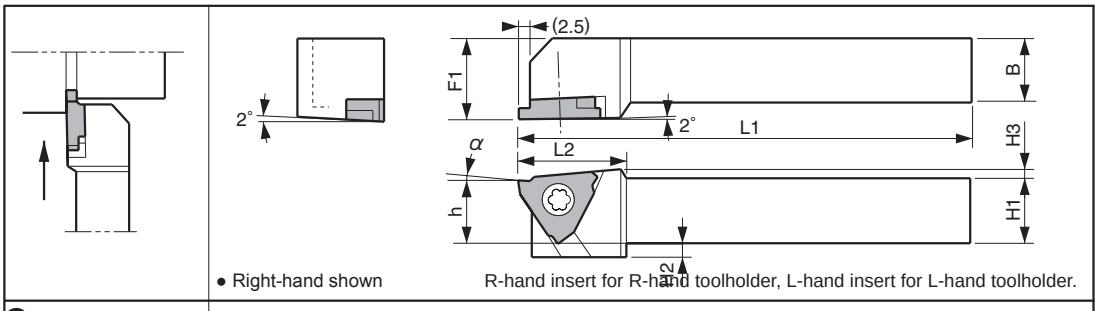
KTGF-F (Without Offset)



● Right-hand shown

R-hand insert for R-hand toolholder, L-hand insert for L-hand toolholder.

KTGF (With Offset)



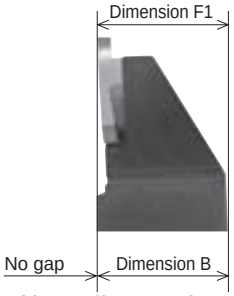
● Right-hand shown

R-hand insert for R-hand toolholder, L-hand insert for L-hand toolholder.

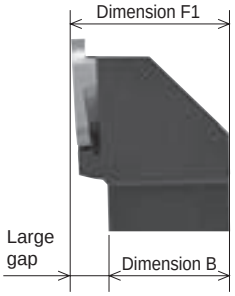
Screw Clamp

● Usage difference between KTGF-F and KTGF toolholders.

It is necessary to use "Without Offset Type" in operating the automatic lathe.



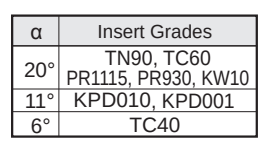
Without Offset Type (KTGF-F)



With Offset Type (KTGF)

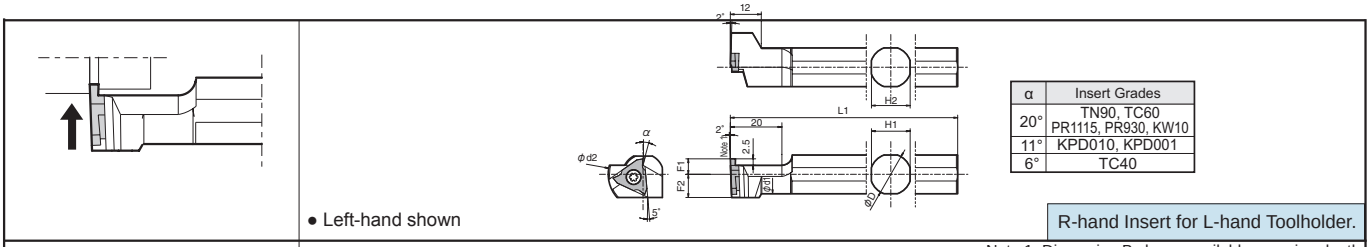
● Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	F1	Spare Parts: Clamp Screw	Spare Parts: Wrench	Remarks
KTGF R/L	6-3JXF	●	●	0.375	0.079		0.375			0.375	SB-4070TRW	FT-8	
NEW	8-3JXF	●	●	0.500	-	0.098	0.500	4.750	0.728	0.500			
	10-3JXF	●	●	0.625			0.625			0.625			
KTGF R/L	1010JX-16F	○	○	10	2		10			10	SB-4070TRW	FT-8	
NEW	1212JX-16F	○	○	12	-	2.5	12	120	18.5	12			
	1616JX-16F	○	○	16			16			16			
KTGF R/L	1212F-16F	○	○	12	-	2.5	12	85	18.5	12	SB-4070TRW	FT-8	
KTGF R/L	1010F-16	○	○	10	4		10	80		12	SB-4070TRS	FT-10	
	1212H-16	○	○	12	2		12	100	18.5	16			
	1616H-16	○	○	16	-	2.5	16	100		20			
	2020K-16	○	○	20			20	125	20	25			
	2525M-16	○	○	25			25	150		32			



α	Insert Grades
20°	TN90, TC60 PR1115, PR930, KW10
11°	KPD010, KPD001
6°	TC40

S-KTGF (Sleeve Holder)



● Left-hand shown

α	Insert Grades
20°	TN90, TC60 PR1115, PR930, KW10
11°	KPD010, KPD001
6°	TC40

R-hand Insert for L-hand Toolholder.

Note 1. Dimension B shows available grooving depth.

● Toolholder Dimensions

Description	Std.	Unit	Dimension øD	L1	F1	F2	ød1	ød2	H1=H2	Spare Parts: Clamp Screw	Spare Parts: Wrench
S12F-KTGFL16	○	mm	12.0	80	6	9.0	11.0	27	11	SB-4070TRS	FT-10
S14H-KTGFL16	○		14.0	100			13.0		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	●			4.73							
S20G-KTGFL16	○	mm	20.0	90	6	11.0	18.6	27	18		
S20K-KTGFL16	○			120							
S25.0H-KTGFL16	○		25.0	100	10	14.0	23.6	32	23		
S25K-KTGFL16	●	inch	1.0	4.73	3.94	0.551	0.929	1.260	0.906		

Applicable Inserts

(mm)

Description	A	T	ød
TGF32_	9.525	3.18	4.5
TGF32R/L325	9.525	3.40	4.5
TGF32R/L315-SRG	9.525	3.40	4.5

		TN60	TN90	TC40	PR930	PR1115	PR1215	KW10	KPD001	KPD010
P	Carbon Steel / Alloy Steel					◔	●			
M	Stainless Steel					◔	●			
K	Cast Iron							●		
N	Non-ferrous Metals							●	●	
S	Titanium Alloy							●	●	
H	Hard materials (under 40HRC)					○	●			
	Hard materials (over 40HRC)									

Classification of usage
● : Continuous-Light Interruption / 1st Choice
◔ : Continuous-Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

Insert (R-hand shown)	Description		Unit	W	B	rε	TN60	TN90	TC40	PR930	PR1115	PR1215	KW10	KPD001	KPD010	Applicable Toolholder	Ref. Page for Toolholder
	TGF32R/L	031N	inch	0.031	0.078	0.004						●					
		041N		0.041								●					
		047N		0.047								●					
		058N		0.058								●					
		062N		0.062								●					
		078N		0.078	0.098							●					
		094N		0.094								●					
General (Square) (Corner is C shape) TGF32& ○○○	TGF32R/L	033-005	mm	0.33	0.8	0.05				R	R	R	R				
		050-005		0.50	1.2				R	○	○	○	R				
		075-010		0.75	2.0	0.1			R	○	○	○	R				
		095-010		0.95					R	○	○	○	R				
		100-010		1.00					R	○	○	○	R				
		120-010		1.20							○	○					
		125-010		1.25					R	○	○	○	R				
		140-010		1.40							○	○					
		145-010		1.45					R	○	○	○	R				
		150-010		1.50					R	○	○	○	R				
		175-010		1.75					R	○	○	○	R				
		200-010		2.00	2.5				R	○	○	○	R				
		250-010		2.50					R	○	○	○	R				
General (Square) (Corner is R shape) TGF32& ○○○ - ○○○	TGF32R/LS	090-S		0.90	2.0	C0.05	○									KTGFR/L...16F KTGFR/L...16 S...KTGFL16	G50
		110-S		1.10			○										
		130-S		1.30			○										
		160-S		1.60			○										
		185-S		1.85	2.5		○										
TGF32R/LS○○○-SRG type Edge Width Tolerance W+0 -0.05	TGF32R/LS	080-SRG		0.87	2.0	rε max 0.03	○										
		090-SRG		0.97			○										
		100-SRG		1.07			○										
		110-SRG		1.24			○										
		130-SRG		1.44			○										
		160-SRG		1.74			○										
		185-SRG		1.99	2.5		○										
		215-SRG		2.29			○										
		265-SRG		2.79	3.0		○										
For Circlip Grooves (DIN 471 / 472)		315-SRG		3.29			○										
1-Edge	TGF32R	125		1.25	2.0	C0.1								○	○		
		150		1.50										○	○		
		200		2.00	2.5									○	○		
125~150 S=1.7 200 S=1.9	TGF32	125-010		1.25	2.0	0.1								R			
		150-010		1.50										R			
		200-010		2.00	2.5									R			

• Dimension B shows available grooving depth.

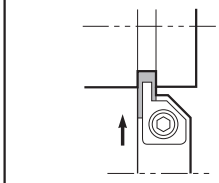
For recommended cutting conditions, see page G97

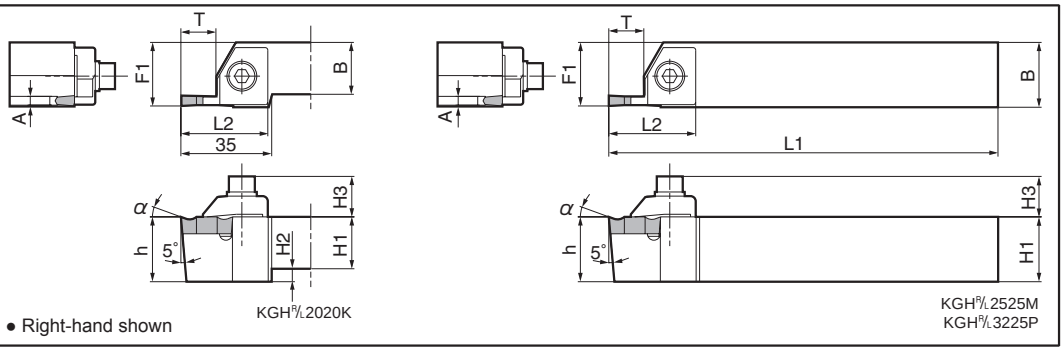
Inserts are sold in 10 piece boxes.

CBN R/L PCD Inserts are sold in 1 piece boxes.

●: Std Stock ○: World Express

KGH



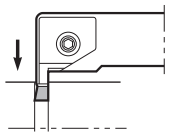


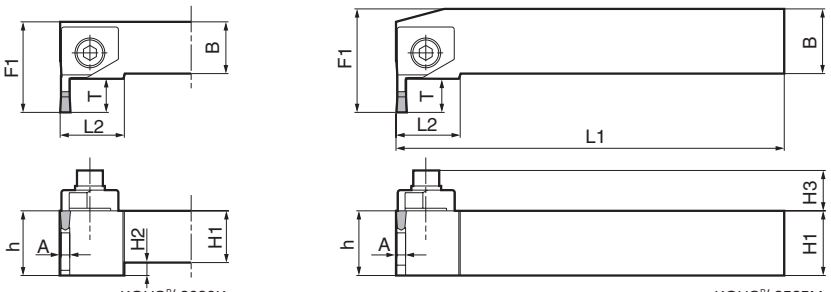
KGH R/L 2020K

KGH R/L 2525M
KGH R/L 3225P

● Right-hand shown

KGHS



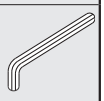


KGHS R/L 2020K

KGHS R/L 2525M

● Right-hand shown

● Toolholder Dimensions

Description		Std.		Dimension (mm)									Spare Parts				
													Clamp	Clamp Bolt	Washer	Spring	Wrench
		R	L	H1=h	H2	H3	B	L1	L2	F1	A	T					
KGH R/L	2020K-4	○	○	20	5	15.6	20	125	33.5	24.5-24.8	3.4	13	CGH-1 R/L	HH6X25	W-6	SP-6	LW-5
	2525M-4	○	○	25	-		25	150		24.5-24.8							
	2020K-5	○	○	20	5	15.6	20	125	33.5	25.0-25.8	4.2	13	CGH-1 R/L				
	2525M-5	○	○	25	-		25	150		25.0-25.8							
	3225P-5	○	○	32	-		25	170		25.0-25.8							
	2020K-7	○	○	20	5	15.6	20	125	33.5	24.5-25.0	5.8	13	CGH-2 R/L				
	2525M-7	○	○	25	-		25	150		24.5-25.0							
	2525M-10	○	○	25	-	16.1	25	150	41	25.5-26.5	9.0	17	CGH-3 R/L				
	3225P-10	○		32	-		25	170		25.5-26.5							
KGHS R/L	2020K-4	○	○	20	5	15.6	20	125	25	35	3.4	13	CGH-1 R/L	HH6X25	W-6	SP-6	LW-5
	2525M-4	○	○	25	-		25	150		40							
	2020K-5	○	○	20	5	15.6	20	125	25	35	4.2	13	CGH-1 R/L				
	2525M-5	○	○	25	-		25	150		40							
	2525M-7	○	○	25	-	15.6	25	150	25	40	5.8	13	CGH-2 R/L				

• Dimension T shows available grooving depth.
• Dimension F1 of KGH& Toolholder depends on the insert's edge width.
• Clamp: KGH& ... CGH- ○ R for Right-hand Toolholder, and CGH- ○ L for Left-hand Toolholder.
KGHS& ... CGH- ○ L for Right-hand Toolholder, and CGH- ○ R for Left-hand Toolholder.

● Rake Angle (α) after Installment of GH / GHU insert

GH ○○○○ - ○○		GHU ○○○○	
α	Insert Grades	α	Insert Grades
0°	A65, A66N	10°	TN60 CR9025
10°	TC40		
20°	TN90, TC60 PR630, PR930 KW10		

●: Std Stock ○: World Express

Applicable Inserts

(mm)

Description	L	H
GH4020- ○○ ~GH8020- ○○	20	7.5
GH10025-05~GH12025-05	25	
GHU ○○○○	20	
GA30, GA40	25	5.0
GA50	30	

		Classification of usage
P	Carbon Steel / Alloy Steel	◕: Continuous-Light Interruption / 1st Choice
M	Stainless Steel	◔: Continuous-Light Interruption / 2nd Choice
K	Cast Iron	●: Continuous / 1st Choice
N	Non-ferrous Metals	○: Continuous / 2nd Choice
S	Titanium Alloy	
H	Hard materials (under 40HRC)	
	Hard materials (over 40HRC)	

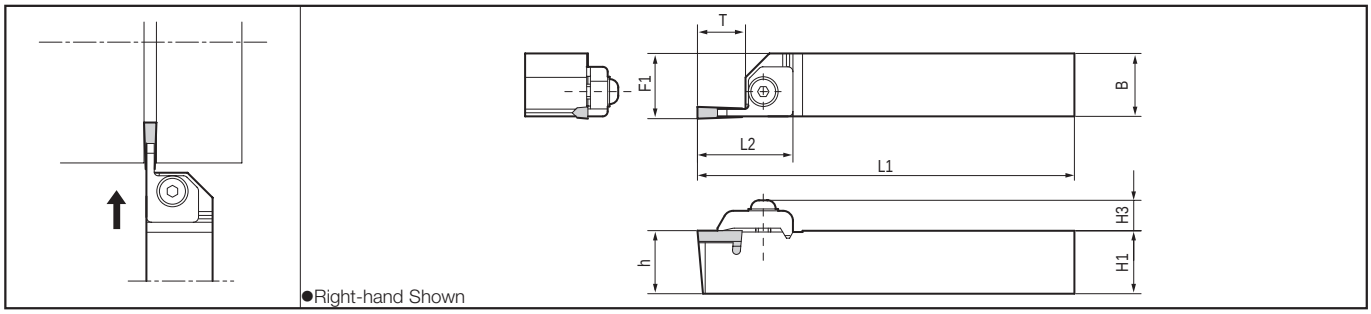
Insert		Description		Dimension (mm) W	Dimension (mm) rε	Cermet TN60	Cermet TN90	Cermet TC40	Cermet TC60	CVD Coated Carbide CR9025	PVD Coated Carbide PR630	PVD Coated Carbide PR930	Carbide KW10	Ceramic A65	Ceramic A66N	Ceramic PT600M	Applicable Toolholder	Ref. Page for Toolholder
Ground Chipbreaker		GH	4020-02	4.0	0.2		○	○				○	○				KGH R/L…4	G52
			4020-05		0.5		○	○				○	○	○	○	○	KGHS R/L…4	
			4520-02	4.5	0.2			○										
			4520-05		0.5			○										
			5020-02	5.0	0.2		○	○				○	○					
			5020-05		0.5		○	○				○	○	○	○	○		
			5520-02	5.5	0.2			○									KGH R/L…5	
			5520-05		0.5			○									KGHS R/L…5	
			6020-02	6.0	0.2		○	○				○	○					
			6020-05		0.5		○	○				○	○	○		○		
			6520-02	6.5	0.2			○										
			6520-05		0.5			○										
Ceramic			7020-02	7.0	0.2		○	○				○	○					
			7020-05		0.5		○	○				○	○	○		○		
			7520-02	7.5	0.2			○									KGH R/L…7	
			7520-05		0.5			○									KGHS R/L…7	
			8020-02	8.0	0.2		○	○				○	○					
			8020-05		0.5		○	○				○	○					
			10025-05	10.0	0.5							○	○				KGH R/L…10	
			12025-05	12.0	0.5							○	○					
Molded Chipbreaker		GHU	4020	4.0	0.25	○				○							KGH R/L…4 KGHS R/L…4	G52
			5020	5.0	0.30	○				○							KGH R/L…5 KGHS R/L…5	
			6020	6.0	0.30	○				○								

Ceramic insert is above shape.

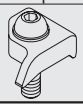
For recommended cutting conditions, see page ➡ G97

Inserts are sold in 10 piece boxes.

EGT

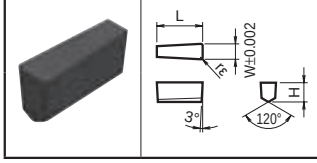


● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Dimension H1=h	H2	H3	B	L1	L2	F1	T	Spare Parts: Clamp Set	Spare Parts: Wrench		
															
EGT R/L 16-1	●		inch	1.00	-	0.43	1.00	7.00	1.34	1.0085~1.0285	0.63	**R HCL-009** **L HCL-011**	**LW-156**		

● Clamp Set: ETGR/L… HCL-009 for Right-hand Toolholder, HCL-011 for Left-hand Toolholder

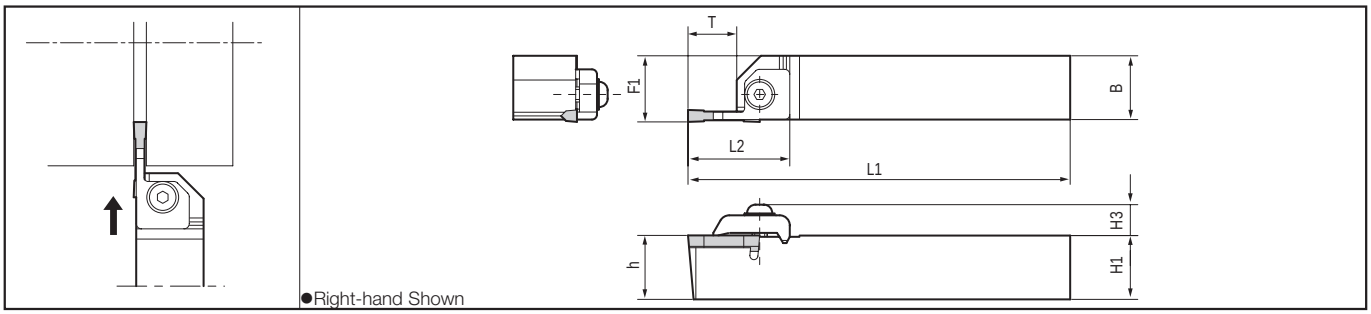
Applicable Inserts

Shape (Handed Insert shows Right-hand)	Description	Old Description	Unit	Dimension W (inch)	W (mm)	B	rε	A	L	H	Insert Grade: Cermet TN90	Cermet TC40	Cermet TC60	PVD Coated PR630	PVD Coated PR930	Carbide KW10	PCD KPD001	PCD KPD010	Ceramic A65
	**GG 157-20 T00320**	–	inch	.157	-		0.02		.591	.197									●
	197-32 T00320	–		.197			0.032		.591	.197									●

• Dimension B shows available Grooving Depth.

●: Std Stock ○: World Express

KDB

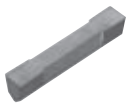
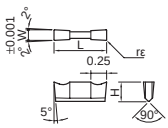
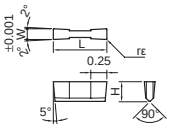
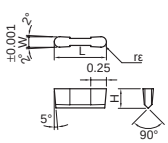


● Toolholder Dimensions

Description	Stock R	Stock L	Unit	Dimension H1=h	H2	H3	B	L1	L2	F1		Spare Parts: Clamp Set	Spare Parts: Wrench		
KDB□ 16-1	●		inch	1.00	-	0.45	1.00	6.00	-	1.005~1.036	0.75	R HCL-009 L HCL-011	LW-156		

● Clamp Set: KDB□... HCL-009 for Right-hand Toolholder, HCL-011 for Left-hand Toolholder

Applicable Inserts

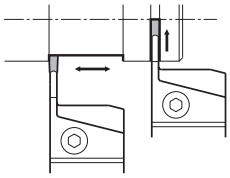
Shape		Description		Unit	Dimension W (inch)	W (mm)	B	rε	A	L	H	Insert Grade Cermet TC30	Ceramic A65
		DB	125R15	inch	.125	-	-	.015	-	1.125	.250	●	
			187R15		.187			.015				●	
			187R30					.030				●	
		DB	125R15 T00420	inch	.125	-	-	.015	-	1.125	.250		○
			187R15 T00420		.187			.015					●
			187R30 T00420					.030					●
		DB	125FNR T00420	inch	.125	-	-	.063	-	1.125	.250		●
			187FNR T00420		.187			.094					●

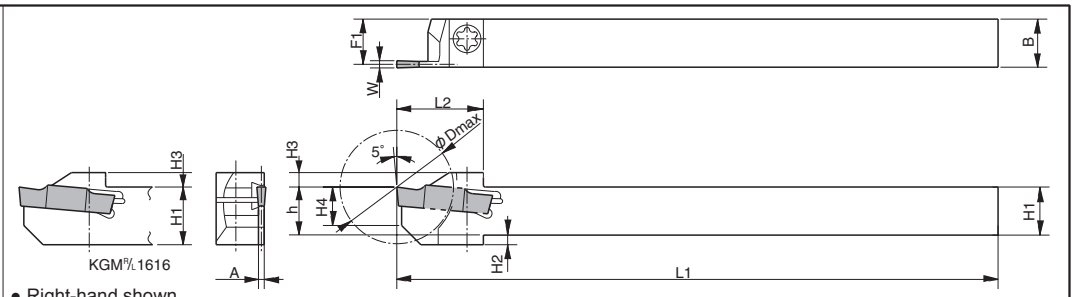
●: Std Stock ○: World Express

KGM External Grooving Toolholders

KGM (For automatic lathe)

Width: 1.5~4.0mm





• Right-hand shown

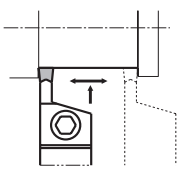
Toolholder Dimensions

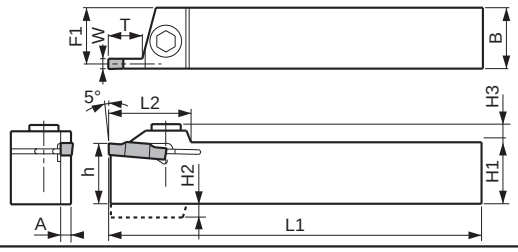
Description		Std. R	Std. L	Cutting Dia. øDmax	Dimension (mm) H1=h	H2	H3	H4	B	L1	L2	F1	A	Insert Width W (mm) MIN.	Insert Width W (mm) MAX.	Spare Parts Screw	Spare Parts Wrench
KGM®	1010JX-1.5	●	●	20	10	2	3	8	10	120	18	9.4	1.2	1.5	2.0	SE-40120TR	LTW-15S
NEW	1212JX-1.5	●	●	25	12		4	10	12		20.5	11.4					
KGM®	1010JX-2	●	●	20	10	2	3	8	10	120	18	9.15	1.7	2.0	3.0	SE-40120TR	LTW-15S
NEW	1212JX-2	●	●	25	12		4	10	12		19	11.15					
	1616JX-2	●	●	32	16	-		9	16		24.5	15.15				SE-50125TR	LTW-20
KGM®	1010JX-2.5	●	●	20	10	2	3	8	10	120	18	9	2.0	2.4	3.0	SE-40120TR	LTW-15S
NEW	1212JX-2.5	●	●	25	12		4	10	12		20.5	11					
	1616JX-2.5	●	●	32	16	-		9	16		25.5	15				SE-50125TR	LTW-20
KGM®	1616JX-3	●	●	32	16	-	4	9	16	120	25.5	14.8	2.4	3.0	4.0	SE-50125TR	LTW-20
KGM®	1212F-1.5-85	●		25	12	2	4	10	12	85	19	11.4	1.2	1.5	2.0	SE-40120TR	LTW-15S
KGM®	1212F-2-85	●	●	25	12	2	4	10	12	85	19	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	11	2.0	2.4	3.0	SE-40120TR	LTW-15S

❖Reference Page G58 for Insert Selection Guide

KGM

Width : 3.0~8.0mm





•Right-hand Shown

Toolholder Dimensions

Description		Stock R	Stock L	Unit	Dimension H1=h	H2	H3	B	L1	L2	F1	A	T	Insert Width W (mm) MIN	Insert Width W (mm) MAX	Spare Parts Clamp Screw		Spare Parts 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	-		1.00	6.0		0.953			mm	mm		HH5X25		
KGM®	1212H-3	○	○	mm	12	4	5	12	100	27	10.8	2.4	8	3.0	3.0	SB-5TR	-	LTW-20	-
	1616H-3	○	○		16	4	5	16	100		14.8		8	3.0	4.0	-	HH5X16	-	LW-4
	2020K-3	○	○		20	-	6	20	125		18.8		9						
	2525M-3	○			25	-	6	25	150		23.8		9				HH5X25		
	2020K-4	○	○		20	-	6	20	125	27	18.3	3.4	10	4.0	5.0	-	HH5X16	-	LW-4
	2525M-4	○	○		25	-		25	150		23.8						HH5X25		
	2020K-5	○	○		20	-	6	20	125	27	17.8	4.4	10	5.0	6.0	-	HH5X16	-	LW-4
	2525M-5	○	○		25	-		25	150		22.8						HH5X25		
	3232P-5	○	○		32	-		32	170		29.8								
	2525M-8	○	○		25	7.5	8	25	150	40	22.0	6.0	25	8.0	8.0	-	HH6X25	-	LW-5
	3232P-8	○	○		32	-		32	170		29.0								

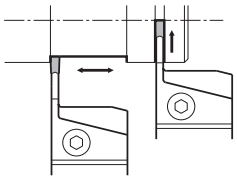
① Dimension T shows maximum grooving depth

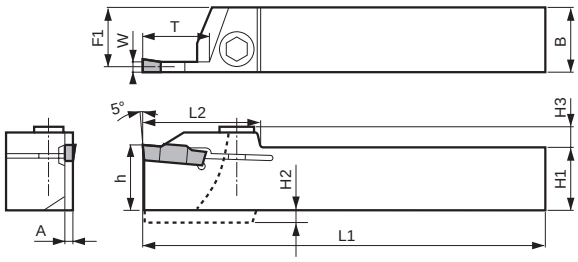
② 4.0mm width insert can be installed to KGM® 1212H-3, but machining is not recommended due to the tooholder's rigidity.

❖Reference Page G58 for Insert Selection Guide

●: Std Stock ○: World Express

KGM-T (For Deep Grooving)





•Right-hand Shown

Toolholder Dimensions

Description		Stock R	Stock L	Unit	Dimension H1=h	H2	H3	B	L1	L2	F1	A	T	Insert Width W (mm) MIN	Insert Width W (mm) MAX	Spare Parts: Clamp Screw	Spare Parts: Clamp Screw	Spare Parts: Wrench	Spare Parts: Wrench
KGM	12-2T	●	●	inch	0.75	-	0.24	0.75	5.0	1.30	0.717	0.067	0.669	2.0 mm	3.0 mm	-	HH5X16	-	LW-4
	16-2T	●			1.00			1.00	6.0		0.967						HH5X25		LW-4
	12-3T	●	●		0.75	-	0.24	0.75	5.0	1.42	0.702	0.094	0.790	3.0 mm	4.0 mm	-	HH5X16	-	LW-4
	16-3T	●	●		1.00			1.00	6.0		0.953						HH5X25		LW-4
	12-4T	●	●		0.75	-	0.24	0.75	5.0	1.42	0.683	0.134	0.790	4.0 mm	5.0 mm	-	HH5X16	-	LW-4
	16-4T	●	●		1.00			1.00	6.0	1.22	0.933		0.990				HH5X25		LW-4
	16-5T	●	●		1.00	-	0.24	1.00	6.0	1.22	0.913	0.173	0.990	5.0mm	6.0mm	-	HH5X25	-	LW-4
KGM	2012K-2T17	○	○	mm	20			12	125		11.15					SB-5TR	-	LTW-20	-
	2020K-2T17	○	○		20	-	6	20	125	33	19.15	1.7	17	2.0	3.0	-	HH5X16	-	-
	2525M-2T17	○	○		25			25	150		24.15						HH5X25		
	1616H-3T20	●	●		16	4		16	100		14.8					-	HH5X16	-	-
	2012K-3T20	○	○		20	-	6	12	125	36	10.8	2.4	20	3.0	4.0	SB-5TR	-	LTW-20	-
	2020K-3T20	○	○		20	-		20	125		18.8					-	HH5X16	-	LW-4
	2525M-3T20	○	○		25	-		25	150		23.8						HH5X25		
	2020K-4T20	○	○		20			20	125	36	18.3		20				HH5X16		
	2525M-4T20	○	○		25	-	6	25	150	36	23.3	3.4	20	4.0	5.0	-	HH5X25	-	LW-4
	2525M-4T25	○	○		25			25	150	31	23.3		25						
	2525M-5T25	○	○		25	-	6	25	150	31	22.8	4.4	25	5.0	6.0	-	HH5X25	-	LW-4
	3232P-5T25	○	○		32			32	170		29.8								
	2525M-6T30	○	○		25	-	6	25	150	45	22.4	5.2	30	6.0	6.0	-	HH5X25	-	LW-4

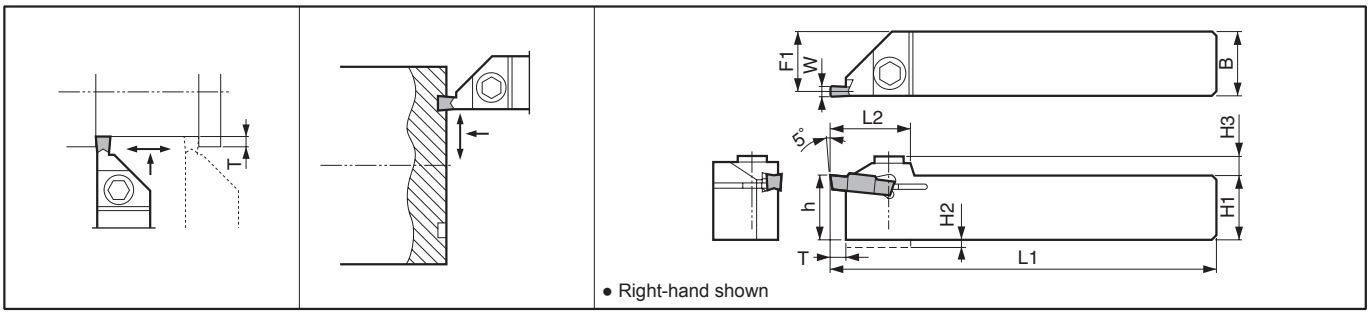
❖Reference Page G58 for Insert Selection Guide

① T Dimension shows the distance from the toolholder to the cutting edge. See the table (**G59**) for the relationship between the available grooving depth and the cutting dia..

② When using GMG/GMM type 2-corner insert, set the groove depth under 15mm.

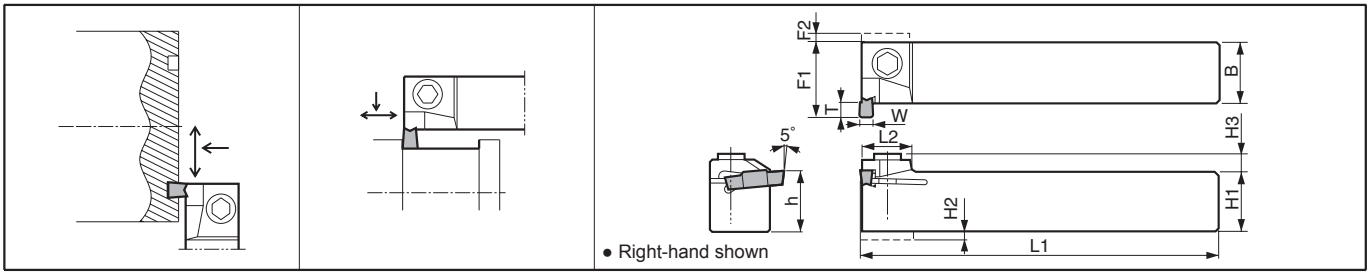
KGM External Grooving (External / Face Grooving) Toolholders

KGMM



• Right-hand shown

KGMS



• Right-hand shown

Toolholder Dimensions

Description		Stock R	Stock L	Dimension (mm) H1=h	H2	H3	B	L1	L2	F1	F2	T		Width W (mm) MIN	MAX	Spare Parts: Screw		Spare Parts: Wrench	
KGMMR/L	1212H-3	○	○	12	4	5	12	100	25	10.8	-	4.8		3.0	5.0	SB-5TR	-	LTW-20	-
	1616H-3	○	○	16	-		16			14.8						-	HH5X16	-	LW-4
	2020K-3	○	○	20		6	20	125		18.8						-		-	
	2525M-3	○	○	25			25	150		23.8						-	HH5X25	-	
KGMSR/L	1212H-3	○	○	12	4	5	12	100	17	17	1.5	4.8		3.0	3.0	SB-5TR	-	LTW-20	-
	1616H-3	○	○	16	-		16			21.5				3.0	5.0	GS-50	-	-	LW-3
	2020K-3	○	○	20		6	20	125		25	-					-	HH5X16	-	LW-4
	2525M-3	○	○	25			25	150		30						-	HH5X25	-	

• Dimension T shows available grooving depth. (See the table **G39** for Face Grooving)

Applicable Inserts [External Grooving]

Applications	Grooving / Traversing	Grooving / Traversing	Grooving	Full-R / Copying	Grooving	Grooving	Grooving	Grooving	Grooving	Grooving
Ref. Page	G60,G61	G60	G60	G60	G62	G62	G62	G62	G62	G63
Insert / Toolholder	MW	MS	MG		MT	NB	TK	TK		CBN PCD
KGMSR/L1212H-3	GMM3014..	-	-	GMM3014..R	-	-	-	-	-	-
KGMMR/L...3 KGMSR/L...3	GMM3020..MW GMM4020..MW GMM5020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG3020..MG GMG3520..MG GMG4020..MG GMG5020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R GMG5020..R GMM5020..R	GMM3020..MT	GMM3020..NB	GMM3020..TK	GMN3..TK GMN4..TK	GMN3 GMN4 GMN5	GMN3 GMN4 GMN5

Applicable Inserts [Face Grooving]

Applications	Grooving / Traversing	Grooving / Traversing	Grooving / Traversing	Grooving / Traversing	Grooving	Full-R / Copying	Grooving	Grooving	Grooving	Grooving
Ref. Page	G61	G60,G61	G60	G60	G60	G60	G62	G62	G62	G62,G63
Insert / Toolholder			MW	MS	MG		MT	NB	TK	
KGMSR/L1212H-3	-	GMM3014..RU	-	-	-	-	-	-	-	-
KGMMR/L...3 KGMSR/L...3	FGGR/L3020.. FGGR/L4020.. FGGR/L5020..	GMG3020..RU GMG4020..RU GMG5020..RU	GMM3020..MW GMM4020..MW GMM5020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG3020..MG GMG3520..MG GMG4020..MG GMG5020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R GMG5020..R GMM5020..R	GMM3020..MT	GMM3020..NB	GMM3020..TK	GMN3 GMN4 GMN5 GMN3..TK GMN4..TK

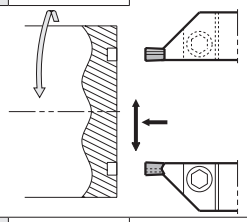
For recommended cutting conditions, see page **G100**

●: Std Stock ○: World Express

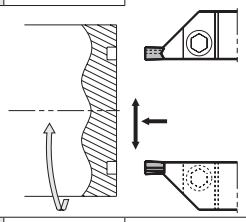
Selection of Insert & Toolholder (Face Grooving)

Case of KGMM

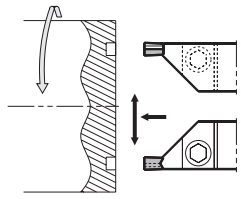
Toolholder	L-hand
Insert	L-hand



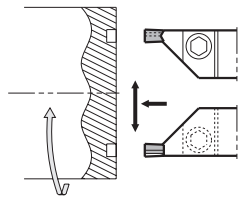
Toolholder	R-hand
Insert	R-hand



Toolholder	R-hand
Insert	L-hand

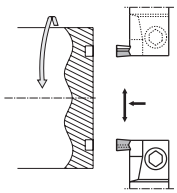


Toolholder	L-hand
Insert	R-hand

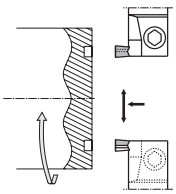


Case of KGMS

Toolholder	R-hand
Insert	L-hand

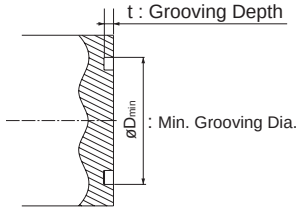


Toolholder	L-hand
Insert	R-hand



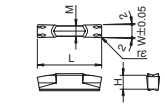
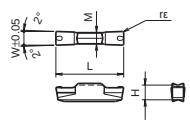
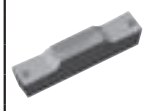
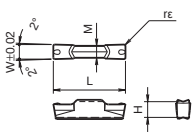
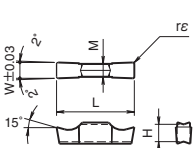
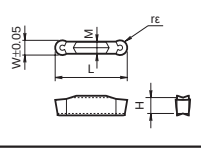
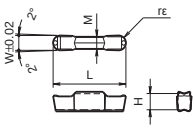
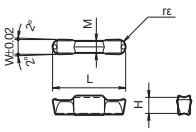
Min. Cutting Dia. (Face Grooving)

KGMM / KGMS (Common)



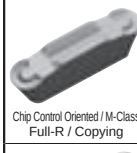
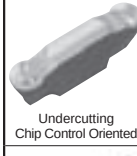
Description	øDmin	t
GMG / GMM3020-○○□□	ø100	4.8
GMG / GMM4020-○○□□		
GMG / GMM5020-○○□□		
FGG¥3020-02	ø22	4.3
FGG¥4020-04	ø28	4.8
FGG¥5020-04	ø30	
GMG3020-150RU	ø22	4.3
GMG4020-200RU	ø28	4.8
GMG5020-250RU	ø30	

GMM/GMG

Shape (Right Hand Insert Shown)	Description	Old Description	Unit	Dimension W (inch)	Dimension W (mm)	Dimension B	Dimension rε	Dimension L	Dimension H	Dimension M	Insert Grade: Cermet TN90	Cermet CR9025	CVD Coated PR905	PVD Coated PR915	PVD Coated PR930	Carbide KW10	Ref. page for Toolholder
  Chip Control Oriented M-Class	GMM 2420-020MW	GMM 2420-02	mm	.094	2.4	0.2	20	4.3	1.9	-	●	●	○	○	○	●	G56 ~ G58
	3020-020MW	3020-02		.118	3.0	0.2			2.3		○	○	○	○	○	○	
	3020-040MW	3020-04				0.4					●	●	○	○	●	●	
	4020-020MW	4020-02		.157	4.0	0.2			3.3		○	○	○	○	○	○	
	4020-040MW	4020-04				0.4					●	●	○	○	●	●	
	4020-080MW	4020-08				0.8					○	○	○	○	○	○	
	5020-040MW	5020-04		.197	5.0	0.4			4.2		○	○	○	●	○	○	
	5020-080MW	5020-08				0.8					○	●	○	○	○	●	
	6020-040MW	6020-04		.236	6.0	0.4			5.2		○	○	○	●	○	○	
	6020-080MW	6020-08				0.8					●	●	○	○	●	○	
	8030-080MW	8030-08		.315	8.0	0.8	30	5.5	6.0	-		○	○		●	○	
  Sharp-Cutting Oriented M-Class	GMM 3020-020MS	GMM 3020-02MS	mm	.118	3.0	0.2	20	4.3	2.3	-	○	○		○	○	○	
	3020-040MS	3020-04MS		.118	3.0	0.4			2.3		○			○	○	○	
	4020-040MS	4020-04MS		.157	4.0	0.4			3.3		○	●		○	●	○	
	5020-040MS	5020-04MS		.197	5.0	0.4			4.2		○			●	○	○	
	6020-040MS	6020-04MS		.236	6.0	0.4			5.2		○	○			●	○	
  Sharp-Cutting Oriented Precision Class	GMG 3020-000MS	GMG 3020-00	mm			0.0	20	4.3	2.3	-	○	●		○	○	●	
	3020-020MS	3020-02		.118	3.0	0.2					○	●		○	○	●	
	3020-040MS	3020-04				0.4					○	●		○	○	●	
	4020-020MS	4020-02		.157	4.0	0.2			3.3		○	○		○	○	○	
	4020-040MS	4020-04				0.4					○	●		○	●	○	
	4020-080MS	4020-08				0.8					○	●		○	○	○	
	5020-040MS	5020-04		.197	5.0	0.4			4.2		○	●		○	○	●	
	5020-080MS	5020-08				0.8					○	○		○	○	○	
	6020-040MS	6020-04		.236	6.0	0.4			5.2		○	●			○	○	
	6020-080MS	6020-08				0.8					○	○			○	○	
  Sharp-Cutting Oriented Precision Class Ground Chipbreaker	GMG 2520-030MG	GMG 2520-03MG	mm	.098	2.5	0.3	20	4.3	2.0	-	○		○	○	○	○	
	3020-030MG	3020-03MG		.118	3.0	0.3			2.3		○	○	○	○	○	○	
	3520-030MG	3520-03MG		.138	3.5	0.3			2.8		○	○	○	○	○	○	
	4020-040MG	4020-04MG		.157	4.0	0.4			3.3		○	○	○	○	○	○	
	5020-040MG	5020-04MG		.197	5.0	0.4			4.2		○	○	○	○	○	○	
	6020-040MG	6020-04MG		.236	6.0	0.4			5.2		○	○	●		○	○	
	8030-050MG	8030-05MG		.315	8.0	0.5	30	5.5	6.0	-	○	○	○		○	○	
  Chip Control Oriented M-Class Full-R / Copying	GMM 3020-150R	GMM 3020-15R	mm	.118	3.0	1.5	20	4.3	2.3	-	●	●	○	○	○	○	
	4020-200R	4020-20R		.157	4.0	2.0			3.3		○	●	○	○	○	○	
	5020-250R	5020-25R		.197	5.0	2.5			4.2		○	●	○	○	○	○	
	6020-300R	6020-30R		.236	6.0	3.0			5.2		●	○	○	○	○	○	
  Sharp-Cutting Oriented Precision Class Full-R / Copying	GMG 3020-150R	GMG 3020-15R	mm	.118	3.0	1.5	20	4.3	2.3	-	○	●			○	○	
	4020-200R	4020-20R		.157	4.0	2.0			3.3		○	●			○	○	
	5020-250R	5020-25R		.197	5.0	2.5			4.2		○	●			○	●	
	6020-300R	6020-30R		.236	6.0	3.0			5.2		○	●			○	○	
  Undercutting Chip Control Oriented	GMG 3020-150RU	GMG 3020-15RU	mm	.118	3.0	1.5	20	4.3	2.3	-		○			○	○	
	4020-200RU	4020-20RU		.157	4.0	2.0			3.3			○			○	○	
	5020-250RU	5020-25RU		.197	5.0	2.5			4.2			○			○	○	

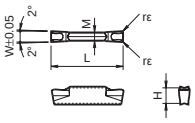
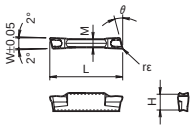
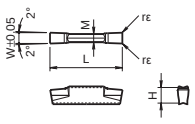
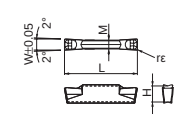
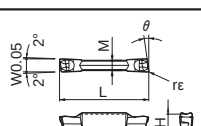
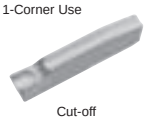
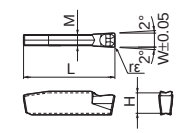
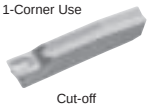
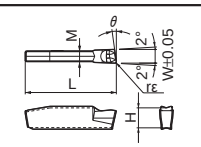
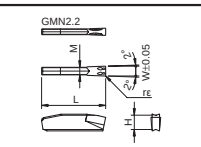
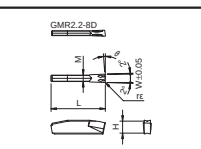
●: Std Stock ○: World Express

GMM/GMGA/FGG

Shape (Right Hand Insert Shown)	Description	Old Description	Unit	Dimension W (inch)	Dimension W (mm)	Dimension rε	Dimension L	Dimension H	Dimension M	Angle (°) θ	Insert Grade: Cermet TN90	Insert Grade: CVD Coated CR9025	Insert Grade: PVD Coated PR905	Insert Grade: PVD Coated PR915	Insert Grade: PVD Coated PR930	Insert Grade: Carbide KW10	Ref. page for Toolholder
 Sharp-Cutting Oriented Precision Class Full-R / Copying	**GMGA 6020-300R**	**GMGA 6020-30R**	mm	.236	6.0	3.0	20	4.3	4.3	-						○	**G56 G57**
 Sharp-Cutting Oriented Precision Class Full-R / Copying	**GMGA 8030-400R**	**GMGA 8030-40R**	mm	.315	8.0	4.0	30	5.5	6.0	-						○	**G58**
 Face Grooving Chip Control Oriented Precision Class	**FGG R/L 3020-02**	—	mm	.118	3.0	0.2	20	4.3	2.3	-	○	○			○	○	**G58**
	4020-04			.157	4.0	0.4			3.3		○	○			○	○	
	5020-04			.197	5.0				4.2		○	○			○	○	
 Chip Control Oriented / M-Class	**GMM 3014-04**	—	mm	.118	3.0	0.4	14	4.3	2.3	-	○	○		●	○	○	**G58**
 Chip Control Oriented / M-Class Full-R / Copying	**GMM 3014-15R**	—	mm	.118	3.0	1.5	14	4.3	2.3	-	○	○			○	○	**G58**
 Undercutting Chip Control Oriented	**GMM 3014-15RU**	—	mm	.118	3.0	1.5	14	4.3	2.3	-		○			○	○	**G58**
 Chip Control Oriented M-Class	**GMM 3015-040V**	—	mm	.118	3.0	0.4	15.5	4.3	2.3	-			○				**G82**
	4020-040V			.157	4.0	0.4	20		3.3				○				
	5020-080V			.197	5.0	0.8			4.2				○				
 Chip Control Oriented M-Class Full-R / Copying	**GMM 3015-150VR**	—	mm	.118	3.0	1.5	15.5	4.3	2.3	-			○				
	4020-200VR			.157	4.0	2	20		3.3				○				
	5020-250VR			.197	5.0	2.5			4.2				○				

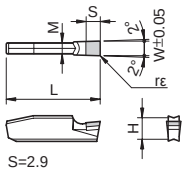
●: Std Stock ○: World Express

GMM/GM/GMN

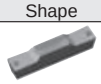
Shape (Right Hand Insert Shown)		Description		Unit	Dimension W (inch)	Dimension W (mm)	Dimension rε	Dimension L	Dimension H	Dimension M	Angle (°) θ	Insert Grade: Cermet TN90	CVD Coated CR9025	PVD Coated PR905	PVD Coated PR915	PVD Coated PR930	Carbide KW10	Ref. page for Toolholder
 Deep Grooving/Cut-off Sharp-Cutting Oriented		GMM	1520-MT	mm	.059	1.5	0	20	4.3	1.2	-					●	●	G56 ~ G58
							0.05								●			
			2020-MT		.079	2.0	0			1.5						●	○	
							0.05								●			
			2520-MT		.098	2.5	0			1.9						●	○	
							0.05						○		○			
			3020-MT		.118	3.0	0			2.3						●	○	
							0.05						○		●			
 Cut-off Sharp-cutting Oriented Lead Angle		GMM	1520R/L -MT-15D	mm	.059	1.5	0	20	4.3	1.2	15°					●	●	
							0.05								R			
			2020R/L -MT-8D		.079	2.0	0			1.5	8°					○		
			2020R/L -MT-15D				0				15°					●	○	
							0.05						○		R			
			2520R/L -MT-15D		.098	2.5	0			1.9	15°					●	○	
							0.05						○		R			
			3020R/L -MT-4D		.118	3.0	0			2.3	4°					○		
			3020R/L -MT-15D				0				15°					○	○	
							0.05						○		R			
 Deep Grooving/Cut-off Sharp-Cutting Oriented Without Chipbreaker		GMM	1520-NB	mm	.059	1.5	0	20	4.3	1.2	-					○	○	
							0.05											
			2020-NB		.079	2.0	0			1.5						○	○	
							0.05						○					
			2520-NB		.098	2.5	0			1.9						○	○	
							0.05						○					
			3020-NB		.118	3.0	0			2.3						○	○	
							0.05						○					
 Deep Grooving/Cut-off Stability-Oriented		GMM	2020-TK	mm	.079	2.0	0.2	20	4.3	1.5	-				○	●	○	
			2520-TK		.098	2.5	0.2			1.9			○		○	○	○	
			3020-TK		.118	3.0	0.25			2.3			○		●	●	○	
 Cut-Off Stability-Oriented With Lead Angle		GMM	2020R/L -TK-8D	mm	.079	2.0	0.2	20	4.3	1.5	8°				R	○	○	
			2520R/L -TK-8D		.098	2.5	0.2			1.9			○		R	○	○	
			3020R/L -TK-8D		.118	3.0	0.25			2.3			○		R	○	○	
1-Corner Use  Cut-off Stability-Oriented		GMN	2-TK	mm	.079	2.0	0.2	20	4.3	1.8	-				○	○	○	
			3-TK		.118	3.0	0.25			2.3			○		○	○	○	
			4-TK		.157	4.0	0.3			3.3			○		○	○	○	
1-Corner Use  Cut-off Stability-Oriented Lead Angle		GMR/L	2-TK-8D	mm	.079	2.0	0.2	20	4.3	1.8	8°				R	R	R	
			3-TK-8D		.118	3.0	0.25			2.3			R		R	R	R	
			4-TK-8D		.157	4.0	0.3			3.3			R		R	R	R	
1-Corner Use  Deep Grooving/Cut-off	 GMN2.2	GMN	2.2	mm	.087	2.2	0.17	20	4.3	1.8	-	○	●			○	●	
			3		.118	3.0	0.2			2.3		○	●			●	●	
			4		.157	4.0	0.25			3.3		○	○			●	●	
			5		.197	5.0	0.8			4.2			○			○	○	
			6		.236	6.0	0.8			5.2			○			○	○	
1-Corner Use  Cut-off Sharp-Cutting Oriented Lead Angle	 GMR2.2-8D	GMR/L	2.2-8D	mm	.087	2.2	0.17	20	4.3	1.8	8°	○	●			●	●	
			2.2-15D		.087	2.2	0				15°	○	○			○	○	
			3-4D		.118	3.0	0.2			2.3	4°	R	●			○	●	
			3-15D		.118	3.0	0.2				15°		○					
			4-4D		.157	4.0	0.25			3.3	4°	R	○			R	L	

●: Std Stock ○: World Express

GMN

Shape	Description		Unit	Dimension						Angle (°)	Insert Grade				Ref. page for Toolholder
				W (inch)	W (mm)	rε	L	H	M	θ	CBN KBN510	CBN KBN525	PCD KPD001	PCD KPD010	
1-Corner Use  Deep Grooving		GMN	2	.079	2.0	0.2	20	4.3	1.8	-	○	○	○	○	G56 ~ G58
						0.4									
			3	.118	3.0	0.2			2.3			●	○	○	
						0.4					○	○			
			4	.157	4.0	0.2			3.3				○	○	
						0.4					○	○			
			5	.197	5.0	0.2			4.2				○	○	
						0.4					○	○			
			6	.236	6.0	0.2			5.2					○	
						0.4					○	○			

Multi-Function CERACUT Plunge & Turn Chipbreakers

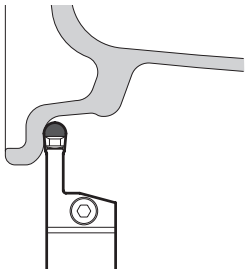
Application	Type	Shape		Advantages
Finishing~Medium General Grooving	GMM		2-corner	Negative and strong edge, good chip control When traversing d=0.02"~0.10", f=0.002~0.008ipr, it shows good chip control. Grooving, traversing and cut-off are available.
Medium~Roughing Precision Grooving	GMG GMM-MS		2-corner	Positive edge, less cutting resistance, sharp cutting When traversing d=0.06"~0.12", f=0.004~0.01ipr, it shows excellent chip control performance. Grooving, traversing and cut-off are available.
Finishing Precision Grooving	GMG-MG		2-corner	Ground chipbreaker and sharp cutting performance. No chattering.
Deep Grooving	GMN		1-corner	Mainly for deep grooving. Groove width expansion and traversing are available due to the projection. 1-edge use and wide cutting range. Cut-off operation is also available.
Cut-Off Deep Grooving	GMM-MT		2-corner	Chipbreaker developed for cut-off operation with sharp cutting performance. It can minimize the core which remains in the center of the face.
Cut-Off Deep Grooving	GMM-NB		2-corner	Flat rake face and non-chipbreaker. It works well for copper, brass.
Cut-Off Deep Grooving	GMM-TK		2-corner	Chipbreaker for cut-off and large corner-R. Stable performance. 2-edge use.
Cut-Off Deep Grooving	GMN-TK		1-corner	Similar chipbreaker shape to GMM-TK tool. 1-edge use and wide application range.

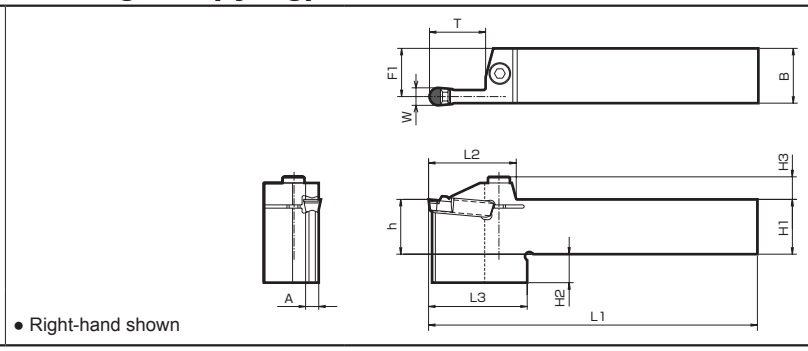
Applicable Inserts

Applications	Grooving / Traversing	Grooving / Traversing	Grooving	Full-R / Copying	Full-R / Copying	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving
Ref. Page	G60	G60	G60	G60	G61	G62	G62	G62	G62	G62	G63
Insert / Toolholder	MW	MS	MG			MT	NB	TK	TK		CBN PCD
KGM R/L...1.5	-	-	-	-	-	GMM1520..MT GMM2020..MT GMM1520&..MT GMM2020&..MT	GMM1520..NB GMM2020..NB	GMM2020..TK GMM2020&..TK	GMN2..TK GM&2..TK	-	-
KGM R/L...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 R/L...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 R/L...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 R/L...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	GMN4 GMN5
KGM R/L...5(T)	GMM5020..MW GMM6020..MW	GMG5020..MS GMM5020..MS GMG6020..MS GMM6020..MS	GMG5020..MG GMG6020..MG	GMG5020..R GMM5020..R GMG6020..R GMM6020..R	GMGA6020..R	-	-	-	-	GMN5 GMN6	GMN5 GMN6
KGM R/L...6T	GMM6020..MW	GMG6020..MS GMM6020..MS	GMG6020..MG	GMG6020..R GMM6020..R	GMGA6020..R	-	-	-	-	GMN6	GMN6
KGM R/L...8	GMM8030..MW	-	GMG8030..MG	-	GMGA8030..R	-	-	-	-	-	-

KGMW Aluminum Wheel External Grooving

KGMW (External / Facing / Copying)



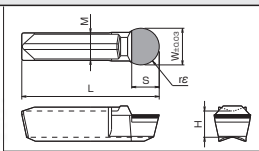
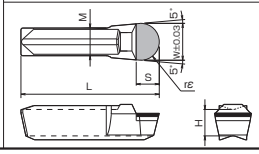


• Right-hand shown

Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	L3	F1	A	T	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts
KGMW R/L	2525M-6	●	●	25	13	10.3	25	150	40	55	22.8	4.4	25	HH6X25	LW-5	GMGW6030-30R
	2525M-8	●	●								22	6				GMGW8030-40R GMGW8030-40R-HR

Applicable Inserts

Shape		Description		Dimension (mm) W	rε	L	H	M	S	No. of Edge	PCD KPD001
		GMGW	6030-30R	6	3	30	5.5	5	4.5	1	●
			8030-40R	8	4			6	6	1	●
		GMGW	8030-40R-HR	8	4	30	5.5	6	5	1	●

• GMGW insert is exclusively used for KGMW type / KIGMW type toolholder. It cannot be used for other toolholder because of its different installation angle.
• GMGW inserts Edge Preparation: R-honed Cutting Edge.

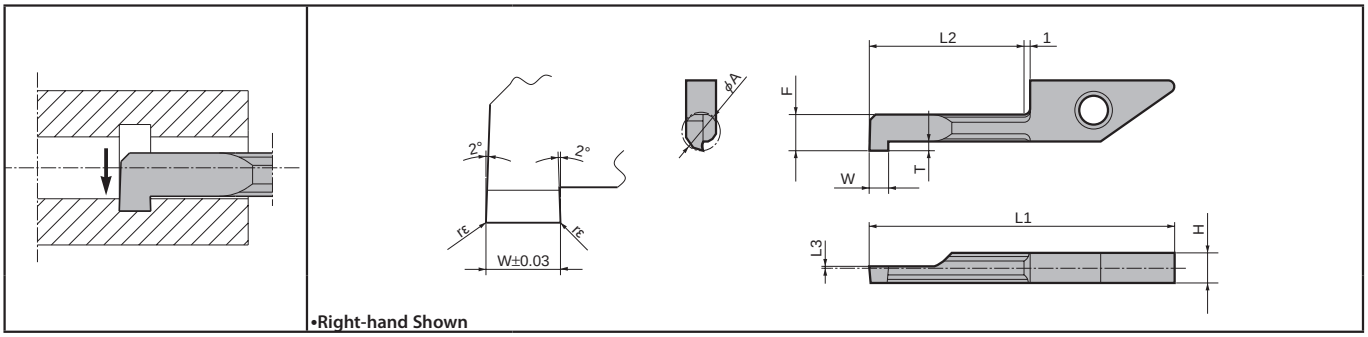
Recommended Cutting Conditions

Workpiece Material	Insert Grade (Vc: m/min) PCD KPD001	① f at Grooving (mm/rev) ② f at Traversing (mm/rev) ③ ap at Traversing (mm)
Aluminum	★ 150~2700	① 0.05~0.3 mm/rev ② 0.2~0.8 mm/rev ③ MAX.3 mm

★ : 1st Recommendation

●: Std Stock ○: World Express

VNG



•Right-hand Shown

● Insert Dimensions

Description		Unit	Min. Cutting Dia. ϕA	Dimension W (Inch)	W (mm)	rε	H	L1	L2	L3	F	T	Insert Grade Cermet TC60	PVD Coated PR930	Carbide KW10
VNGR	0410-11	mm	4	0.039	1.0	0.05	3.9	30.8	11	0.1	3.5	0.8		●	●
	0420-11			0.079	2.0	0.10								●	●
	0510-11		5	0.039	1.0	0.05	3.9	30.8	11	0.1	4.4	1.0	●	●	●
	0520-11			0.079	2.0	0.10							●	●	●
	0610-20		6	0.039	1.0	0.05	3.9	39.8	20	0.3	5.2	1.8	●	●	●
	0620-20			0.079	2.0	0.10							●	●	●
	0710-20		7	0.039	1.0	0.05	3.9	39.8	20	0.3	6.2	2.0	●	●	●
	0720-11			0.079	2.0	0.10							●	●	●

③ Dimension T shows maximum grooving depth

③ L3 indicates the cutting edge is above the tool's center position.

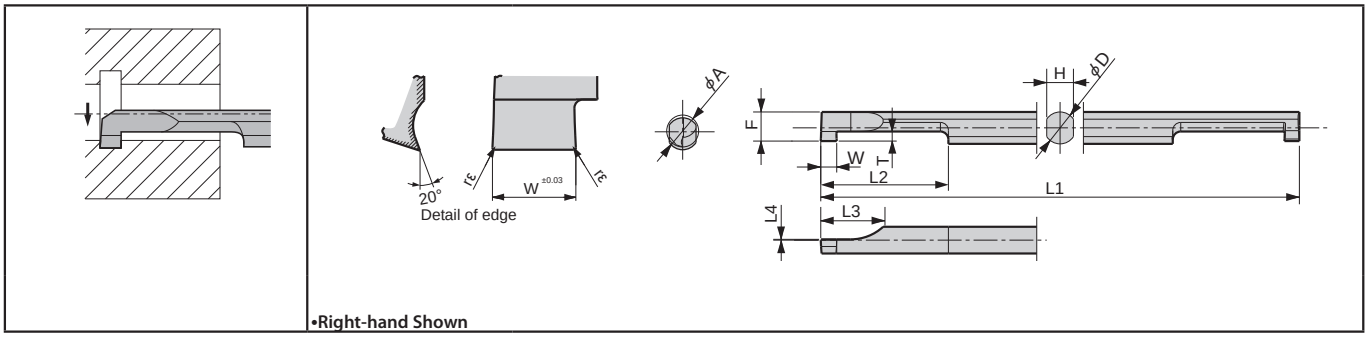
● See page **F12~F14** for the applicable toolholder.

◆ Recommended Cutting Conditions

Work Material	Recommended Insert Grade (SFM) Cermet TC60	PVD Coated PR630	PVD Coated PR930	Carbide KW10	VNG04 VNG05 f (ipr)	VNG06 VNG07 f (ipr)	Remarks
Carbon Steel / Alloy Steel	☆ 200~400	☆ 100~330	★ 100~330		~.001	~.002	Coolant
Stainless Steel	☆ 160~330	☆ 100~260	★ 100~260		~.0008	~.001	
Non-ferrous Metal				★ ~1000	~.002	~.003	

★ : 1st Recommendation ☆ : 2nd Recommendation

HPG



•Right-hand Shown

● Insert Dimensions

Description		Unit	Min. Cutting Dia. φA	Dimension W (Inch)	W (mm)	rε	φD	H	L1	L2	L3	L4	F	T	Insert Grade PVD Coated PR930 R	L	Carbide KW10 R	L
HPG R/L	0404-10	mm	4	0.039	1.0	+0 -0.02 0.05	4	3.35	60	15	8	0	3.65	1	○	○	○	○
	0404-20			0.079	2.0										○	○	○	○
	0505-10		5	0.039	1.0		5	4.3	70	20			4.55	1.5	○	○	○	○
	0505-20			0.079	2.0										○	○	○	○
	0606-10		6	0.039	1.0		6	5.2			10		5.5	2	○	○	○	○
	0606-20			0.079	2.0										○	○	○	○
	0707-10		7	0.039	1.0		7	6.2	80	25			6.45		○	○	○	○
	0707-20			0.079	2.0										○	○	○	○

③ Dimension T shows maximum grooving depth

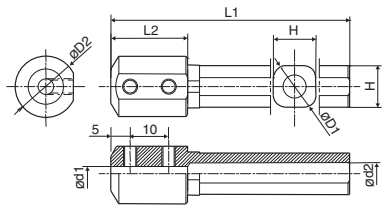
● Applicable Sleeve

Description		Applicable Sleeve ➡G67	
HPG R/L	0404-···	PSH	04-···
	0505-···		05-···
	0606-···		06-···
	0707-···		07-···

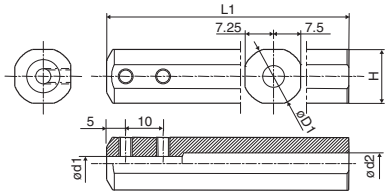
◆ Recommended Cutting Conditions

Workpiece Material	Insert Grade(Vc:SFM) PVD Coated PR930	Carbide KW10	HPG R/L 04 HPG R/L 05 f(ipr)	HPG R/L 06 HPG R/L 07 f(ipr)	Remarks
Carbon steel / Alloy steel	100~330	-	~.0012	~.0020	Coolant
Stainless Steel	100~260	-	~.0008	~.0012	
Non-ferrous Material	-	~990	~.0020	~.0031	

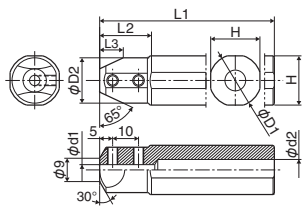
● Applicable Sleeve



(Tip-Bar installation side) Fig.1



(Tip-Bar installation side) Fig.2



(Tip-Bar installation side) Fig.3

Description		Stock	Dimension (mm)								Drawing	Spare Parts		Applicable Machine Manufactuer	Ref. Page for 2-Edge Tip-Bar (Ref. Page for other 2-Edge Tip-Bar)
			*ød1	øD1	øD2	ød2	H	L1	L2	L3		Screw	Wrench		
PSH	0412-80	●	4	12	16	6	11	80	20	-	Fig.1	HS4×4P	LW-2	(General use)	Grooving (HPG) ⇒ **G66**
	0512-80	●	5												
	0612-80	●	6			8									
	0712-80	●	7												
PSH	0416-100	●	4	16	-	6	15	100	-	-	Fig.2	HS4×4P	LW-2		
	0516-100	●	5												
	0616-100	●	6			8									
	0716-100	●	7												
PSH	0420-120	●	4	20	17.5	6	19	120	20	9	Fig.3	HS4×4P	LW-2	Amada Wasino Eguro Citizen machinery Precision Tsugami Miyano (General use)	
	0520-120	●	5												
	0620-120	●	6			8				7.5					
	0720-120	●	7												
PSH	0425.0-135	●	4	25	18	6	24	135	23	9.5	Fig.3	HS4×4P	LW-2	Amada Wasino Eguro Precision Tsugami Miyano (General use)	Boring (HPB) ⇒ **F24**
	0525.0-135	●	5												
	0625.0-135	●	6			8				8					
	0725.0-135	●	7												
PSH	0419-120	●	4	19.05 (0.75")	17.5	6	18	120	20	9	Fig.3	HS4×4P	LW-2	Citizen Machinery	Back Boring (HPBT) ⇒ **F24**
	0519-120	●	5												
	0619-120	●	6			8				7.5					Face Grooving (HPFG) ⇒ **G87**
	0719-120	●	7												
PSH	0425-120	●	4	25.4 (1")	18	6	24.4	120	23	9.5	Fig.3	HS4×4P	LW-2		Threading (HPT) ⇒ **J31**
	0525-120	●	5												
	0625-120	●	6			8				8					
	0725-120	●	7												
PSH	0422-135	●	4	22	18	6	21	135	22	9.5	Fig.3	HS4×4P	LW-2	Star Micronics Nomura VTC	
	0522-135	●	5												
	0622-135	●	6			8				8					
	0722-135	●	7												
PSH	0423-120	●	4	23	18	6	22	120	22	9.5	Fig.3	HS4×4P	LW-2	Nomura VTC	
	0523-120	●	5												
	0623-120	●	6			8				8					
	0723-120	●	7												

*: Length of ød1...20mm (PSH04)
...25mm (PSH05, PSH06, PSH07)

• Choose sleeves (ød1) to meet with øD dimension of Tip-Bar.
• Names of machine builders are listed in the order of the Japanese syllabary with omitted titles of respect.

Internal Grooving SIGE ϕ0.315"～

● 0.315" minimum cutting diamater with a 2 edge design.



Internal Grooving



Tool Holder / Sleeve for automatic lathes

● Inserts ➔G10

Shape			
	 Ground Chipbreaker	 3-D molded Chipbreaker	 Ground Chipbreaker

Advantages

The traditional top clamp has been replaced with a screw clamp only. This design creates a large chip pocket that provides excellent chip evacuation.

Large chip pocket



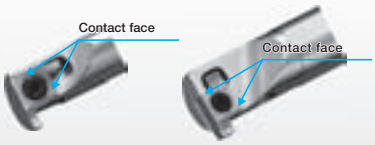
Screw Clamp　　Top Clamp

③ Cost effective chip control from a 3-D molded chipbreaker (GER---M)



GER---M

Cutting edge is protected in the pocket.



An 8mm minimum cutting diameter with a 2 edge design

③ New PR1025 PVD coated carbide

Consistent machining with our new micrograin carbide structure and PVD-FS TiCN coating



●SIGE tool holder and sleeve for automatic lathes

NEW

·SIGE tool holder

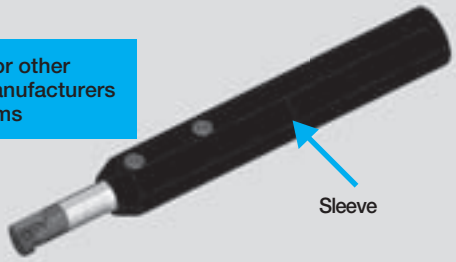
The locating surface for the sleeve lock screw reaches nearly to the insert pocket. This provides a maximum range of overhang adjustment to reduce chatter.



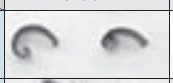
·Applicable Sleeve

Provides adjustment to toolholder overhang to reduce vibration and chatter.

Shank diameters for other automatic lathe manufacturers added to stock items



Comparison of chip evacuation (3-D molded chipbreaker)

Description \ Feed rate (ipr)	SCM415(Minimum Bore Dia.) 0.002	0.003	0.004	Evaluation
SIGER1612C-EH GER300-020CM(PR1025)				Good chip control
Comp A (Width 0.12")			Insert fracture	Unstable chip control and biting
Comp B (Width 0.12")				Unstable chip control and biting

(Vc =350 sfm, doc=0.08" ,Wet)　　Internal evaluation

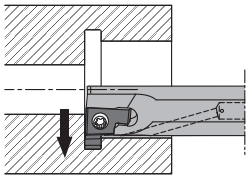
Comparison of chip evacuation (Minimum cutting dia. 0.315")

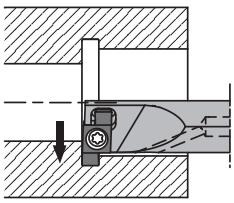
Description \ Feed rate (ipr)	SCM415 0.0008	Evaluation
SIGER0808A-EH GER200-010A (PR1025)		◎
Comp C (Width 0.08")		× Chipping

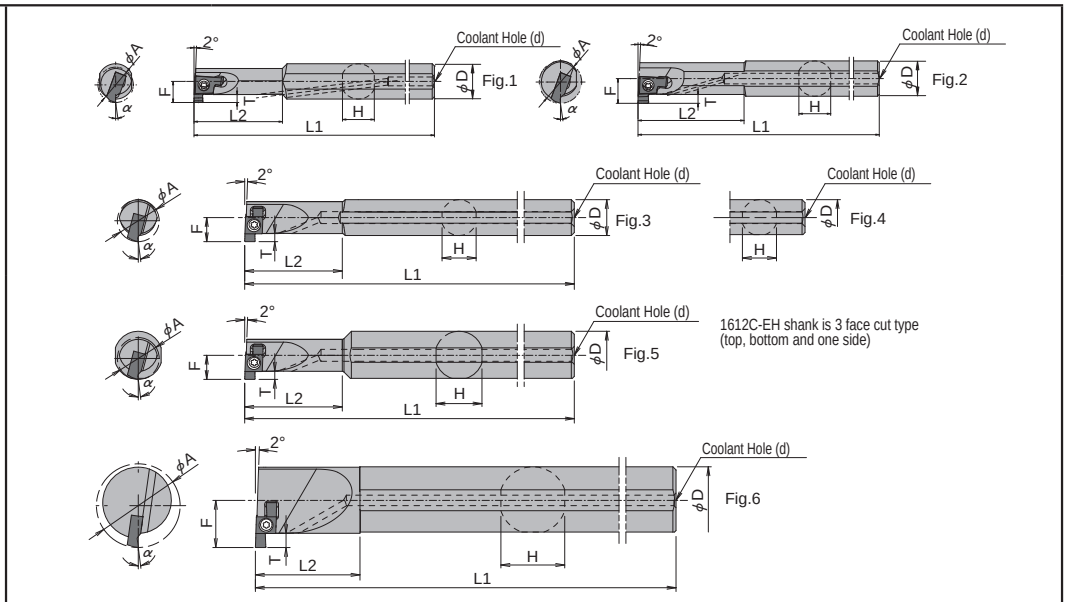
(Vc=160 sfm, doc=0.05", Wet)
Internal evaluation

●: Std Stock　○: World Express

SIGE-EH Excellent Bar (With coolant hole)







•Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

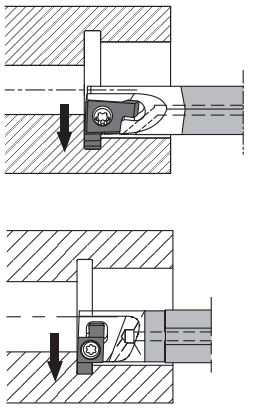
Toolholder Dimensions

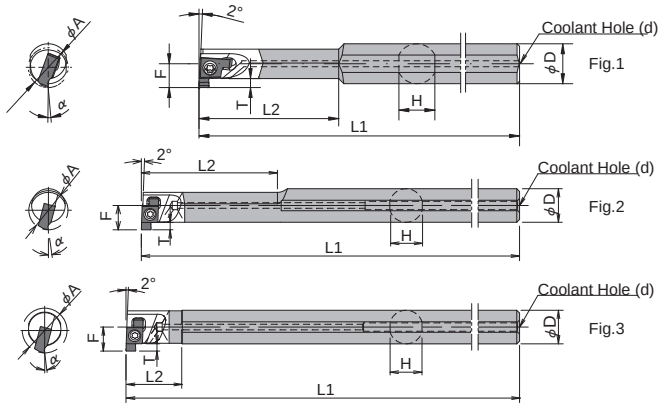
Description		Stock R	Stock L	Unit	Applicable Insert G73-75	Min. Cutting Dia. φA	Dimension φD	H	L1	L2	F	T	φd	Fig	Spare Parts: Clamp Screw	Spare Parts: Wrench FT	Spare Parts: Wrench DT
SIGE 用	05EH	●	●	inch	GE用100-005A~GE用200-010A GER100-050AR~GER200-100AR	0.313	0.315	0.283	3.94	0.787	0.177	0.059	0.158	1	SB-2045TRN	FT-6	-
	06EH	●	●		GE用100-005B~GE用300-020B GER100-050BR~GER200-100BR	0.375	0.394	0.354	4.92	0.984	0.232	0.087		1	SB-2255TR	-	DT-7
	0809C-EH	●	●		GE用100-005C~GE用350-020C GER150-010CM~GER350-020CM GER200-100CR~GER300-150CR	0.551	0.500	0.460	5.90	1.300	0.315	0.098		3	SB-2570TR	FT-8	-
	0810C-EH	●	●			0.630				0.788	0.335			4			
	1213D-EH	●	●		GE用100-005D~GE用400-020D GER150-010DM~GER400-020DM GER200-100DR~GER300-150DR	0.790	0.750	0.710	7.09	1.575	0.477	0.177	0.196	5	SB-3080TR	FT-10	-
	1616E-EH	●	●		GE用100-005E~GE用500-020E GER150-010EM~GER500-020EM	1.000	1.000	0.960	7.88	1.772	0.614	0.255		5	SB-4085TR	FT-15	-
	2020E-EH	●	●			1.250	1.250	1.170	8.66	2.166	0.748			5			
	2025E-EH	●	●			1.575			9.84	1.772	0.906			6			
SIGE 用	0808A-EH	○	○	mm	GE用100-005A~GE用200-010A GER100-050AR~GER200-100AR	8	8	7.2	100	20	4.8	1.5	3	1	SB-2045TRN	FT-6	-
	1010B-EH	○	○		GE用100-005B~GE用300-020B GER100-050BR~GER200-100BR	10	10	9	125	25	6.2	2.2	3	1	SB-2255TR	-	DT-7
	1210B-EH	○	○			12				30	7			2			
	1412C-EH	○	○		GE用100-005C~GE用350-020C GER150-010CM~GER350-020CM GER200-100CR~GER300-150CR	14	12	11.4	150	33	8	2.5	4	3	SB-2570TR	FT-8	-
	1612C-EH	○	○			16				20	8.5			4			
	1616C-EH	○	○				16	15	160	36	9		5	5			
	2020D-EH	○	○		GE用100-005D~GE用400-020D GER150-010DM~GER400-020DM GER200-100DR~GER300-150DR	20	20	19	180	40	12.1	4.5	5	5	SB-3080TR	FT-10	-
	2525E-EH	○	○		GE用100-005E~GE用500-020E GER150-010EM~GER500-020EM	25	25	24	200	45	15.6	6.5	5	5	SB-4085TR	FT-15	-
	3232E-EH	○	○			32	32	30.4	220	55	19						
	4032E-EH	○	○			40			250	45	23			6			

·Dimension T shows available grooving depth.

●: Std Stock ○: World Express

SIGE-WH Carbide Anti-vibration Bar (with coolant hole)





•Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

● Toolholder Dimensions

Description		Stock R	Stock L	Unit	Applicable Insert	Min. Cutting Dia. φA	Dimension φD	H	L1	L2	F	T	φd	Fig	Spare Parts: Clamp Screw	Spare Parts: Wrench FT	Spare Parts: Wrench DT
SIGE ℝ	0808A-WH	○	○	mm	GE ℝ 100-005A~GE ℝ 200-010A GER100-050AR~GER200-100AR	8	8	7.2	125	28	4.8	1.5	3	1	SB-2045TRN	FT-6	-
	1010B-WH	●	○		GE ℝ 100-005B~GE ℝ 300-020B GER100-050BR~GER200-100BR	10	10	9	125	35	6.2	2.2	3		SB-2255TR	-	DT-7
	1210B-WH	○	○			12			140	45	7						
	1412C-WH	○	○		GE ℝ 100-005C~GE ℝ 350-020C GER150-010CM~GER350-020CM GER200-100CR~GER300-150CR	14	12	11.4	150	50	8.7	2.5	4	2	SB-2570TR	FT-8	-
	1612C-WH	○	○			16			180	20	8.5			3			

·Dimension T shows available grooving depth.

●: Std Stock ○: World Express

Applicable Inserts & Rake Angle(1) after Installment of Inserts

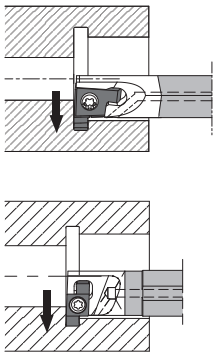
Description		Applicable Inserts & Rake Angle (α) after Installment of Insert			
		Ground Chipbreaker	α(°)	3-D Molded Chipbreaker	α(°)
SIGE®	05EH	GE®100-005A~GE®200-010A GER100-050AR~GER200-100AR	5°	-	-
	06EH	GE®100-005B~GE®300-020B GER100-050BR~GER200-100BR	5°	-	-
SIGE®	0808A-EH	GE®100-005A~GE®200-010A GER100-050AR~GER200-100AR	5°	-	-
	0809C-EH	GE®100-005C~GE®350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
	0810C-EH				
	1010B-EH	GE®100-005B~GE®300-020B GER100-050BR~GER200-100BR	5°	-	-
	1210B-EH				
	1213D-EH	GE®100-005D~GE®400-020D GER200-100DR~GER300-150DR	9°	GER150-010DM~GER400-020DM	10°
	1412C-EH	GE®100-005C~GE®350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
	1612C-EH				
	1616C-EH				
	1616E-EH	GE®100-005E~GE®500-020E	10°	GER150-010EM~GER500-020EM	10°
	2020D-EH	GE®100-005D~GE®400-020D GER200-100DR~GER300-150DR	9°	GER150-010DM~GER400-020DM	10°
	2020E-EH	GE®100-005E~GE®500-020E	10°	GER150-010EM~GER500-020EM	10°
	2025E-EH				
	2525E-EH				
	3232E-EH				
	4032E-EH				
SIGE®	0808A-WH	GE®100-005A~GE®200-010A GER100-050AR~GER200-100AR	5°	-	-
	1010B-WH	GE®100-005B~GE®300-020B GER100-050BR~GER200-100BR	5°	-	-
	1210B-WH				
	1412C-WH	GE®100-005C~GE®350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
	1612C-WH				

For automatic lathe

SIGER	1008B-WH-90	GER100-005B~GER300-020B GER100-050BR~GER200-100BR	5°	-	-
	1210B-WH-90				
	1412C-WH-90	GER100-005C~GER350-020C 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

SIGE-WH Carbide Anti-vibration Bar (With coolant hole)



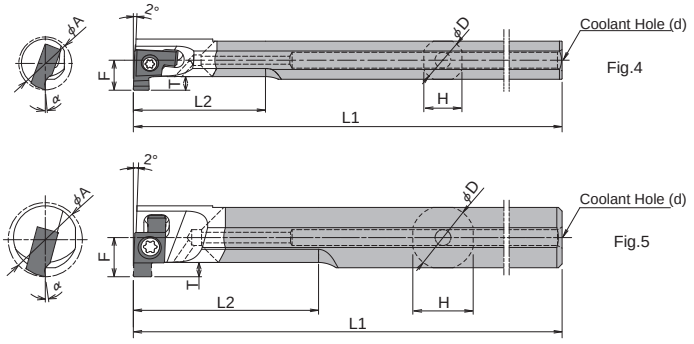


Fig.4

Fig.5

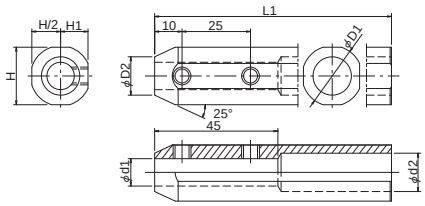
•Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

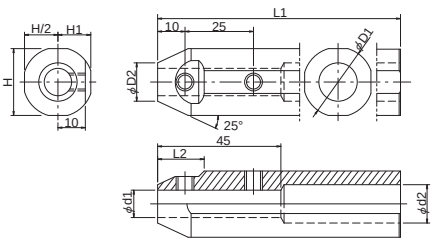
Toolholder Dimensions

Description		Stock	Unit	Applicable Insert	Min. Cutting Dia.	Dimension							Fig	Spare Parts		
					φA	φD	H	L1	L2	F	T	φd		Clamp Screw	Wrench	
															 FT DT	
SIGER	1008B-WH-90	○	mm	GER100-005B~GER300-020B GER100-050BR~GER200-100BR	10	8	7.2	90	25	5.6	2.2	3	4	SB-2255TR	-	DT-7
	1210B-WH-90	○			12	10	9.4		30	6.6						
	1412C-WH-90	○		GER100-005C~GER350-020C GER150-010CM~GER350-020CM GER200-100CR~GER300-150CR	14	12	11.4	90	35	7.4	2.5	3	5	SB-2570TR	FT-8	-

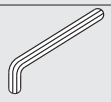
Applicable Sleeve



Holder Installation side
Fig.1



Holder Installation side
Fig.2

Description		Stock	Dimensions (mm)								Shape	Spare Parts		Applicable Machine Manufacturer
			φd1	φD1	φD2	φd2	H	H1	L1	L2		Screw	Wrench	
														
SHA	0820-120	○	8	20	14	12	19	9.25	120	-	Fig.1	HS6x4P	LW-3	Amada Washino Eguro Tsugami Miyano General Purpose
	1020-120	○	10											
SHA	0825.0-135	○	8	25	14	14	24	11.5	135	17	Fig.2			
	1025.0-135	○	10											
	1225.0-135	○	12		16									
SHA	0819-120	○	8	19.05 (.75")	14	12	18	8.75	120	-	Fig.1	HS6x4P	LW-3	Citizen Machinery
	1019-120	○	10											
SHA	0820-120	○	8	20	14	12	19	9.25	120	-	Fig.1			
	1020-120	○	10											
SHA	0825.4-120	○	8	25.4 (1")	14	14	24.4	12	120	17	Fig.2			
	1025.4-120	○	10											
	1225.4-120	○	12		16									
SHA	0822-125	○	8	22	14	14	21	10	125	-	Fig.1	HS6x4P	LW-3	Star Micronics Nomura VTC
	1022-125	○	10											
	1222-125	○	12		16									
SHA	0823-120	○	8	23	14	14	22	10.5	120	16	Fig.2	HS6x4P	LW-3	Nomura VTC
	1023-120	○	10											
	1223-120	○	12		16									

✻Length of ød1 section …. 45mm (all SHA types)

●: Std Stock ○: World Express

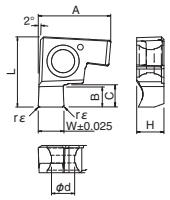
Applicable Inserts

(mm)

Description	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				
GER...-CM	5.8	11.48	4.05	2.8
GER...-DM	6.8	16.44	5.05	3.4
GER...-EM	9.54	21.66	5.55	4.4

P	Carbon Steel / Alloy Steel		●		
M	Stainless Steel		●		
K	Cast Iron				◌
N	Non-ferrous Metals				●
S	Titanium Alloy				●
H	Hard materials (under 40HRC)		●		
	Hard materials (over 40HRC)				

Classification of usage
- ●: Light Interruption / 1st Choice
- ◌: Light Interruption / 2nd Choice
- ●: Continuous / 1st Choice
- ○: Continuous / 2nd Choice

Insert (R-hand shown)	Description		Unit	Dimension w (inch)	Dimension w (mm)	Dimension B	Dimension C	Dimension rε	Cermet TN6020 R	Cermet TN6020 L	PVD Coated Carbide PR1025 R	PVD Coated Carbide PR1025 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Applicable Toolholder	Ref. Page for Toolholder
  2-Edge	GE□	031-002A	inch	.031	-	.037	.071	.002			●	●			◌	◌	SIGE□...A-EH SIGE□...A-WH	G69 G70
		041-002A		.041		.059					●	●			◌	◌		
		047-002A		.047							●	●			◌	◌		
		058-002A		.058							●	●			◌	◌		
		062-004A		.062				.004			●	●			◌	◌		
		072-004A		.072							●	●			◌	◌		
		078-004A		.078							●	●			◌	◌		
	GE□	100-005A	mm	.039	1.00	1.5	1.8	0.05	●	●	●	●			◌	◌		
		120-005A		.047	1.20				●	●	●	●			◌	◌		
		125-005A		.049	1.25				●	●	●	●			◌	◌		
		150-010A		.059	1.50			0.1	●	●	●	●			◌	◌		
		200-010A		.079	2.00				●	●	●	●			◌	◌		
	GE□	031-002B	inch	.031	-	.044	.102	.002			●	●			◌	◌	SIGE□...B-EH SIGE□...B-WH SIGER...B-WH-90	
		041-002B		.041		.087					●	●			◌	◌		
		047-002B		.047							●	●			◌	◌		
		058-002B		.058							●	●			◌	◌		
		062-004B		.062				.004			●	●			◌	◌		
		072-004B		.072							●	●			◌	◌		
		078-004B		.078							●	●			◌	◌		
		088-004B		.088							●	●			◌	◌		
		094-004B		.094							●	●			◌	◌		
		097-004B		.097							●	●			◌	◌		
		105-008B		.105				.008	●	●	●	●			◌	◌		
		110-008B		.110							●	●			◌	◌		
		122-008B		.122							●	●			◌	◌		
	GE□	100-005B	mm	.039	1.00	2.2	2.6	0.05	●	●	●	●			◌	◌		
		120-005B		.047	1.20				◌	◌	●	●			◌	◌		
		125-005B		.049	1.25				●	●	●	●			◌	◌		
		145-010B		.057	1.45			0.1	●	●	●	●			◌	◌		
		150-010B		.059	1.50				●	●	●	●			◌	◌		
		200-010B		.079	2.00				●	●	●	●			◌	◌		
		250-020B		.098	2.50			0.2	●	●	●	●			◌	◌		
		300-020B		.118	3.00				●	●	●	●			◌	◌		

For recommended cutting conditions, see page ➔ G76

• Dimension B: shows available grooving depth.

Inserts are sold in 10 piece boxes.

●: Std Stock ◌: World Express

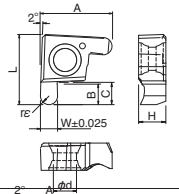
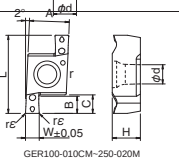
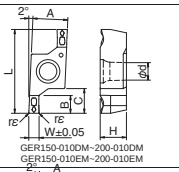
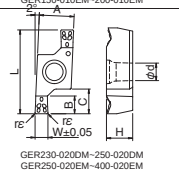
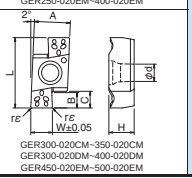
Applicable Inserts

(mm)

Description	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				
GER...-CM	5.8	11.48	4.05	2.8
GER...-DM	6.8	16.44	5.05	3.4
GER...-EM	9.54	21.66	5.55	4.4

P	Carbon Steel / Alloy Steel		●			
M	Stainless Steel		●			
K	Cast Iron					◔
N	Non-ferrous Metals					●
S	Titanium Alloy					●
H	Hard materials (under 40HRC)		●			
	Hard materials (over 40HRC)					

Classification of usa
● : Light Interruption / 1st C
◔ : Light Interruption / 2nd C
● : Continuous / 1st Ch
○ : Continuous / 2nd Ch

Insert (R-hand shown)		Description		Unit	Dimension w (inch)	Dimension w (mm)	B	C	rε	Cermet TN6020 R	Cermet TN6020 L	PVD Coated Carbide PR1025 R	PVD Coated Carbide PR1025 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Applicable Toolholder	Ref. Page for Toolholder
 Full-R		GER	100-050AR			1.00	1.5	1.8	0.5			○				○		SIGER...A-EH SIGER...A-WH	G69 G70
			200-100AR			2.00			1.0			○				○			
		GER	100-050BR			1.00	2.2	2.6	0.5			○				○		SIGER...B-EH SIGER...B-WH SIGER...B-WH-90	G69 G70 G72
			200-100BR			2.00			1.0			○				○			
	 GER100-010CM~250-020M	GER	150-010CM			1.50	2.5	2.7	0.1			●						SIGER...C-EH SIGER...C-WH SIGER...C-WH-90	
			200-010CM			2.00						●							
			250-020CM			2.50			0.2			●							
			300-020CM			3.00						●							
			350-020CM			3.50						●							
	 GER150-010DM~200-010DM GER150-010EM~200-010EM	GER	150-010DM			1.50	3.0	4.8	0.1			●						SIGER...D-EH	
			200-010DM			2.00						●							
			230-020DM			2.30	3.2		0.2			●							
			250-020DM			2.50						●							
			300-020DM			3.00	4.5					●							
			350-020DM			3.50						●							
			400-020DM			4.00						●							
 2-Edge Molded Chipbreaker	 GER230-020DM~250-020DM GER250-020EM~400-020EM	GER	150-010EM			1.50	3.0	6.8	0.1			●						SIGER...E-EH	G69
			200-010EM			2.00	3.2					●							
			250-020EM			2.50	4.5		0.2			●							
			300-020EM			3.00						●							
			350-020EM			3.50	5.5					●							
			400-020EM			4.00						●							
			450-020EM			4.50	6.5					●							
	 GER300-020CM~350-020CM GER300-020DM~400-020DM GER450-020EM~500-020EM		500-020EM			5.00						●							

For recommended cutting conditions, see page G76

• Dimension B: shows available grooving depth.

Inserts are sold in 10 piece boxes.

●: Std Stock ○: World Express

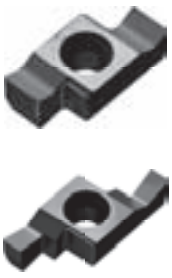
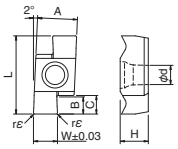
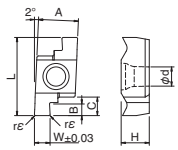
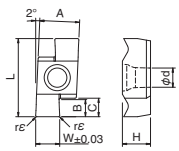
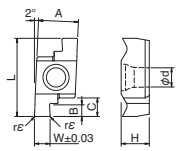
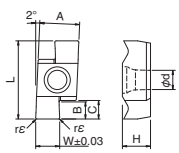
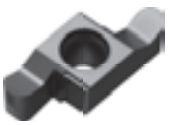
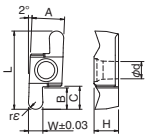
Applicable Inserts

(mm)

Description	A	L	H	ød
GE□...-C	5.8	11.48	4.05	2.8
GER...-CR				
GE□...-D	6.8	16.44	5.05	3.4
GER...-DR				
GE□...-E	9.54	21.66	5.55	4.4

P	Carbon Steel / Alloy Steel		●		
M	Stainless Steel		●		
K	Cast Iron			◔	
N	Non-ferrous Metals			●	
S	Titanium Alloy			●	
H	Hard materials (under 40HRC)		●		
	Hard materials (over 40HRC)				

Classification of usage
●: Light Interruption / 1st Choice
◔: Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice

Insert (R-hand shown)	Description		Unit	Dimension w (inch)	w (mm)	B	C	rε	Cermet TN6020 R	Cermet TN6020 L	PVD Coated Carbide PR1025 R	PVD Coated Carbide PR1025 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Applicable Toolholder	Ref. Page for Toolholder
 2-Edge		GE□ 100-005C	mm	.039	1.00	2.5	2.7	0.05	○	○	○	○	○	○			SIGE□...C-EH SIGE□...C-WH SIGER...C-WH-90	G69 G70 G72
		120-005C		.047	1.20				○		○	○	○					
		125-005C		.049	1.25				○	○	○	○	○	○				
		140-005C		.055	1.40				○		○	○	○					
		145-010C		.057	1.45			0.1	○	○	○	○	○	○				
		150-010C		.059	1.50				○	○	○	○	○	○				
		170-010C		.067	1.70				○		○	○	○					
		185-010C		.073	1.85				○		○	○	○					
		195-010C		.077	1.95				○		○	○	○					
		200-010C		.079	2.00				○	○	○	○	○	○				
		250-020C		.098	2.50			0.2	○	○	○	○	○	○				
		300-020C		.118	3.00				○	○	○	○	○	○				
		350-020C		.138	3.50				○	○	○	○	○	○				
	 GER100-005D~280-020D  GER300-020D~400-020D	GE□ 100-005D		.039	1.00	2.5	4.8	0.05	○	○	○	○	○	○			SIGE□...D-EH	
		140-005D		.055	1.40				○		○	○	○					
		145-010D		.057	1.45			0.10	○	○	○	○	○	○				
		150-010D		.059	1.50	3.0			○	○	○	○	○	○				
		170-010D		.067	1.70				○		○	○	○					
		185-010D		.073	1.85				○		○	○	○					
		195-010D		.077	1.95				○		○	○	○					
		200-010D		.079	2.00				○	○	○	○	○	○				
		225-010D		.089	2.25				○		○	○	○					
		230-020D		.091	2.30	3.2		0.20	○	○	○	○	○	○				
		250-020D		.098	2.50				○	○	○	○	○	○				
		275-020D		.108	2.75				○		○	○	○					
		280-020D		.110	2.80				○		○	○	○					
		300-020D		.118	3.00				○	○	○	○	○	○				
		330-020D		.130	3.30	4.5			○		○	○	○					
		350-020D		.138	3.50				○	○	○	○	○	○				
		400-020D		.157	4.00				○	○	○	○	○	○				
 2-Edge	 GER100-005E~430-020E  GER450-020E~500-020E	GE□ 100-005E		.039	1.00	2.5	6.8	0.05	○	○	○	○	○	○			SIGE□...E-EH	G69
		150-010E		.059	1.50	3.0			○	○	○	○	○	○				
		170-010E		.067	1.70			0.1	○		○	○	○					
		185-010E		.073	1.85				○		○	○	○					
		195-010E		.077	1.95				○		○	○	○					
		200-010E		.079	2.00	3.2			○	○	○	○	○	○				
		225-010E		.089	2.25				○		○	○	○					
		230-020E		.091	2.30			0.2	○	○	○	○	○	○				
		250-020E		.098	2.50	4.5			○	○	○	○	○	○				
		275-020E		.108	2.75				○		○	○	○					
		280-020E		.110	2.80				○		○	○	○					
		300-020E		.118	3.00				○	○	○	○	○	○				
		330-020E		.130	3.30				○		○	○	○					
		350-020E		.138	3.50	5.5			○	○	○	○	○	○				
		400-020E		.157	4.00				○	○	○	○	○	○				
		430-020E		.169	4.30				○		○	○	○					
		450-020E		.177	4.50	6.5			○	○	○	○	○	○				
		460-020E		.181	4.60				○		○	○	○					
		500-020E		.197	5.00				○	○	○	○	○	○				
 Full-R		GER 200-100CR		.079	2.00	2.5	2.7	1.0			○		○				SIGER...C-EH SIGER...C-WH SIGER...C-WH-90	G69 G70 G72
		250-125CR		.098	2.50			1.25			○		○					
		300-150CR		.118	3.00			1.5			○		○					
		GER 200-100DR		.079	2.00	3.2	4.8	1.0			○		○				SIGER...D-EH	G69
		300-150DR		.118	3.00	4.5		1.5			○		○					

• Dimension B: shows available grooving depth.

Inserts are sold in 10 piece boxes.

For recommended cutting conditions, see page G76

◆ Recommended Cutting Conditions [SIGE (Ground Chipbreaker : GE R/L…A(R),GE R/L…B(R))]

Workpiece Material	Recommended Insert Grade (Cutting Speed : SFM)			1) f at Grooving (ipr) / 2) f at Traversing (ipr) / 3) D.O.C. at Traversing (inch)				Remarks
	Cermet	PVD Coated	Carbide					
	TN6020	PR1025	KW10	No	GE R/L 100~200-010A 100~200-100AR	GE R/L 100~200-010B 100~200-100BR	GE R/L 250~300-020B	
Carbon Steel	☆ 1230~260	★ 1230~260	-	1)	.0004~.0012	.0008~.0016	.0008~.0016	Coolant
				2)	.0004~.0012	.0008~.0016	.0008~.0016	
				3)	Max. 0.002	Max.0.002	Max.0.004	
Alloy Steel	☆ 1230~260	★ 1230~260	-	1)	.0004~.0012	.0008~.0016	.0008~.0016	
				2)	.0004~.0012	.0008~.0016	.0008~.0016	
				3)	Max. 0.002	Max.0.002	Max.0.004	
Stainless Steel	-	★ 1230~260	-	1)	.0004~.0012	.0004~.0012	.0004~.0012	
				2)	.0004~.0012	.0004~.0012	.0004~.0012	
				3)	Max. 0.002	Max.0.002	Max.0.004	
Cast Iron	-	-	★ 1230~260	1)	.0004~.0012	.0008~.0016	.0008~.0016	
				2)	.0004~.0012	.0008~.0016	.0008~.0016	
				3)	Max. 0.002	Max.0.002	Max.0.004	
Aluminum	-	-	★ 1230~330	1)	.0004~.0012	.0008~.0016	.0008~.0016	
				2)	.0004~.0012	.0008~.0016	.0008~.0016	
				3)	Max. 0.004	Max.0.004	Max.0.008	
Brass	-	-	★ 1230~330	1)	.0004~.0012	.0008~.0016	.0008~.0016	
				2)	.0004~.0012	.0008~.0016	.0008~.0016	
				3)	Max. 0.004	Max.0.004	Max.0.008	

•Use PVD coated grade or carbide for traversing with edge width .039" (1mm). (GE R/L 100-005A / 100-005B)

★:1st Recommendation
☆:2nd Recommendation

◆ Recommended Cutting Conditions [SIGE (Ground Chipbreaker : GE R/L…C(R),GE R/L…D(R),GE R/L…E)]

Workpiece Material	Recommended Insert Grade (Cutting Speed : SFM)			1) f at Grooving (ipr) / 2) f at Traversing (ipr) / 3) D.O.C. at Traversing (inch)								Remarks
	Cermet	PVD Coated	Carbide									
	TN6020	PR1025	GW15	No	GE R/L 100~200-010C 200-100CR	GE R/L 250~350-020C 250~300-150CR	-	-	-	-	-	
					GE R/L 100~145-010D	GE R/L 150~195-010D	GE R/L 200~280-020D 200-100DR	-	GE R/L 300~400-020D 300-150DR	-	-	
					GE R/L 100-010E	GE R/L 150~195-010E	GE R/L 200~225-010E 230-020E	GE R/L 250~330-020E	-	GE R/L 350~430-020E	GE R/L 450~500-020E	
Carbon Steel	☆ 400~600	★ 200~460	-	1)	.0012~.0031	.0012~.0031	.0016~.0035	.0016~.0035	.0020~.0047	.0020~.0047	.0020~.0047	Coolant
				2)	.0012~.0031	.0012~.0031	.0016~.0035	.0016~.0035	.0020~.0039	.0020~.0039	.0020~.0039	
				3)	Max.0.012	Max.0.012	Max.0.012	Max.0.012	Max.0.02	Max.0.02	Max.0.02	
Alloy Steel	☆ 330~530	★ 200~400	-	1)	.0012~.0028	.0012~.0028	.0016~.0031	.0016~.0031	.0020~.0039	.0020~.0039	.0020~.0039	
				2)	.0012~.0039	.0012~.0039	.0016~.0031	.0016~.0031	.0020~.0039	.0020~.0039	.0020~.0039	
				3)	Max.0.012	Max.0.012	Max.0.012	Max.0.012	Max.0.02	Max.0.02	Max.0.02	
Stainless Steel	☆ 230~430	★ 200~360	-	1)	.0012~.0028	.0012~.0028	.0016~.0031	.0016~.0031	.0020~.0039	.0020~.0039	.0020~.0039	
				2)	.0012~.0039	.0012~.0039	.0016~.0031	.0016~.0031	.0020~.0039	.0020~.0039	.0020~.0039	
				3)	Max.0.012	Max.0.012	Max.0.012	Max.0.012	Max.0.02	Max.0.02	Max.0.02	
Cast Iron	-	-	★ 200~330	1)	.0012~.0031	.0012~.0031	.0016~.0035	.0016~.0035	.0020~.0047	.0020~.0047	.0020~.0047	
				2)	.0012~.0031	.0012~.0031	.0016~.0035	.0016~.0035	.0020~.0039	.0020~.0039	.0020~.0039	
				3)	Max.0.012	Max.0.012	Max.0.012	Max.0.012	Max.0.02	Max.0.02	Max.0.02	
Aluminum	-	-	★ 500~990	1)	.0020~.0047	.0020~.0047	.0020~.0059	.0020~.0059	.0031~.0059	.0031~.0059	.0031~.0059	
				2)	.0020~.0047	.0020~.0047	.0020~.0059	.0020~.0059	.0031~.0059	.0031~.0059	.0031~.0059	
				3)	Max.0.02	Max.0.02	Max.0.02	Max.0.02	Max.0.03	Max.0.03	Max.0.03	
Brass	-	-	★ 330~830	1)	.0020~.0047	.0020~.0047	.0020~.0059	.0020~.0059	.0031~.0059	.0031~.0059	.0031~.0059	
				2)	.0020~.0047	.0020~.0047	.0020~.0059	.0020~.0059	.0031~.0059	.0031~.0059	.0031~.0059	
				3)	Max.0.02	Max.0.02	Max.0.02	Max.0.02	Max.0.03	Max.0.03	Max.0.03	

•Use PVD coated grade or carbide for traversing with edge width .039" (1mm). (GE R/L 100-010C / 100-010D / 100-010E)

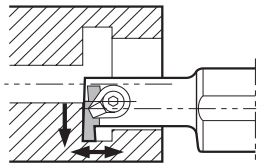
★:1st Recommendation
☆:2nd Recommendation

◆ Recommended Cutting Conditions [SIGE (3-D Molded Chipbreaker)]

Workpiece Material	Recommended Insert Grade (Cutting Speed : SFM)			1) f at Grooving (ipr) 2) f at Traversing (ipr) 3) D.O.C. at Traversing (inch)							Remark
	Cermet	PVD Coated	Carbide								
	TN6020	PR1025	GW15	No	GER 150~200~010CM	GER 250~350~020CM	-	-	-	-	
					GER 150~200~010DM	-	GER 230~250~020DM	GER 300~400~020DM	-	-	
					GER 150~200~010EM	-	-	GER 250~300~020EM	GER 350~400~020EM	GER 450~500~020EM	
Carbon Steel	-	★ 200~460	-	1)	.0012~.0039	.0012~.0047	.0016~.0047	.0020~.0047	.0020~.0047	.0020~.0047	Coolant
				2)	.0012~.0039	.0012~.0039	.0016~.0039	.0020~.0039	.0020~.0039	.0020~.0039	
				3)	Max.0.04	Max.0.06	Max.0.06	Max.0.06	Max.0.06	Max.0.06	
Alloy Steel	-	★ 200~400	-	1)	.0012~.0039	.0012~.0039	.0016~.0047	.0020~.0047	.0020~.0047	.0020~.0047	
				2)	.0012~.0039	.0012~.0039	.0016~.0039	.0020~.0039	.0020~.0039	.0020~.0039	
				3)	Max.0.04	Max.0.06	Max.0.06	Max.0.06	Max.0.06	Max.0.06	
Stainless Steel	-	★ 200~360	-	1)	.0012~.0031	.0012~.0031	.0016~.0031	.0020~.0039	.0020~.0039	.0020~.0039	
				2)	.0012~.0039	.0012~.0039	.0016~.0039	.0020~.0039	.0020~.0039	.0020~.0039	
				3)	Max.0.04	Max.0.06	Max.0.06	Max.0.06	Max.0.06	Max.0.06	

★:1st Recommendation
☆:2nd Recommendation

GIV (SI-GIV) Steel Bar



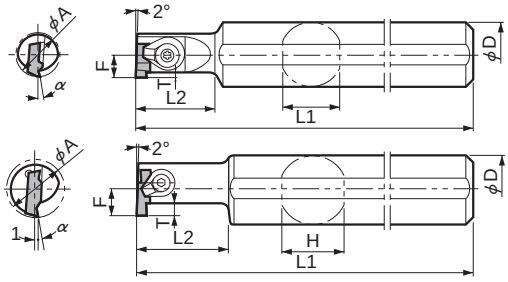


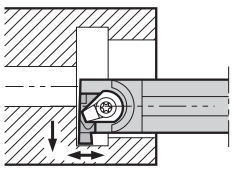
Fig. 1

Fig. 2

•Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

GIV-E Excellent Bar



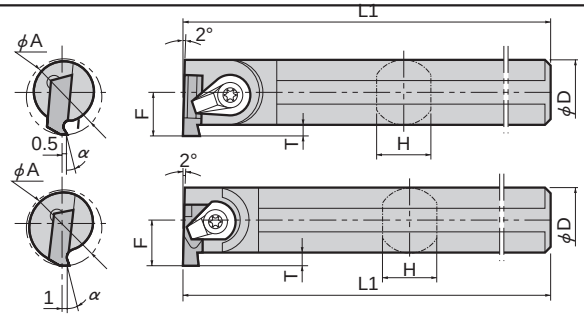


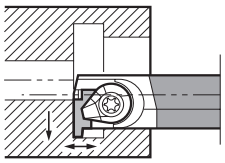
Fig. 3

Fig. 4

•Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

GIV-W Carbide Shank Bar



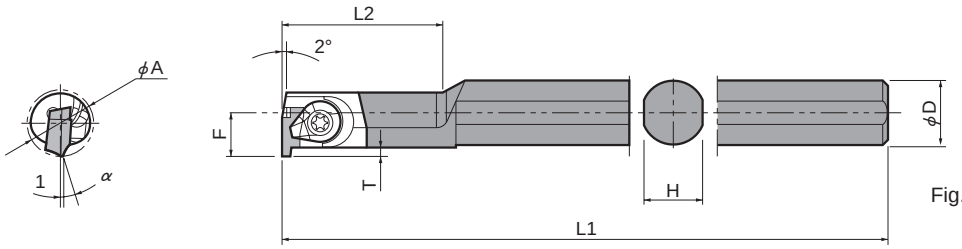


Fig. 5

•Right-hand Shown

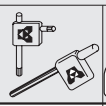
R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

● Applicable Insert & Rake Angle(1) after Installment of Insert

Toolholder	Insert ➡G80		Rake Angle (α)	
	General Grooving (Square)	Full-R Grooving (Round)	TC40	TN90,TC60 PR630,PR930 KW10
SI-GIV□ 10-09	GV□09-	-	10°	10°
SI-GIV□ 12-12	GV□12-	GV□12-R		
SI-GIV□ 16-15	GV□15-	-		
SI-GIV□ 20-21	GV□21-	-		
GIV□...1SS	GV□100SS~300SS	-	10°	15°
GIV□...1S	GV□100S~340S	-	10°	15°
GIV□...1SE	GV100S~340S	-	3°	8°
GIV□...1A(□)	GV□100A~340A	GV100AR~150AR	3°	8°
GIV□...1B(□)	GV□145B~250B	GV□100BR	4°	9°
GIV□...2B(□)	GV□280B~400B	GV□150BR		
GIV□...1C(□)	GV□280C~340C	-	5°	10°
GIV□...2C(□)	GV□400C~500C	-		

Recommended Cutting Conditions ➡G99

● Toolholder Dimensions

Description		Stock R	Stock L	Unit	Min. Cutting Dia. ϕA	Dimension ϕD	H	L1	L2	F	T	Shape	Spare Parts: Clamp Set		Spare Parts: Wrench	
																
SI-GIV R/L	10-09	●		inch	0.472	0.625	0.59	5.91	0.787	0.236	0.087	Fig.1	CPS-4V	-	FT-10	
	12-12	●			0.630	0.75	0.71	6.30	1.100	0.314	0.090		CPS-5V	-	FT-15	
	16-15	●			0.790	1.00	0.96	7.10	1.380	0.394	0.125	Fig.2	CPS-5V	-	FT-15	
	20-21	●			0.984	1.25	1.17	7.875	1.700	0.492	0.177		-	CPS-6V		LW-3
GIV R/L	1216-1SS	○	○	mm	12	16	15	150	20	6.0	2.2	Fig.1	CPS-4V	-	FT-10	-
	1420-1S	○	○		14	20	19	150	24	7.0	2.2		CPS-5F	-	FT-15	-
	1620-1A	○	○		16	20	19	160	28	8.0	2.2	Fig.2	CPS-5V	-	FT-15	-
	2025-1B	○	○		20	25	23	180	35	10.0	1) 2.8		CPS-5V	-	FT-15	-
	2025-2B	○	○		20	25	23	180	35	10.0	2) 3.2					
	2532-1C	○	○		25	32	30	200	43	12.5	3) 4.5		-	CPS-6V	-	LW-3
	3232-1C	○	○		32	32	30	220	52	16.0	3) 4.5					
	4032-1C	○	○		40	32	30	250	-	21.0	3) 4.5					
	2532-2C	○	○		25	32	30	200	43	12.5	4) 5.5					
	3232-2C	○	○		32	32	30	220	52	16.0	4) 5.5					
	4032-2C	○	○		40	32	30	250	-	22.2	4) 5.5					
GIV R/L	1412-1SE	○	○	mm	14	12	11.4	150	-	7.7	1.7	Fig.3	CPS-5F	-	FT-15	-
	1612-1AE	○	○		16	12	11.4	150	-	8.2	2.2	Fig.4	CPS-5V	-	FT-15	-
	2016-1BE	○	○		20	16	15.2	180	-	11.2	1) 2.8		CPS-5V	-	FT-15	-
	2016-2BE	○	○		20	16	15.2	180	-	11.7	2) 3.2					
	2520-1CE	○	○		25	20	19	200	-	14.5	3) 4.5		-	CPS-6V	-	LW-3
	3225-1CE	○	○		32	25	24	220	-	17.5	3) 4.5					
	4032-1CE	○	○		40	32	31	240	-	21.0	3) 4.5					
	2720-2CE	○	○		27	20	19	200	-	16.2	4) 5.5					
	3225-2CE	○	○		32	25	24	220	-	18.7	4) 5.5					
	4032-2CE	○	○		40	32	31	240	-	22.2	4) 5.5					
GIV R/L	1616-1AW	○	○	mm	16	16	15	175	48	10.6	2.2	Fig.5	CPS-5V	-	FT-15	-
	2020-1BW	○	○		20	20	19	220	60	14.6	1) 2.8		CPS-5V	-	FT-15	-
	2020-2BW	○	○		20	20	19	220	60	14.6	2) 3.2					
	2525-1CW	○	○		25	25	24	260	75	19.1	3) 4.5		-	CPS-6V	-	LW-3
	2525-2CW	○	○		25	25	24	260	75	19.1	4) 5.5					

③ Dimension T shows maximum grooving depth

1): GV R/L 200B～250B Insert is available for Groove Depths up to 3.2mm.
2): GV R/L 300B～400B Insert is available for Groove Depths up to 4.2mm.
3): GV R/L 340C insert is available for Groove Depths up to 5.5mm
4): GV R/L 430C～500C Insert is available for Groove Depths up to 6.3mm
5): GV R/L 300B～400B Insert is available for Groove Depths up to 3.8mm (when using GIV R/L 2016-2BE)
6): GV R/L 340C Insert is available for Groove Depths up to 4.7mm (when using GIV R/L 2520-1CE)
7): GV R/L 340C Insert is available for Groove Depths up to 5.3mm (when using GIV R/L 3225-1CE, GIV R/L 4032-1CE)

GV Internal Small Dia. Grooving Inserts

Applicable Inserts for GIV / GIV-E / GIV-W

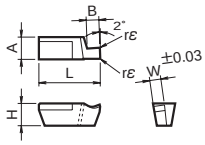
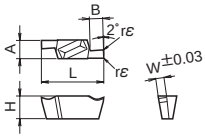
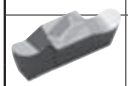
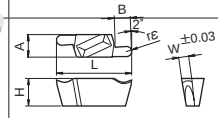
(mm)

Description	A	L	H
GV[R/L]...SS	3.6	9	3.0
GV[R/L]...S	4.0	11	4.0
GV[R/L]...A	4.0	12	5.0
GV[R/L]...B	4.5	15	5.5
GV[R/L]...C	5.8	21	6.5

P	Carbon Steel / Alloy Steel	●
M	Stainless Steel	●
K	Cast Iron	●
N	Non-ferrous Metals	● ●
S	Titanium Alloy	● ●
H	Hard materials (under 40HRC)	○
	Hard materials (over 40HRC)	

Classification of usage

● : Continuous-Light Interruption / 1st Choice
◔ : Continuous-Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

Insert (R-hand shown)	Description	(Previous Description)	Unit	Dimensions W (inch)	Dimensions W (mm)	Dimensions B	Dimensions rε	Cermet TN90	Cermet TC40	Cermet TC60	PVD Coated Carbide PR630	PVD Coated Carbide PR930	Carbide KW10	MEGACOAT NEW PR1225	Applicable Toolholder	Ref. Page for Toolholder
  1-Edge	GVR 09-031	—	inch	.031	-	.090	.008			●					GIV[R/L]···1SS	G79
	GVR 09-062			.062						●						
	GVR 09-125			.125						●						
	GV[R/L] 100-020SS	GV[R/L] 100SS	mm		1.00	2.3	0.2	○		○	○	○	○	○		
	125-020SS	125SS			1.25			○		○	○	○	○	○		
	145-020SS	145SS			1.45			○		○	○	○	○	○		
	200-020SS	200SS			2.00			○		○	○	○	○	○		
	250-020SS	250SS			2.50			○		○	○	○	○	○		
	300-020SS	300SS			3.00			○		○	○	○	○	○		
	GV[R/L] 100-020S	GV[R/L] 100S			1.00	2.3	0.2	○	○	○	○	○	○	○	GIV[R/L]···1S GIV[R/L]···1SE	
	125-020S	125S			1.25			○	○	○	○	○	○	○		
	145-020S	145S			1.45			○	○	○	○	○	○	○		
	185-020S	185S			1.85			○	○	○	○	○	○	○		
	200-020S	200S			2.00			○	○	○	○	○	○	○		
	250-020S	250S			2.50			○	○	○	○	○	○	○		
	340-020S	340S			3.40				○	○	○	○	○	○		
  2-Edge	GV[R/L] 100-020A	GV[R/L] 100A	mm		1.00	2.3	0.2	○	○	○	○	●	○	○	GIV[R/L]···1A GIV[R/L]···1AE GIV[R/L]···1AW	
	120-020A	120A			1.20											
	125-020A	125A			1.25			○	○	○	○	○	○	○		
	140-020A	140A			1.40											
	145-020A	145A			1.45			○	○	○	○	○	○	○		
	170-020A	170A			1.70											
	185-020A	185A			1.85			○	○	○	○	○	○	○		
	195-020A	195A			1.95											
	200-020A	200A			2.00			○	○	○	○	○	○	○		
	225-020A	225A			2.25											
	250-020A	250A			2.50			○	○	○	○	○	○	○		
	275-020A	275A			2.75											
	300-020A	300A			3.00			○	○	○	○	○	○	○		
	340-020A	340A			3.40			○	○	○	○	○	○	○		
	GV[R/L] 145-020B	GV[R/L] 145B			1.45	2.8	0.2	○	○	○	○	○	○	○	GIV[R/L]···1B GIV[R/L]···1BE GIV[R/L]···1BW	
	185-020B	185B			1.85			○	○	○	○	○	○	○		
	200-020B	200B			2.00	3.2		○	○	○	○	○	○	○		
	225-020B	225B			2.25											
	230-020B	230B			2.30			○	○	○	○	○	○	○		
	250-020B	250B			2.50			○	○	○	○	○	○	○		
	275-020B	275B			2.75											
	280-020B	280B			2.80			○	○	○	○	○	○	○	GIV[R/L]···2B GIV[R/L]···2BE GIV[R/L]···2BW	
	300-020B	300B			3.00	4.2		○	○	○	○	○	○	○		
	325-020B	325B			3.25											
	340-020B	340B			3.40			○	○	○	○	○	○	○		
	400-020B	400B			4.00			○	○	○	○	○	○	○		
	GV[R/L] 280-020C	GV[R/L] 280C			2.80	4.5		○	○	○	○	○	○	○	GIV[R/L]···1C GIV[R/L]···1CE GIV[R/L]···1CW	
	300-020C	300C			3.00			○	○	○	○	○	○	○		
	325-020C	325C			3.25											
	340-020C	340C			3.40	5.5		○	○	○	○	○	○	○		
	400-020C	400C			4.00			○	○	○	○	○	○	○		
	425-020C	425C			4.25										GIV[R/L]···2C GIV[R/L]···2CE GIV[R/L]···2CW	
	430-020C	430C			4.30	6.3		○	○	○	○	○	○	○		
	460-020C	460C			4.60				○	○	○	○	○	○		
	500-020C	500C			5.00			○	○	○	○	○	○	○		
  2-Edge Full-R	GV[R/L] 200-100AR	GV[R/L] 100AR			2.00	2.3	1.00			○	○	○	○	○	GIV[R/L]···1A GIV[R/L]···1AE GIV[R/L]···1AW	
	250-125AR	125AR			2.50		1.25			○	○	○	○	○		
	300-150AR	150AR			3.00		1.50			○	○	○	○	○		
	GV[R/L] 200-100BR	GV[R/L] 100BR			2.00	3.2	1.00	○		○	○	○	○	○	GIV[R/L]···1B ○	
	300-150BR	150BR			3.00	4.2	1.50	○		○	○	○	○	○	GIV[R/L]···2B ○	

• Dimension B shows available grooving depth.

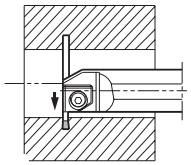
For recommended cutting conditions, see page ➡ G99

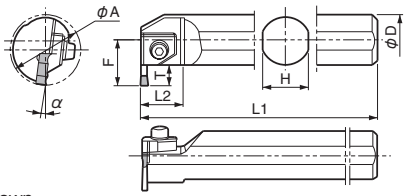
Inserts are sold in 10 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

●: Std Stock ○: World Express

KIGH





●Right-hand shown

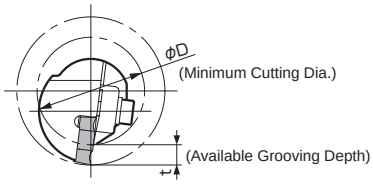


Fig.A

● Toolholder Dimensions

Description		Std. R	Std. L	Min. Cutting Dia. øA (inch)	Min. Cutting Dia. øA (mm)	Dimension (mm) øD	H	L1	L2	F	T				Spare Parts Clamp	Clamp Bolt	Washer	Spring	Wrench
KIGH R/L	4532B-4	○		1.77	45	32	30	200		28.2					CGH-1L	HH6X25	W-6	SP-6	LW-5
	5540B-4	○		2.17	55	40	38	250	27	32.2	12								
	6550B-4	○		2.56	65	50	48	300		37.2									
	4532B-5	○		1.77	45	32	30	200		28.2									
	5540B-5	○		2.17	55	40	38	250	27	32.2	12								
	6550B-5	○		2.56	65	50	48	300		37.2									
	5540B-7	○		2.17	55	40	38	250	27	32.2	12				CGH-2L				
	6550B-7	○		2.56	65	50	48	300		37.2									

・Dimension T shows the distance from the Toolholder to the cutting edge. For the available Grooving Depth (t) see "List of Minimum Available Cutting Diameter and Groove Depth".
・Dimension L2 depends on the width of the installed Insert.

● Rake Angle (α) after Installment of GH / GHU

When using GH ○○○○ - ○○		When using GHU ○○○○	
α	Insert Grades	α	Insert Grades
-5°	A65, A66N	+5°	TN60 CR9025
+5°	TC40		
+15°	TN90, TC60 PR630, PR930 KW10		

◆ List of the Minimum Cutting Diameter and Grooving Depth (Refer Fig.A)

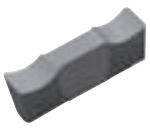
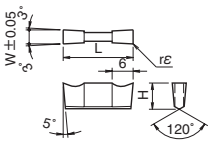
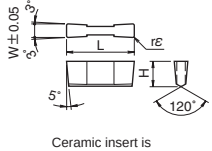
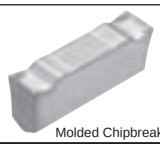
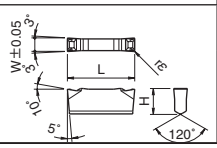
Toolholder		øD (Minimum Cutting Dia.)					
KIGH R/L	4532B- ○	ø110	ø70	ø65	ø60	ø55	ø45
	5540B- ○	ø70	ø60	ø55			
	6550B- ○	ø65					
Available Grooving Depth t (mm)		12	11.5	11	10	9	under 8

Applicable Inserts

(mm)

Description	L	H
GH4020- ○○ ~GH8020- ○○	20	7.5
GHU ○○○○	20	

P	Carbon Steel / Alloy Steel						●					Classification of usage	
M	Stainless Steel						●						
K	Cast Iron							●	○		●	● : Continuous-Light Interruption / 1st Choice	
N	Non-ferrous Metals							●				◔ : Continuous-Light Interruption / 2nd Choice	
S	Titanium Alloy							●				● : Continuous / 1st Choice	
H	Hard materials (under 40HRC)						●					○ : Continuous / 2nd Choice	
	Hard materials (over 40HRC)									○	●		

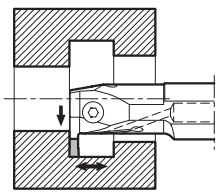
Insert		Description		Dimension W (inch)	W (mm)	rε	Cermet TN60	TN90	TC40	TC60	CVD Coated Carbide CR9025	PVD Coated Carbide PR630	PR930	Carbide KW10	Ceramic A65	A66N	PT600M	Applicable Toolholder
 Ground Chipbreaker		GH	4020-02	0.16	4.0	0.2		○	○				○	○				KIGH R/L 4532B-4 5540B-4 6550B-4
			4020-05			0.5		○	○				○	○	○	○	○	
			4520-02	0.18	4.5	0.2			○									
			4520-05			0.5			○									
			5020-02	0.20	5.0	0.2		○	○				○	○				KIGH R/L 4532B-5 5540B-5 6550B-5
			5020-05			0.5		○	○				○	○	○	○	○	
			5520-02	0.22	5.5	0.2			○									
			5520-05			0.5			○									
			6020-02	0.24	6.0	0.2		○	○				○	○				
			6020-05			0.5		○	○				○	○	○		○	
			6520-02	0.26	6.5	0.2			○									
			6520-05			0.5			○									
 Ceramic	 Ceramic insert is above shape.		7020-02	0.28	7.0	0.2		○	○				○	○				KIGH R/L 5540B-7 6550B-7
			7020-05			0.5		○	○				○	○	○		○	
			7520-02	0.30	7.5	0.2			○									
			7520-05			0.5			○									
			8020-02	0.31	8.0	0.2		○	○				○	○				
			8020-05			0.5		○	○				○	○				
 Molded Chipbreaker		GHU	4020	0.16	4.0	0.25	○				○							KIGH R/L ···○○○ B-4
			5020	0.20	5.0	0.30	○				○							KIGH R/L ···○○○ B-5
			6020	0.24	6.0	0.30	○				○							

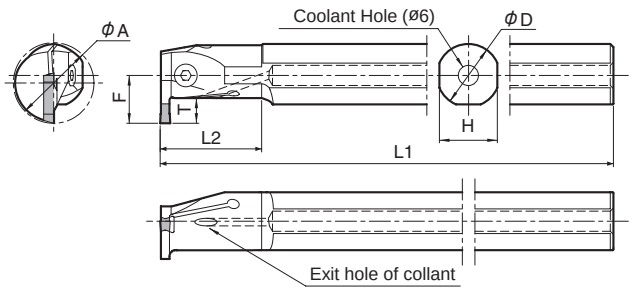
Inserts are sold in 10 piece boxes.

For recommended cutting conditions, see page G90

KIGM Internal Grooving Toolholders

KIGM-V





•Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

Toolholder Dimensions

Description		Stock R	Stock L	Unit	Min. Cutting Dia. ϕA	Dimension ϕD	H	L1	L2	F	T	Width W MIN	Width W MAX	Spare Parts: Clamp Screw	Spare Parts: Wrench	
KIGM R/L	10B-3V	●	●	inch	0.787	0.625	0.591	6.0	0.984	0.453	0.217	0.118	0.118	GS-50	-	LW-3
	12B-3V	●	●		0.966	0.750	0.709	7.0	1.260	0.571	0.217					
	16B-3V	●	●		1.26	1.0	0.906	8.0	1.575	0.748	0.315			SB-5TR	LTW-20	-
	16B-4V	●	●		1.26	1.00	0.906	8.0	1.575	0.748	0.335	0.157	0.197	SB-5TR	LTW-20	-
	20B-4V	●	●		1.55	1.25	1.14	8.5	1.969	0.925	0.433					LW-5
KIGM R/L	2016B-3V	○	○	mm	20	16	15	150	25	11.5	5.5	3.0	3.0		-	LW-3
	2520B-3V	○	○		25	20	18	180	32	14.5	5.5					
	3225B-3V	●	●		32	25	23	200	40	19	8.0			SB-5TR	LTW-20	-
	3225B-4V	○	○		32	25	23	200	40	19	8.5	4.0	5.0		LTW-20	-
	4032B-4V	●	○		40	32	29	220	50	23.5	11					LW-5

·Dimension T shows available grooving depth.

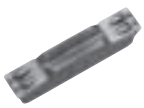
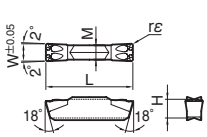
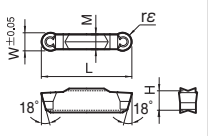
Applicable Inserts (mm)

Description	L	H
GMM3015...V ○	15.5	4.3
GMM4020...V ○	20	
GMM5020...V ○		

		Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PVD Coated Carbide PR930	PVD Coated Carbide PR905	Carbide KW10
P	Carbon Steel / Alloy Steel			◔	●		
M	Stainless Steel			●	◔		
K	Cast Iron					●	◔
N	Non-ferrous Metals						●
S	Titanium Alloy						●
H	Hard materials (under 40HRC)			○	●		
	Hard materials (over 40HRC)						

Classification of usage

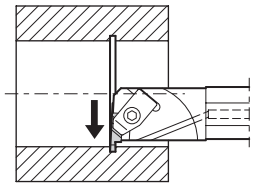
● : Continuous-Light Interruption / 1st Choice
◔ : Continuous-Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

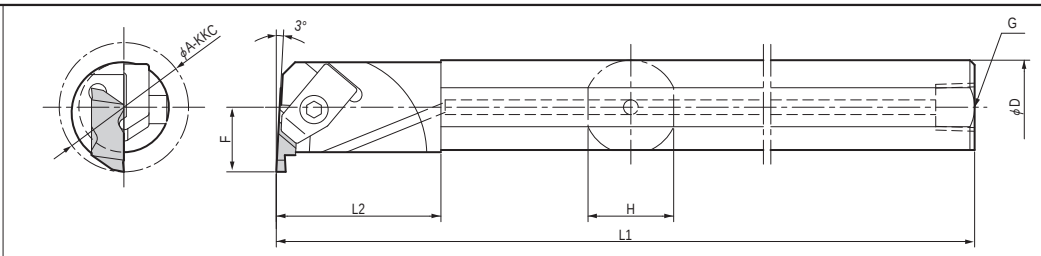
Insert		Description	(Previous Description)	Dimension (mm) W (inch)	W (mm)	rε	M	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PVD Coated Carbide PR930	PVD Coated Carbide PR905	Carbide KW10	Applicable Toolholder
 Chip Control Oriented M Class		GMM 3015-040V	GMM 3015-04V	0.12	3.0	0.4	2.3	○		○	●	○	○	KIGM R/L -3V
		4020-040V	4020-04V	0.16	4.0	0.4	3.3	○		○	●	○	○	KIGM R/L -4V
		5020-080V	5020-08V	0.20	5.0	0.8	4.2	○		●	●	○	○	
 Chip Control Oriented M Class Full-R / Copying		GMM 3015-150VR	GMM 3015-15VR	0.12	3.0	1.5	2.3	○			○	○	○	KIGM R/L -3V
		4020-200VR	4020-20VR	0.16	4.0	2.0	3.3				○	○	○	KIGM R/L -4V
		5020-250VR	5020-25VR	0.20	5.0	2.5	4.2				○	○	○	

For recommended cutting conditions, see page G100

●: Std Stock ○: World Express

A-KKC





●Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder

● Toolholder Dimensions

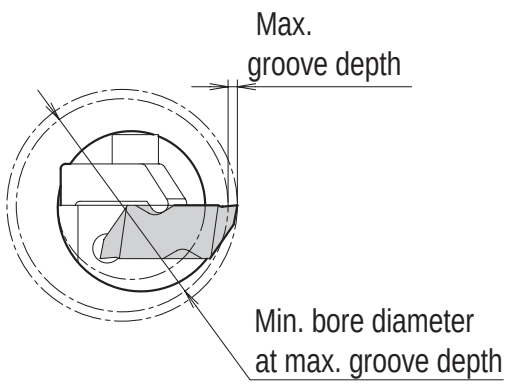
Description	Stock R	Stock L	Unit	Min. Cutting Dia. ϕA	Dimension ϕD	H	L1	L2	F	G	Spare Parts: Clamp	Clamp Screw	Wrench
A10M-KKCR-2	●			1.000	0.625	0.596	6.00	1.153	0.500				
A10S-KKCR-2	●			1.000	0.625		10.00		0.500				
A12R-KKCR-2	●			1.125	0.750		8.00		0.562	1/8-27 NPT	**CKC-2L**	**SKC-2**	**(7/64 Hex)**
A12S-KKCR-2	●			1.125	0.750		10.00		0.562				
A16T-KKCR/L-2	●	●		1.375	1.000		12.00		0.688				
A16X-KKCR/L-3	●			1.375	1.000		9.00		0.688				
A16T-KKCR/L-3	●	●	inch	1.375	1.000		12.00		0.688				
A20U-KKCR/L-3	●	●		1.750	1.250		14.00		0.875				
A24U-KKCR/L-3	●	●		2.000	1.500		14.00		1.000	1/4-18 NPT	**CKC-3R/L**	**SKC-3**	**(LW-156)**
A28U-KKCR/L-3	●			2.250	1.750		14.00		1.125				
A32V-KKCR/L-3	●	●		2.500	2.000		16.00		1.250				
A28U-KKCR/L-4	●	●		2.500	1.750		14.00		1.250				
A32V-KKCR/L-4	●	●		2.750	2.000		16.00		1.375				

● Note: Right hand bars require left hand inserts and clamps. Left hand bars require right hand inserts and clamps

● Applicable Insert

Toolholder	Insert ⇒ G84
A-KKCR/L ...-2	**KCGP-2, KCG-2, KCRP-2**
A-KKCR/L ...-3	**KCGP-3, KCG-3, KCRP-3**
A-KKCR/L ...-4	**KCGP-4, KCRP-4**

◆ Cutting Diameter Table



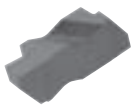
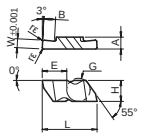
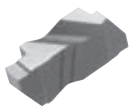
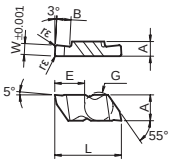
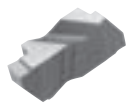
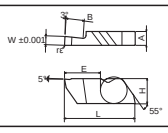
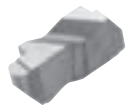
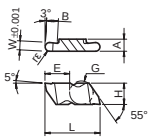
(Inch)

Insert Size	B dimension	Max Groove Depth	Min Bore Dia.
KCG-2 KCGP-2 KCRP-2	.050	.040	1.00
	.110	.110	2.50
		.102	1.75
		.098	1.50
		.080	1.00
KCG-3 KCGP-3 KCRP-3	.075	.050	1.325
	.094	.080	1.250
		.070	1.625
		.065	1.325
	.150	.140	2.375
		.135	2.125
		.128	1.875
		.115	1.625
		.100	1.375
KCG-4 KCGP-4			

● "B" dimension is same as the "B dimension" of the available insert.

●: Std Stock ○: World Express

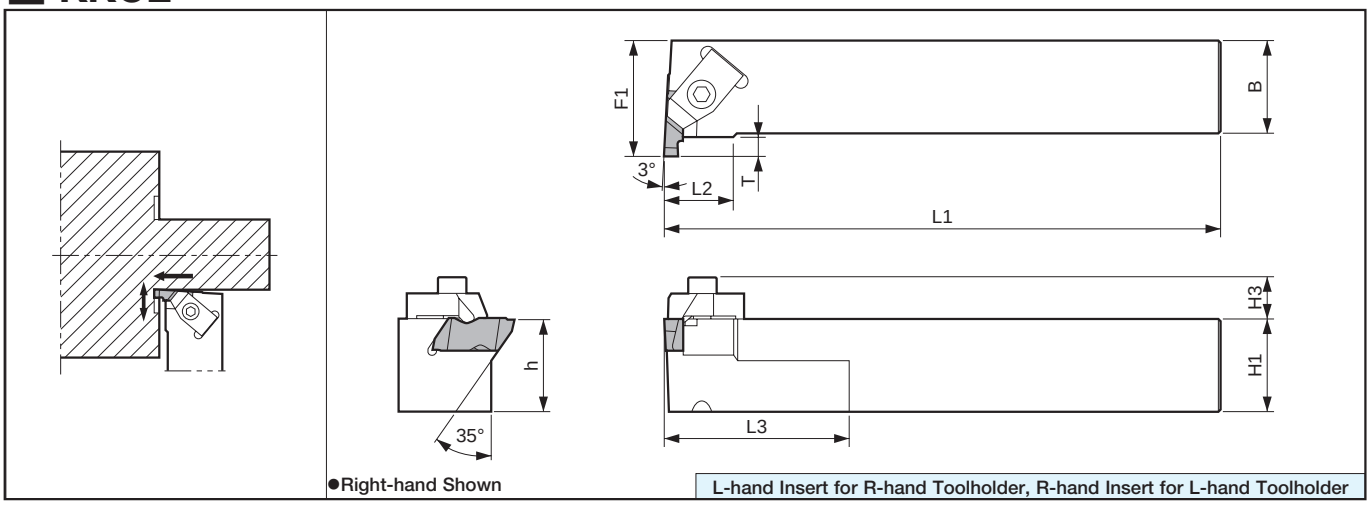
KCG/KCGP/KCGDP/KCRP Inserts

Shape (Handed Insert shows Right-hand)	Description		Unit	Dimension W (inch)	W (mm)	B	rε	A	L	H	E	Insert Grade: Cermet TC40	Cermet TC60	PVD Coated PR630	PVD Coated PR930	Carbide KW10	Ceramic A65	Ref Page for Toolholder
  KCG2···G=ϕ.1875 KCG3···G=ϕ.3750	KCG	2062R/L	inch	.062	-	.110	.008	.150	.540	.219	.270						●	
		2125R/L		.125													L	
		3062R/L		.062		.094	.008	.195	.810	.344	.405						R	
		3094R/L		.094													●	
		3125R/L		.125		.150											R	
		3156R/L		.156													●	
  KCGP2···G=ϕ.1875 KCGP3···G=ϕ.3750 KCGP4···G=ϕ.3750	KCGP	2031R/L	inch	.031	-	.050	.003	.150	.540	.219	.270	●	●	●	●	●		G83
		2041R/L		.041								●	●		●			
		2047R/L		.047								●	●	●	●	●		
		2058R/L		.058		.110	.008					●			●			
		2062R/L		.062								●	●	●	●	●		
		2094R/L		.094								●		●	●	●		
		2125R/L		.125								●		●	●	R		
		3031R/L		.031		.050						●			●			
		3047R/L		.047		.075		.195	.810	.344	.405	●	●	●	●	●		
		3062R/L		.062		.094						●	●	●	●	●		
		3072R/L		.072								●	●		●			
		3078R/L		.078								●	R	●	●			
		3088R/L		.088								●	L		●			
		3094R/L		.094		.150						●	●	●	●	●		
		3097R/L		.097								●			●			
		3105R/L		.105								●			●			
		3110R/L		.110								●			●			
		3122R/L		.122								●			●			
		3125R/L		.125								●	●	●	●	●		
		3142R/L		.142								●			●			
		3156R/L		.156								●	R	L	●			
		3178R/L		.178								●			●			
		3185R/L		.185								●			●			
		3189R/L		.189								●	●	●	●	●		
		4125R/L		.125		.150	.008	.255	1.272	.453	.636	●			●			
		4189R/L		.189		.250	.018					●			●			
		4213R/L		.213								●			●			
		4219R/L		.219								●			●			
		4250R/L		.250								●			●			
 	KCGDP	3062R/L	inch	.062	-	.125	.008	.195	.886	.344	.405	●			●			
		3094R/L		.094		.250			.990		.505	●			●			
		3125R/L		.125								●			●			
		3189R/L		.189			.023					●			●			
  KCRP2···G=ϕ.1875 KCRP3···G=ϕ.3750 KCRP4···G=ϕ.3750	KCRP	2031R/L	inch	.062	-	.094	.031	.150	.507	.219	.270		R	R	R			
		2047R/L		.094		.150	.047											
		2062R/L		.125			.062						R					
		3031R/L		.062		.094	.031	.195	.890	.344	.405	●	R	●	●			
		3047R/L		.094		.150	.047					●		●	●			
		3062R/L		.125			.062					●		●	●			
		3078R/L		.156			.078					●						
		3094R/L		.188			.094					●			R			
		4125R/L		.250		.250	.125	.255	1.121	.453	.636	●		R	●			

- Dimension B shows available Grooving Depth.
- KCGDP inserts are single ended with the exception of KCGDP3062

●: Std Stock ○: World Express

KKCE



●Right-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder

● Toolholder Dimension

Description		Stock R	Stock L	Dimension (inch) H1	H3	B	L1	L2	F1	L3	T	Spare Parts: Clamp	Clamp Screw	Wrench
KKCE R/L	12-3B	●	●	.750		.750	4.50		1.125			CKC-3	SKC-3	LW-156
	16-3D	●	●	1.00	.465	1.00	6.00	.750	1.250	2.00	.210			
	20-3D	●	●	1.25		1.25	6.00		1.500					

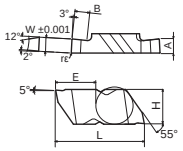
● Applicable Insert

Application	Face Grooving
Ref. Page	G85
Shape / Toolholder	
KKCE R/L...3	KCF_3...

Face Grooving Limits

Insert Description	Maximum Groove Depth	Minimum Groove Diameter
KCFP3...	0.060	0.94
	0.094	1.20
	0.125	1.42
	0.150	1.63

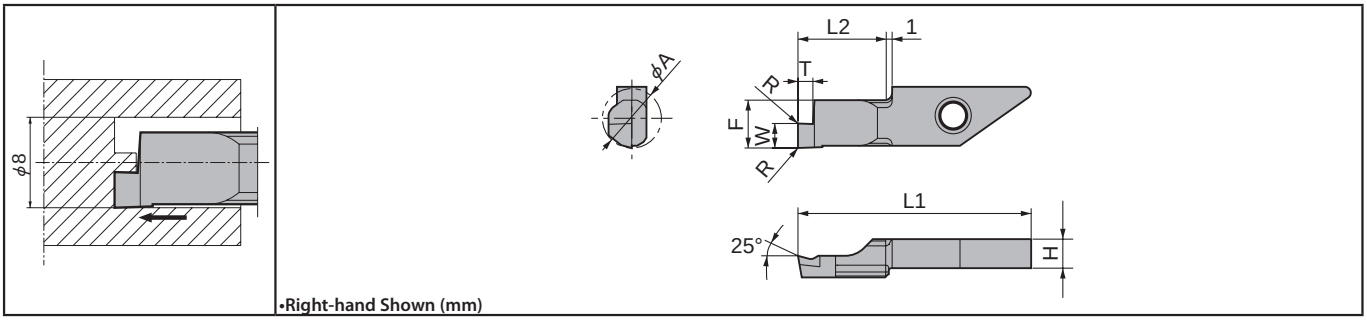
KCFP Inserts

Shape (Handed Insert shows Right-hand)		Description		Unit	Dimension W (inch)	W (mm)	B	rε	A	L	H	E	Insert Grade: Cermet TC40	Cermet TC60	PVD Coated PR630	PVD Coated PR930	Carbide KW10	Ceramic A65
		KCFP	3125 R/L	inch	.125	-	.150	.008	.195	.886	.344	.405				●		
			3156 R/L		.156			.008								●		
			3189 R/L		.189			.023								●		

• Dimension B shows available Grooving Depth.

●: Std Stock ○: World Express

VNFG (Swiss IQ Bar)



•Right-hand Shown (mm)

● Swiss IQ Bar Dimensions

Description		Unit	Min. Cutting Dia. (mm)	Dimension								Insert Grade		
												Cermet	PVD Coated	Carbide
			ϕA	W±.001 (inch)	W±0.03 (mm)	rε	H	L1	L2	F	T	TC60	PR930	KW10
VNFGR	0810-10	mm	8	.039	1.0	0.05	3.9	29.8	10	7.3	2.0	○	○	○
	0820-10			.079	2.0							○	○	○
	0830-10			.118	3.0						3.0	○	○	○

③ Dimension T shows maximum grooving depth

● See Page. **F12～F14** for the applicable toolholder.

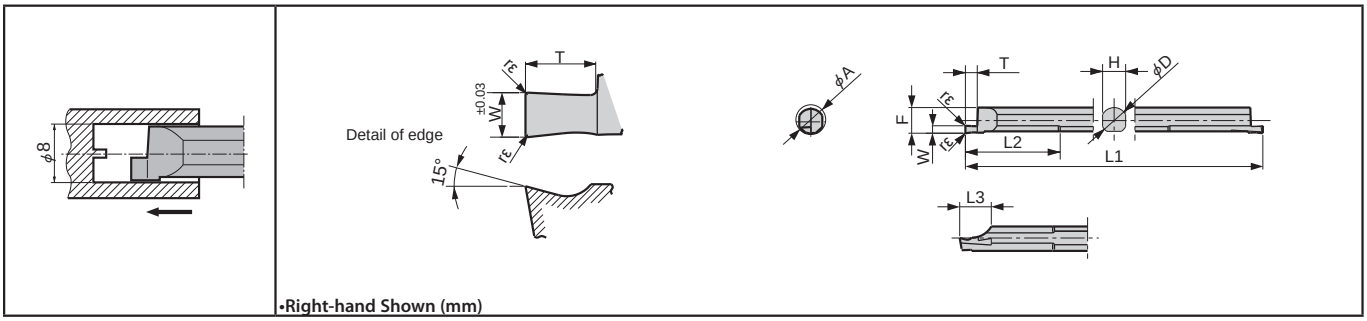
◆ Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (SFM)				VNFG0810	VNFG0820	VNFG0830	Remarks
	Cermet	PVD Coated		Carbide				
	TC60	PR630	PR930	KW10	f (ipr)			
Carbon Steel	☆ 200~400	☆ 100~330	★ 100~330		~.0008	~.0016	~.002	Coolant
Stainless Steel	☆ 1230~330	☆ 100~270	★ 100~270		~.0004	~.0008	~.0012	
Non-ferrous Metal				★ ~1000	~.0016	~.0024	~.003	

★ : 1st Recommendation ☆ : 2nd Recommendation

●: Std Stock ○: World Express

HPFG



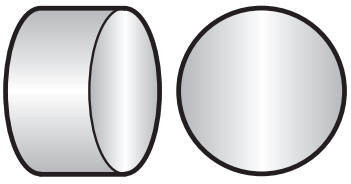
•Right-hand Shown (mm)

Insert Dimensions

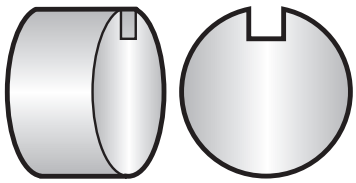
Description		Unit	Min.Bore Dia.	Dimension										Insert Grade			
														PVD Coated		Carbide	
			φA	W±.001 (inch)	W±0.03 (mm)	rε	φD	H	L1	L2	L3	F	T	PR930		KW10	
														R	L	R	L
HPFG R/L	0807-10	mm	8	.039	1	+0 -0.02 0.05	7	6.2	80	25	8.5	6.9	2	○	○	○	
	0807-20			.079	2								3	○	○	○	
	0807-30			.118	3									○	○	○	

• Dimension T shows available grooving depth.

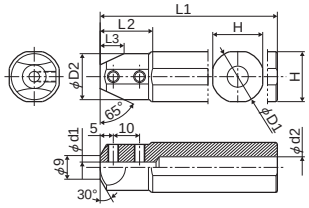
Applicable Sleeve



Installation side
Fig.1



Installation side
Fig.2



Installation side
Fig.3

Description	Stock	Applicable Toolholder	Dimension(mm)								Shape	Spare Parts	
			※φd1	φD1	φD2	φd2	H	L1	L2	L3		Screw	Wrench
PSH 0712-80	○	HPFG R/L 0807···	7	12	16	8	11	80	20	-	Fig.1	HS4×4P	LW-2
PSH 0716-100	○		7	16	-	8	15	100	-	-	Fig.2		
PSH 0720-120	○		7	20	17.5	8	19	120	20	7.5	Fig.3	HS4×4P	LW-2
PSH 0725.0-135	○		7	25	18	8	24	135	23	8			
PSH 0719-120	○		7	19.05 (.75")	17.5	8	18	120	20	7.5	Fig.3	HS4×4P	LW-2
PSH 0720-120	○		7	20	17.5	8	19	120	20	7.5			
PSH 0725-120	○		7	25.4 (1")	18	8	24.4	120	23	8			
PSH 0722-135	○		7	22	18	8	21	135	22	8	Fig.3	HS4×4P	LW-2
PSH 0723-120	○		7	23	18	8	22	120	22	8	Fig.3	HS4×4P	LW-2

※:Length of φd1 portion···25mm(PSH07)

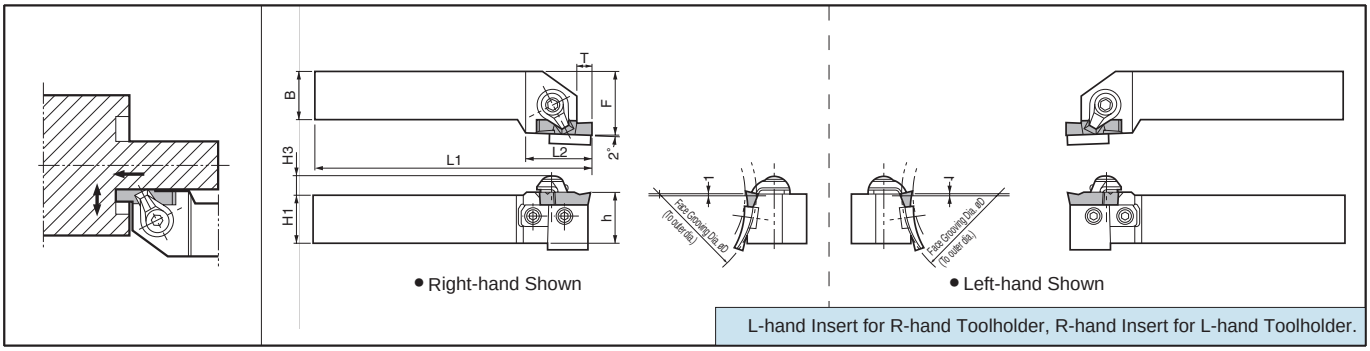
Recommended Cutting Conditions

Workpiece Material	Insert Grade(Vc:SFM)		HPFG R/L 0807-10	HPFG R/L 0807-20	HPFG R/L 0807-30	Remarks
	PVD Coated	Carbide				
	PR930	KW10	f(ipr)			
Carbon steel / Alloy steel	100~330	-	~.00079	~.00157	~.00197	Coolant
Stainless Steel	100~260	-	~.00039	~.00079	~.00118	
Non-ferrous Material	-	~990	~.00157	~.00236	~.00315	

●: Std Stock ○: World Express

GFVS

This toolholder can machine various face grooving diameters by replacing the Blade.

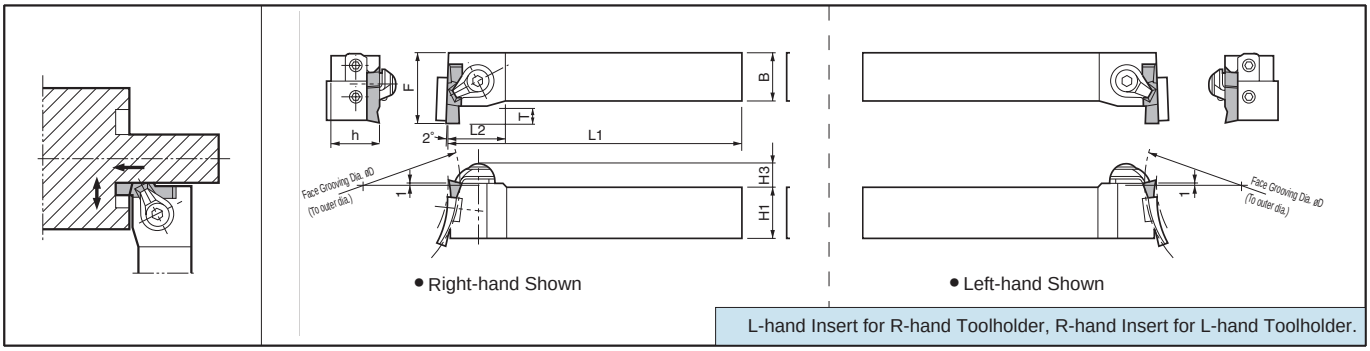


● Right-hand Shown ● Left-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

GFVT

This toolholder can machine various face grooving diameters by replacing the Blade.

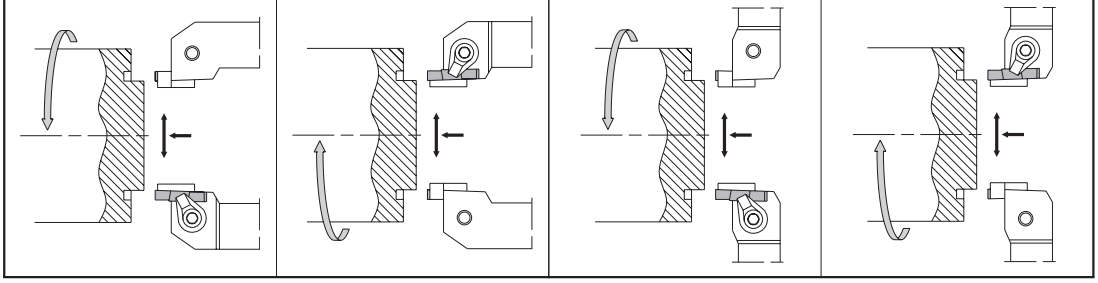


● Right-hand Shown ● Left-hand Shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

◆ Selection of Toolholder & Insert

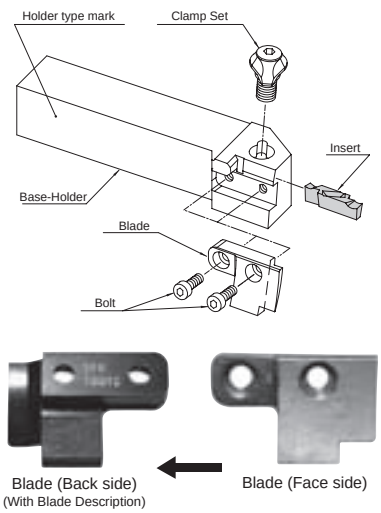
GFVS type				GFVT type			
Toolholder	R-hand	Toolholder	L-hand	Toolholder	R-hand	Toolholder	L-hand
Insert	L-hand	Insert	R-hand	Insert	L-hand	Insert	R-hand



● Combination of Base-Holder & Blade

Base-Holder (Stamped below)	Std. R	Std. L	Blade Description		Toolholder (Integrated Tool)	
GFVSR/L12-HB GFVTR/L12-HB NEW	●	●	SFR/L	-351B	GFVSR/L12	-351B
				-352B	GFVTR/L12	-352B
				-501B		-501B
				-502B		-502B
				-701B		-701B
				-702B		-702B
GFVSR/L16-HB GFVTR/L16-HB NEW	●	●	SFR/L	-351B	GFVSR/L16	-351B
				-352B	GFVTR/L16	-352B
				-501B		-501B
				-502B		-502B
				-701B		-701B
				-702B		-702B
GFVSR/L16-HC GFVTR/L16-HC NEW	●	●	SFR/L	-501C	GFVSR/L16	-501C
				-502C	GFVTR/L16	-502C
				-701C		-701C
				-702C		-702C
				-1001C		-1001C
				-1002C		-1002C
				-1501C		-1501C
				-1502C		-1502C

Example of installation (GFVS)



How to refer to the face grooving toolholder and blade

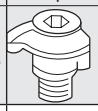
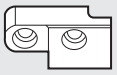
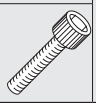
Q: Though "GFVSR2525M-HC" is marked on the face grooving holder, the size of cutting dia. is unknown. How could it be found out?

A: Take off the blade. Description of the blade is listed on the back of the blade. Using the description, check the description of the holder in the catalog. If "SFR-1001C" is integrated to "GFVSR2525M-HC", the description of the holder is "GVFSR2525M-1001C".

・R-hand Blade for R-hand Toolholder, L-hand Blade for L-hand Toolholder.
・Installation of GFVT type is also pursuing example of installation of GFVS type.

●: Std Stock ○: World Express

● Toolholder Dimensions (Inch-Size)

Description		Std.		Dimension (mm)								Face Grooving Dia. øD		Spare Parts				Applicable Inserts ➔ G91
														Clamp Set	Wrench	Blade	Bolt	
		R	L	H1	h	H3	B	L1	L2	F	T	MIN.	MAX.					
GFVS R/L	12-351B	●	●	0.75	0.79	0.315	0.75	5.00	1.18	1.00	0.20	35 (25)	50 (∞)	CPS-6V	LW-3	GVFR/L-351B	HH4×12	GVFL/R250B-350B
NEW	16-351B	●	●	1.00	1.04		1.00	6.00	1.26	1.25	(0.18)							GVFL/R150BR
	12-352B	●	●	0.75	0.79		0.75	5.00	1.18	1.00	0.20					GVFR/L-352B		GVFL/R400B-490B
	16-352B	●	●	1.00	1.04		1.00	6.00	1.26	1.25	(0.20)							GVFL/R200BR
	12-501B	●	●	0.75	0.79		0.75	5.00	1.18	1.00	0.20	50 (25)	70 (∞)			GVFR/L-501B		GVFL/R250B-350B
	16-501B	●	●	1.00	1.04		1.00	6.00	1.26	1.25	(0.18)							GVFL/R150BR
	12-502B	●	●	0.75	0.79		0.75	5.00	1.18	1.00	0.20					GVFR/L-502B		GVFL/R400B-490B
	16-502B	●	●	1.00	1.04		1.00	6.00	1.26	1.25	(0.20)							GVFL/R200BR
	12-701B	●	●	0.75	0.79		0.75	5.00	1.18	1.00	0.20	70 (25)	100 (∞)			GVFR/L-701B		GVFL/R250B-350B
	16-701B	●	●	1.00	1.04		1.00	6.00	1.26	1.25	(0.18)							GVFL/R150BR
	12-702B	●	●	0.75	0.79		0.75	5.00	1.18	1.00	0.20					GVFR/L-702B		GVFL/R400B-490B
	16-702B	●	●	1.00	1.04		1.00	6.00	1.26	1.25	(0.20)							GVFL/R200BR
GFVS R/L	16-501C	●	●	1.00	1.04	0.374	1.00	6.00	1.38	1.25	0.32(0.26)	50 (25)	70 (∞)	CPS-8V	LW-4	GVFR/L-501C	HH4×12	GVFL/R350C-450C
NEW	16-502C	●	●								0.32(0.32)					GVFR/L-502C		GVFL/R500C-600C
	16-701C	●	●								0.32(0.26)	70 (25)	100 (∞)			GVFR/L-701C		GVFL/R350C-450C
	16-702C	●	●								0.32(0.32)					GVFR/L-702C		GVFL/R500C-600C
	16-1001C	●	●								0.32(0.26)	100 (25)	150 (∞)			GVFR/L-1001C		GVFL/R350C-450C
	16-1002C	●	●								0.32(0.32)					GVFR/L-1002C		GVFL/R500C-600C
	16-1501C	●	●								0.32(0.26)	150 (25)	250 (∞)			GVFR/L-1501C		GVFL/R350C-450C
	16-1502C	●	●								0.32(0.32)					GVFR/L-1502C		GVFL/R500C-600C
GFVT R/L	12-351B	●	●	0.75	0.79	0.315	0.75	5.00	0.87	1.18	0.20	35 (25)	50 (∞)	CPS-6V	LW-3	GVFR/L-351B	HH4×12	GVFL/R250B-350B
NEW	16-351B	●	●	1.00	1.04		1.00	6.00	0.98	1.38	(0.18)							GVFL/R150BR
	12-352B	●	●	0.75	0.79		0.75	5.00	0.87	1.18	0.20					GVFR/L-352B		GVFL/R400B-490B
	16-352B	●	●	1.00	1.04		1.00	6.00	0.98	1.38	(0.20)							GVFL/R200BR
	12-501B	●	●	0.75	0.79		0.75	5.00	0.87	1.18	0.20	50 (25)	70 (∞)			GVFR/L-501B		GVFL/R250B-350B
	16-501B	●	●	1.00	1.04		1.00	6.00	0.98	1.38	(0.18)							GVFL/R150BR
	12-502B	●	●	0.75	0.79		0.75	5.00	0.87	1.18	0.20					GVFR/L-502B		GVFL/R400B-490B
	16-502B	●	●	1.00	1.04		1.00	6.00	0.98	1.38	(0.20)							GVFL/R200BR
	12-701B	●	●	0.75	0.79		0.75	5.00	0.87	1.18	0.20	70 (25)	100 (∞)			GVFR/L-701B		GVFL/R250B-350B
	16-701B	●	●	1.00	1.04		1.00	6.00	0.98	1.38	(0.18)							GVFL/R150BR
	12-702B	●	●	0.75	0.79		0.75	5.00	0.87	1.18	0.20					GVFR/L-702B		GVFL/R400B-490B
	16-702B	●	●	1.00	1.04		1.00	6.00	0.98	1.38	(0.20)							GVFL/R200BR
GFVT R/L	16-501C	●	●	1.00	1.04	0.374	1.00	6.00	1.06	1.50	0.32(0.26)	50 (25)	70 (∞)	CPS-8V	LW-4	GVFR/L-501C	HH4×12	GVFL/R350C-450C
NEW	16-502C	●	●								0.32(0.32)					GVFR/L-502C		GVFL/R500C-600C
	16-701C	●	●								0.32(0.26)	70 (25)	100 (∞)			GVFR/L-701C		GVFL/R350C-450C
	16-702C	●	●								0.32(0.32)					GVFR/L-702C		GVFL/R500C-600C
	16-1001C	●	●								0.32(0.26)	100 (25)	150 (∞)			GVFR/L-1001C		GVFL/R350C-450C
	16-1002C	●	●								0.32(0.32)					GVFR/L-1002C		GVFL/R500C-600C
	16-1501C	●	●								0.32(0.26)	150 (25)	250 (∞)			GVFR/L-1501C		GVFL/R350C-450C
	16-1502C	●	●								0.32(0.32)					GVFR/L-1502C		GVFL/R500C-600C

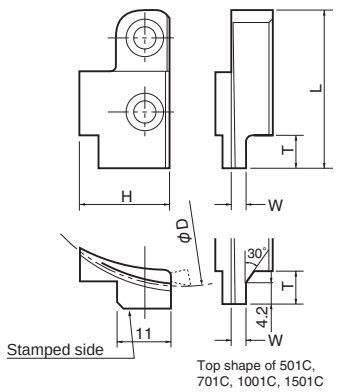
Note 1. Dimension T shows the distance from the Toolholder to the cutting edge.
The grooving depth is the mentioned in ( ).

2. The value ( ) of Face Grooving diameter. (øD Max) is the maximum outer diameter value after the initial groove between MIN~MAX. (It is possible to widen the groove to infinity ∞).
The value ( ) of Face Grooving diameter. (øD Min) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between MIN~MAX.

3. Standard toolholders are designed with the edge position 1.0mm above the center.
When using non-standard Toolholder, set the Edge position 1.0mm above the center.

4. GFVS and GFVT are composed of a base body and a blade.
If the blade should be damaged, replace it with a new blade as listed in the left table.
(e.g.) GFVSR2020K-HB + SFR-351B = GFVSR2020K-351B
(e.g.) GFVTR2020K-HB + SFR-351B = GFVTR2020K-351B

● Blade Dimension

Shape	Description	Std. R	Std. L	Dimension (mm) L	H	T	W	Face Grooving Dia. øD MIN.	MAX.	Applicable Inserts	Applicable Toolholder
	SFR/L -351B	○	○	30.5	11	4.7	2.0	35	50	GVFR/L 250B~350B,150BR	GFV(S / T)R/L○○○○ □ -○○○B (Toolholder Stamp GFV(S / T)R/L○○○○□-HB)
	-352B	○	○				3.4			GVFR/L 400B~490B,200BR	
	SFR/L -501B	○	○		15		2.0	50	70	GVFR/L 250B~350B,150BR	
	-502B	○	○				3.4			GVFR/L 400B~490B,200BR	
	SFR/L -701B	○	○		17		2.0	70	100	GVFR/L 250B~350B,150BR	
	-702B	○	○				3.4			GVFR/L 400B~490B,200BR	
	SFR/L -501C	○	○	35	15	7.5	2.8	50	70	GVFR/L 350C~450C	GFV(S / T)R/L○○○○ □ -○○○C (Toolholder Stamp GFV(S / T)R/L○○○○□-HC)
	-502C	○	○				4.3			GVFR/L 500C~600C	
	SFR/L -701C	○	○		20		2.8	70	100	GVFR/L 350C~450C	
	-702C	○	○				4.3			GVFR/L 500C~600C	
	SFR/L -1001C	○	○		23		2.8	100	150	GVFR/L 350C~450C	
	-1002C	○	○				4.3			GVFR/L 500C~600C	
	SFR/L -1501C	○	○		23		2.8	150	250	GVFR/L 350C~450C	
	-1502C	○	○				4.3			GVFR/L 500C~600C	

• Right-hand shown

• R-hand Blade for R-hand Toolholder, L-hand Blade for L-hand Toolholder.

◆ Face Groove Diameter of GFVS / GFVT

ex) GFVS . . -351B / 352B

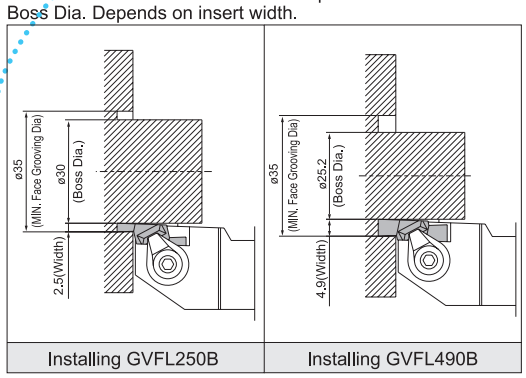
(same as GFVSR/L...-○○○B, GFVSR/L...-○○○C ➔G81
GFVTR/L...-○○○B, GFVTR/L...-○○○C ➔G81)

Description		Face Grooving Dia. øD MIN.	MAX.	Applicable Inserts
GFVSR/L	2020K-351B	35	50	GVFL/R 250B~350B
	2525M-351B			GVFL/R 150BR
	2020K-352B	(25)	(∞)	GVFL/R 400B~490B
	2525M-352B			GVFL/R 200BR

• It is available to infinity ∞ when machining toward outer diameter.

• When machining the initial groove on the face at MIN.ø35.

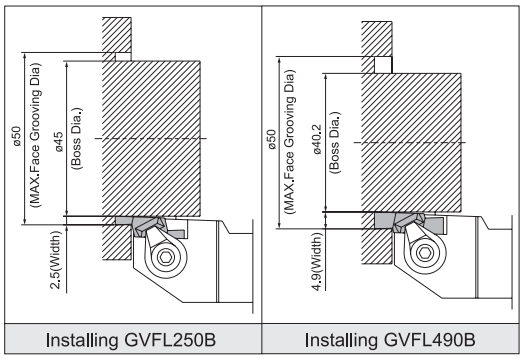
If the initial groove is made smaller than this, the toolholder interferes with the workpiece. Boss Dia. Depends on insert width.



Installing GVFL250B | Installing GVFL490B

• When machining the initial groove on the face at MAX.ø50.

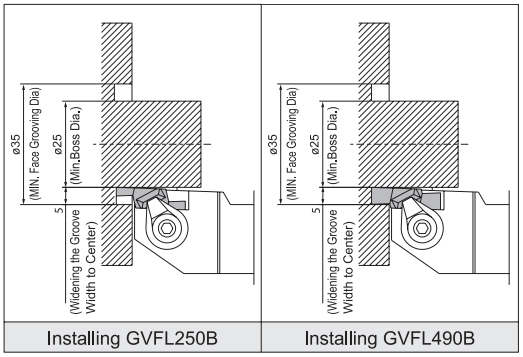
If the first groove is bigger than this, the toolholder intereferes with the workpiece. Boss Dia. Depends on insert width.



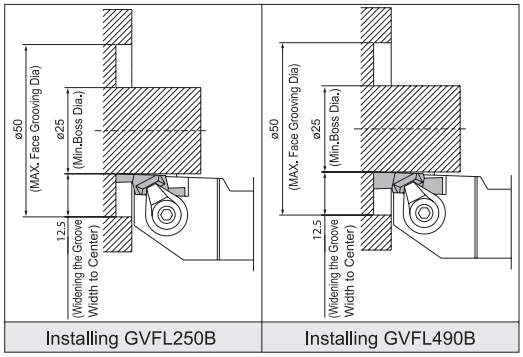
Installing GVFL250B | Installing GVFL490B

• When widening the groove width to inner diameter.

Face Grooving Dia.øD MIN.(ø25 Boss Dia.) is the limitation regardless of insert width, even widening the groove width to the center from the initial groove at øD MIN.(ø35) or øD MAX.(ø50). The toolholder interferes with the workpiece when closer to the center.



Installing GVFL250B | Installing GVFL490B



Installing GVFL250B | Installing GVFL490B

●: Std Stock ○: World Express

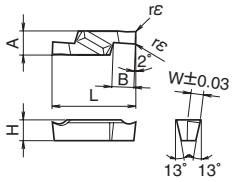
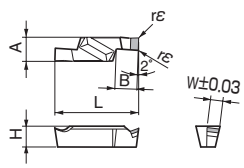
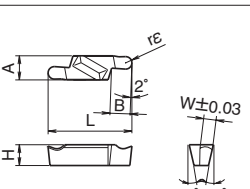
Applicable Inserts

(mm)

Description	A	L	H
GVF R/L ···- ○○○ A	4.3	12	4.5
···- ○○○ B	5.8	20	5.0
···- ○○○ C	7.0	27	7.0
···- ○○○ AR	4.3	12	4.5
···- ○○○ BR	5.8	20	5.0

		Classification of usage
P	Carbon Steel / Alloy Steel	
M	Stainless Steel	
K	Cast Iron	
N	Non-ferrous Metals	
S	Titanium Alloy	
H	Hard materials (under 40HRC)	
	Hard materials (over 40HRC)	

◕: Continuous-Light Interruption / 1st Choice
◔: Continuous-Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice

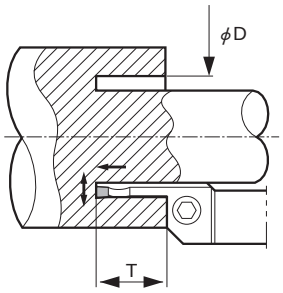
Insert (R-hand shown)	Description	(Previous Description)	W (inch)	W (mm)	B	rε	Cermet TN90	Cermet TC40	Cermet TC60	PVD Coated Carbide PR630	PVD Coated Carbide PR930	Carbide KW10	PCD KPD001	PCD KPD010	Applicable Toolholder	Ref. Page for Toolholder
 	GVF R/L 200-020A	GVF R/L 200A	0.079	2.00	2.3	0.2			○		○	○			GFV R/L ····-201A	G89
	GVF R/L 230-020A	230A	0.091	2.30					○		○	○				
	GVF R/L 250-020A	250A	0.098	2.50					○		○	○				
	GVF R/L 270-020A	270A	0.106	2.70					○		○	○				
	GVF R/L 290-020A	290A	0.114	2.90					○		○	○				
	GVF R/L 340-020A	340A	0.134	3.40					○		○	○				
	GVF R/L 250-020B	GVF R/L 250B	0.098	2.50	4.8	0.2			○		○	○			GFV R/L ···- ○○ 1B	
	300-020B	300B	0.118	3.00					○		○	○			GFVS R/L ···- ○○ 1B	
	350-020B	350B	0.138	3.50					○		○	○			GFVT R/L ···- ○○ 1B	
	400-020B	400B	0.157	4.00	5.3				○		○	○			GFV R/L ···- ○○ 2B	
	430-020B	430B	0.169	4.30					○		○	○			GFVS R/L ···- ○○ 2B	
	460-020B	460B	0.181	4.60					○		○	○			GFVT R/L ···- ○○ 2B	
	490-020B	490B	0.193	4.90					○		○	○				
	GVF R/L 350-040C	GVF R/L 350C	0.138	3.50	6.8	0.4			○		○	○			GFV R/L ···- ○○ 1C	
	400-040C	400C	0.157	4.00					○		○	○			GFVS R/L ···- ○○ 1C	
	450-040C	450C	0.177	4.50					○		○	○			GFVT R/L ···- ○○ 1C	
	500-040C	500C	0.197	5.00	8.3				○		○	○			GFV R/L ···- ○○ 2C	
	550-040C	550C	0.217	5.50					○		○	○			GFVS R/L ···- ○○ 2C	
	600-040C	600C	0.236	6.00					○		○	○			GFVT R/L ···- ○○ 2C	
 	GVF R/L 250-020B	GVF R/L 250B	0.098	2.50	4.8	0.2								○	GFV R/L ···- ○○ 1B	G89
	300-020B	300B	0.118	3.00										○	GFVS R/L ···- ○○ 1B	
	400-020B	400B	0.157	4.00	5.3									○	GFVT R/L ···- ○○ 1B	
	GVF R/L 350-020C	-	0.138	3.50	6.8	0.2								○	GFV R/L ···- ○○ 2B	
	400-020C	-	0.157	4.00										○	GFVS R/L ···- ○○ 2B	
	GVF R/L 350-040C	GVF R/L 350C	0.138	3.50	6.8	0.4								○	GFVT R/L ···- ○○ 2B	
1-Edge	400-040C	400C	0.157	4.00										○		
 	GVF R/L 200-100AR	GVF R/L 100AR	0.079	2.00	2.3	1.00					○	○			GFV R/L ····-201A	
	250-125AR	125AR	0.098	2.50		1.25					○	○				
	300-150AR	150AR	0.118	3.00		1.50					○	○				
	GVF R/L 300-150BR	GVF R/L 150BR	0.118	3.00	4.8	1.50					○	○			GFV R/L ···- ○○ 1B	
															GFVS R/L ···- ○○ 1B	
															GFVT R/L ···- ○○ 1B	
Full-R	400-200BR	200BR	0.157	4.00	5.3	2.00					○	○			GFV R/L ···- ○○ 2B	
															GFVS R/L ···- ○○ 2B	
															GFVT R/L ···- ○○ 2B	

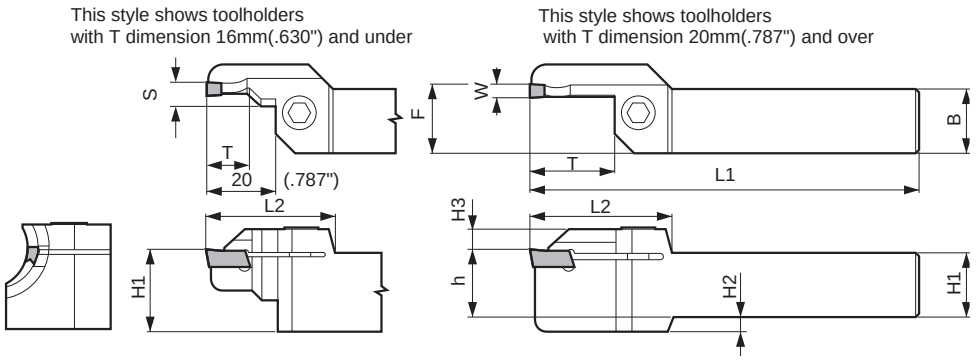
• Dimension B: shows available grooving depth.

For recommended cutting conditions, see page ➡ G99

* The inserts are applicable to the GIFV type face grooving toolholder (G88).

KFMS





•Right-hand Shown (mm)

Toolholder Dimensions

Description		Stock R	Stock L	Unit	Dimension H1=h	H2	H3	B	L1	L2	F	S	T	Width W	Face Grooving Dia. ϕD MIN.	MAX.	Spare Parts Clamp Screw	Spare Parts Wrench
KFMS R/L	2020K2530-3	○	○	mm	20	-	10	20	125	39	20.7	6.1	13	3	25	30	HH5X20	LW-4
	2020K3040-3	○													30	40		
	2020K4050-3	○	○												40	50		
	2020K5065-3	○								41		-	22		50	65		
	2020K6585-3	○													65	85		
	2020K85110-3	○				5				44			25		85	110		
	2020K110145-3	○													110	145		
	2525M2530-3	○	○		25	-	10	25	150	39	25.7	6.1	13		25	30	HH5X25	LW-4
	2525M3040-3	○	○												30	40		
	2525M4050-3	○	○												40	50		
	2525M5065-3	○	○							41		-	22		50	65		
	2525M6585-3	○	○												65	85		
	2525M85110-3	○	○							44			25		85	110		
	2525M110145-3	○	○												110	145		
KFMS R/L	2020K2535-4	○		mm	20	-	10	20	125	39	20.7	7.1	12	4	25	35	HH5X20	LW-4
	2020K3550-4	○											20		35	50		
	2020K5070-4	○								44		-			50	70		
	2020K70100-4	○				5							25		70	100		
	2020K100150-4	○													100	150		
	2020K150220-4	○													150	220		
	2020K220800-4	○													220	∞		
	2525M2535-4	○	○		25	-	10	25	150	39	25.7	7.1	12		25	35	HH5X25	LW-4
	2525M3550-4	○	○										20		35	50		
	2525M5070-4	○	○							44		-			50	70		
	2525M70100-4	○	○										25		70	100		
	2525M100150-4	○	○												100	150		
	2525M150220-4	○	○												150	220		
	2525M220800-4	○	○												220	∞		
KFMS R/L	2020K2535-5	○		mm	20	-	10	20	125	39	20.7 (21.2)	-	20	5 (6)	25	35	HH5X20	LW-4
	2020K3550-5	○													35	50		
	2020K5075-5	○								44			25		50	75		
	2020K75115-5	○				5	10								75	115		
	2020K115180-5	○													115	180		
	2020K180235-5	○													180	235		
	2020K235800-5	○													235	∞		
	2525M2535-5	○	○		25	-	10	25	150	39	25.7 (26.2)	-	20		25	35	HH5X25	LW-4
	2525M3550-5	○	○												35	50		
	2525M5075-5	○	○							44			25		50	75		
	2525M75115-5	○	○			-	10								75	115		
	2525M115180-5	○	○												115	180		
	2525M180235-5	○	○							51			32		180	235		
	2525M235800-5	○	○												235	∞		

●: Std Stock ○: World Express

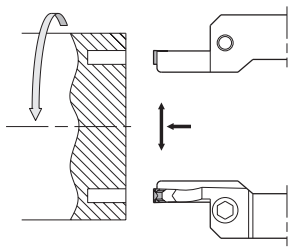
● Toolholder Dimensions

Description		Stock R	Stock L	Unit	Dimension H1=h	H2	H3	B	L1	L2	F	S	T	Width W	Face Grooving Dia.φD MIN.	MAX.	Spare Parts Clamp Screw	Wrench
KFMS R/L	16-3-4050	●		inch	1.00	-	393	1.00	6.00	1.539	1.027	.240	0.512	.118	1.575	1.969	HH5X25	LW-4
	16-3-5065	●								1.618		-	0.866		1.969	2.559		
	16-3-6585														2.559	3.346		
KFMS R/L	16-4-2535	●		inch	1.00	-	.393	1.00	6.00	1.539	1.027	.280	0.472	.157	.984	1.378	HH5X25	LW-4
KFMS R/L	16-5-5075			inch	1.00	-	.393	1.00	6.00	1.736	1.027 (1.047)	-	0.984	.197 (.236)	1.969	2.953	HH5X25	LW-4
	16-5-75115	●								2.012			1.26		2.953	4.528		
	16-5-115180	●													4.528	7.087		
	16-5-180235	●													7.087	9.252		

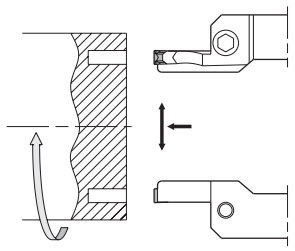
- Dimension T shows maximum grooving depth
- Face Grooving Dia.φD: The diameter range of the initial grooving
- KFMS R/L ... -5 type toolholder can hold a 6mm width insert. ( ) value shows the dimension with a 6mm width insert

◆ Selection of Insert & Toolholder

Toolholder	R-hand
Insert	(No Hand)



Toolholder	L-hand
Insert	(No Hand)

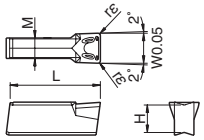
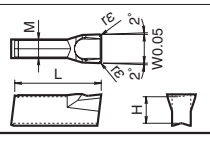


■ Applicable Inserts (mm)

Description	L	H
FMM30-03 ⟆ FMM60-04	12	3.5
FMN3 ⟆ FMN6	12	3.5

		Classification of usage
P	Carbon Steel / Alloy Steel	●
M	Stainless Steel	●
K	Cast Iron	● ◔
N	Non-ferrous Metals	●
S	Titanium Alloy	●
H	Hard materials (under 40HRC)	○
	Hard materials (over 40HRC)	

●: Continuous-Light Interruption / 1st Choice
◔: Continuous-Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice

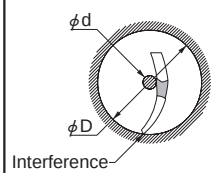
Insert		Description		Dimension (mm) W (inch)	W (mm)	rε	M	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PR930	PR905	Carbide KW10	Applicable Toolholder
 Face Grooving Chip Control Oriented / M Class		FMM	30-03	0.12	3.0	0.3	2.0	●	●	●	●	●	●	KFMS R/L ··· 3
			40-04	0.16	4.0	0.4	2.6	●	●	●	●	●	●	KFMS R/L ··· 4
			50-04	0.20	5.0		3.4	●	●	●	●	●	●	KFMS R/L ··· 5
			60-04	0.24	6.0		4.0	●	●		●	●	●	
 Face Grooving Sharp-Cutting Oriented / M Class		FMN	3	0.12	3.0	0.25	2.0	●	●		●		●	KFMS R/L ··· 3
			4	0.16	4.0		2.6	●	●		●		●	KFMS R/L ··· 4
			5	0.20	5.0		3.4	●	●		●		●	KFMS R/L ··· 5
			6	0.24	6.0		4.0		●		●		●	

• FMN type inserts are only for Deep Grooving and not applicable for Traversing.

Recommended Cutting Conditions ➡ G98

◆ Limit of Traversing Toward Center

Traversing toward the center causes toolholder's interference with groove wall depending on the initial grooving diameter



Remaining Boss Dia. φd

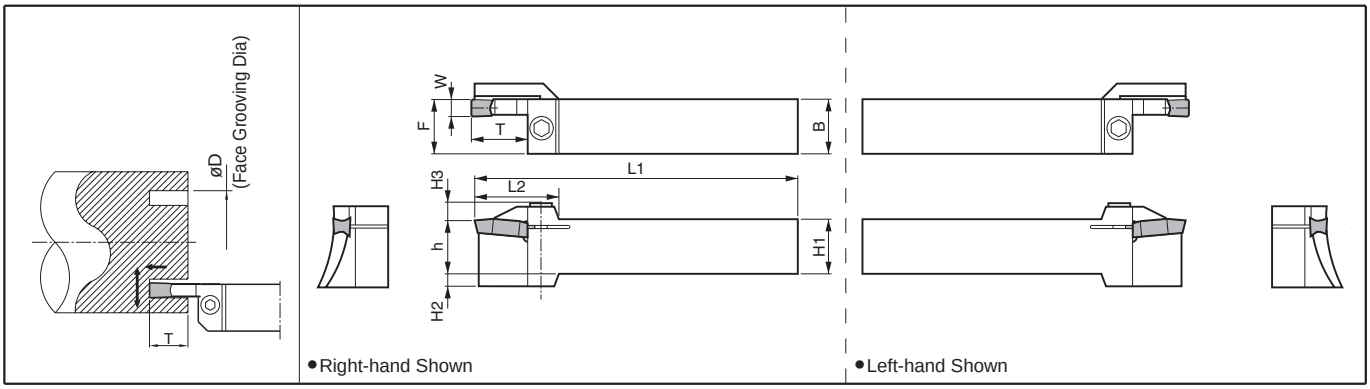
Description \ φD (mm)	25	26	27	28 and over
	φd(mm)			
KFMS R/L 2020K2530-3	4	2	0	0
KFMS R/L 2525M2530-3				
KFMS R/L 2020K2535-4	6	3	0	No remaining boss
KFMS R/L 2525M2535-4				
KFMS R/L 16-4-2535				
KFMS R/L 2020K2535-5	7 ※(5)	4 ※(2)	1 ※(0)	
KFMS R/L 2535M2535-5				

※ ( ) value shows the dimension using FMM60-04 insert

e.g.) KFMSR 2525M2530-3 with φ25mm as first cut towards the center, it will encounter rubbing of the holder catridge when φd is 4.0mm. However, if the first cut D was 27mm and above, it will be able to transverse cut towards the center without interference.

●: Std Stock ○: World Express

KFMS-8



● Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	F	T		Width (mm) W	Face Grooving Dia. øD MIN.	Face Grooving Dia. øD MAX.	Spare Parts Screw	Spare Parts Wrench		Ref. Page for Recommended Cutting Conditions
KFMS[R/L]	2525M5464-8	○	○	25	-	9	25	150	41	26	25		8	54 (0)	64 (∞)	HH6X25	LW-5		G93
	2525M6382-8	○	○		2.4									63 (0)	82 (∞)				
	2525M80115-8	○	○		6	8			40					80 (0)	115 (∞)				
	2525M105160-8	○	○											105 (0)	160 (∞)				
	2525M155510-8	○	○	25	6	8	25	150	43	26	25		8	155 (0)	510 (∞)				
	3232P155510-8	○		32	-		32	170		33									

• Dimension T shows available grooving depth.

• The value ( ) of Face Grooving Dia. (øD Max) is the maximum outer diameter value after the initial groove between MIN ~ MAX. (It is possible to widen the groove to infinity ∞).
The value ( ) of Face Grooving Dia. (øD Min) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between MIN ~ MAX.

Applicable Inserts

(mm)

Description	L	H
GMM 8030-080MW	30	5.5
GMG 8030-050MG		
GMGA 8030-400R		

							Classification of usage
P	Carbon Steel / Alloy Steel			◔	●		
M	Stainless Steel			●	◔		
K	Cast Iron					●	◔
N	Non-ferrous Metals						●
S	Titanium Alloy						●
H	Hard materials (under 40HRC)			○	●		
	Hard materials (over 40HRC)						

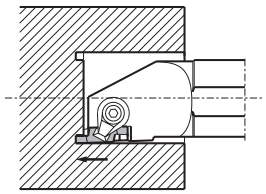
◔ : Continuous-Light Interruption / 1st Choice
◔ : Continuous-Light Interruption / 2nd Choice
● : Continuous / 1st Choice
○ : Continuous / 2nd Choice

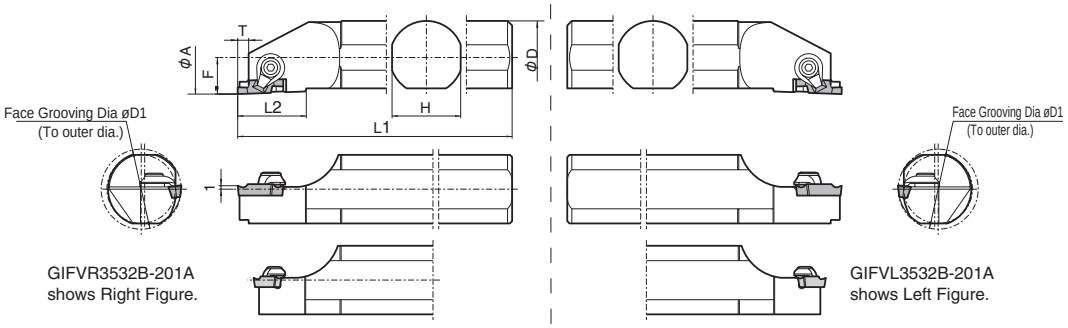
Insert		Description	(Previous Description)	Dimension (mm) W (inch)	W (mm)	rε	M	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PR930	PR905	Carbide KW10	Applicable Toolholder
Chip Control Oriented / M Class		GMM 8030-080MW	GMM 8030-08	0.32	8.0	0.8	6.0		●	●	●	●	●	KFMS[R/L] ···8
Sharp-Cutting Oriented / Precision Class Ground Chipbreaker		GMG 8030-050MG	GMG 8030-05MG	0.32	8.0	0.5	6.0	●	●		●	●	●	
Sharp-Cutting Oriented / Precision Class Full-R / Copying		GMGA 8030-400R	GMGA 8030-40R	0.32	8.0	4.0	6.0						●	

• If using a full-R insert with KIGM-8 type toolholder, you need to modify the corner of insert adapter of toolholder.

●: Std Stock ○: World Express

GIFV





●Right-hand Shown ●Left-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder.

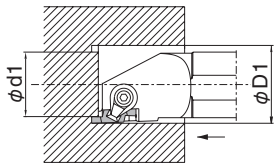
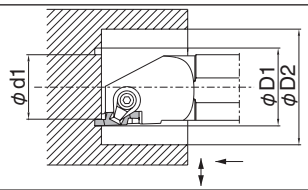
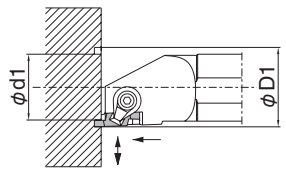
● Toolholder Dimensions

Description		Std.		Dimension (mm)							Face Grooving Dia. øD1		Spare Parts				Applicable Inserts G91
													Clamp Set		Wrench		
		R	L	øA	øD	H	L1	L2	F	T	MIN.	MAX.					
GIFV R/L	3532B-201A	○	○	35	32	30	250	23	16	2.2	35 (12)	∞	CPS-5V	-	FT-15	-	GVF R/L 200A~340A GVF R/L 100AR~150AR
GIFV R/L	3532B-351B	○	○	35				30		4.6	35 (25)	50 (∞)	-	CPS-6V	-	LW-3	GVF R/L 250B~350B GVF R/L 150BR
	3532B-352B	○	○							5.1	35 (25)	50 (∞)					GVF R/L 400B~490B GVF R/L 200BR
	5032B-501B	○	○	50						4.6	50 (25)	70 (∞)					GVF R/L 250B~350B GVF R/L 150BR
	5032B-502B	○	○							5.1	50 (25)	70 (∞)					GVF R/L 400B~490B GVF R/L 200BR
GIFV R/L	5032B-501C	○	○	50				35		6.6	50 (25)	70 (∞)		CPS-8V		LW-4	GVF R/L 350C~450C
	5032B-502C	○	○							8.1	50 (25)	70 (∞)					GVF R/L 500C~600C

Note 1. Dimension T shows available grooving depth.

2. Standard toolholders are designed with the edge position 1.0mm above the center.

◆ Face Grooving Dia. øD1 depends on the application.

Application	Description		Face Grooving Dia. ød1	Face Grooving Dia. øD1			Remarks
			(MIN.)	MIN.	MAX.	(MAX.)	
	GIFV R/L	3532B-201A	-	35	∞	∞	-
	GIFV R/L	3532B-351B			50		
		3532B-352B					
		5032B-501B		50	70		
		5032B-502B					
	GIFV R/L	5032B-501C					
		5032B-502C					
	GIFV R/L	3532B-201A	12	35	∞	∞	If øD2 ≧ 58-2W, the Face Grooving Dia. can be expanded to ød1 (MIN.) toward the Center. W = Edge Width If øD2 ≧ 75-2W, the Face Grooving Dia. can be expanded to ød1 (MIN.) toward the Center. W = Edge Width
	GIFV R/L	3532B-351B	25		50		
		3532B-352B					
		5032B-501B		50	70		
		5032B-502B					
	GIFV R/L	5032B-501C					
		5032B-502C					
	GIFV R/L	3532B-201A	12	35	∞	∞	-
	GIFV R/L	3532B-351B	25		50		
		3532B-352B					
		5032B-501B		50	70		
		5032B-502B					
	GIFV R/L	5032B-501C					
		5032B-502C					

• The value ( ) of Face Grooving Dia. (øD1 (Max)) is the maximum outer diameter value after the initial groove between MIN~MAX. (It is possible to widen the groove to infinity ∞)

• The value ( ) of Face Grooving Dia. (ød1 (MIN)) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between MIN~MAX.

●: Std Stock ○: World Express

Recommended Cutting Conditions

GBA type insert (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)									① f at Grooving (ipr) ② f at Traversing (ipr) ③ ap at Traversing (inch)					Remarks
	Cermet		MEGA	PVD Coated Carbide			Carbide	CBN	PCD						
	TC40	TN90	PR1215	PR930	PR1115	PR905	KW10	KBN510 KBN525	KPD001 (KPD010)	GBA○○R/L 033~100	GBA○○R/L 125~200	GBA○○R/L 230~300	GBA○○R/L 330~400	GBA○○R/L 400~480	
										GBA○○R/L 031N~041N	GBA○○R/L 047N~078N	GBA○○R/L 094N~109N	GBA○○R/L 125N~156N	GBA○○R/L 172N~188N	
Carbon Steel (SxxC etc.)	☆ 500~725	☆ 500~725	★ 2230~650	☆ 260~600	☆ 260~600	-	-	-	-	①.0012~.0031 ②Traversing N.A. ③Traversing N.A.	①.0016~.0035 ②.0016~.0035 ③Max. .012	①.0020~.0039 ②.0020~.0039 ③Max. .020	①.0020~.0047 ②.0020~.0039 ③Max. .020	①.0020~.0047 ②.0020~.0039 ③Max. .032	Coolant
Alloy Steel (SCM etc.)	☆ 425~650	☆ 425~650	★ 260~600	☆ 260~600	☆ 260~160	-	-	-	-	①.0012~.0028 ②Traversing N.A. ③Traversing N.A.	①.0016~.0031 ②.0016~.0031 ③Max. .012	①.0020~.0035 ②.0020~.0035 ③Max. .020	①.0020~.0039 ②.0020~.0039 ③Max. .020	①.0020~.0039 ②.0020~.0039 ③Max. .032	
Stainless Steel (SUS304 etc.)	-	☆ 230~500	☆ 200~500	☆ 200~425	★ 200~425	-	-	-	-	①.0012~.0028 ②Traversing N.A. ③Traversing N.A.	①.0016~.0031 ②.0016~.0031 ③Max. .012	①.0020~.0035 ②.0020~.0035 ③Max. .020	①.0020~.0039 ②.0020~.0039 ③Max. .020	①.0020~.0039 ②.0020~.0039 ③Max. .032	
Cast Iron (FC/FCD etc.)	-	-	-	-	-	★ 260~600	☆ 200~400	★ 500~1300	-	①.0012~.0031 ②Traversing N.A. ③Traversing N.A.	①.0016~.0035 ②.0016~.0035 ③Max. .012	①.0020~.0039 ②.0020~.0039 ③Max. .020	①.0020~.0047 ②.0020~.0039 ③Max. .020	①.0020~.0047 ②.0020~.0039 ③Max. .032	
Aluminum	-	-	-	-	-	-	★ 500~1300	-	★ 500~6500	①.0020~.0047 ②Traversing N.A. ③Traversing N.A.	①.0020~.0059 ②.0020~.0059 ③Max. .020	①.0020~.0059 ②.0020~.0059 ③Max. .032	①.0031~.0059 ②.0031~.0059 ③Max. .032	①.0031~.0059 ②.0031~.0059 ③Max. .032	
Brass	-	-	-	-	-	-	★ 500~1000	-	★ 650~2600	①.0020~.0047 ②Traversing N.A. ③Traversing N.A.	①.0020~.0059 ②.0020~.0059 ③Max. .020	①.0020~.0059 ②.0020~.0059 ③Max. .032	①.0031~.0059 ②.0031~.0059 ③Max. .032	①.0031~.0059 ②.0031~.0059 ③Max. .032	
Hard materials	-	-	-	-	-	-	-	★ 260~400	-	-	①.0008~0.05 ②Traversing N.A. ③Traversing N.A.	①.0012~.0028 ②0.01~0.04 ③Max. .004	-	-	

* Above cutting condition is for external grooving. Set both cutting speed and feed 10% higher for internal grooving. MEGA indicates MEGACOAT. ★ : 1st Recommendation ☆ : 2nd Recommendation

GBA type insert (MY Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc: sfm)								① f at Grooving (ipr) ② f at Traversing (ipr) ③ ap at Traversing (inch)					Remarks
	Cermet		MEGA	PVD Coated Carbide		Carbide	CBN	PCD						
	TN6020	TC40	PR1215	PR930	PR1115	KW10	KBN510	KPD001 (KPD010)	GBA43R/L 175MY~ 200MY	GBA43R/L 230MY~ 265MY	GBA43R/L 300MY	GBA43R/L 330MY~ 350MY	GBA43R/L 400MY	
									GBA43R/L 078MYN~	GBA43R/L 094MYN		GBA43R/L 125MYN	GBA43R/L 156MYN	
Carbon Steel (SxxC etc.)	☆ 500~725	-	★ 2230~650	☆ 2230~650	☆ 2230~650	-	-	-	①.0012~.0031 ②.0012~.0031 ③Max. .012	①.0016~.0035 ②.0016~.0035 ③Max. .012	①.0020~.0039 ②.0020~.0039 ③Max. .020	①.0020~.0047 ②.0020~.0039 ③Max. .020	①.0020~.0047 ②.0020~.0039 ③Max. .032	Coolant
Alloy Steel (SCM etc.)	☆ 425~650	-	★ 260~600	☆ 260~600	☆ 260~600	-	-	-	①0.03~0.07 ②0.03~0.1 ③Max. .012	①.0016~.0031 ②.0016~.0031 ③Max. .012	①.0020~.0035 ②.0020~.0035 ③Max. .020	①.0020~.0039 ②.0020~.0039 ③Max. .020	①.0020~.0039 ②.0020~.0039 ③Max. .032	
Stainless Steel (SUS304 etc.)	☆ 230~500	-	☆ 200~500	☆ 200~500	★ 200~500	-	-	-	①0.03~0.07 ②0.03~0.1 ③Max. .012	①.0016~.0031 ②.0016~.0031 ③Max. .012	①.0020~.0035 ②.0020~.0035 ③Max. .020	①.0020~.0039 ②.0020~.0039 ③Max. .020	①.0020~.0039 ②.0020~.0039 ③Max. .032	

* Above cutting condition is for external grooving. Set both cutting speed and feed 10% higher for internal grooving. MEGA indicates MEGACOAT. ★ : 1st Recommendation ☆ : 2nd Recommendation

GB type insert (Ground Chipbreaker) GB

type will be switched to GBA type.

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)							① f at Grooving (ipr) ② f at Traversing (ipr) ③ ap at Traversing (inch)					Remarks
	Cermet			PVD Coated Carbide		Carbide	CBN	PCD						
	TN90	TC40	TC60	PR630	PR930	KW10	KBN510	KPD001 (KPD010)	GB○○R/L 050~100	GB○○R/L 125~200	GB○○R/L 230~300	GB○○R/L 330~400	GB○○R/L 400~480	
Carbon Steel (SxxC etc.)	-	☆ 500~725	☆ 325~500	☆ 250~200	★ 250~180	-	-	-	①.0012~.0031 ②Traversing N.A. ③Traversing N.A.	①.0016~.0035 ②.0016~.0035 ③Max. .012	①.0020~.0039 ②.0020~.0039 ③Max. .020	①.0020~.0047 ②.0020~.0039 ③Max. .020	①.0020~.0047 ②.0020~.0039 ③Max. .032	Wet
Alloy Steel (SCM etc.)	-	☆ 425~650	☆ 250~425	☆ 250~600	★ 250~525	-	-	-	①.0012~.0028 ②Traversing N.A. ③Traversing N.A.	①.0016~.0031 ②.0016~.0031 ③Max. .012	①.0020~.0035 ②.0020~.0035 ③Max. .020	①.0020~.0039 ②.0020~.0039 ③Max. .020	①.0020~.0039 ②.0020~.0039 ③Max. .032	
Stainless Steel (SUS304 etc.)	-	-	☆ 200~325	☆ 200~500	★ 200~425	-	-	-	①.0012~.0028 ②Traversing N.A. ③Traversing N.A.	①.0016~.0031 ②.0016~.0031 ③Max. .012	①.0020~.0035 ②.0020~.0035 ③Max. .020	①.0020~.0039 ②.0020~.0039 ③Max. .020	①.0020~.0039 ②.0020~.0039 ③Max. .032	
Cast Iron (FC/FCD etc.)	-	-	-	-	-	★ 200~325	-	-	①.0012~.0031 ②Traversing N.A. ③Traversing N.A.	①.0016~.0035 ②.0016~.0035 ③Max. .012	①.0020~.0039 ②.0020~.0039 ③Max. .020	①.0020~.0047 ②.0020~.0039 ③Max. .020	①.0020~.0047 ②.0020~.0039 ③Max. .032	
Aluminum	-	-	-	-	-	★ 500~1300	-	★ 500~6500	①.0020~.0047 ②Traversing N.A. ③Traversing N.A.	①.0020~.0059 ②.0020~.0059 ③Max. .020	①.0020~.0059 ②.0020~.0059 ③Max. .032	①.0031~.0059 ②.0031~.0059 ③Max. .032	①.0031~.0059 ②.0031~.0059 ③Max. .032	
Brass	-	-	-	-	-	★ 500~1000	-	★ 650~2600	①.0020~.0047 ②Traversing N.A. ③Traversing N.A.	①.0020~.0059 ②.0020~.0059 ③Max. .020	①.0020~.0059 ②.0020~.0059 ③Max. .032	①.0031~.0059 ②.0031~.0059 ③Max. .032	①.0031~.0059 ②.0031~.0059 ③Max. .032	

★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Insert Grade (Tip-Bars)

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)				PSG05	PSG06 PSG07 PSG08	Remarks
	Cermet	PVD Coated Carbide		Carbide			
	TC60		PR930	KW10	Feed Rate (ipr)		
General Steel (S45C etc.)	☆ 200~400		★ 100~325		~.0012	~.0020	Wet
Stainless Steel (SUS304 etc.)	☆ 160~325		★ 100~260		~.0008	~.0012	
Non-ferrous Metals (Aluminum / Brass etc.)				★ ~1000	~.0020	~.0031	

★ : 1st Recommendation ☆ : 2nd Recommendation

Note for using the grooving insert bar PSG-S type

How to Install

Ultra small grooving requires accurate installation because an error of insert height or angle can affect the machining precision.When installing, set the cutting edge higher than the center line as shown in the Table 1. The cutting edge of all the PSG-S type bars is designed to be higher than the center line. (L4 of insert bar dimension)

●: Std Stock ○: World Express

TGF insert (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)								① f at Grooving (ipr) ② f at Traversing (ipr) ③ 〃 ap (inch)					Remarks
	Cermet			PVD Coated Carbide		Carbide	CBN	PCD						
	TN90	TC40	TC60	PR930	PR1115	KW10	KBN510	KPD001 (KPD010)	TGF32R/L 033~050	TGF32R/L 075~095	TGF32R/L 100~145	TGF32R/L 150~250		
Carbon Steel	☆ 500~725	☆ 500~725	☆ 325~500	☆ 250~600	★ 250~600	-	-	-	①.0004~.0020 ②Traversing N.A. ③Traversing N.A.	①.0008~.0028 ②Traversing N.A. ③Traversing N.A.	①.0012~.0031 ②.0012~.0024 ③Max. .008	①.0012~.0031 ②.0012~.0024 ③Max. .008		Coolant
Alloy Steel	☆ 425~650	☆ 425~650	☆ 250~425	☆ 250~525	★ 250~525	-	-	-	①.0004~.0016 ②Traversing N.A. ③Traversing N.A.	①.0008~.0024 ②Traversing N.A. ③Traversing N.A.	①.0012~.0028 ②.0008~.0020 ③Max. .008	①.0012~.0028 ②.0008~.0020 ③Max. .008		
Stainless Steel	☆ 230~500	-	☆ 200~325	☆ 200~425	★ 200~425	-	-	-	①.0004~.0016 ②Traversing N.A. ③Traversing N.A.	①.0008~.0024 ②Traversing N.A. ③Traversing N.A.	①.0012~.0028 ②.0008~.0020 ③Max. .008	①.0012~.0028 ②.0008~.0020 ③Max. .008		
Cast Iron	-	-	-	-	-	★ 200~325	-	-	①.0004~.0020 ②Traversing N.A. ③Traversing N.A.	①.0008~.0028 ②Traversing N.A. ③Traversing N.A.	①.0012~.0031 ②.0012~.0024 ③Max. .008	①.0012~.0031 ②.0012~.0024 ③Max. .008		
Aluminum	-	-	-	-	-	★ 500~1300	-	★ 500~6500	①.0004~.0020 ②Traversing N.A. ③Traversing N.A.	①.0008~.0028 ②Traversing N.A. ③Traversing N.A.	①.0012~.0031 ②.0012~.0024 ③Max. .008	①.0012~.0031 ②.0012~.0024 ③Max. .008		
Brass	-	-	-	-	-	★ 500~1000	-	★ 650~2600	①.0004~.0016 ②Traversing N.A. ③Traversing N.A.	①.0008~.0024 ②Traversing N.A. ③Traversing N.A.	①.0012~.0028 ②.0008~.0020 ③Max. .008	①.0012~.0028 ②.0008~.0020 ③Max. .008		

★ : 1st Recommendation ☆ : 2nd Recommendation

TG insert (Ground Chipbreaker)

changes to GBA.

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)								Feed Rate (ipr)					Remarks
	Cermet			PVD Coated Carbide		Carbide	CBN	PCD						
	TN60	TC40	TC60	PR630	PR930	KW10	KBN510	KPD001 (KPD010)	TG○○R/L 075~095	TG○○R/L 125~200	TG○○R/L 230~300	TG○○R/L 330~400	TG○○R/L 430~450	
Carbon Steel	★ 500~725	-	-	-	-	-	-	-	.0012~.0028	.0012~.0031	.0020~.0039	.0020~.0047	.0020~.0047	Coolant
Alloy Steel	★ 425~650	-	-	-	-	-	-	-	.008~.0024	.0012~.0028	.0020~.0024	.0020~.0039	.0020~.0039	

* Above cutting condition is for external grooving. Set both cutting speed and feed rate lower than 10% for internal grooving.

★ : 1st Recommendation ☆ : 2nd Recommendation

GH insert (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)								① f at Grooving (ipr) ② f at Traversing (ipr) ③ 〃 ap (inch)					Remarks
	Cermet			PVD Coated Carbide		Carbide	Ceramic							
	TN90	TC40	TC60	PR630	PR930	KW10	A65	A66N	GH 40~50	GH 55~70	GH 75~80	GH 100~120		
Carbon Steel	☆ 500~725	☆ 500~725	☆ 325~500	☆ 250~650	★ 250~600	-	-	-	①.0028~.008 ②.0028~.006 ③Max. 0.04	①.0028~.008 ②.0028~.006 ③Max. 0.04	①.004~.010 ②.0039~.008 ③Max. 0.06	①.006~.012 ②.006~.010 ③Max. 0.08		Coolant
Alloy Steel	☆ 425~650	☆ 425~650	☆ 250~425	☆ 250~600	★ 250~525	-	-	-	①.0028~.007 ②.0028~.005 ③Max. 0.04	①.0028~.007 ②.0028~.005 ③Max. 0.04	①.004~.009 ②.004~.007 ③Max. 0.06	①.006~.011 ②.006~0.22 ③Max. 0.08		
Stainless Steel	☆ 230~500	-	☆ 200~325	☆ 200~500	★ 200~425	-	-	-	①.0028~.006 ②.0028~.005 ③Max. 0.04	①.0028~.006 ②.0028~.005 ③Max. 0.04	①.004~.008 ②.004~.007 ③Max. 0.06	①.006~.010 ②.006~0.22 ③Max. 0.08		
Cast Iron	-	-	-	-	-	★ 200~325	☆ 500~1000	☆ 500~1000	KW10 ①.0028~.008 ②.0028~.006 ③Max. 0.04 A65 / A66N ①.0012~.0028 ②Traversing N.A. ③Traversing N.A.	KW10 ①.0028~.008 ②.0028~.006 ③Max. 0.04 A65 / A66N ①.0012~.0028 ②Traversing N.A. ③Traversing N.A.	KW10 ①.004~.010 ②.004~.008 ③Max. 0.06 A65 / A66N ①.0020~.0024 ②Traversing N.A. ③Traversing N.A.	KW10 ①.006~.012 ②.006~.010 ③Max. 0.08 A65 / A66N ①.0020~.0024 ②Traversing N.A. ③Traversing N.A.		
Aluminum	-	-	-	-	-	★ 500~1300	-	-	①.0028~.008 ②.0028~.006 ③Max. 0.04	①.0028~.008 ②.0028~.006 ③Max. 0.04	①.004~.010 ②.004~.008 ③Max. 0.06	①.006~.012 ②.006~.010 ③Max. 0.08		
Brass	-	-	-	-	-	★ 500~1000	-	-	①.0028~.008 ②.0028~.006 ③Max. 0.04	①.0028~.008 ②.0028~.006 ③Max. 0.04	①.004~.010 ②.004~.008 ③Max. 0.06	①.006~.012 ②.006~.010 ③Max. 0.08		
Hard Materials	-	-	-	-	-	-	☆ 130~260	☆ 130~260	①.0008~.0020 ②.0004~.0012 ③Max. 0.004	①.0008~.0020 ②.0004~.0012 ③Max. .008	①.0008~.0020 ②.0004~.0016 ③Max. .008			

* Above cutting condition is for external grooving. Set both cutting speed and feed rate lower than 10% for internal grooving.

★ : 1st Recommendation ☆ : 2nd Recommendation

GHU insert (Molded Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)							① f at Grooving (ipr) ② f at Traversing (ipr) ③ 〃 ap (inch)					Remarks
	Cermet			CVD Coated Carbide	PVD Coated Carbide		Ceramic						
	TN60	TC40	TC60	CR9025	PR630	PR930	A65	A66N	GHU 40	GHU 50	GHU 60			
Carbon Steel	☆ 425~650	-	-	☆ 250~600	-	-	-	-	①.0024~.0047 ②.0020~.004 ③Max. 0.04	①.0024~.0047 ②.0020~.004 ③Max. 0.04	①.0024~.006 ②.0020~.0047 ③Max. 0.06			Coolant
Alloy Steel	☆ 325~600	-	-	☆ 250~525	-	-	-	-	①.0024~.0047 ②.0020~.004 ③Max. 0.04	①.0024~.0047 ②.0020~.004 ③Max. 0.04	①.0024~.006 ②.0020~.0047 ③Max. 0.06			
Stainless Steel	-	-	-	☆ 200~425	-	-	-	-	①.0024~.004 ②.0020~.0031 ③Max. 0.03	①.0024~.004 ②.0020~.0031 ③Max. 0.03	①.0024~.0047 ②.0020~.004 ③Max. 0.05			

* Above cutting condition is for external grooving. Set both cutting speed and feed rate lower than 10% for internal grooving.

★ : 1st Recommendation ☆ : 2nd Recommendation

●: Std Stock ○: World Express

Recommended Cutting Conditions

GA insert (Molded Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)								① f at Grooving (ipr) ② f at Traversing (ipr) ③ 〃 ap (inch)					Remarks
	Cermet				CVD Coated Carbide	PVD Coated Carbide		Carbide						
	TN60	TN90	TC40	TC60	CR9025	PR630	PR930	KW10	GA 30	GA 40	GA 50			
Carbon Steel	☆ 425~650	-	-	-	★ 250~600	-	-	-	①.0024~.007 ②.0020~.006 ③Max. 0.03	①.0024~.008 ②.0020~0.17 ③Max. 0.04	①.0024~.010 ②.0020~.008 ③Max. 0.05			Coolant
Alloy Steel	☆ 325~600	-	-	-	★ 250~525	-	-	-	①.0024~.006 ②.0020~.0047 ③Max. 0.012	①.0024~.007 ②.0020~.006 ③Max. 0.020	①.0024~0.22 ②.0020~.007 ③Max. 0.03			
Stainless Steel	-	-	-	-	★ 200~425	-	-	-	①.0024~.004 ②.0020~.0031 ③Max. 0.03	①.0024~.004 ②.0020~.0031 ③Max. 0.03	①0.06~.0047 ②.0020~.004 ③Max. 0.047			

★ : 1st Recommendation ☆ : 2nd Recommendation

GIA insert (Molded Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)								① f at Grooving (ipr) ② f at Traversing (ipr) ③ 〃 ap (inch)					Remarks
	Cermet				CVD Coated Carbide	PVD Coated Carbide		Carbide						
	TN60	TN90	TC40	TC60	CR9025	PR630	PR930	KW10	GIA 30	GIA 40	GIA 50			
Carbon Steel	☆ 200~400	-	-	-	★ 200~400	-	-	-	①.0016~.0031 ②.0008~.0031 ③Max. 0.012	①.0016~.0024 ②.0008~.0031 ③Max. 0.016	①.0020~.004 ②.0020~.0031 ③Max. 0.020			Coolant
Alloy Steel	☆ 200~325	-	-	-	★ 200~325	-	-	-	①.0016~.0028 ②.0008~.0028 ③Max. 0.012	①.0016~.0028 ②.0008~.0028 ③Max. 0.016	①.0020~.0031 ②.0020~.0031 ③Max. 0.020			
Stainless Steel	-	-	-	-	★ 200~260	-	-	-	①.0016~.0028 ②.0008~.0028 ③Max. 0.012	①.0016~.0028 ②.0008~.0028 ③Max. 0.016	①.0020~.0031 ②.0020~.0031 ③Max. 0.020			

★ : 1st Recommendation ☆ : 2nd Recommendation

GMN insert (CBN / PCD)

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)		① f at Grooving (ipr) ② f at Traversing (ipr) ③ 〃 ap (inch)				Remarks
	CBN	PCD					
	KBN510 KBN525 (KBN10B)	KPD001 (KPD010)	GMN2	GMN3	GMN4 GMN5	GMN6	
Aluminum	-	★ 500~6500	①.0020~.006 ②.0020~.006 ③Max. 0.020	①.0020~.006 ②.0020~.006 ③Max. 0.03	①.0031~.007 ②.0031~.007 ③Max. 0.03	①.0040~.0079 ②.0040~.0080 ③Max. 0.03	Coolant
Brass	-	★ 650~2600	①.0020~.006 ②.0020~.006 ③Max. 0.020	①.0020~.006 ②.0020~.006 ③Max. 0.03	①.0031~.007 ②.0031~.007 ③Max. 0.03	①.0040~.0080 ②.0040~.0080 ③Max. 0.03	
Cast Iron	★ 500~1300	-	①.0016~.0024 ②.0016~.0024 ③Max. 0.012	①.0020~.004 ②.0020~.004 ③Max. 0.020	①.0020~.0047 ②.0020~.0047 ③Max. 0.020	①.0020~.006 ②.0020~.006 ③Max. 0.03	
Hard Materials	★ 260~400	-	①.0008~.0020 ②.0004~.0012 ③Max. 0.004	①.0012~.0028 ②.0004~.0020 ③Max. .008	①.0012~.0031 ②.0012~.0031 ③Max. 0.012	①.0020~.004 ②.0020~.004 ③Max. 0.016	

* Above cutting condition is for external grooving. Set feed rate lower than 20% for face grooving.

★ : 1st Recommendation

FMM • FMN

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)						Face Grooving (FMM type / FMN type) Width inch/mm			Traversing (Case of FMM type) Width inch/mm			Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide							
	TN90	CR9025	PR915	PR930	PR905	KW10	0.12/3.0	0.16/4.0	0.20-0.24/ 5.0-6.0	0.12/3.0	0.16/4.0	0.20-0.24/ 5.0-6.0	
							f (ipr)			f (ipr)			
Carbon Steel	☆ 325~725	☆ 250~650	☆ 250~650	★ 250~650	-	-	.0012~.0020	.0012~.0031	.0020~.0040	.0020~.0040	.0020~.010	.0040~.0120	Coolant
Alloy Steel	☆ 250~650	☆ 225~600	☆ 225~600	★ 225~600	-	-	.0012~.0020	.0012~.0031	.0020~.0040	.0020~.0040	.0020~.010	.0040~.0120	
Stainless Steel	☆ 225~525	☆ 200~500	★ 200~500	☆ 200~500	-	-	.0012~.0020	.0012~.0031	.0020~.0040	.0020~.0040	.0020~.010	.0040~.0120	
Cast Iron	-	-	-	-	★ 250~600	☆ 230~500	.0012~.0020	.0012~.0031	.0020~.0040	.0020~.0040	.0020~.010	.0040~.0120	
Aluminum	-	-	-	-	-	★ 650~1650	.0012~.0020	.0012~.0031	.0020~.0040	.0020~.0040	.0020~.010	.0040~.0120	
Brass	-	-	-	-	-	★ 325~650	.0012~.0020	.0012~.0031	.0020~.0040	.0020~.0040	.0020~.010	.0040~.0120	

Set the feed rate 1/100 of edge width on the first groove and check chip evacuation.

★ : 1st Recommendation ☆ : 2nd Recommendation

FMN type Inserts are only for Deep Grooving, and when used for traversing. set to ap=0.2mm and under.

See the notes below for traversing conditions.

ap and f of FMM

	Recommended Conditions
ap (MAX) mm	under 50% of Edge Width
f (MAX) mm/rev	under 3~5% of Edge Width

- ap≦0.5w
- f≦ [0.03 (Min.)~0.05 (MAX.)] w

ap×f should be as follows.

Load (mm^2) \ Edge Width (mm)	3.0	4.0	5.0	6.0
ap×f	~0.09	~0.14	~0.25	~0.36

- ap×f≦0.01 w^2

●: Std Stock ○: World Express

GV insert (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)						① f at Grooving (ipr) ② f at Traversing (ipr) ③ 〃 ap (inch)						Remarks
	Cermet			PVD Coated Carbide		Carbide	GVR/L 100SS~300SS 100S~300S	GVR/L 145B~185B	GVR/L 200B~280B	GVR/L 300B~400B			
	TN90	TC40	TC60	PR630	PR930	KW10	GVR/L 100A~340A 100AR~150AR		GVR/L 100BR	GVR/L 150BR	GVR/L 280C~300C	GVR/L 340C~400C	GVR/L 430C~500C	
Carbon Steel	☆ 400~600	☆ 400~600	☆ 250~400	☆ 250~525	★ 250~460	-	①.0012~.0031 ②.0012~.0031 ③Max. 0.012	①.0012~.0031 ②.0012~.0031 ③Max. 0.012	①.0016~.0024 ②.0016~.0024 ③Max. 0.012	①.0020~.0047 ②.0020~.004 ③Max. 0.020	①.0016~.0024 ②.0016~.0024 ③Max. 0.012	①.0020~.0047 ②.0020~.004 ③Max. 0.020	①.0020~.0047 ②.0020~.004 ③Max. 0.020	Coolant
Alloy Steel	☆ 325~525	☆ 325~525	☆ 250~100	☆ 250~140	★ 250~400	-	①.0012~.0028 ②.0012~.004 ③Max. 0.012	①.0012~.0028 ②.0012~.004 ③Max. 0.012	①.0016~.0031 ②.0016~.0031 ③Max. 0.012	①.0020~.004 ②.0020~.004 ③Max. 0.020	①.0016~.0031 ②.0016~.0031 ③Max. 0.012	①.0020~.004 ②.0020~.004 ③Max. 0.020	①.0020~.004 ②.0020~.004 ③Max. 0.020	
Stainless Steel	☆ 230~130	-	☆ 200~325	☆ 200~425	★ 200~360	-	①.0012~.0028 ②.0012~.004 ③Max. 0.012	①.0012~.0028 ②.0012~.004 ③Max. 0.012	①.0016~.0031 ②.0016~.0031 ③Max. 0.012	①.0020~.004 ②.0020~.004 ③Max. 0.020	①.0016~.0031 ②.0016~.0031 ③Max. 0.012	①.0020~.004 ②.0020~.004 ③Max. 0.020	①.0020~.004 ②.0020~.004 ③Max. 0.020	
Cast Iron	-	-	-	-	-	★ 200~325	①.0012~.0031 ②.0012~.0031 ③Max. 0.012	①.0012~.0031 ②.0012~.0031 ③Max. 0.012	①.0016~.0024 ②.0016~.0024 ③Max. 0.012	①.0020~.0047 ②.0020~.004 ③Max. 0.020	①.0016~.0024 ②.0016~.0024 ③Max. 0.012	①.0020~.0047 ②.0020~.004 ③Max. 0.020	①.0020~.0047 ②.0020~.004 ③Max. 0.020	
Aluminum	-	-	-	-	-	★ 500~1000	①.0020~.0047 ②.0020~.0047 ③Max. 0.020	①.0020~.0047 ②.0020~.0047 ③Max. 0.020	①.0020~.006 ②.0020~.006 ③Max. 0.020	①.0031~.006 ②.0031~.006 ③Max. 0.03	①.0020~.006 ②.0020~.006 ③Max. 0.020	①.0031~.006 ②.0031~.006 ③Max. 0.03	①.0031~.006 ②.0031~.006 ③Max. 0.03	
Brass	-	-	-	-	-	★ 325~820	①.0020~.0047 ②.0020~.0047 ③Max. 0.020	①.0020~.0047 ②.0020~.0047 ③Max. 0.020	①.0020~.006 ②.0020~.006 ③Max. 0.020	①.0031~.006 ②.0031~.006 ③Max. 0.03	①.0020~.006 ②.0020~.006 ③Max. 0.020	①.0031~.006 ②.0031~.006 ③Max. 0.03	①.0031~.006 ②.0031~.006 ③Max. 0.03	

* Use PVD coated grade or carbide for traversing with edge width 1mm (GVR/L 100SS / 100S / 100A)

★ : 1st Recommendation ☆ : 2nd Recommendation

GVF insert (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)								① f at Grooving (ipr) ② f at Traversing (ipr) ③ 〃 ap (inch)					Remarks
	Cermet				CVD Coated Carbide	PVD Coated Carbide		Carbide	GVFR/L 200A~340A	GVFR/L 250B~350B	GVFR/L 400B~490B	GVFR/L 350C~450C	GVFR/L 500C~600C	
	TN60	TN90	TC40	TC60	CR9025	PR630	PR930	KW10	GVFR/L 100AR~150AR	GVFR/L 150BR	GVFR/L 200BR			
Carbon Steel	-	☆ 500~725	☆ 500~725	☆ 325~500	-	☆ 250~650	★ 250~600	-	①.0012~.0031 ②.0012~.0031 ③Max. 0.012	①.0016~.0024 ②.0016~.0024 ③Max. 0.012	①.0020~.004 ②.0020~.004 ③Max. 0.020	①.0020~.0047 ②.0020~.004 ③Max. 0.020	①.0020~.0047 ②.0020~.004 ③Max. 0.03	Coolant
Alloy Steel	-	☆ 425~650	☆ 425~650	☆ 250~425	-	☆ 250~600	★ 250~525	-	①.0012~.0028 ②.0012~.004 ③Max. 0.012	①.0016~.0031 ②.0016~.0031 ③Max. 0.012	①.0020~.0024 ②.0020~.0024 ③Max. 0.020	①.0020~.004 ②.0020~.004 ③Max. 0.020	①.0020~.004 ②.0020~.004 ③Max. 0.03	
Stainless Steel	-	☆ 230~500	-	☆ 200~325	-	☆ 200~500	★ 200~425	-	①.0012~.0028 ②.0012~.004 ③Max. 0.012	①.0016~.0031 ②.0016~.0031 ③Max. 0.012	①.0020~.0024 ②.0020~.0024 ③Max. 0.020	①.0020~.004 ②.0020~.004 ③Max. 0.020	①.0020~.004 ②.0020~.004 ③Max. 0.03	
Cast Iron	-	-	-	-	-	-	-	★ 200~325	①.0012~.0031 ②0.03~.0031 ③Max. 0.012	①.0016~.0024 ②.0016~.0024 ③Max. 0.012	①.0020~.004 ②.0020~.004 ③Max. 0.020	①.0020~.0047 ②.0020~.004 ③Max. 0.020	①.0020~.0047 ②.0020~.004 ③Max. 0.03	
Aluminum	-	-	-	-	-	-	-	★ 500~1300	①.0020~.0047 ②.0020~.0047 ③Max. 0.020	①.0020~.006 ②.0020~.006 ③Max. 0.020	①.0020~.006 ②.0020~.006 ③Max. 0.03	①.0031~.006 ②.0031~.006 ③Max. 0.03	①.0031~.006 ②.0031~.006 ③Max. 0.03	
Brass	-	-	-	-	-	-	-	★ 500~1000	①.0020~.0047 ②.0020~.0047 ③Max. 0.020	①.0020~.006 ②.0020~.006 ③Max. 0.020	①.0020~.006 ②.0020~.006 ③Max. 0.03	①.0031~.006 ②.0031~.006 ③Max. 0.03	①.0031~.006 ②.0031~.006 ③Max. 0.03	

・The ap should be under 0.5mm if a good surface finish is required.

★ : 1st Recommendation ☆ : 2nd Recommendation

FTK Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)					Edge Width inch/mm					Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide		Carbide	0.16/4.0	0.20/5.0				
	TN90	CR9025	PR660	PR930	KW10	f (ipr)					
Carbon Steel	☆ 400~650	★ 250~600	☆ 200~425	☆ 200~425	-	.0020~.006	.0020~.006				Coolant
Alloy Steel	☆ 325~525	★ 230~500	☆ 200~425	☆ 200~425	-	.0020~.006	.0020~.006				
Stainless Steel	☆ 250~500	☆ 200~450	★ 160~400	☆ 160~400	-	.0020~.006	.0020~.006				
Cast Iron	-	-	-	-	★ 160~325	.0040~.0120	.0040~.0120				
Aluminum	-	-	-	-	★ 650~1500	.0020~.010	.0020~.010				
Brass	-	-	-	-	★ 325~650	.0020~.010	.0020~.010				

★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Cutting Conditions

GMG • GMM • GMN • GMGA

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)						Grooving				Traversing				Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	Width inch/mm				Width inch/mm				
	TN90	CR9025	PR915	PR930	PR905	KW10	0.08~0.12/ 2.0~3.0	0.16/4.0	0.20/5.0	0.24~0.32/ 6.0~8.0	0.08~0.12/ 2.0~3.0	0.16/4.0	0.20/5.0	0.24~0.32/ 6.0~8.0	
							f (ipr)				f (ipr)				
Carbon Steel	☆ 325~725	☆ 250~650	☆ 250~650	★ 250~650	-	-	.0020~.006	.0040~.010	.006~0.35	0.20~0.35	.0040~.0079	.006~.0120	.008~.016	.010~0.40	Coolant
Alloy Steel	☆ 250~650	☆ 225~600	☆ 225~600	★ 225~600	-	-	.0020~.006	.0040~.010	.006~0.35	0.20~0.35	.0040~.0080	.006~.0120	.008~.016	.010~0.40	
Stainless Steel	☆ 230~525	☆ 200~500	★ 200~500	☆ 200~500	-	-	.0020~.006	.0040~.0079	.006~0.35	0.20~0.35	.0040~.0079	.006~.010	.008~.016	.010~0.40	
Cast Iron	-	-	-	-	★ 325~650	☆ 230~500	.0020~.0079	.0040~.0120	.006~0.40	.008~.016	.0040~.010	.006~0.35	.008~.018	.010~.016	
Aluminum	-	-	-	-	-	★ 650~1650	.0020~.0079	.0031~.010	.0040~.010	.0047~.0120	.0040~.0079	.0040~.010	.0040~.010	.006~0.30	
Brass	-	-	-	-	-	★ 325~650	.0020~.006	.0031~.0079	.0040~.010	.0047~.0120	.0040~.0079	.0040~.010	.0040~.010	.006~.0120	

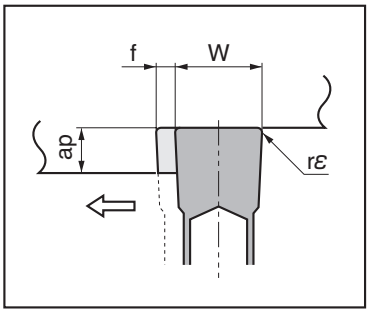
★ : 1st Recommendation ☆ : 2nd Recommendation

◆ See the notes below for traversing conditions.

① Case of KGM Toolholder

	Recommended Conditions
ap (MAX) mm	under 80% of Edge Width
f (MAX) mm/rev	under 10% of Edge Width

• ap≦0.8w
• f≦0.1w



(ap)×(f) shall not exceed 1/2 of ap(Max)×f(Max)

Load (mm^2) \ Edge Width (mm)	2.0~2.5	3.0	4.0	5.0	6.0	8.0
ap×f	~0.20	~0.36	~0.64	~1.00	~1.44	~2.56

• ap×f≦ $\frac{1}{2}$×0.8w×0.1w=0.04w^2

② Case of KGM-T Toolholder (Deep Grooving Type) : Use 90% of KGM conditions

③ Case of KGMM / KGMS / KFMS-8 Toolholder

	Recommended Conditions
ap (MAX) mm	under 50% of Edge Width
f (MAX) mm/rev	under 4% of Edge Width

• ap≦0.5w
• f≦0.04w

ap×f should be as follows. (Under 50% of KGM)

Load (mm^2) \ Edge Width (mm)	2.0~2.5	3.0	4.0	5.0	6.0	8.0
ap×f	~0.10	~0.18	~0.32	~0.50	~0.72	~1.28

• ap×f≦0.02w^2

④ Case of KIGM Toolholder

	Recommended Conditions
ap (MAX) mm	under 70% of Edge Width
f (MAX) mm/rev	under 8% of Edge Width

• ap≦0.7w
• f≦0.08w

ap×f should be as follows. (Under 70% of KGM)

Load (mm^2) \ Edge Width (mm)	3.0	4.0	5.0
ap×f	~0.25	~0.44	~0.70

• ap×f≦0.04w^2

GMG / GMM / GMGA 8030 (Face Grooving)

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)						Face Grooving			Traversing			Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	Width inch/mm			Width inch/mm			
	TN90	CR9025	PR915	PR930	PR905	KW10	0.32/8.0			0.32/8.0			
							f (ipr)			f (ipr)			
Carbon Steel	☆ 325~725	☆ 250~525	☆ 250~525	★ 250~525	-	-	.004~.008			.004~.010			Coolant
Alloy Steel	☆ 250~525	☆ 230~525	☆ 230~525	★ 230~525	-	-	.004~.008			.004~.010			
Stainless Steel	☆ 230~460	☆ 200~425	★ 200~425	☆ 200~425	-	-	.004~.008			.004~.010			
Cast Iron	-	-	-	-	★ 250~600	☆ 230~425	.004~.012			.004~0.35			
Aluminum	-	-	-	-	-	★ 200~300	.0031~.010			.0031~.0120			
Brass	-	-	-	-	-	★ 325~500	.0031~.010			.0031~.0120			

★ : 1st Recommendation ☆ : 2nd Recommendation

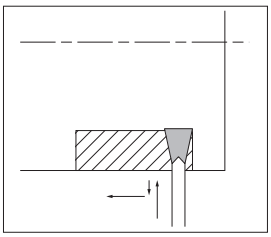
●: Std Stock ○: World Express

Guide for External Grooving

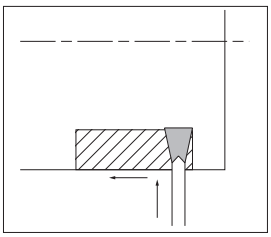
Point (Ⅰ) (Traversing after Grooving)

① Grooving Depth Over 0.5mm: At roughing (Refer to Fig.1)
Before traversing, pull the tool back about 0.1mm after grooving, 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 Depth under 0.5mm: At finishing (Refer to Fig.2)
Traversing subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.
(Dwell-motion is not necessary.)



Before traversing, pull the tool back about 0.1mm after grooving (Grooving Depth Over 0.5mm: At roughing)
Fig.1



Traversing subsequent to grooving (Grooving Depth under 0.5mm: At finishing)
Fig.2

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, ap over 0.5mm is recommended.)
Note: If the workpiece is not supported at the center, reduce the feed rate when grooving towards center

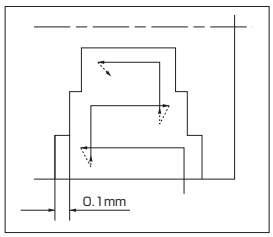


Fig.3

Guide for Face Grooving

〈Toolholder Selection〉

① Choose the best tool depending on the groove width.
The machining Dia. øD listed in the catalog indicates the depth of the first plunge of face grooving as shown in Fig.1.

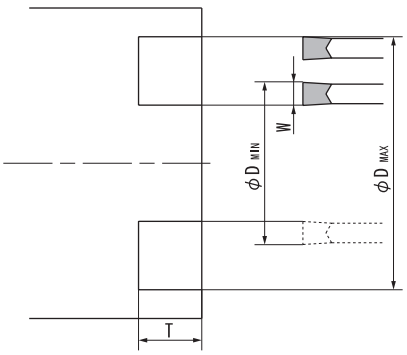


Fig.1

② Confirm Grooving Depth (dimension T)

③ Toolholder's hand is recommended so as to be mounted in reverse.（Fig.2）
This will provide smooth chip flow and chip clearance.

Toolholder	R-hand
Insert	(No Hand)

Toolholder	L-hand
Insert	(No Hand)

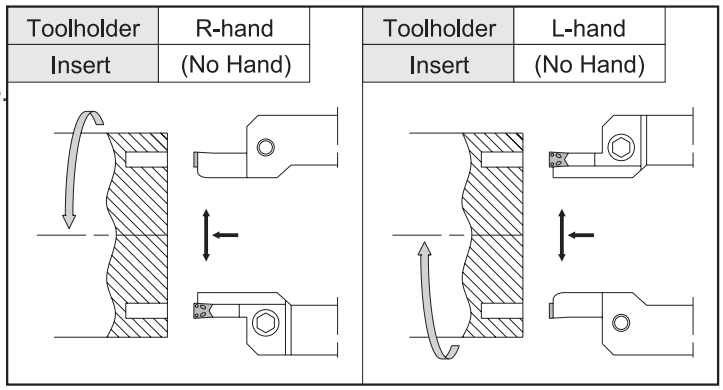


Fig.2 Toolholder's Hand and Rotation

〈Traversing Tips〉

Traversing direction should be from the outer diameter to the inner diameter as shown in Fig.3.
This improves chip evacuation.

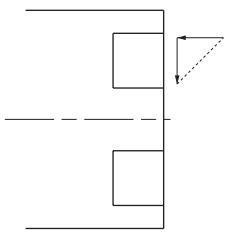
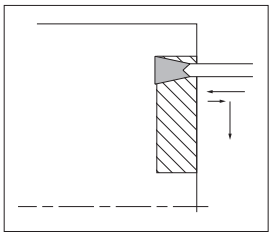


Fig.3

Guide for Face Grooving (Continued)

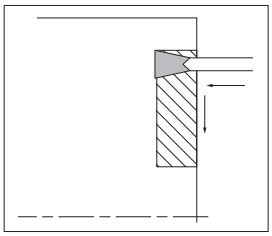
Point (Ⅰ) (Traversing after Grooving)

① Grooving Depth Over 0.5mm: At roughing (Refer to Fig.4)
Before traversing, pull the tool back about 0.1mm after grooving, 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.)



Before traversing, pull the tool back about 0.1mm after grooving
(Grooving Depth Over 0.5mm: At roughing)
Fig.4

② Grooving Depth under 0.5mm: At finishing (Refer to Fig.5)
Traversing subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.
(Dwell-motion is not necessary.)



Traversing subsequent to grooving
(Grooving Depth under 0.5mm: At finishing)
Fig.5

Point (Ⅱ)

When widening the groove width, apply the “Step Turning” as shown in Fig.6.
The widened groove and side walls should be finished last.
(For better chip control, ap over 0.5mm is recommended.)

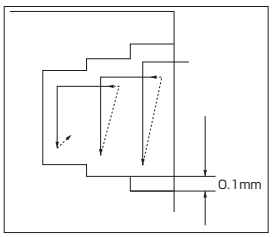
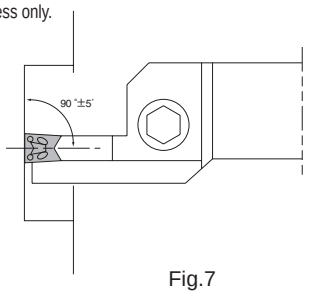


Fig.6

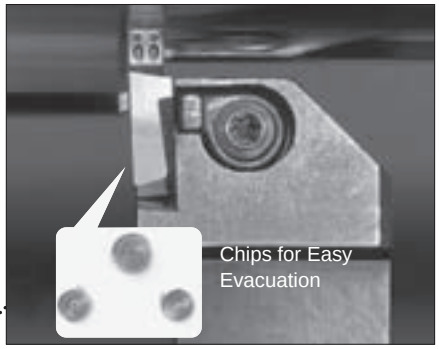
Trouble shooting

Trouble	Countermeasures
Whitish trace remains at the groove bottom.	① Increase the cutting speed for finishing process only. (This can handle most of the cases). If the method is not successful, try ② as follows. ② Check the insert edge's parallelness. (Adjustment: Apply the insert edge to the work face and adjust the toolholder within the angle of ±5'. (Fig.7)  Fig.7
Chips are entangled.	① Apply the toolholder's reverse mounting. Adjust the coolant flow to the cutting edge. ② When widening the groove, do not machine one deep groove. Instead, repeat shallow grooving and turning.
Insert cracks when traversing.	Reverse the facing direction.
Groove is not straight.	Check the edge's parallelness. Decrease the feed rate.

●: Std Stock ○: World Express

Guide for Grooving by Cermet Insert (Steel)

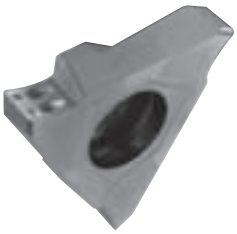
1. Set the f under 0.12mm/rev (0.05~0.10mm/rev normally).
2. Coolant is recommended.
3. Set the cutting speed V_C=150-220m/min.
4. Set the toolholder overhang as short as possible.



How to Improve Surface Finish (when surface roughness below 3 μm Rz is required)

1. Increase the cutting speed (V_C=220m/min.MAX)
2. Program dwell-motion at the groove bottom.
3. Apply a light hone to the cutting edge by hand lapper.

Chip Control of Grooving Insert with Molded Chipbreaker

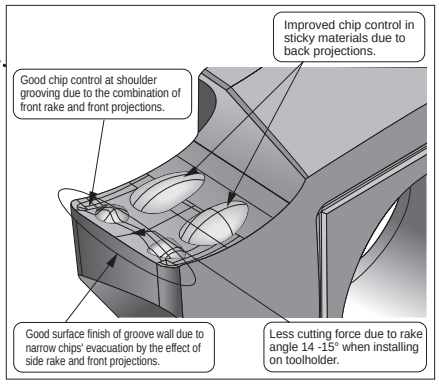


GBA-MY

3-Edge Molded Chipbreaker

- Advantages of MY Chipbreaker

1. Molded chipbreaker curls chips spirally and evacuates chips easily.
2. High precision molded Insert with economical 3 cutting edges.
3. Can be used in automated production.



Alternative Toolholder Reference Table for Grooving Toolholder

Conventional Toolholder						Alternative Toolholder				
Description		Overall length (mm)	Spare Parts: Clamp Screw	Spare Parts: Wrench	Spare Parts: Wrench	Description		Overall length (mm)	Remarks	Ref. Page
KTGF R/L	1010K-16F	125	SB-4070TRW	FT-8	-	KTGF R/L	1010JX-16F	120		G16
	1212M-16F	150					1212JX-16F	120		
	1616M-16F	150					1616JX-16F	120		
KGM R/L	0810K-1.5-125	125	SE-40120TR	-	LTW-15S	-		-	No replacement	G36
	1010K-1.5-125	125				KGM R/L	1010JX-1.5	120		
	1212M-1.5-150	150					1212JX-1.5	120		
KGM R/L	0810K-2-125	125	SE-40120TR	-	LTW-15S	-		-	No replacement	
	1010K-2-125	125				KGM R/L	1010JX-2	120		
	1212M-2-150	150					1212JX-2	120		
	1616M-2-150	150	SE-50125TR	-	LTW-20		1616JX-2	120		
KGM R/L	1010K-2.5-125	125	SE-40120TR	-	LTW-15S	KGM R/L	1010JX-2.5	120		
	1212M-2.5-150	150					1212JX-2.5	120		
	1616M-2.5-150	150	SE-50125TR	-	LTW-20		1616JX-2.5	120		
KGM R/L	1616M-3-150	150	SE-50125TR	-	LTW-20	KGM R/L	1616JX-3	120		

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

Cut-Off



H

H1~H29

Product Lineup H2

Cut-Off Guide H3

Cut-Off Summary H4~H5

Cut-Off Toolholders (for small diameter cut-off) H6~H11

KTKF	Lateral side screw clamp holder	H8
KTKFS (For sub spindle tooling)	Lateral side screw clamp holder	H10

Cut-Off Toolholders (for 2-edge insert) H12~H17

KGD	Integral Toolholder	H14
KGD-S	Separate Toolholder	H16

Cut-Off Toolholders (for 2-edge insert) **Grooving / Plunge R/L Turn** H18~H21

KGM (For automatic lathe)	Integral Toolholder	H20
KGM	Integral Toolholder	H20
KGM-T	Integral Toolholder	H21

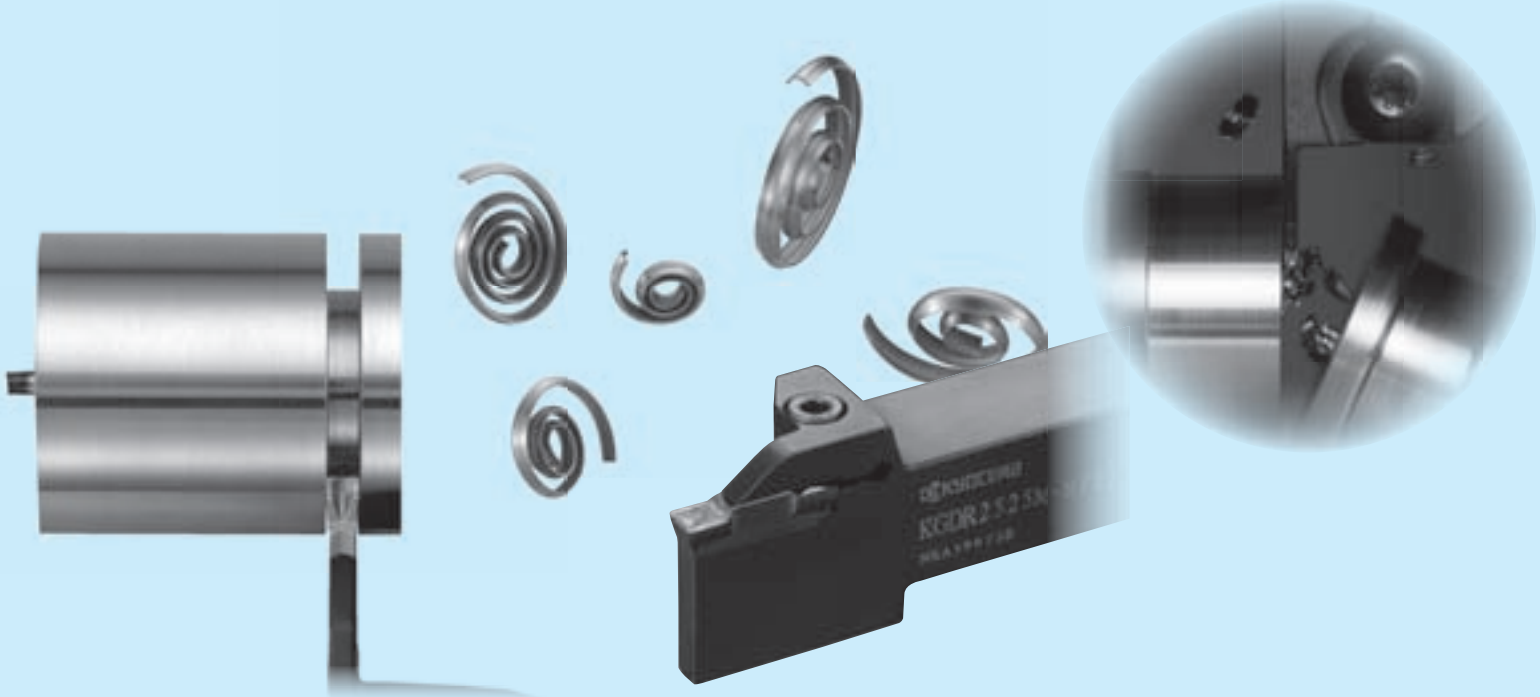
Cut-Off Toolholders (for 1-edge insert) Cut-Off H22~H27

KTKB-SS / KTKB-S	Blade	H24
KTKTB / KTKTBF	Toolblock	H25
KTKH-S	Integral Toolholder	H26

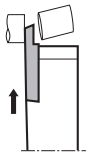
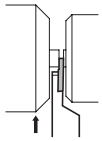
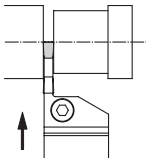
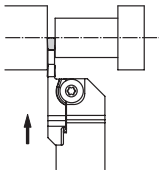
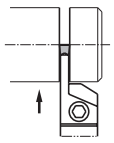
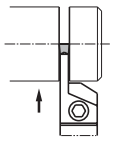
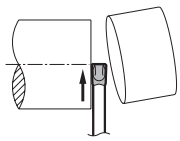
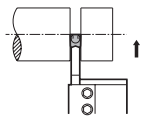
Technical Information H28~H29

Recommended Cutting Conditions H28

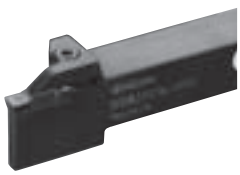
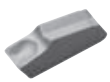
Alternative Toolholder Reference Table for Cut-off Toolholder H29



Product Lineup

KTKF/ KTKFS For Small Diameter Cut-Off	Toolholder (Long Shank for automatic lathe) Cut-Off Dia. ø5~ø12 ~ø16	**KTKF** (H8)  Width: 0.5~2.0 mm		For sub spindle tooling Cut-Off Dia. ø6~ø12 ø14~ø16	**KTKFS** (H10)  Width: 1.0~2.0 mm
NEW **KGD** For Grooving and Cut-off	Bolt Clamp Cut-Off Dia. ø12~ø50	**KGD** (H14)  Width: 2.0~4.0mm	**KGD-S** (H16)  Width: 2.0~4.0mm		
KGM/ KGM-T CERACUT / Plunge & Turn (2-edge)	Bolt Clamp Cut-Off Dia. ø18~ø60	**KGM** (H20)  Width: 1.5~4.0mm, 3~8mm	**KGM-T** (H21)  Width: 2.0~6.0mm		
KTKH-S/ KTKB-S CERACUT Cut-Off (1-edge)	Toolholder Type Cut-Off Dia. ø30~ø79	**KTKH-S** (H26)  Width: 2.2~5.1mm		Blade type Cut-Off Dia. ø32~ø120	**KTKB-S(S)** (H24)  Width: 1.6~9.6mm

Cut-Off Tools

Series Name	Shape	Advantages	Application
For Small Diameter Cut-Off		1) Insert clamp is side screw type from lateral side 2) 2-edge Insert 3) Cut-off Diameter is prepared for two sizes from ø5~ø12 and max.ø16.	1) For cut-off and grooving of small workpieces 2) For automatic lathe, small machine
NEW KGD		1) Insert is clamped from top side. 2) 1-edge and 2-edge inserts available 3) Integral-Style and SwitchBlade-Style are available. 4) Max. Cutting Dia.: ø50	1) PM Chipbreaker···For Cut-Off 2) PH Chipbreaker···For Cut-Off (High Feed) For Grooving
CERACUT / Plunge & Turn		1) Insert is clamped from top side 2) 1-edge and 2-edge inserts available 3) Max. Cutting Dia.: ø60	1) For cut-off and grooving of small workpieces 2) For automatic lathe, small machine 3) TMR-Chipbreaker provides stable chip control up to high feed rate ranges.
CERACUT Cut-Off		1) Self-Clamping System Tap the insert lightly with a plastic hammer to set it in the pocket. 2) 1-edge insert 3) Blade type and Integral Shank type 4) Max. Cutting Dia.: ø120	1) For cut-off and deep grooving 2) Standard chipbreaker is general cut-off type. Feed rate : over 0.004 ipr  P-Chipbreaker is for cut-off at low feed rates Feed rate : 0.0012~0.0031 ipr 

Tool Selection

		For Small Dia. Cut-Off	KGD	CERACUT / Plunge & Turn	CERACUT Cut-Off
Insert	1. Insert 1-edge Insert … For Larger Dia. Workpiece (Max.ø120)	-	-	-	○
	2-edge Insert … For Smaller Dia. Workpiece Cost per corner is reduced	○	○	○	-
	2. Use a neutral angle insert if there is no limit to the finished shape.	TKF...S TKF...NB TKFS...S	GDM GDMS	GMM	TKN
	3. Use angled insert to reduce the size of the remaining boss.	TKF...DR	GDM-R-6D GDMS-R-6D (➡Fig.2)	GMM-& (➡Fig.2)	TK& (➡Fig.1)
	4. Use sharp-cornered lead-angled Insert to make the remaining boss much smaller when machining small parts and thin parts.	TKF...DR	-	GMM-& (➡Fig.2)	-
	5. Use the minimum width insert suitable for the machining operation.			○	○
Toolholder	1. Use a suitable toolholder (blade) for the workpiece dia.	○	○	○	○
	2. Use a more rigid toolholder (blade).	○	○	○	○
	3. Use a back clamp toolholder if there is no space for clamping tools from top side (Automatic Lathe).	○	-	-	-

How to Set Up (TKN / TK%)

1. Tap the insert lightly with a plastic hammer to push it in to the extent that it can not be removed by hand.	-	-	-	○ (➡Fig.3)
2. Remove the insert by using the supplied wrench.	-			○ (➡Fig.4)

Caution

1. Set the cutting edge height 0.1-0.2mm above the center height.	○ (➡Fig.5)	○ (➡Fig.5)	○ (➡Fig.5)	○ (➡Fig.5)
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.	○	○	○	○

○: Applicable —: Not Applicable

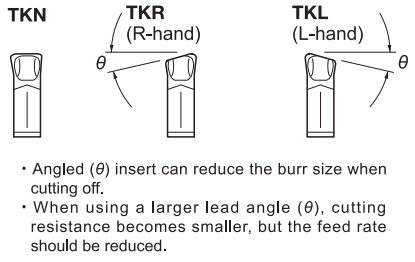


Fig.1

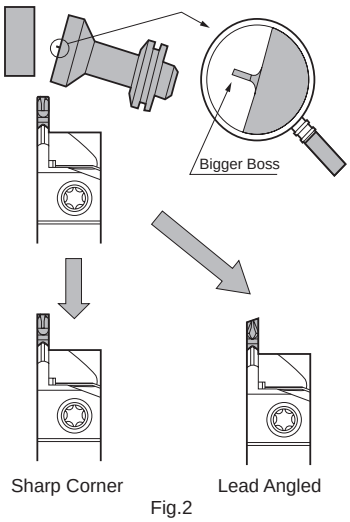


Fig.2

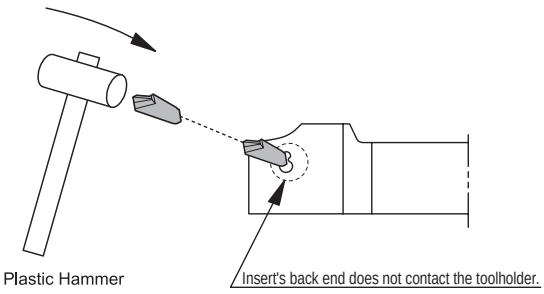


Fig.3

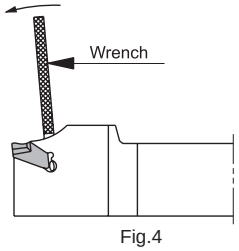


Fig.4

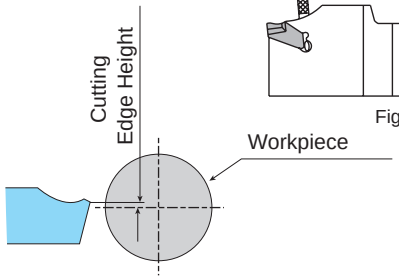
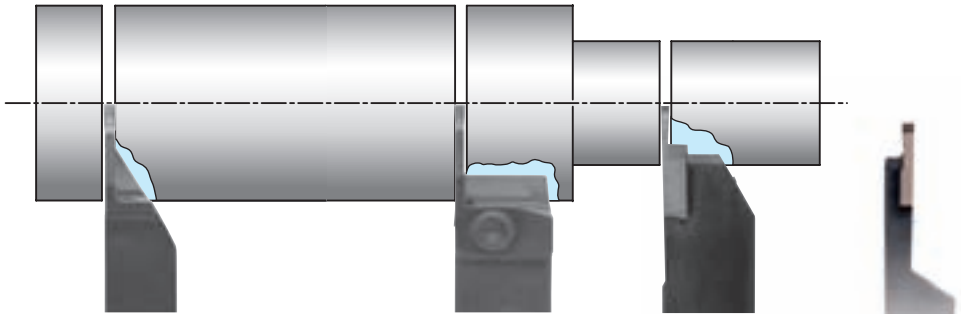


Fig.5

Cut-Off Summary

Small Dia. Cut-Off ~Φ1.77in

Small Shank



KTKH	KGM	KTKF	KTKFS
Cutting Dia: ~ø45mm / 1.30" Shank: 10~25mm / .375-.500" Edge Width: 2.2~4.1 / .063-.094" Self Clamp	Cutting Dia: ~ø32mm / .984" Shank: 10~16mm / .375-.500" Edge Width: 1.5~4.0 / .079-.118" Top Clamp	Cutting Dia: ~ø16 / .625" Shank: 10~16mm / .375-.625" Edge Width: 0.5~2.0 / .020-.079" Lateral Side Clamp	Cutting Dia: ~ø16 Shank:10~12 / .375-.500" Edge Width: 1.0~2.0 .059-.098" Lateral Side Clamp
➡ H26	➡ H20	➡ H8	➡ H10



Chipbreaker for General Cut-Off

Chipbreaker for Low Feed Cut-Off



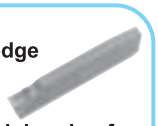
2-edge

Chipbreaker for Sharp Cutting



2-edge

Chipbreaker for Stability



1-edge

Chipbreaker for Stability



2-edge

Chipbreaker for Productivity

KTKF
KTKFS



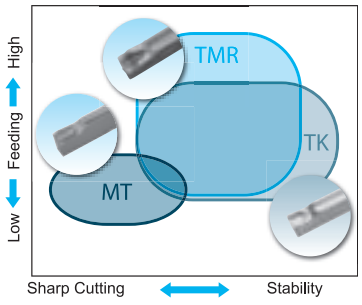
2-edge

Low resistance cut-off Chipbreaker

Chipbreaker edge shape	CERACUT Cut-Off ➡ H23		
	General Cut-Off		Low Feed Cut-Off
	Chamfer + hone	Sharp Edge	Hone
			

Chipbreaker edge shape	Grooving / Plunge&Turn ➡ H18				
	Sharp Cutting (MT-Chipbreaker)		Stable Cutting (TK-Chipbreaker)		Productivity Oriented (TMR-Chipbreaker)
	Chamfer + hone	Chamfer + hone	Chamfer + hone	Sharp Edge	Chamfer + hone
	Corner-R 0.05	Sharp Corner	Corner-R 0.2-0.3	Corner-R 0.2-0.3	Corner-R 0.2
					

GMM Chipbreaker MAP





CERACUT Cut-Off
➡ H26 (Self Clamp)



CERACUT / Plunge & Turn
➡ H20 (Top Clamp)

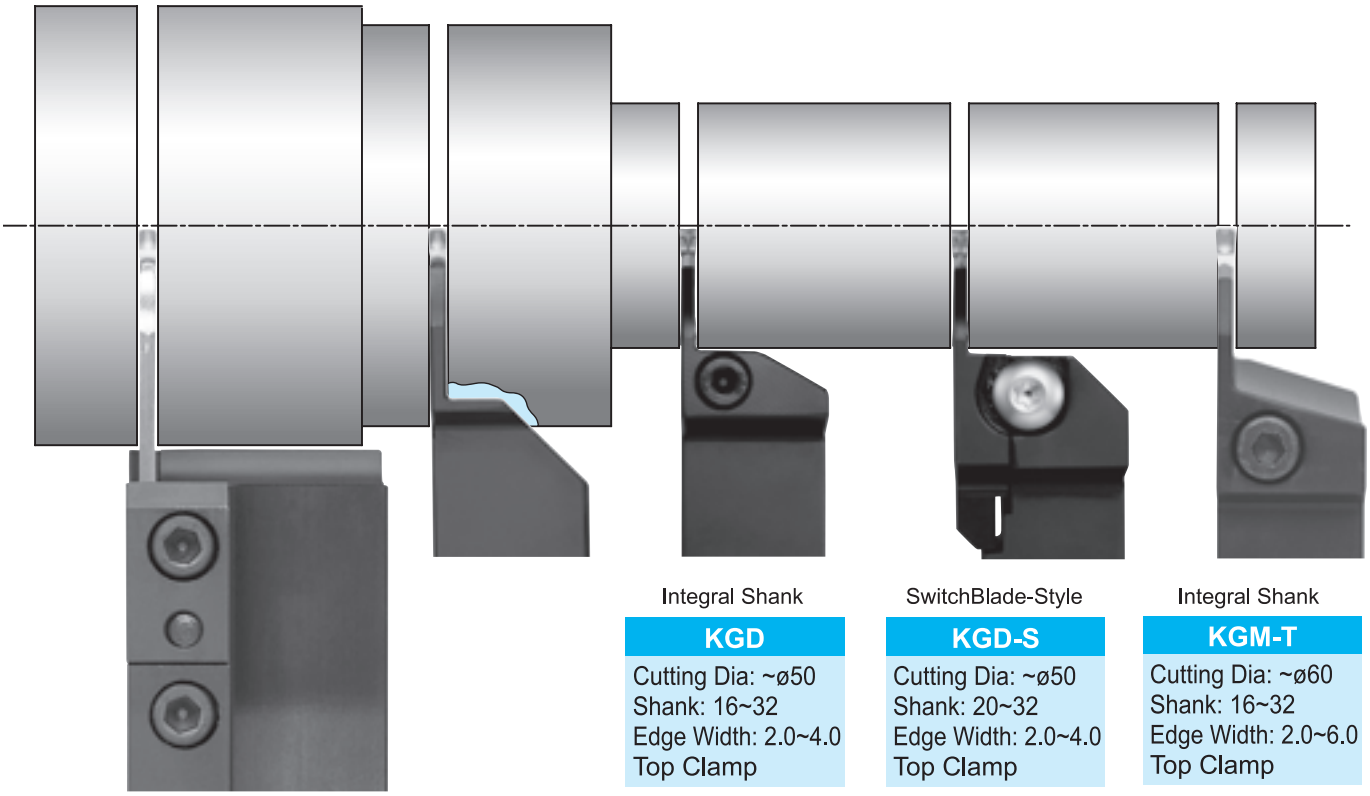


For Small Diameter Cut-Off
➡ H10 (Lateral Side Clamp)

H

Cut-Off

General Cut-Off ~Φ4.72in



Integral Shank

KGD

Cutting Dia: ~ø50
Shank: 16~32
Edge Width: 2.0~4.0
Top Clamp

SwitchBlade-Style

KGD-S

Cutting Dia: ~ø50
Shank: 20~32
Edge Width: 2.0~4.0
Top Clamp

Integral Shank

KGM-T

Cutting Dia: ~ø60
Shank: 16~32
Edge Width: 2.0~6.0
Top Clamp

H14 H16 H21

Blade + Toolblock

KTKB

Cutting Dia: ~ø120
Shank: 16~32
Edge Width: 1.6~9.6
Self Clamp

Integral Shank

KTKH

Cutting Dia: ~ø79
Shank: 20~25
Edge Width: 3.1~5.1
Self Clamp

H24 H26



Chipbreaker for General Cut-Off

Chipbreaker for Low Feed Cut-Off

2-edge Good chip control

1-edge Good chip control

2-edge High feed rate

1-edge High feed rate



2-edge

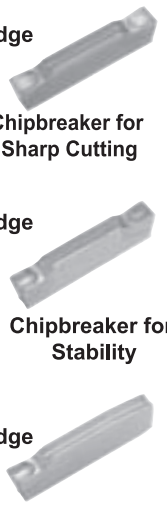
Chipbreaker for Sharp Cutting

2-edge

Chipbreaker for Stability

1-edge

Chipbreaker for Stability



Blade + Toolblock	SwitchBlade-Style	Integral Shank		
				
CERACUT Cut-Off H24	KGD-S H15	CERACUT Cut-Off H26	KGD H14	CERACUT / Plunge & Turn H20

Cut-Off Toolholders (for small diameter)

TKF

Classification of usage						
● : Continuous-Low Interruption / 1st Choice ◔ : Continuous-Low Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	P	Carbon Steel / Alloy Steel	NEW ●	●	◔	
	M	Stainless Steel	◔	●	◔	
	K	Cast Iron				●
	N	Non-ferrous Metals				●

Applicable Inserts (TKF12)

Insert (Handed Insert shows Right-hand)	Description	W (inch)	W (mm)	øD max	rε	T	H	ød	θ	MEGACOAT NANO PR1425 R	MEGACOAT NANO PR1425 L	MEGACOAT PR1225 R	MEGACOAT PR1225 L	PVD Coated Carbide PR1025 R	PVD Coated Carbide PR1025 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Toolholder
NEW  Right lead angle	TKF12R/L 050-S-16DR	0.020	0.5	5	0.03	3	8.7	5	16°	●	●	●		○	○	○	○	H8
	070-S-16DR	0.028	0.7	8						●	●	●		●	●	○	○	
	100-S-16DR	0.039	1.0	12						●	●	●	●	●	○	○	○	
	125-S-16DR	0.049	1.25							●	●							
	150-S-16DR	0.059	1.5							●	●	●	●	●	○	○	○	
	200-S-16DR	0.079	2.0							●	●	●	●	○	○	○	○	
NEW 	TKF12R/L 050-S	0.020	0.5	5	0.03	3	8.7	5	0°	●	●	●		○	○	●	●	
	070-S	0.028	0.7	8						●	●	●		●	○	●	●	
	100-S	0.039	1.0	12						●	●	●	●	●	○	○	●	
	125-S	0.049	1.25							●	●							
	150-S	0.059	1.5							●	●	●	●	●	○	○	○	
	200-S	0.079	2.0							●	●	●	●	○	○	○	○	
NEW  Right lead angle Tough Edge	TKF12R/L 100-T-16DR	0.039	1.0	12	0.08	3	8.7	5	16°	●	●	●	●					
	150-T-16DR	0.059	1.5							●	●	●	●					
	200-T-16DR	0.079	2.0							●	●	●	●					
NEW  Tough Edge	TKF12R/L 100-T	0.039	1.0	12	0.08	3	8.7	5	0°	●	●	●	●					
	150-T	0.059	1.5							●	●	●	●					
	200-T	0.079	2.0							●	●	●	●					
NEW  Right lead angle	TKF12R/L 050-NB-20DR	0.020	0.5	5	0	3	8.7	5	20°	●	●			○	○	○	○	
	070-NB-20DR	0.028	0.7	8						●	●			○	○	○	○	
	100-NB-20DR	0.039	1.0	12						●	●			●	○	●	○	
	150-NB-20DR	0.059	1.5							●	●			○	○	○	○	
	200-NB-20DR	0.079	2.0							●	●			○	○	○	○	
NEW  Without Chipbreaker	TKF12R/L 050-NB	0.020	0.5	5	0	3	8.7	5	0°	●	●			○	○	●	●	
	070-NB	0.028	0.7	8						●	●			○	○	●	●	
	100-NB	0.039	1.0	12						●	●			○	○	○	○	
	150-NB	0.059	1.5							●	●			○	○	○	○	
	200-NB	0.079	2.0							●	●			○	○	○	○	

- Lead angle shows the angle when installed in 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.

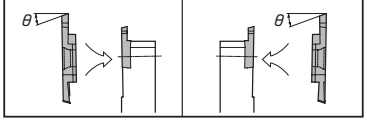
Identification of Description (See Table.1)

TKF 12 R 050 — S — 16D R

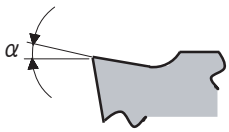
Name of Insert	Insert Size	Insert Hand	Groove Width	Name of breaker	Lead angle (θ) (Front cutting edge angle)	Lead Angle Hand
		R:R-hand L:L-hand		S: S-Chipbreaker NB: Without Chipbreaker		R:R-hand L:L-hand

Table1

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

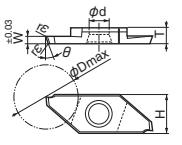
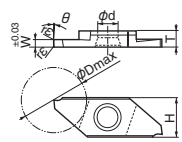
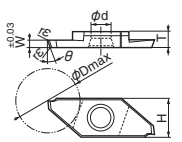
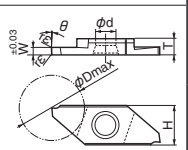
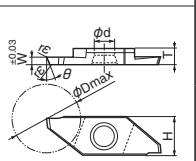
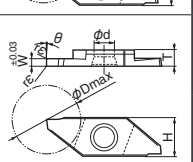
Edge Shape \ Chipbreaker	S-Chipbreaker α	S-Chipbreaker Description	T-Chipbreaker (Tough Edge) α	T-Chipbreaker (Tough Edge) Description	NB-Chipbreaker α	NB-Chipbreaker Description
	15°	TKF12..-S	12°	TKF..-T TKF..-T-16DR	0°	TKF..-NB TKF..-NB-20DR
	20°	TKF16..-S TKF16..-S-16DR				
	25°	TKF12..-S-16DR				

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express R : R-hand Only

Applicable Inserts (TKF16)

Classification of usage				NEW			
●: Continuous-Low Interruption / 1st Choice ◔: Continuous-Low Interruption / 2nd Choice ●: Continuous / 1st Choice ○: Continuous / 2nd Choice	P	Carbon Steel / Alloy Steel	●	●	◔		Ref. Page for Toolholder
	M	Stainless Steel	◔	●	◔		
	K	Cast Iron				●	
	N	Non-ferrous Metals				●	

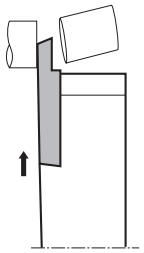
Insert (Handed Insert shows Right-hand)	Description	Dimension (mm)							Angle (°)	MEGACOAT				PVD Coated Carbide		Carbide		Ref. Page for Toolholder
		W (inch)	W (mm)	øD max	rε	T	H	ød	θ	PR1425		PR1225		PR1025		KW10		
										R	L	R	L	R	L	R	L	
NEW  Right lead angle		TKF16R/L 150-S-16DR	0.059	1.5	16	0.05	4	9.5	5	16°	●	●	●	●	●	○	○	○	H8
		200-S-16DR	0.079	2.0							●	●	●	●	○	●	○	○	
NEW 		TKF16R/L 150-S	0.059	1.5	16	0.05	4	9.5	5	0°	●	●	●	●	●	○	○	○	
		200-S	0.079	2.0							●	●	●	●	●	○	○	○	
NEW  Right lead angle Tough Edge		TKF16R/L 150-T-16DR	0.059	1.5	16	0.08	4	9.5	5	16°	●	●	●	●					
		200-T-16DR	0.079	2.0							●	●	●	●					
NEW  Tough Edge		TKF16R/L 150-T	0.059	1.5	16	0.08	4	9.5	5	0°	●	●	●	●					
		200-T	0.079	2.0							●	●	●	●					
NEW  Right lead angle / Without Chipbreaker		TKF16R/L 150-NB-20DR	0.059	1.5	16	0	4	9.5	5	20°	●	●			○	○	○	○	
		200-NB-20DR	0.079	2.0							●	●			●	○	○	○	
NEW  Without Chipbreaker		TKF16R/L 150-NB	0.059	1.5	16	0	4	9.5	5	0°	●	●			○	○	○	○	
		200-NB	0.079	2.0							●	●			○	●	○	○	

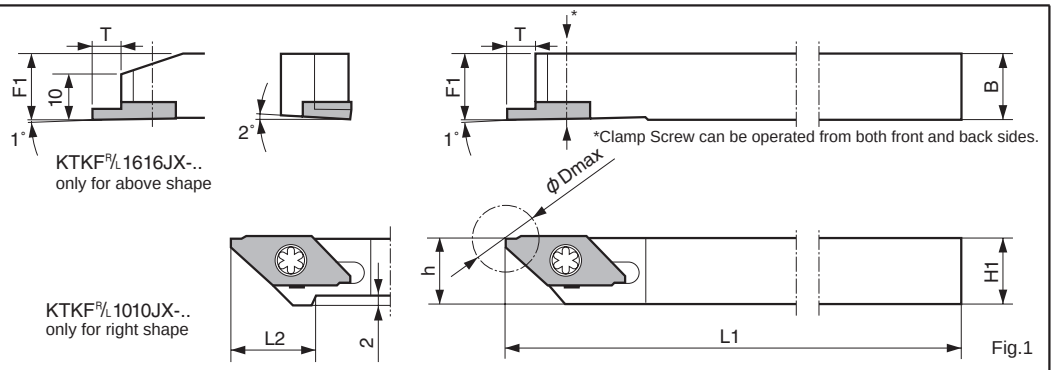
・Lead angle shows the angle when installed in toolholder.
・As Fig.1 of H8 shows, the cutting diameter of the insert is indicated when the top of the cutting edge progresses 1mm from the center.

● : Std. Stock ○ : World Express R : R-hand Only

Inserts are sold in 10 piece boxes.

KTKF (for small diameter cut-off)





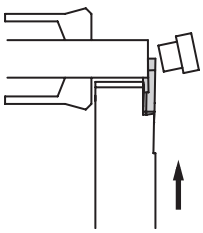
KTKF R/L 1616JX-..
only for above shape

KTKF R/L 1010JX-..
only for right shape

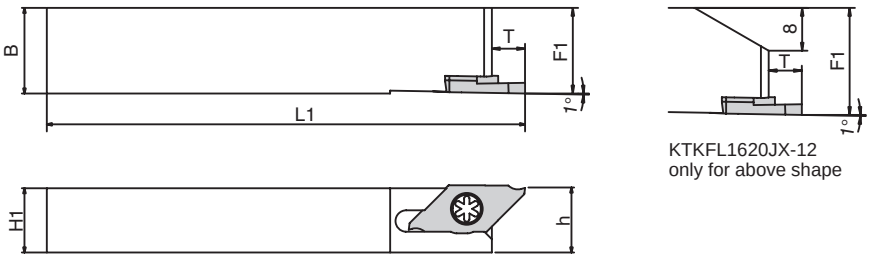
Fig.1

● Right-hand shown

R-hand Insert for R-hand Toolholder.



<Goose-neck Holder>



KTKFL1620JX-12
only for above shape

Fig.2

● Light-hand shown

L-hand Insert for L-hand Toolholder.

● Toolholder Dimensions

Description		Std. R	Std. L (NEW)	Unit	Dimension H1=h	B	L1	L2	F1	T	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable Inserts ➡ H6,H7
KTKF R/L	6-12JX	●	●	inch	0.375	0.375	4.750	0.590	0.375	0.236	Fig.1			TKF12 R/L …
	8-12JX	●	●		0.500	0.500		-	0.500					
	10-12JX	●	●		0.625	0.625		-	0.625					
	6-16JX	●	●		0.375	0.375		0.787	0.375	0.630				TKF16 R/L …
	8-16JX	●	●		0.500	0.500		-	0.500					
	10-16JX	●	●		0.625	0.625		-	0.625					
KTKFL	52-12JX	●	●		0.500	0.625		-	0.625	0.236	Fig.2			TKF12 R/L …
	62.5-12JX	●	●		0.625	0.750		-	0.750					
KTKF R/L	1010JX-12	○	○	mm	10	10	120	15	10	6	Fig.1	SB-4590TRWN	LTW-10S	TKF12 R/L …
	1212JX-12	○	○		12	12		-	12					
	1616JX-12	○	○		16	16			16					
KTKF R/L	1010JX-16	○	○		10	10	120	20	10	8		SB-4590TRWN	LTW-10S	TKF16 R/L …
	1212JX-16	○	○		12	12		-	12					
	1616JX-16	○	○		16	16			16					
KTKF R/L	1212F-12	○			12	12	85	-	12	6		SB-4590TRWN	LTW-10S	TKF12 R/L …
	1212F-16	○								8				TKF16 R/L …
KTKFL (NEW)	1216JX-12		○		12	16	120	-	16	6	Fig.2	SB-4590TRWN	LTW-10S	TKF12L …
	1620JX-12		○		16	20			20					

• Dimension T shows the distance from the Toolholder to the cutting edge. ➡ H6,H7 for the actual cutting diameter.

For recommended cutting conditions, see page ➡ H28

Note: Cutting diameter of -12 type toolholder(øDmax) depends on the insert grooving width.

● : Std. Stock ○ : World Express R : R-hand Only

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)

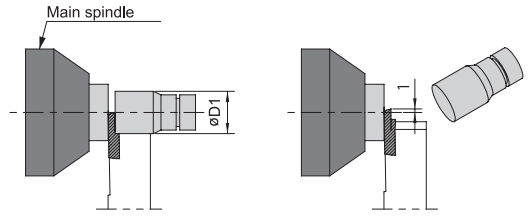


Fig.1 (When the edge is at the center)
Fig.2 (When the edge is 1mm beyond the center)

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, øD2 (Fig.4) = [øDmax - 1mm×2] (mm)
(The clearance between the insert and the workpiece is 0.2mm)

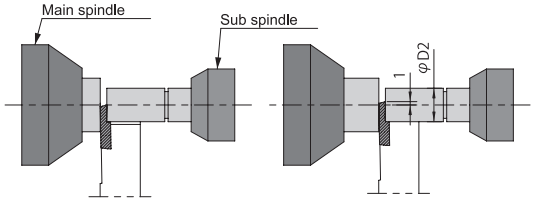


Fig.3 (When the edge is at the center)
Fig.4 (When the edge is 1mm beyond the center)

When using TKF-AS type

The KTKF holder can be used as a multi-functional tool for non-ferrous metals and non-metals when combined with a TKF-AS insert (See Fig.5).

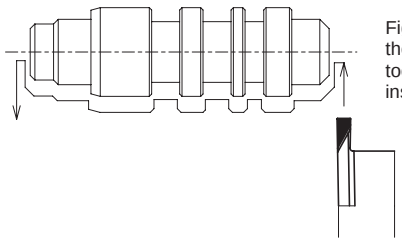
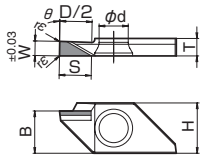
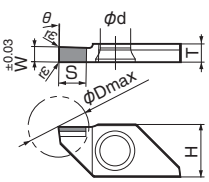


Fig.5 Example of the pass of KTKF toolholder + TKF-AS insert

Traversing / Grooving (1-Edge insert)

Classification of usage
●: Continuous-Low Interruption / 1st Choice
◔: Continuous-Low Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice

N	Nonferrous Alloy (with interruption)	◔
	Nonferrous Alloy (without interruption)	●
S	Titanium Alloy (with interruption)	◔
	Titanium Alloy (without interruption)	●

Edge Preparation		Insert		Description		Dimension (mm)										Angle (°)	No. of Corners	PCD KPD001		Applicable Toolholder
PCD all models	Sharp Edge	Handed Insert shows R-hand.				W (inch)	W (mm)	øD max	rε	T	H	A	ød	S	θ※		R	L	
●		 Traversing / Grooving		TKF12R/L	200-AS	0.079	2.0	10	0.1 +0 -0.05	3	8.7	7.7	5	5.0	0°	1	○	○	H8
					250-AS	0.098	2.5	10						5.5			○	○	
				TKF16R/L	250-AS	0.098	2.5	16		4	9.5	8.5		6.5			○	○	
		 Grooving (Traversing is possible)		TKF12R/L	150-NB	0.059	1.5	7	0.1 +0 -0.05	3	8.7	-	5	2.0	0°	1	○	○	
					200-NB	0.079	2.0	8						3.0			○	○	
					250-NB	0.098	2.5	8						3.0			○	○	
					250-NB4.5	0.098	2.5	10						4.5			○	○	

*Lead angle shows the angle when installed in toolholder.
*Please use PCD Insert for traverse machining.

●: Stock Standard
○: World Express

Note1) The cutting edge of the TKF..-AS will be 1 mm lower than the center line when attached to the KTKF toolholder (See Fig.6). Adjust the height by making NC lathe parameter settings or inserting a plate.
2) If the 1 mm adjustment is not possible, use the TKF. . -NB (See Fig.7).

CBN R/L PCD Tools are sold in 1 piece boxes.

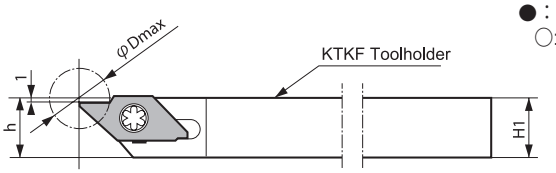


Fig.6 When a TKF-AS insert is attached (The cutting edge is 1 mm lower than the center line.)

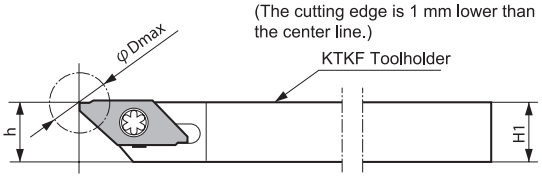
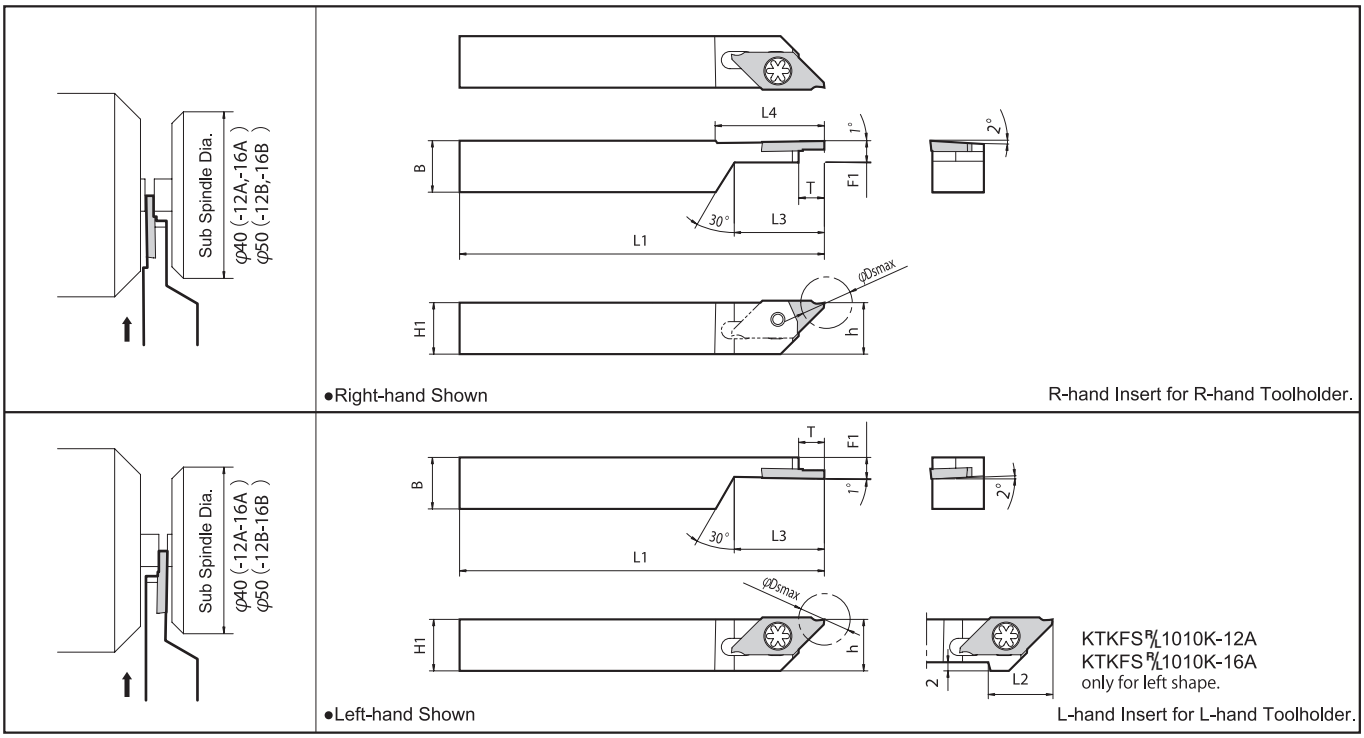


Fig.7 When a TKF-NB insert is attached

KTKFS (for small diameter cut-off)



● Toolholder Dimensions

Description		Std. R	Std. L	Cutting Dia. øDsmax	Unit	H1=h	B	L1	L2	L3	*L4	F1	T	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable Inserts ➡H9
KTKFSR/L	6-12JX	●	●	0.236 ~ 0.472	inch	0.375	0.375	4.750	0.590	0.866	1.024	0.197	0.236	SB-4050TRN	LTW-10S	TKFS12R/L
	8-12JX	●	●			0.500	0.500	4.750	-	1.024	1.024	0.197	0.236			
	6-16JX	●	●	0.551 ~ 0.630		0.375	0.375	4.750	0.787	0.866	1.181	0.197	0.315			TKFS16R/L
	8-16JX	●	●			0.500	0.500	4.750	-	1.024	1.181	0.197	0.315			
KTKFSR/L	1010K-12A	○	○	6~12	mm	10	10	120	15	22	26	5	6	SB-4050TRN	LTW-10S	TKFS12R/L
	1212F-12A	○	○			12	12	85	-							
	1212K-12B	○	○					120		26						
KTKFSR/L	1010K-16A	○	○	14~16		10	10	120	20	22	30	5	8	SB-4050TRN	LTW-10S	TKFS16R/L
	1212F-16A	○	○			12	12	85	-							
	1212K-16B	○	○					120		26						

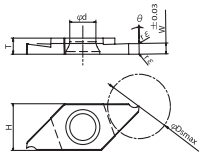
• Dimension T shows the distance from the Toolholder to the cutting edge. ➡H8 for the actual cutting diameter.

For recommended cutting conditions, see page ➡H28

• Cutting diameter (øDmax) depends on the insert grooving width.

* Only R-hand is available for L4 dimension.

TKFS (øDmax)

Insert (Handed insert indicates Left-hand)		Description		Dimension (mm) W	Dimension (mm) øDsmax
		TKFS12R/L	100-S	1.0	6
			150-S	1.5	9
			200-S	2.0	12
		TKFS16R/L	150-S	1.5	14
			200-S	2.0	15

Note) As Fig.2 shows, the cutting diameter of the insert is indicated when the top of the cutting edge progresses 1mm from the center.

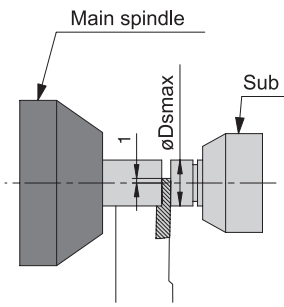


Fig.1

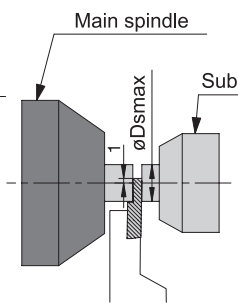


Fig.2

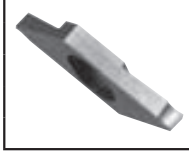
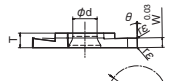
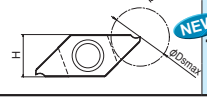
● As Fig.1 shows, use KTKFL (L-hand) for the distance between main spindle and sub spindle.

● As Fig.2 shows, KTKFS is recommended for small diameters and for the short distance between the main spindle and sub spindle.

● : Std. Stock ○ : World Express R : R-hand Only

Classification of usage			NEW			
● : Continuous-Low Interruption / 1st Choice	P	Carbon Steel and Alloy Steel	●	●		
◔ : Continuous-Low Interruption / 2nd Choice	M	Stainless Steel	◔	●		
● : Continuous / 1st Choice	K	Cast Iron			●	
○ : Continuous / 2nd Choice	N	Non-ferrous Metals			●	

Applicable Inserts

Insert (Handed insert indicates Left-hand)	Description		Dimension (mm) W (inch)	W (mm)	øDs max	rε	T	H	ø d	Angle (°) θ	MEGACOAT NANO PR1425 R	PR1425 L	PVD Coated Carbide PR1025 R	PR1025 L	Carbide KW10 R	KW10 L	PCD KPP001	Applicable Toolholder
	NEW  NEW 	TKFS12R/L 100-S	0.039	1.0	6	0.05	2.2	8.7	4.4	0°	●	●	○	○	○	○		KTKFSR/L ····12
		TKFS12R/L 150-S	0.059	1.5	9						●	●	○	○	○	○		
		TKFS12R/L 200-S	0.079	2.0	12						●	●	○	○	○	○		
		TKFS16R/L 150-S	0.059	1.5	14	0.05	2.2	9.5	4.4	0°	●	●	○	●	○	○		KTKFSR/L ····16
		TKFS16R/L 200-S	0.079	2.0	16						●	●	○	●	○	○		

• As Fig.2 of H8 shows, the cutting diameter of the insert is indicated when the top of the cutting edge progresses 1mm from the center.
• Lead angle shows the angle when installed in toolholder.

Recommended Cutting Conditions (For TKFS12)

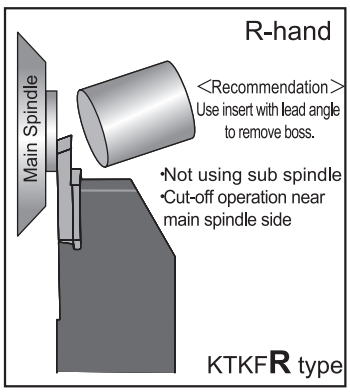
Workpiece Material	Recommended Insert Grade (Vc: sfm) MEGACOAT NANO PR1425	Carbide KW10	Width (inch) 0.04 f (ipr)	0.06 f (ipr)	0.08 f (ipr)	Remarks
Carbon Steel	200~550	-	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	Coolant
Alloy Steel	200~550	-	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	
Stainless Steel	150~450	-	0.0004~0.0008	0.0004~0.0008	0.0004~0.0012	
Cast Iron	-	150~350	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	
Non-ferrous Metals	-	650~1500	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	

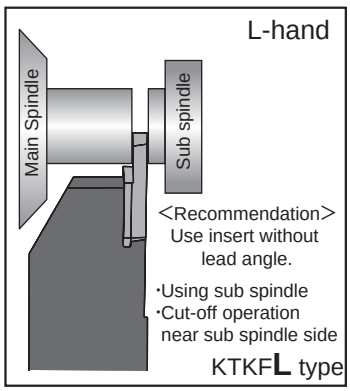
Recommended Cutting Conditions (For TKFS16)

Workpiece Material	Recommended Insert Grade (Vc: sfm) MEGACOAT NANO PR1425	Carbide KW10	Width (inch) 0.06 f (ipr)	0.08 f (ipr)	Remarks
Carbon Steel	200~550	-	0.0008~0.0028	0.0008~0.0028	Coolant
Alloy Steel	200~550	-	0.0008~0.0028	0.0008~0.0028	
Stainless Steel	150~450	-	0.0004~0.0016	0.0004~0.0016	
Cast Iron	-	150~350	0.0008~0.0032	0.0008~0.0032	
Non-ferrous Metals	-	650~1500	0.0008~0.0032	0.0008~0.0032	

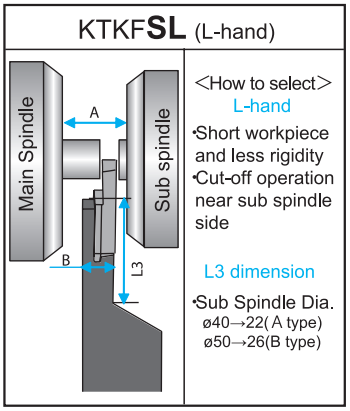
How to use small diameter cut-off tool

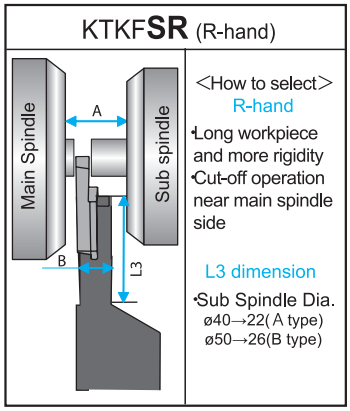
• Both Right-hand and Left-hand types are applicable to gang tool post.
• Basically Left-hand type is used at cut-off operation using sub-spindle.





• When machining workpiece with small diameter, use KTKFS to reduce overhang distance from the main spindle.





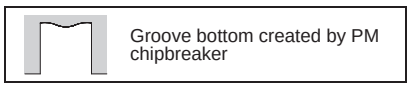
● : Std. Stock ○ : World Express

GDM / GDMS NEW

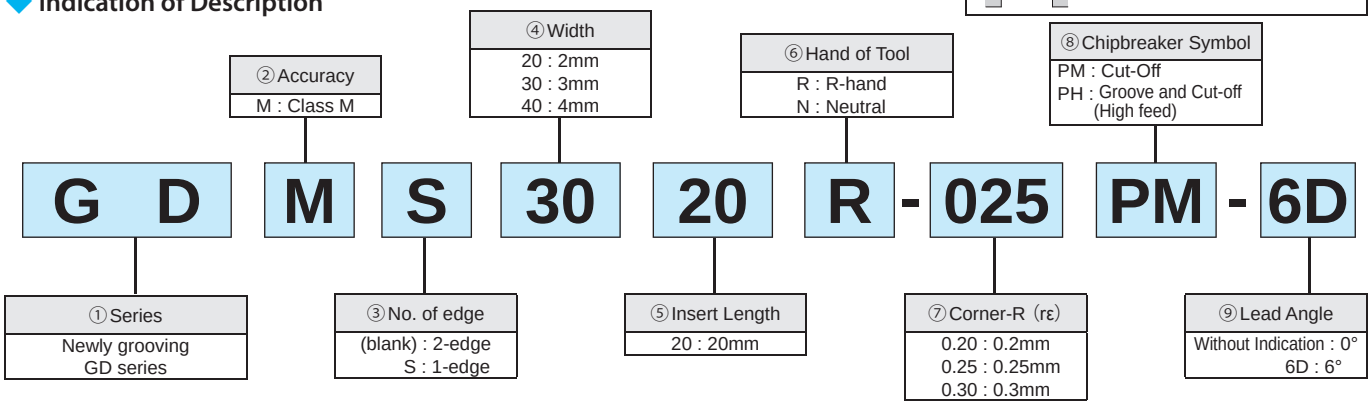
Classification of usage				
● : Continuous-Low Interruption / 1st Choice	P	Carbon steel / Alloy steel	●	●
◔ : Continuous-Low Interruption / 2nd Choice	M	Stainless Steel	●	●
● : Continuous / 1st Choice	K	Cast Iron		●
○ : Continuous / 2nd Choice				

Shape (Handed Insert shows R-hand.)			Description		Dimension (mm) W (inch)	W (mm)	Tolerance	rε	M	L	H	Angle (°) θ	MEGACOAT PR1225	MEGACOAT PR1215	Ref. Page for Toolholder
Cut-off	NEW	2-edge Insert	GDM	2020N-020PM	0.079	2.0	±0.03	0.2	1.5	20	4.3	-	●	●	H14 H15
				2520N-020PM	0.098	2.5		0.2	1.95				●	●	
				3020N-025PM	0.118	3.0		0.25	2.3				●	●	
				4020N-030PM	0.157	4.0		0.3	3.3				●	●	
	NEW	2-edge Insert	GDM	2020R-020PM-6D	0.079	2.0	±0.03	0.2	1.5	20		6°	●	●	
				2520R-020PM-6D	0.098	2.5		0.2	1.95				●	●	
				3020R-025PM-6D	0.118	3.0		0.25	2.3				●	●	
	NEW	1-edge Insert	GDMS	2020N-020PM	0.079	2.0	±0.03	0.2	1.5	20		-	●	●	
				3020N-025PM	0.118	3.0		0.25	2.3				●	●	
				4020N-030PM	0.157	4.0		0.3	3.3				●	●	
	NEW	1-edge Insert	GDMS	2020R-020PM-6D	0.079	2.0	±0.03	0.2	1.5	20		6°	●	●	
				3020R-025PM-6D	0.118	3.0		0.25	2.3				●	●	
				4020R-030PM-6D	0.157	4.0		0.3	3.3				●	●	
Grooving and Cut-off	NEW	High feed rate 2-edge Insert	GDM	2020N-020PH	0.079	2.0	±0.03	0.2	1.5	20	4.3	-	●	●	
				3020N-030PH	0.118	3.0		0.3	2.3				●	●	
				4020N-030PH	0.157	4.0		0.3	3.3				●	●	
	NEW	High feed rate 1-edge Insert	GDMS	2020N-020PH	0.079	2.0	±0.03	0.2	1.5	20		-	●	●	
				3020N-030PH	0.118	3.0		0.3	2.3				●	●	
				4020N-030PH	0.157	4.0		0.3	3.3				●	●	

Note) 1. Using the PM chipbreaker (for cut-off) for grooving cannot create a flat bottom (See the right figure).



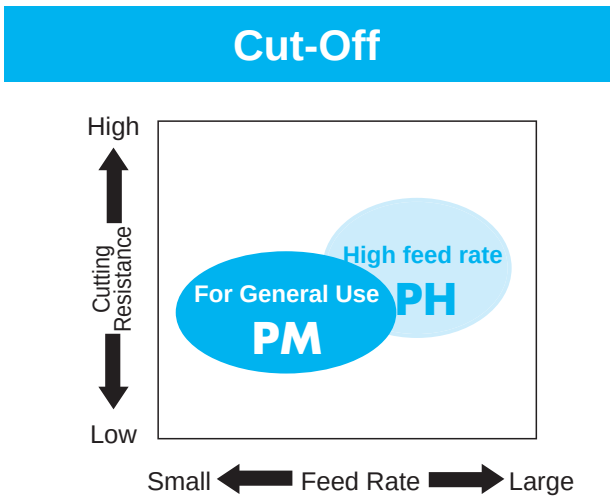
Indication of Description



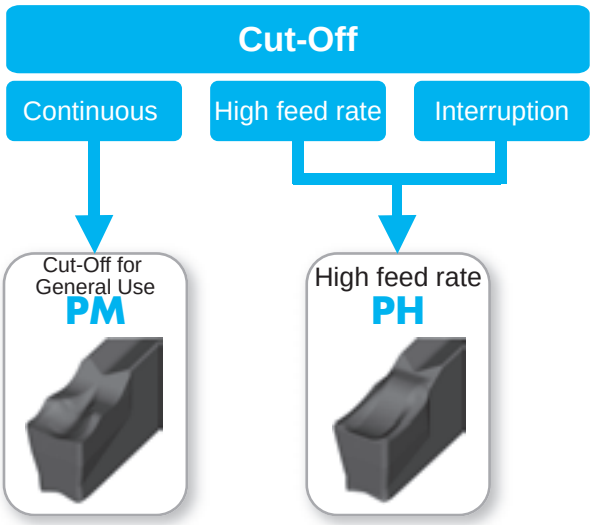
Inserts are sold in 10 piece boxes.

● : Std. Stock ◔ : World Express

Application Map



Chipbreaker Selection

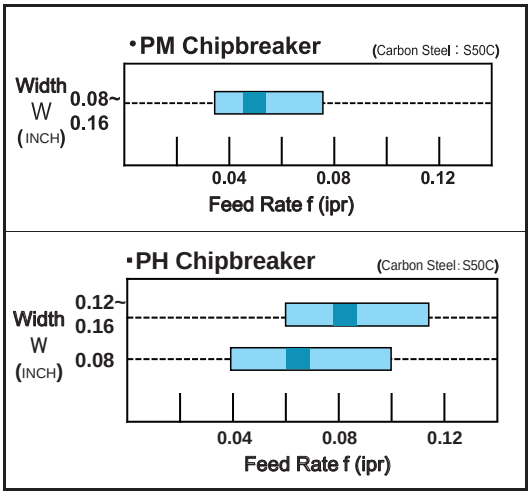


Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Vc: sfm)		Feed Rate (ipr)			Remarks
			PM-Chipbreaker	PH-Chipbreaker		
	MEGACOAT		Width W (inch)	Width W (inch)		
	PR1225	**PR1215**	0.08~0.16	0.08	0.12~0.16	
Carbon Steel (SxxC)	★ 250~650	☆ 100~650	0.08~0.18	0.10~0.25	0.15~0.28	Coolant
Alloy Steel (SCM)	★ 225~600	☆ 250~600				
Stainless Steel (SUS304)	★ 200~500	☆ 200~500	0.06~0.12	0.05~0.12	0.08~0.15	
Cast Iron (FC、FCD)	-	★ 325~650	0.08~0.18	0.10~0.25	0.15~0.28	

★:1st Recommendation ☆:2nd Recommendation

Example of Feed [■ in the graph indicates the center value of feed (f)]



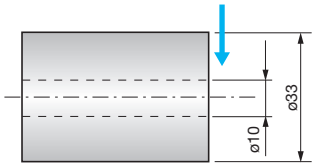
Caution (Cut-Off)

1.Be sure to perform wet processing. Apply enough amount of coolant to the cutting edge.
2.Keep the constant rate during processing so that optimum product life will be achieved.
3.Cut off as close to the chuck as possible.
4.Lower the feed rate to 1/2 to 1/3 at the near center to prevent impact caused by cutting.

Case Studies (Cut-Off)

C45 (S45CF)

- Sleeve
- Vc=330 sfm
- f=0.005 ipr
- WET
- GDM3020N-025PM (PR1225)
- KGDL2525X-3T20S

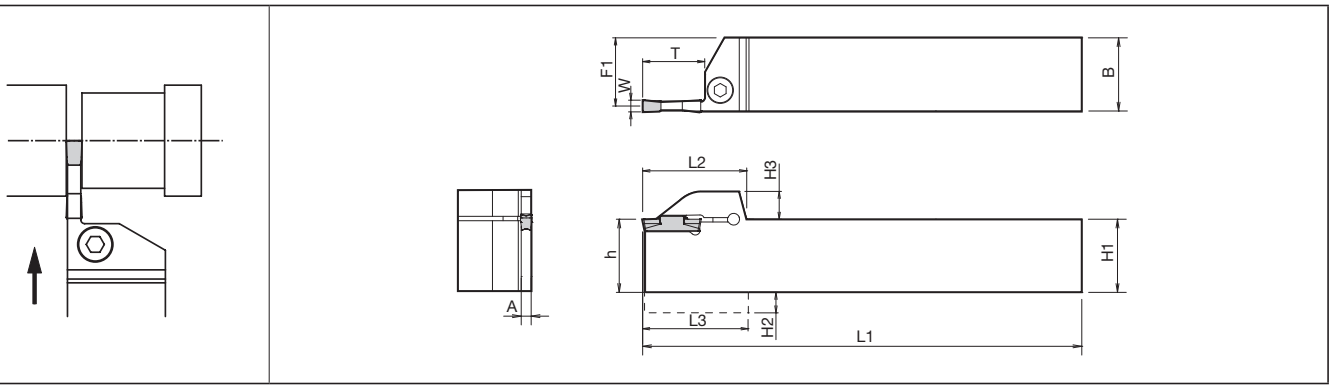


PM Chipbreaker (PR1225)	250 pcs/edge Can be extended
Competitor L (PVD Coated Carbide)	250pcs/edge Chipping occurred

〈Result〉
- The cutting edge of KGD Cut-off PM Chipbreaker (PR1225) shows good condition even after processing the same number of workpiece as Competitor L.
- Longer product life can be expected.

(Competitor L suffered from chipping of cutting blade).

KGD Integral-Style (Inch-Size) NEW



Toolholder Dimensions

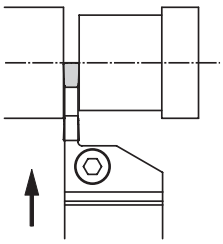
Width (mm)	Available Grooving Depth (mm)	Description	Stock R	Stock L	Dimension (inch) H1=h	H2	H3	B	L1	L2	L3	F1	A	T❖	Insert Width W (mm) H12 MIN	MAX	Spare Parts Clamp Screw	Spare Parts Wrench
2	0.669 (17mm)	KGDR/L 12-2T17	●	●	0.75	-	0.374	0.75	4.92	1.28	-	0.71		0.669 (17mm)	2.0	3.0	BH6X10TR	LTW-25
		16-2T17	●	●	1.00	-		1.00	5.90		-	0.96						
3	0.393 (10mm)	KGDR/L 12-3T10	●	●	0.75	-	0.374	0.75	4.92	1.20	-	0.70		0.393 (10mm)	3.0	4.0		
		16-3T10	●	●	1.00	-		1.00	5.90		-	0.95						
	0.669 (17mm)	KGDR/L 12-3T20	●	●	0.75	-		0.75	4.92	1.35	-	0.70		0.669 (17mm)				
		16-3T20	●	●	1.00	-		1.00	5.90	1.39	-	0.95						
4	0.393 (10mm)	KGDR/L 12-4T10	●	●	0.75	-	0.374	0.75	4.92	1.20	-	0.68	0.133	0.393 (10mm)	4.0	5.0		
		16-4T10	●	●	1.00	-		1.00	5.90		-	0.93						
	0.79 (20mm)	KGDR/L 12-4T20	●	●	0.75	-		0.75	4.92	1.35	-	0.68		0.790 (20mm)				
		12-4T20	●	●	1.00	-		1.00	5.90	1.39	-	0.93						
	0.99 (25mm)	KGDR/L 16-4T25	●	●	1.00	-		1.00	5.90	1.59	-	0.93		0.990 (25mm)				
5	0.393 (10mm)	KGDR/L 12-5T10	●	●	0.75	-	0.374	0.75	4.92	1.20	-	0.66	0.173	0.383 (10mm)	5.0	6.0		
		16-5T10	●	●	1.00	-		1.00	5.90		-	0.91						
	0.79 (17mm)	KGDR/L 12-5T17	●	●	0.75	-		0.75	4.92	1.28	-	0.66		0.790 (17mm)				
		16-5T17	●	●	1.00	-		1.00	5.90		-	0.91						
	0.99 (25mm)	KGDR/L 16-5T25	●	●	1.00	-		1.00	5.90	1.59	-	0.91		0.990 (25mm)				
6	0.59 (15mm)	KGDR/L 16-6T15	●	●	1.00	-	0.374	1.00	5.90	1.28	-	0.89	0.208	0.590 (15mm)	6.0	6.0		
	1.181 (30mm)	KGDR/L 16-6t30	●	●	1.00	-		1.00	5.90	1.79	-	0.89		1.181 (30mm)				
8	0.99 (25mm)	KGDR/L 16-8T25	●	●	1.00	0.26	0.374	1.00	5.90	1.65	1.69	0.89	0.236	0.990 (25mm)	8.0	8.0		

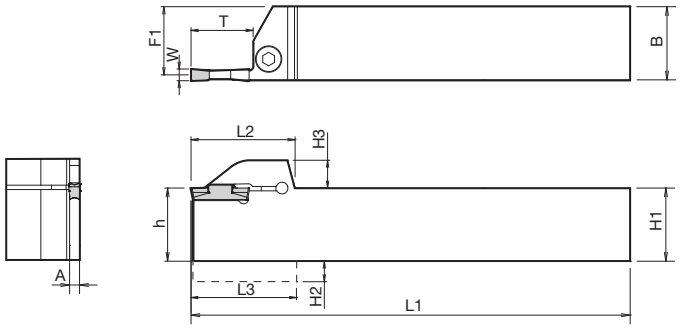
❖ T Dimension shows the distance from the toolholder to the cutting edge.
(When using a 2-edge insert the max grooving depth is 18mm)

Recommended Cutting Conditions H28

● : Std. Stock ○: World Express

KGD Integral-Style (Metric-Size) NEW





•R-hand Shown

Toolholder Dimensions

Width (mm)	Available Grooving Depth (mm)	Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	L3	F1	A	T	Insert Width W (mm) H12 MIN	MAX	Spare Parts: Clamp Bolt	Spare Parts: Wrench
2	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	-		20	125	28.0	-	19.2						
			2525M-2T06	○	○	25			25	150			24.2					HH5X25	
	10	KGD	1616H-2T10	○	○	16	4.0		16	100	30.2	30.5	15.2		10			HH5X16	
			2020K-2T10	○	○	20	-		20	125	30.5	-	19.2						
			2525M-2T10	○	○	25			25	150			24.2					HH5X25	
	17	KGD	1616H-2T17	○	○	16	4.0		16	100	31.2	31.5	15.2		17			HH5X16	
			2012K-2T17	○	○	20	-		12	125	32.5	-	11.2						
			2020K-2T17	○	○				20	125			19.2						
			2525M-2T17	○	○	25			25	150			24.2					HH5X25	
3	6	KGD	1616H-3T06	○	○	16	4.0		16	100	27.7	28.0	14.8	2.4	6	3.0	4.0	HH5X16	LW-4
			2020K-3T06	○	○	20	-		20	125	28.0	-	18.8						
			2525M-3T06	○	○	25			25	150			23.8					HH5X25	
	10	KGD	1616H-3T10	○	○	16	4.0		16	100	30.2	30.5	14.8		10			HH5X16	
			2020K-3T10	○	○	20	-		20	125	30.5	-	18.8						
			2525M-3T10	○	○	25			25	150			23.8					HH5X25	
	20	KGD	1616H-3T20	○	○	16	4.0		16	100	34.2	34.5	14.8		20			HH5X16	
			2012K-3T20	○	○	20	-		12	125	34.5	-	10.8						
			2020K-3T20	○	○				20	125			18.8						
			2525M-3T20	○	○	25			25	150	35.5		23.8					HH5X25	
4	10	KGD	2020K-4T10	○	○	20	-		20	125	30.5	-	18.3	3.4	10	4.0	5.0	HH5X16	LW-4
			2525M-4T10	○	○	25			25	150			23.3					HH5X25	
	20	KGD	2020K-4T20	○	○	20			20	125	34.5		18.3		20			HH5X16	
			2525M-4T20	○	○	25			25	150	35.5		23.3					HH5X25	
	25	KGD	2525M-4T25	○	○	25			25	150	40.5		23.3		25				
5	10	KGD	2020K-5T10	○	○	20	-		20	125	30.5	-	17.8	4.4	10	5.0	6.0	HH5X16	LW-4
			2525M-5T10	○	○	25			25	150			22.8					HH5X25	
	17	KGD	2020K-5T17	○	○	20			20	125	37.5		17.8		17				
			2525M-5T17	○	○	25			25	150			22.8						
	25	KGD	2525M-5T25	○	○	25			25	150	40.5		22.8		25				
6	15	KGD	2525M-6T15	○	○	25	-		25	150	32.5	-	22.4	5.3	15	6.0	6.0	HH5X25	LW-4
	30	KGD	2525M-6T30	○	○	25			25	150	45.5		22.4		30				
8	25	KGD	2525M-8T25	○	○	25	7.0		25	150	43.3	44.2	22.0	6.0	25	8.0	8.0	HH6X25	LW-5
			3232P-8T25	○	○	32	-		32	170		-	29.0						

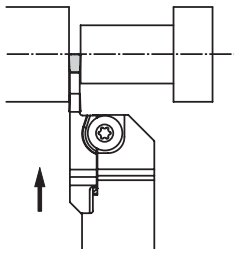
* Recommended tightening torque of clamp bolt: 6.5N•m (Groove width 2 - 6 mm), 8.0N•m (Groove width 8 mm)

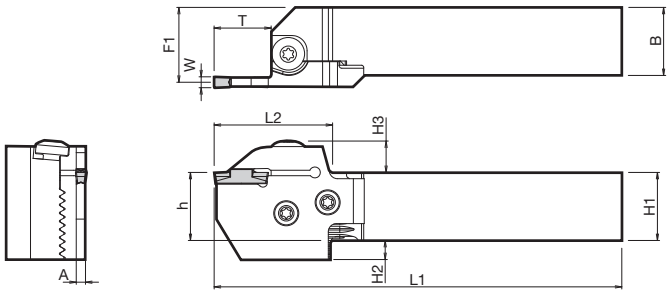
❖ T Dimension shows the distance from the toolholder to the cutting edge. (When using a 2-edge insert the max grooving depth is 18mm)

Recommended Cutting Conditions H28

● : Std. Stock ○ : World Express

KGD-S 0°, SwitchBlade-Style (Inch-Size) NEW





Toolholder Dimensions

Width (mm)	Available Grooving Depth (mm)	Description (Includes Toolholder & Blade)	Std. R	Std. L	Holder Description G26	Blade Description G26	H1=h	H2	H3	B	L1	L2	L3	F1	A	T❖	Insert Width W (mm) H18 MIN	Insert Width W (mm) H18 MAX
2	0.669 (17mm)	KGD□ 12X-2T17S	●	●	KGD□12-C	KGD□-2T17-C	0.75	0.435	0.456	0.75	4.80	1.57	-	0.88	0.067	0.669 (17mm)	2.0	3.0
		KGD□ 16X-2T17S	●	●	KGD□16-C	KGD□-2T17-C	1.00	0.291		1.00	5.78		-	1.13				
3	0.393 (10mm)	KGD□ 12X-3T10S	●	●	KGD□12-C	KGD□-3T10-C	0.75	0.435		0.75	4.52	1.29	-	0.86	0.094	0.393 (10mm)	3.0	4.0
		KGD□ 16X-3T10S	●	●	KGD□16-C	KGD□-3T10-C	1.00	0.291		1.00	5.51		-	1.11				
	0.669 (17mm)	KGD□ 12X-3T20S	●	●	KGD□12-C	KGD□-3T20-C	0.75	0.435		0.75	4.92	1.68	-	0.86		0.669 (17mm)		
		KGD□ 16X-3T20S	●	●	KGD□16-C	KGD□-3T20-C	1.00	0.291		1.00	5.90		-	1.11				
4	0.393 (10mm)	KGD□ 12X-4T10S	●	●	KGD□12-C	KGD□-4T10-C	0.75	0.435		0.75	4.52	1.29	-	0.84	0.133	0.393 (10mm)	4.0	5.0
		KGD□ 16X-4T10S	●	●	KGD□16-C	KGD□-4T10-C	1.00	0.291		1.00	5.51		-	1.09				
	0.79 (20mm)	KGD□ 12X-4T20S	●	●	KGD□12-C	KGD□-4T20-C	0.75	0.435		0.75	4.92	1.68	-	0.84		0.790 (20mm)		
		KGD□ 16X-4T20S	●	●	KGD□16-C	KGD□-4T20-C	1.00	0.291		1.00	5.90		-	1.09				
	0.99 (25mm)	KGD□ 12X-4T25S	●	●	KGD□12-C	KGD□-4T25-C	0.75	0.435		0.75	5.11	1.88	-	0.84		0.990 (25mm)		
		KGD□ 16X-4T25S	●	●	KGD□16-C	KGD□-4T25-C	1.00	0.291		1.00	6.10		-	1.09				
5	0.393 (10mm)	KGD□ 12X-5T10S	●	●	KGD□12-C	KGD□-5T10-C	0.75	0.435		0.75	4.52	1.29	-	0.82	0.173	0.393 (10mm)	5.0	6.0
		KGD□ 16X-5T10S	●	●	KGD□16-C	KGD□-5T10-C	1.00	0.291		1.00	5.51		-	1.07				
	0.99 (25mm)	KGD□ 16X-5T25S	●	●	KGD□16-C	KGD□-5T25-C	1.00	0.291		1.00	6.10	1.88	-	1.07		0.990 (25mm)		

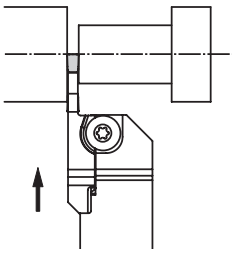
❖ T Dimension shows the distance from the toolholder to the cutting edge. (When using a 2-edge insert the max grooving depth is 18mm)

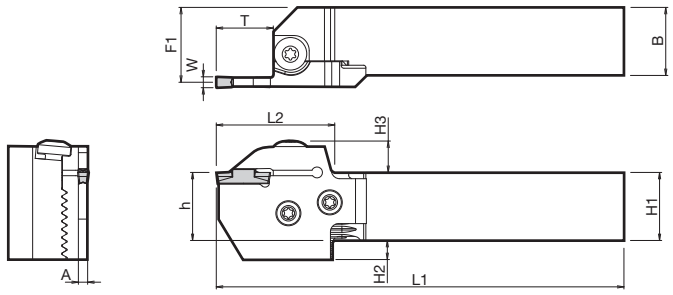
Recommended Cutting Conditions H28

● : Std. Stock ○: World Express

KGD-S 0°, SwitchBlade-Style (Metric-Size)

NEW





•R-hand Shown

Width(mm)	Available Grooving Depth (mm)	Description (Includes Toolholder & Blade)	Std. R	Std. L	Holder Description G26	Blade Description G26	Dimension (mm) H1=h	H2	H3	B	L1	L2	L3	F1	A	T❖	Insert Width W (mm) H18 MIN	MAX
2	17	KGDR/L 2020X-2T17S	○	○	KGDR/L 2020-C	KGDR/L-2T17-C	20	12		20	122	39.9		23.4	1.7	17	2.0	3.0
		2525X-2T17S	○	○	KGDR/L 2525-C		25	7		25	147			28.4				
3	10	KGDR/L 2020X-3T10S	○	○	KGDR/L 2020-C		20	12		20	115			23.0				
		2525X-3T10S	○	○	KGDR/L 2525-C	KGDR/L-3T10-C	25	7		25	140	32.9		28.0		10		
		3232X-3T10S	○	○	KGDR/L 3232-C		32	-		32	160			33.0				
	20	KGDR/L 2020X-3T20S	○	○	KGDR/L 2020-C		20	12		20	125			23.0	2.4		3.0	4.0
		2525X-3T20S	○	○	KGDR/L 2525-C	KGDR/L-3T20-C	25	7		25	150	42.9		28.0		20		
		3232X-3T20S	○	○	KGDR/L 3232-C		32	-		32	170			33.0				
4	10	KGDR/L 2020X-4T10S	○	○	KGDR/L 2020-C		20	12		20	115			22.5				
		2525X-4T10S	○	○	KGDR/L 2525-C	KGDR/L-4T10-C	25	7		25	140	32.9		27.5		10		
		3232X-4T10S	○	○	KGDR/L 3232-C		32	-		32	160			32.5				
	20	KGDR/L 2020X-4T20S	○	○	KGDR/L 2020-C		20	12	11.6	20	125		-	22.5				
		2525X-4T20S	○	○	KGDR/L 2525-C	KGDR/L-4T20-C	25	7		25	150	42.9		27.5	3.4	20	4.0	5.0
		3232X-4T20S	○	○	KGDR/L 3232-C		32	-		32	170			32.5				
	25	KGDR/L 2020X-4T25S	○	○	KGDR/L 2020-C		20	12		20	130			22.5				
		2525X-4T25S	○	○	KGDR/L 2525-C	KGDR/L-4T25-C	25	7		25	155	47.9		27.5		25		
		3232X-4T25S	○	○	KGDR/L 3232-C		32	-		32	175			32.5				
5	10	KGDR/L 2020X-5T10S	○	○	KGDR/L 2020-C		20	12		20	115			22.0				
		2525X-5T10S	○	○	KGDR/L 2525-C	KGDR/L-5T10-C	25	7		25	140	32.9		27.0		10		
		3232X-5T10S	○	○	KGDR/L 3232-C		32	-		32	160			32.0				
	25	KGDR/L 2020X-5T25S	○	○	KGDR/L 2020-C		20	12		20	130			22.0	4.4		5.0	6.0
		2525X-5T25S	○	○	KGDR/L 2525-C	KGDR/L-5T25-C	25	7		25	155	47.9		27.0		25		
		3232X-5T25S	○	○	KGDR/L 3232 -C		32	-		32	175			32.0				

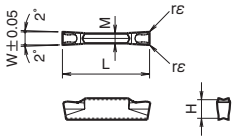
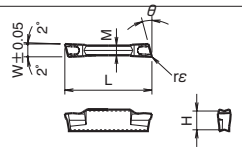
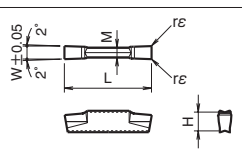
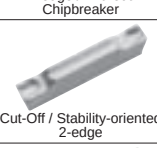
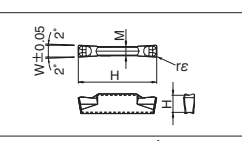
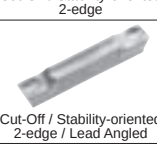
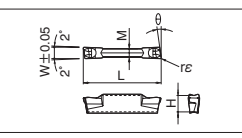
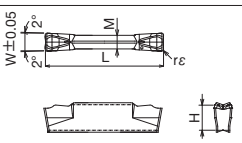
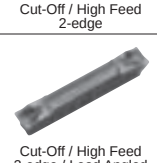
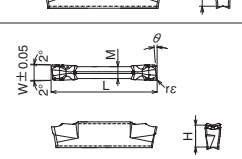
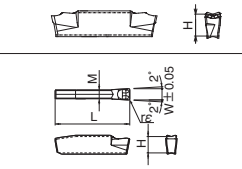
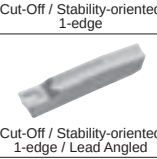
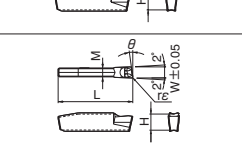
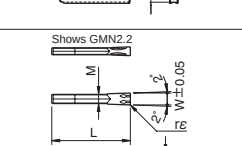
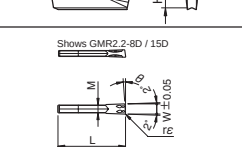
❖ T Dimension shows the distance from the toolholder to the cutting edge. (When using a 2-edge insert the max grooving depth is 18mm)

Recommended Cutting Conditions H28

Note) 1. In case of normal mounting position, the toolholder body may interfere with the tool presetter.
2. Toolholder description and blade description are printed on the toolholder body. (Unit description is not indicated.)
KGD-S : R-hand Blade for R-hand Toolholder, L-hand Blade for L-hand Toolholder.
Combination of the optional toolholder (KGD..-C) and blade (KGD..T..-C) (both separately sold) can make up the corresponding assembly part.
Make sure of the "hand of toolholder" and "hand of blade".
3. Recommended tightening torque of clamp bolt for insert: 6.5N•m (Groove width 2 - 6 mm)

GMM / GMN / GMR/L

Classification of usage									
◓ : Continuous-Low Interruption / 1st Choice	P	Carbon Steel / Alloy Steel	○	◔	◓	◔	◓		
◔ : Continuous-Low Interruption / 2nd Choice	M	Stainless Steel		◔	◓	◔	◓		
● : Continuous / 1st Choice	K	Cast Iron						●	
○ : Continuous / 2nd Choice	N	Non-ferrous Metals						◓	

Insert (Handed Insert shows Right-hand)	Description		Dimension (mm) W	rε	L	H	M	Angle (°) θ	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PR930	PR1115	Carbide KW10	Ref. Page for Applicable Toolholder
 Cut-Off / Sharp-Cutting 2-edge		GMM 1520-MT	1.5	0.0 0.05	20	4.3	1.2	-			●			○	H16 H17
		GMM 2020-MT	2.0	0.0 0.05	20	4.3	1.5	-			●			○	
		GMM 2520-MT	2.5	0.0 0.05	20	4.3	1.9	-		○	○			○	
		GMM 3020-MT	3.0	0.0 0.05	20	4.3	2.3	-		○	●			○	
 Cut-Off / Sharp-Cutting 2-edge / Lead Angled		GMM 1520R/L-MT-15D	1.5	0.0 0.05	20	4.3	1.2	15°			R	●		○	
		GMM 2020R/L-MT-15D	2.0	0.0 0.05	20	4.3	1.5	15°		○	R			○	
		GMM 2520R/L-MT-15D	2.5	0.0 0.05	20	4.3	1.9	15°		○	R	●		○	
		GMM 3020R/L-MT-15D	3.0	0.0 0.05	20	4.3	2.3	15°		●	R	●		○	
 Cut-Off / Sharp-Cutting 2-edge / Without Chipbreaker		GMM 1520-NB	1.5	0.0 0.05	20	4.3	1.2	-				○			
		GMM 2020-NB	2.0	0.0 0.05	20	4.3	1.5	-		○		○			
		GMM 2520-NB	2.5	0.0 0.05	20	4.3	1.9	-		○		○			
		GMM 3020-NB	3.0	0.0 0.05	20	4.3	2.3	-		○		○			
 Cut-Off / Stability-oriented 2-edge		GMM 2020-TK	2.0	0.20	20	4.3	1.5	-				○	●		
		GMM 2520-TK	2.5	0.20	20	4.3	1.9	-		○	○	○			
		GMM 3020-TK	3.0	0.25	20	4.3	2.3	-		○	●	●		○	
 Cut-Off / Stability-oriented 2-edge / Lead Angled		GMM 2020R/L-TK-8D	2.0	0.20	20	4.3	1.5	8°				○	○		○
		GMM 2520R/L-TK-8D	2.5	0.20	20	4.3	1.9	8°		○	○	○			○
		GMM 3020R/L-TK-8D	3.0	0.25	20	4.3	2.3	8°			●	○			○
 Cut-Off / High Feed 2-edge		GMM 2020-TMR	2.0	0.20	20	4.3	1.5	-					●	○	
		GMM 2520-TMR	2.5	0.20	20	4.3	1.9	-					●	○	
		GMM 3020-TMR	3.0	0.25	20	4.3	2.3	-					●		
 Cut-Off / High Feed 2-edge / Lead Angled		GMM 2020R/L-TMR-6D	2.0	0.20	20	4.3	1.5	6°					●	●	
		GMM 2520R/L-TMR-6D	2.5	0.20	20	4.3	1.9	6°						●	
		GMM 3020R/L-TMR-6D	3.0	0.25	20	4.3	2.3	6°					●	○	
 Cut-Off / Stability-oriented 1-edge		GMN 2-TK	2.0	0.20	20	4.3	1.8	-				○	○		○
		GMN 3-TK	3.0	0.25	20	4.3	2.3	-		○	○	○			●
		GMN 4-TK	4.0	0.30	20	4.3	3.3	-		○	●	○			○
 Cut-Off / Stability-oriented 1-edge / Lead Angled		GMR/L 2-TK-8D	2.0	0.20	20	4.3	1.8	8°				○	○		●
		GMR/L 3-TK-8D	3.0	0.25	20	4.3	2.3	8°		○	○	○			
		GMR/L 4-TK-8D	4.0	0.30	20	4.3	3.3	8°			○	○			
Shows GMN2.2  Cut-Off / Sharp-Cutting 1-edge	 Shows GMN2.2	GMN 2.2	2.2	0.17	20	4.3	1.8	-							
		GMN 3	3.0	0.20	20	4.3	2.3	-		●		●			
		GMN 4	4.0	0.25	20	4.3	3.3	-	○			●			
		GMN 5	5.0	0.80	20	4.3	4.2	-	○	○		○			
		GMN 6	6.0	0.80	20	4.3	5.2	-	○	○		○			
Shows GMR2.2-8D / 15D  Cut-Off / Sharp-Cutting 1-edge / Lead Angled	 Shows GMR2.2-8D / 15D	GMR/L 2.2-8D	2.2	0.17	20	4.3	1.8	8°	○	●		●			
		GMR/L 2.2-15D	2.2	0.00	20	4.3	1.8	15°	○	○		○			
		GMR/L 3-4D	3.0	0.20	20	4.3	2.3	4°	○	●		○			
		GMR/L 3-15D	3.0	0.20	20	4.3	2.3	15°	○	○					
		GMR/L 4-4D	4.0	0.25	20	4.3	3.3	4°		○		○			

Inserts are sold in 10 piece boxes.

● : Stock Standard ○ : World Express R : R-hand Only L : L-hand Only

Edge Preparation

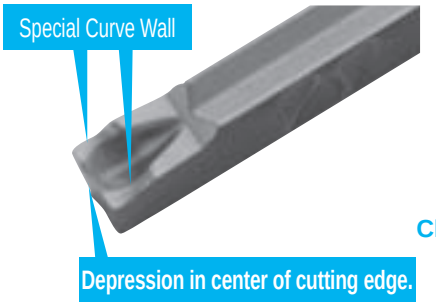
Series	MT-Chipbreaker		TK-Chipbreaker		TMR-Chipbreaker	Without Chipbreaker (NB)	
Edge Specification	Chamfer + hone	Chamfer + hone	Chamfer + hone	Sharp Edge	Chamfer + hone	Hone	Sharp Edge
	Corner-R0.05	Sharp Corner	Corner-R0.2-0.3	Corner-R0.2-0.3	Corner-R0.2	Corner-R0.05	Sharp Corner
							
	CR9025 / PR915	**PR930 / KW10**	**CR9025 / PR915**	**PR930 / KW10**	**PR1115**	**CR9025**	**PR930 / KW10**

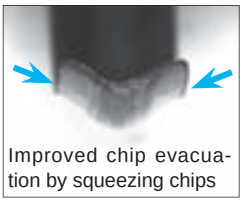
• Sharp Edge Spec. can reduce cutting resistance by 40% compared to chamfer edge.

Series	Advantage
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.
GMN-TK	Same chipbreaker geometry as GMM-TK. 1-edge. Wide application range.
GMN (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

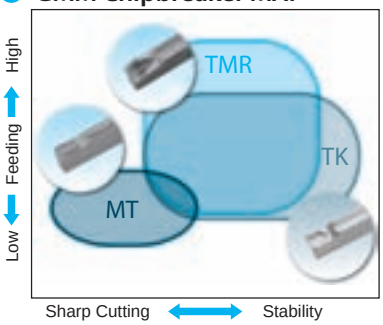
Chipbreaker Advantages





Chip width < grooving width

GMM Chipbreaker MAP



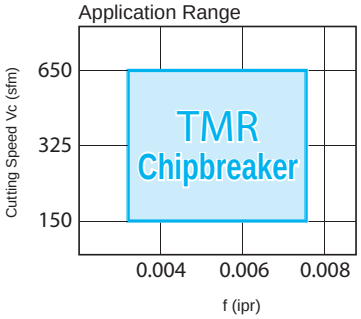
The TMR chipbreaker provides stable chip control up to high feed rate range.

Good chip control even when cutting speed (spindle revolution) is increased.

(Cutting Condition: 15CrMo4 (SCM415), ø30, constant spindle revolution)

Description	n=1060min^{-1}(Vc=325 sfm)		n=2123min^{-1}(Vc=325 sfm)	
	f=0.005 ipr	f=0.007 ipr	f=0.005 ipr	f=0.007 ipr
GMM 3020-TMR (Without Hand)				
GMM 3020R-TMR-6D (R-hand)				

Application Range



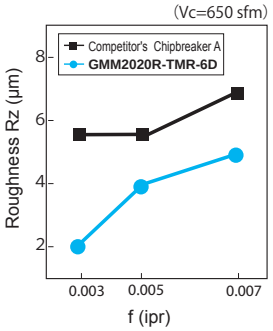
Recommended Cutting Conditions

Workpiece Material	Vc (sfm)	f (ipr)
Carbon Steel	200~650	0.003~0.007
Alloy Steel	200~650	
Stainless Steel	150~400	

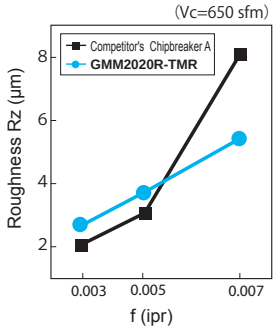
Workpiece Surface Roughness

TMR-Chipbreaker provides good surface roughness on the workpiece end face at high feed rate ranges.

• **GMM2020R-TMR-6D** (Vc=650 sfm)



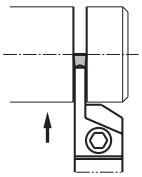
• **GMM2020-TMR** (Vc=650 sfm)

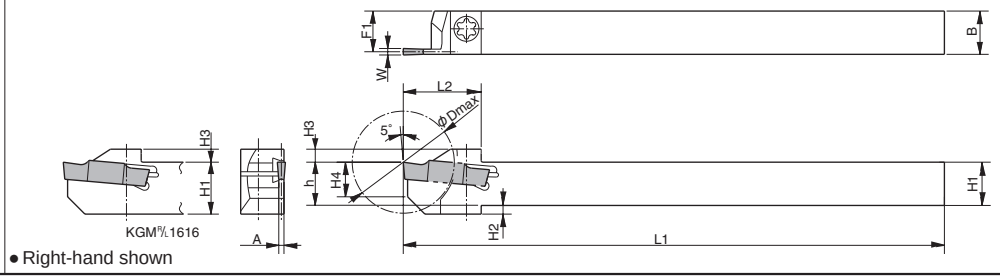


● : Std. Stock ○ : World Express

KGM (For Swiss Machines)

Edge Width: 1.5~4.0mm





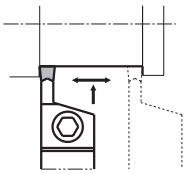
• Right-hand shown

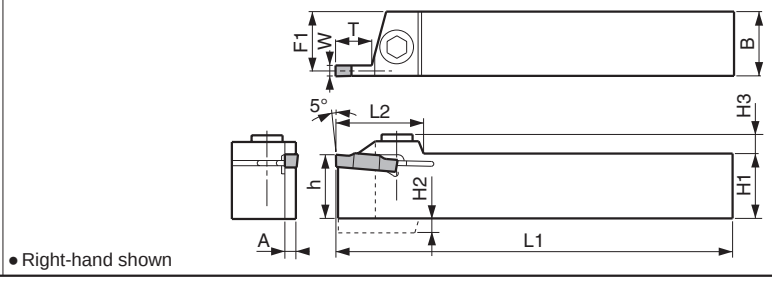
Toolholder Dimensions

Description	Std. R	Std. L	Unit	Cutting Dia. øDmax	Dimension H1=h	H2	H3	H4	B	L1	L2	F1	A	Width W MIN.	Width W MAX.	Spare Parts Screw	Spare Parts Wrench
KGM□ 6-2-5	●	●	Inch	0.787	0.375	0.079	0.117	0.316	0.375	5.00	0.750	0.342	0.067	0.079	0.118	SE-40120TR	LTW-15S
KGM□ 8-2-6	●	●		0.984	0.500	0.051	0.138	0.394	0.500	6.00	0.830	0.467	0.067				
KGM□ 1010JX-1.5		○	mm	20	10	2	3	8	10	120	18	9.4	1.2	1.5	2.0	SE-40120TR	LTW-15S
KGM□ 1212JX-1.5	○	○		25	12		4	10	12		20.5	11.4					
KGM□ 1010JX-2	○	○		20	10	2	3	8	10	120	18	9.15	1.7	2.0	3.0	SE-40120TR	LTW-15S
KGM□ 1212JX-2	○	○		25	12		4	10	12		19	11.15					
KGM□ 1616JX-2	○	○		32	16	-		9	16		24.5	15.15				SE-50125TR	LTW-20
KGM□ 1010JX-2.5	○	○		20	10	2	3	8	10	120	18	9	2.0	2.4	3.0	SE-40120TR	LTW-15S
KGM□ 1212JX-2.5	○	○		25	12		4	10	12		20.5	11					
KGM□ 1616JX-2.5	○	○		32	16	-		9	16		25.5	15				SE-50125TR	LTW-20
KGM□ 1616JX-3	○	○		32	16	-	4	9	16	120	25.5	14.8	2.4	3.0	4.0	SE-50125TR	LTW-20
KGM□ 1212F-1.5-85	○			25	12	2	4	10	12	85	19	11.4	1.2	1.5	2.0	SE-40120TR	LTW-15S
KGM□ 1212F-2-85	○			25	12	2	4	10	12	85	19	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	11	2.0	2.4	3.0	SE-40120TR	LTW-15S

KGM

Width: 3.0~8.0mm





• Right-hand shown

Toolholder Dimensions

Description	Std. R	Std. L	Unit	Dimension H1=h	H2	H3	B	L1	L2	F1	A	T	Width W MIN.	Width W MAX.	Spare Parts Screw		Spare Parts Wrench	
KGM□ 12-3	●		Inch	0.75	-	0.217	0.75	5.0	1.07	0.702	0.094	0.354	3 mm	4 mm	-	HH5X16	-	LW-4
KGM□ 16-3	●			1.00	-		1.00	6.0		0.953						HH5X25		
KGM□ 1212H-3	○	○	mm	12	4	6	12	100	27	10.8	2.4	9	3.0	3.0	SB-5TR	-	LTW-20	-
KGM□ 1616H-3	●	○		16		7	16			14.8			3.0	4.0	-	HH5X16	-	LW-4
KGM□ 2020K-3	○	○		20	-	7	20	125		18.8								
KGM□ 2525M-3	○	○		25			25	150		23.8						HH5X25		
KGM□ 2020K-4	○	○		20	-	7	20	125	27	18.3	3.4	10	4.0	5.0	-	HH5X16	-	LW-4
KGM□ 2525M-4	○	○		25			25	150		23.3						HH5X25		
KGM□ 2020K-5	○	○		20	-	7	20	125	27	17.8	4.4	10	5.0	6.0	-	HH5X16	-	LW-4
KGM□ 2525M-5	○	○		25			25	150		22.8						HH5X25		
KGM□ 3232P-5	○	○		32			32	170		29.8								
KGM□ 2525M-8	○	○		25	7.5	10.5	25	150	40	22.0	6.0	25	8.0	8.0	-	HH6X25	-	LW-5
KGM□ 3232P-8	○	○		32	-		32	170		29.0								

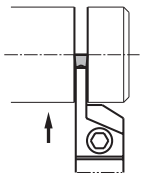
• Dimension T shows the distance from the Toolholder to the cutting edge.

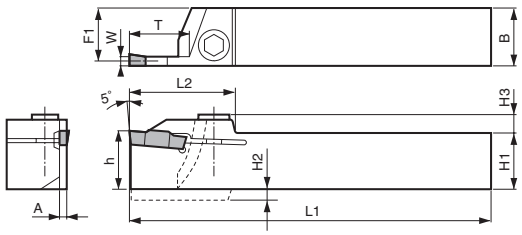
• 4.0mm width Insert can be installed in KGM□1212H-3, but is not recommended due to the toolholder's rigidity.

● : Std. Stock ○: World Express

KGM-T

Width: 2.0~6.0mm





• Right-hand shown

Toolholder Dimensions

Description		Std. R	Std. L	Unit	Dimension H1=h	H2	H3	B	L1	L2	F1	A	T	Width W MIN.	Width W MAX.	Spare Parts: Screw	Screw	Wrench	Wrench
KGM R/L	12-2T	●	●	Inch	0.75	-	0.24	0.75	5.0	1.30	0.717	0.067	0.669	.078	.118	-	HH5X16	-	LW-4
	16-2T	●			1.00	-	0.24	1.00	6.0	1.30	0.967	0.067	0.669				HH5X25		
	12-3T	●	●		0.75	-	0.24	0.75	5.0	1.42	0.702	0.094	0.787	.118	.157	-	HH5X16	-	
	16-3T	●	●		1.00	-	0.24	1.00	6.0	1.42	0.953	0.094	0.787				HH5X25		
	12-4T	●	●		0.75	-	0.24	0.75	5.0	1.42	0.683	0.133	0.787	.157	.197	-	HH5X16	-	
	16-4T	●			1.00	-	0.24	1.00	6.0	1.22	0.933	0.133	0.984				HH5X25		
	16-5T	●	●		1.00	-	0.24	1.00	6.0	1.22	0.913	0.173	0.984	.197	.236	-	HH5X25	-	-
KGM R/L	2012K-2T17	○	○	mm	20	-	7	12	125	33	11.15	1.7	17	2.0	3.0	SB-5TR	-	LTW-20	-
	2020K-2T17	○	○		20			20	125		19.15					-	HH5X16	-	LW-4
	2525M-2T17	○	○		25			25	150		24.15						HH5X25		
	1616H-3T20	●	●		16	4	7	16	100	36	14.8	2.4	20	3.0	4.0	-	HH5X16	-	LW-4
	2012K-3T20	○	○		20	-		12	125		10.8					SB-5TR	-	LTW-20	-
	2020K-3T20	○	○					20			18.8					-	HH5X16	-	LW-4
	2525M-3T20	○	○		25			25	150		23.8						HH5X25		
	2020K-4T20	○	○		20	-	7.5	20	125	36	18.3	3.4	20	4.0	5.0	-	HH5X16	-	LW-4
	2525M-4T20	○	○		25			25	150	36	23.3		20				HH5X25		
	2525M-4T25	○	○							41			25						
	2525M-5T25	○	○		25	-	8.5	25	150	42	22.8	4.4	25	5.0	6.0	-	HH5X25	-	LW-4
	3232P-5T25	○	○		32			32	170		29.8								
	2525M-6T30	○	○		25	-	9.5	25	150	45	22.4	5.2	30	6.0	6.0	-	HH5X25	-	LW-4

• Dimension T shows the distance from the Toolholder to the cutting edge. See the Table (**H20**) for the relationship between the Grooving Depth and the Cutting Dia..
• When using GMG / GMM type (2-edge) Insert, set the grooving depth under 15mm.

Applicable Inserts

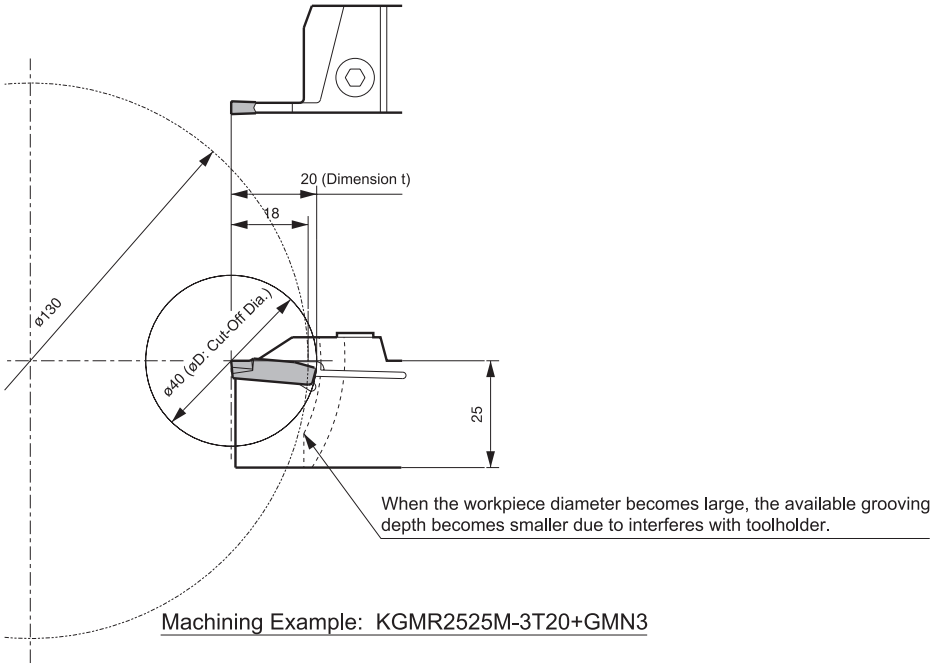
Applications	Grooving / Turning	Grooving / Turning	Grooving	Full-R / Copying	Full-R / Copying	Cut-Off	Cut-Off	Cut-Off	Cut-Off	Cut-Off
Ref. Page	G60	G60	G60	G60	G61	H18	H18	H18	H18	H18
Insert / Toolholder	MW	MS	MG			MT	NB	TK / TMR	TK	
KGM R/L ···1.5	-	-	-	-	-	GMM1520..MT GMM2020..MT GMM1520R/L..MT GMM2020R/L..MT	GMM1520..NB GMM2020..NB	GMM2020..T. GMM2020R/L..T.	GMN2..TK GMR/L 2..TK	-
KGM R/L ···2(T)	GMM2420..MW GMM3020..MW	GMG3020..MS GMM3020..MS	GMG2520..MG GMG3020..MG	GMG3020..R GMM3020..R	-	GMM2020..MT GMM2520..MT GMM3020..MT GMM2020R/L..MT GMM2520R/L..MT GMM3020R/L..MT	GMM2020..NB GMM2520..NB GMM3020..NB	GMM2020..T. GMM2520..T. GMM3020..T. GMM2020R/L..T. GMM2520R/L..T. GMM3020R/L..T.	GMN2..TK GMN3..TK GMR/L2..TK GMR/L3..TK	GMN2 GMN2.2 GMN3 GMR/L2.2 GMR/L3
KGM R/L ···2.5	GMM2420..MW GMM3020..MW	GMG3020..MS GMM3020..MS	GMG2520..MG GMG3020..MG	GMG3020..R GMM3020..R	-	GMM2520..MT GMM3020..MT GMM2520R/L..MT GMM3020R/L..MT	GMM2520..NB GMM3020..NB	GMM2520..T. GMM3020..T. GMM2520R/L..T. GMM3020R/L..T.	GMN3..TK GMR/L3..TK	GMN3 GMR/L3
KGM R/L ···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 GMM3020R/L..MT	GMM3020..NB	GMM3020..T. GMM3020R/L..T.	GMN3..TK GMN4..TK GMR/L3..TK GMR/L4..TK	GMN3 GMN4 GMR/L3 GMR/L4
KGM R/L ···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 GMR/L4..TK	GMN4 GMN5 GMR/L4
KGM R/L ···5T	GMM5020..MW GMM6020..MW	GMG5020..MS GMM5020..MS GMG6020..MS GMM6020..MS	GMG5020..MG GMG6020..MG	GMG5020..R GMM5020..R GMG6020..R GMM6020..R	GMGA6020..R	-	-	-	-	GMN5 GMN6
KGM R/L ···6T	GMM6020..MW	GMG6020..MS GMM6020..MS	GMG6020..MG	GMG6020..R GMM6020..R	GMGA6020..R	-	-	-	-	GMN6
KGM R/L ···8	GMM8030..MW	-	GMG8030..MG	-	GMGA8030..R	-	-	-	-	-

● : Std. Stock ○ : World Express

For recommended cutting conditions, see page ⊕H28

Available cut-off diameters of KGM / KGM-T type

There is a limit to available grooving depth depending on the workpiece diameter.



Machining Example: KGMR2525M-3T20+GMN3

KGM (For Automatic Lathe) Available Cutting Dia. Table

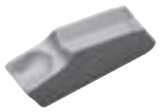
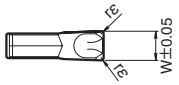
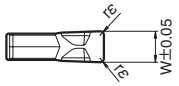
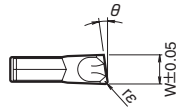
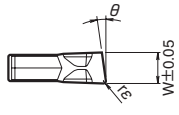
Toolholder		øD (Cut-Off Dia.)																	
KGMR/L	1010 ○ -1.5···	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞	∞		
	1212 ○ -1.5···	-	-	-	-	25	26	28	32	36	40	60	100						
	0810K-2-125	-	-	-	-	-	-	-	-	-	-	-	-	10	14	16	32		
	1010 ○ -2···	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞	∞	∞	
	1212 ○ -2···	-	-	-	-	25	26	28	50	∞	∞	∞	∞						
	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												
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 Dia. Table (GMN, GMR/L type When using 1-edge inserts)

Toolholder		øD (Cutting Dia.)												
KGMR/L	2012K-2T17	-	-	-	-	-	-	-	-	66	80	130	260	∞
	2020K-2T17	-	-	-	-	-	-	-	-	66	80	130	260	
	2525M-2T17	-	-	-	-	-	-	-	-	66	80	130	260	
	1616H-3T20	-	-	-	-	-	40	54	70	100	180	∞	∞	
	2012K-3T20	-	-	-	-	-	40	90	130	240	∞			
	2020K-3T20	-	-	-	-	-	40	90	130	240				
	2525M-3T20	-	-	-	-	-	40	90	130	240				
	2020K-4T20	-	-	-	-	-	40	90	130	240				
	2525M-4T20	-	-	-	-	-	40	90	130	240				
	2525M-4T25	-	-	50	140	240	∞	∞	∞	∞				
	2525M-5T25	-	-	50	140	240								
	3232P-5T25	-	-	50	280	600								
	2525M-6T30	100	300	∞	∞	∞								
Grooving Depth t (mm)		30	27	25	23	22	20	19	18	17	16	15	14	under 13

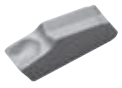
TKN / TKR/L

Classification of usage								Ref. Page for Applicable Toolholder
● : Continuous-Low Interruption / 1st Choice ◔ : Continuous-Low Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	P	Carbon Steel and Alloy Steel	○	●		○		
	M	Stainless Steel		◔	●	○		
	K	Cast Iron					●	
	N	Non-ferrous Metals					●	

Insert (Handed Insert shows Right-hand)		Description		Dimension (mm) W	Dimension (mm) rε	Angle (°) θ	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR660	PVD Coated Carbide PR930	Carbide KW10	Ref. Page for Applicable Toolholder
		TKN	1.6	1.6	0.15	-	●	●	●	○	○	H24 H26
			2	2.2	0.20		○	●	●	○	●	
			2.4	2.4	0.20		●	○	●	○	●	
			3	3.1	0.25		●	●	●	○	●	
			4	4.1	0.30		○	●	●	○	●	
			4.8	4.8	0.30			●				
			5	5.1	0.30			●	●	●	●	
			6	6.4	0.35			●	○		○	
			8	8.0	0.40			○	○			
			9	9.6	0.45			○	○			
 Low Feed		TKN	1.6-P	1.6	0.20	-	○	○	○	○	○	
			2-P	2.2	0.20		○	○	○	○	○	
			3-P	3.1	0.25		○	○	●	○	○	
 Lead Angle		TKR/L	1.6	1.6	0.15	8°	●	●	●	○	○	
			2	2.2	0.20		●	○	●	○	●	
			2.4	2.4	0.20		●	●	●	○	●	
			3	3.1	0.25		●	●	●	○	●	
			4	4.1	0.30		○	●	○		○	
			5	5.1	0.30			●	●		○	
 Low Feed / Lead-Angled		TKR/L	1.6-P	1.6	0.20	8°	○	○	○	○	○	
			2-P	2.2	0.20		○	○	○	○	○	
			3-P	3.1	0.25		○	○	●	○	○	

For recommended cutting conditions, see page H28

Cut-Off Tools

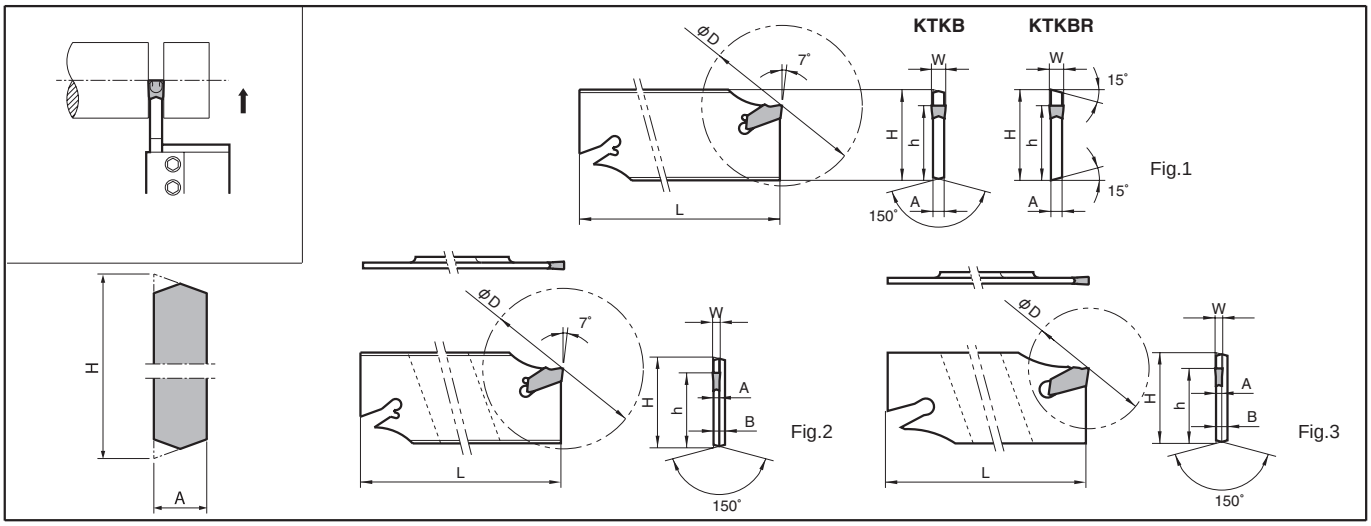
Cutting Range	Chipbreaker		Advantage
General Cut-Off	Standard (No Indication)		General cut-off type for feed rates over 0.004 ipr Superior chip evacuation
Low Feed Cut-Off	P		Chipbreaker specially designed for low feed machining on automatic lathes, etc. Chips are controlled at feed rate 0.0012~0.0031 ipr.

Insert's Edge Shape (CERACUT Cut-Off)

	Chamfer + hone	Sharp Edge	Hone
Edge Shape			
Std. Chipbreaker	TN90 CR9025 / PR660	PR930 / KW10	-
P-Chipbreaker	-	-	TN90 / CR9025 PR660 / PR930 / KW10

• Sharp Edge Spec. can reduce cutting resistance 40% less than that of chamfer edge.

KTKB-S / KTKB-SS



Blade Dimensions

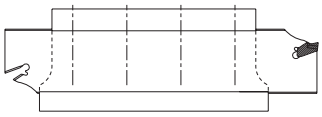
Description		Stock	Cutting Dia.	Dimension (mm)					Width (mm)	Drawing	Applicable Inserts ➡ H23				Applicable Block ➡ H25
			øDmax	*H	h	B	L	A	W			Low Feed	With Lead Angle	Low Feed / Lead-Angled	
KTKB	19-1SS	○	32	19	15.7	2.4	86	1.2	1.6	Fig.3	TKN1.6	TKN1.6-P	TK□1.6	TK□1.6-P	KTKTB 16-19 20-19
KTKB	26-1SS	●	35	26	21.4	2.4	110	1.2	1.6	Fig.3	TKN1.6	TKN1.6-P	TK□1.6	TK□1.6-P	KTKTB 16-26 20-26
KTKB	32-1SS	○	35	32	25	2.4	150	1.2	1.6	Fig.3	TKN1.6	TKN1.6-P	TK□1.6	TK□1.6-P	KTKTB 20-32 25-32 32-32 KTKTBF 25-32 32-32
KTKB	19-2S	●	40	19	15.7	-	86	1.8	2.2 2.4	Fig.1	TKN2 TKN2.4	TKN2-P	TK□2 TK□2.4	TK□2-P	KTKTB 16-19 20-19
KTKB	26-2S	●	50	26	21.4	-	110	1.8	2.2 2.4		TKN2 TKN2.4	TKN2-P	TK□2 TK□2.4	TK□2-P	KTKTB 16-26 20-26
	26-3S	●	75					2.6	3.1		TKN3	TKN3-P	TK□3	TK□3-P	
	26-4S	●	80					3.4	4.1		TKN4	-	TK□4	-	
	26-5S	○	80					4.2	4.8 5.1		TKN4.8 TKN5	-	TK□5	-	
KTKB	32-2S	●	50	32	25	2.6	150	1.8	2.2 2.4	Fig.2	TKN2 TKN2.4	TKN2-P	TK□2 TK□2.4	TK□2-P	KTKTB 20-32 25-32 32-32 KTKTBF 25-32 32-32
	32-3S	●	100			-		2.6	3.1	Fig.1	TKN3	TKN3-P	TK□3	TK□3-P	
	32-4S	●	100					3.4	4.1		TKN4	-	TK□4	-	
	32-5S	●	120					4.2	4.8 5.1		TKN4.8 TKN5	-	TK□5	-	
	32-6S	○	120					5.4	6.4		TKN6	-	-	-	
KTKB□	32-8S	○	120	32	25	-	150	6.8	8.0	Fig.1	TKN8	-	-	-	
	32-9S	○	120					8.0	9.6		TKN9	-	-	-	

Note) 1. Suffix "-SS" means silver coating.
2. Releasing wrench is "LTK-5".
* Dimension H shows virtual apex distance.

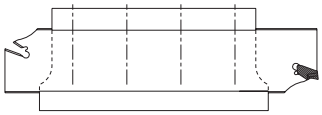
● : Std. Item ○ : World Express

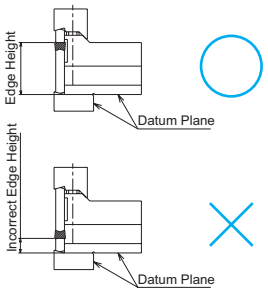
How to install toolblock and blade.

●Correct way

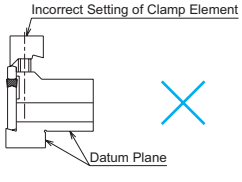


●Incorrect way





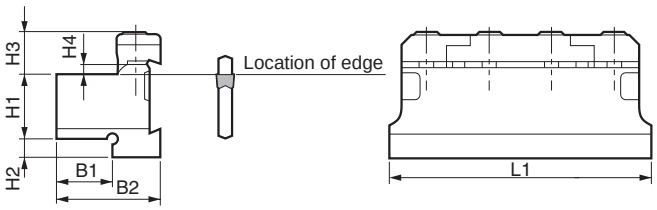
●Incorrect Setting of Clamp Element



If the clamp element is mounted backward, a large gap will occur between the clamp and the toolblock, and the blade may come off during cutting.
Be careful when installing the clamp for safety.

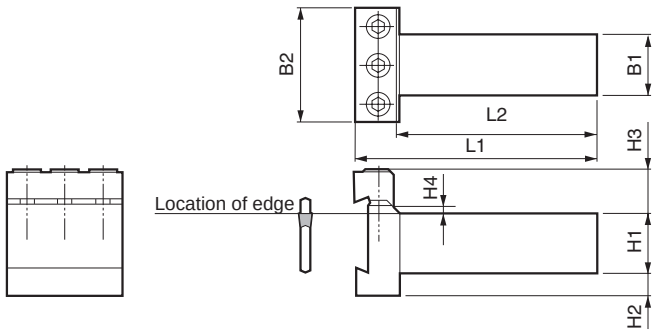
KTKTB (Separate type)





KTKTBF (Separate / Perpendicular type)



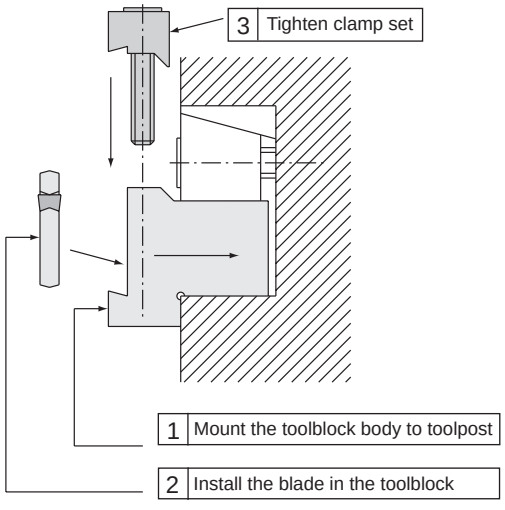


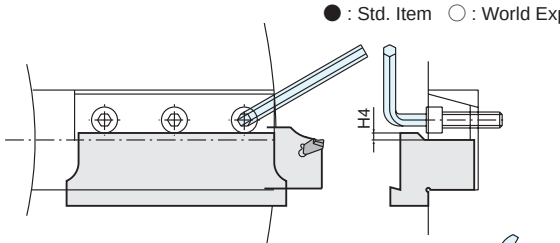
Toolblock Dimensions

Description		Stock	Unit	Dimension								Spare Parts				Applicable Blade	
												Clamp Set		Screw	Wrench	Cut-off	
				H1	H2	H3	H4	B1	B2	L1	L2	Separate Type	Integral Type			H24	
KTKTB	19-19	●	Inch	0.75	0.19	0.46	0.079	0.720	1.31	2.99	-	-	BCS-1	HH5X25	LW-4	KTKB19-○S KTKB19-1SS	-
	16-19	○	mm	16	4	12	2	15.5	29.5	76	-	-	BCS-1	HH5X25	LW-4		
	20-19	○		20				19	34								
	19-26	●	Inch	0.75	0.39	0.55	0.098	0.720	1.39	3.39	-	BCS-2	-	HH6X30	LW-5	KTKB26-○S KTKB26-1SS	-
	16-26	○	mm	16	13	14	2.5	15.5	31.5	86	-	BCS-2	-	HH6X30	LW-5		
	20-26	○		20	9			19	36								
	25.4-32	●	Inch	1.00	0.30	0.67	0.138	0.905	1.65	4.33	-	BCS-4	-	HH6X30	LW-5	KTKB32-○S KTKB32-1SS KTKB$\frac{5}{4}$32-○S	
	20-32	○	mm	20	13	17	3.5	19	38	100	-	BCS-3	-	HH6X30	LW-5		
	25-32	○		25	8			23	42	110		BCS-4					
	32-32	○		32	5			29	48								
KTKTBF	25-32	○		25	9.5	17	3.5	25	48	102	84.5	-	BCS-5	HH6X30	LW-5	KTKB32-○S KTKB32-1SS KTKB$\frac{5}{4}$32-○S	
	32-32	○		32	2.5			32		117	99.5						

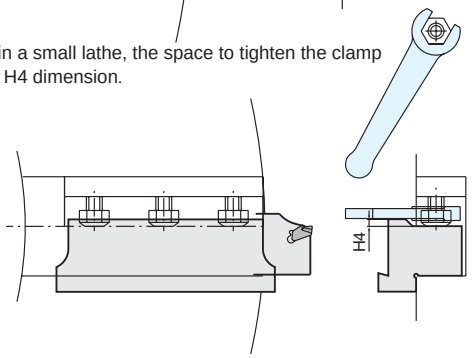
● : Std. Item ○ : World Express

How to mount the Toolblock

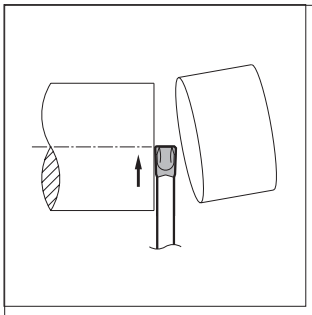




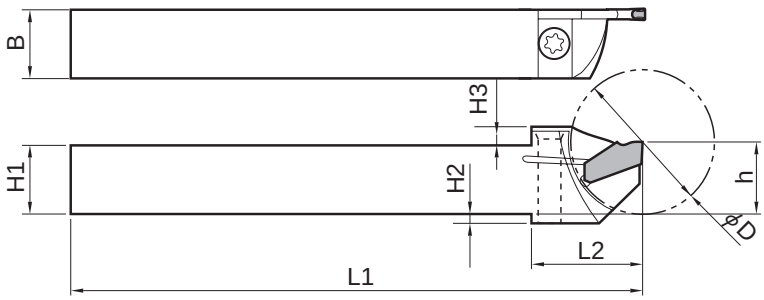
When mounting the toolblock in a small lathe, the space to tighten the clamp bolt may be narrow due to the H4 dimension.



■ KTKH-B/S



For Automatic Lathe (Long Shank type)



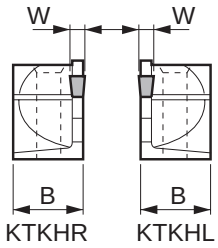
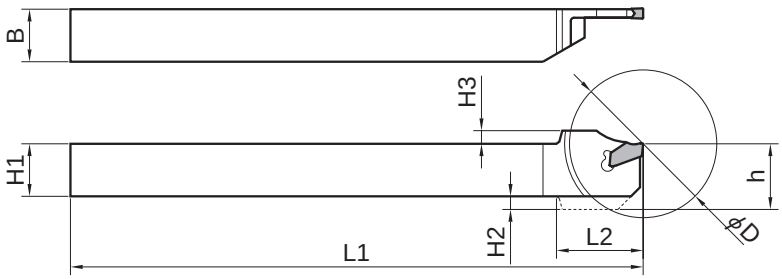


Fig. 1

For Automatic Lathe (Long Shank type)



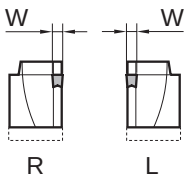
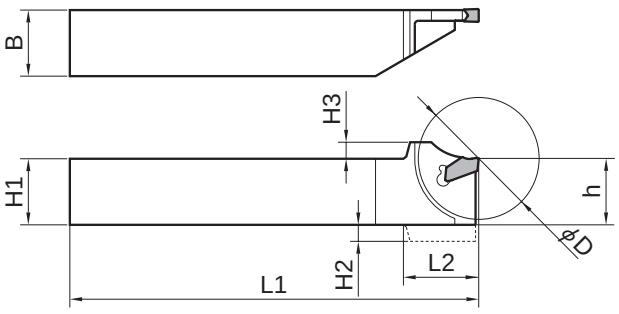


Fig. 2

For General Cut-Off



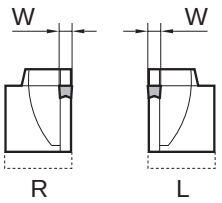
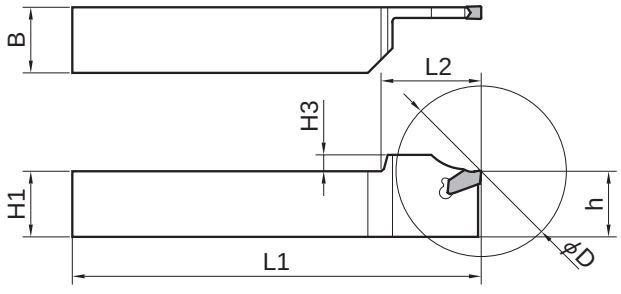


Fig. 3

For General Cut-Off



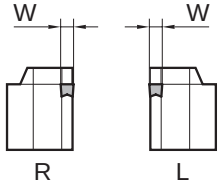


Fig. 4

●Right-hand Shown

● Toolholder Dimensions

Description		Stock R	Stock L	Cutting Dia. ΦDmax	Dimension (mm) H1=h	H2	H3	B	L1	L2	Width (mm) W	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench		Applicable Insert ➡ H23
KTKHR/L	0808K-1.6-125B	○	○	10	8	4	2	8	125	13.0	1.6	Fig. 1	SE-40120TR	FT-15	-	TKN1.6(-P) TKR/L1.6(-P)
	1010K-1.6-125B	○	○	20	10	2.5	2	10	125	16.8						
	1212M-1.6-150B	○	○	25	12	0	2	12	150	18.8						
	1414M-1.6-150B	○	○	26	14	0	2	14	150	19.8						
	1010K-2-125B	○	○	20	10	5	3	10	125	16.8	2.2 2.4		SE-40120TR	FT-15	-	TKN2(-P) TKR/L2(-P) TKN2.4 TKR/L2.4
	1212M-2-150B	○	○	25	12	2	3	12	150	18.8						
	1616M-2-150B	○	○	32	16	0	3	16	150	23.8			SE-50125TR	-	LTW-20	
	1616M-3-150B	○	○	32	16	4	4	16	150	23.8	3.1		SE-50125TR	-	LTW-20	TKN3(-P),TKR/L3(-P)

● Toolholder Dimensions

Description		Stock R	Stock L	Unit	Cutting Dia. ΦDmax	Dimension H1=h	H2	H3	B	L1	L2	Width W	Drawing	Spare Parts: Wrench			Applicable Insert ➡ H23
For Automatic Lathe (Long Shank type)																	
KTKHR/L	8-1.6-6S	●	●	inch	1.20	.500	0	.079	.500	6.0	.67	.063	Fig. 2	LTK-5			TKN1.6(-P) TKR/L1.6(-P)
	6-2-5S	●	●	inch	1.20	.375	.20	.117	.375	5.0	.69	.087 .094	Fig. 2	LTK-5			TKN2(-P) TKR/L2(-P)
	8-2-6S	●	●		1.30	.500	.16	.087	.500	6.0	.70						TKN2.4 TKR/L2.4
KTKHR/L	1010K-2-125S	●	○	mm	30	10	5	3	10	125	17.5	2.2 2.4	Fig. 2	LTK-5			TKN2(-P) TKR/L2(-P) TKN2.4 TKR/L2.4
	1212M-2-150S	●	○		30	12	4	3	12	150	18.0						
	1616M-2-150S	●	●		36	16	0	3	16	150	20.7						
	1616M-3-150S	●	●	mm	45	16	4	4	16	150	25.6	3.1	Fig. 2	LTK-5			TKN3(-P),TKR/L3(-P)
For General Cut-Off																	
KTKHR/L	12-2S	●	○	inch	1.50	.75	0	.15	.75	5.0	.87	.087 .094	Fig. 3	LTK-5			TKN2(-P),TKR/L2(-P) TKN2.4, TKR/L2.4
	12-3S	●	●	inch	2.00	.75	-	.10	.75	5.0	1.19	.122	Fig. 4	LTK-5			TKN3(-P),TKR/L3(-P)
	16-3S	●	○		2.10	1.00		.20	1.00	6.0	1.21						
	12-4S	●	○	inch	2.40	.75		.10	.75	5.0	1.35	.161	Fig. 4	LTK-5			TKN4,TKR/L4
	16-4S	●	○		2.60	1.00		.20	1.00	6.0	1.36						
	16-5S	●	○	inch	3.10	1.00		.20	1.00	6.0	1.56	.189 .201	Fig. 4	LTK-5			TKN4.8,5, TKR/L5
	1010F-2S	○	○	mm	30	10	5	4	10	80	18.6	2.2 2.4	Fig. 3	LTK-5			TKN2(-P) TKR/L2(-P) TKN2.4 TKR/L2.4
	1212H-2S	○	○		33	12	4	5	12	100	19.8						
	1612H-2S	○	○		33	16	0	3	12	100	19.8						
	1616H-2S	○	○		33	16	0	3	16	100	19.8						
	2012K-2S	○	○		38	20	0	4	12	125	22.8						
	2020K-2S	○	○		38	20	0	4	20	125	22.8						
	1612H-3S	○	○	mm	36	16	4	4	12	100	21.7	3.1	Fig. 3	LTK-5			TKN3(-P) TKR/L3(-P)
	1616H-3S	○	○		36	16	4	4	16	100	21.7						
	2012K-3S	○	○		41	20	0	5	12	125	25.3						
	2020K-3S	○	○		52	20	-	5	20	125	31.0		Fig. 4				
	2525M-3S	○	○		55	25	-	5	25	150	31.5						
	2012K-4S	○	○	mm	44	20	0	5	12	125	26.3	4.1	Fig. 3	LTK-5			TKN4 TKR/L4
	2020K-4S	○	○		62	20	-	5	20	125	35.0		Fig. 4				
	2525M-4S	○	○		68	25	-	5	25	150	38.0						
	2525M-5S	○	○	mm	79	25	-	5	25	150	43.5	4.8,5.1	Fig. 4	LTK-5			TKN4.8,TKN5,TKR/L5
KTKHR/L	2020K-3T17S	○	○	mm	35	20	0	5	20	125	21.8	3.1	Fig. 3	LTK-5			TKN3(-P) TKR/L3(-P)
	2525M-3T22S	○	○		45	25	0	5	25	150	26.8						
	2020K-4T22S	○	○	mm	45	20	0	5	20	125	26.8	4.1		LTK-5			TKN4 TKR/L4
	2525M-4T22S	○	○		45	25	0	5	25	150	26.8						

Recommended Cutting Conditions ➡ H28

TKF12/16 Recommended Cutting Conditions

Workpiece Material	Recommended Grade (Vc m/min)			TKF12					TKF16		Remarks
				Width W (inch)					Width W (inch)		
	MEGACOAT	PVD Coated Carbide	Carbide	0.0008	0.00088	0.039	0.059	0.079	0.059	0.079	
	PR1225	PR1025	KW10	Feed Rate (ipr)					Feed Rate (ipr)		
Carbon Steel (SxxC)	★ 225 ~ 500	☆ 200 ~ 450	-	0.0004 ~ 0.0008	0.0004 ~ 0.0012	0.0004 ~ 0.0016 (0.0004 ~ 0.0020)	0.0004 ~ 0.0016 (0.0004 ~ 0.0028)	0.0004 ~ 0.0016 (0.0004 ~ 0.0028)	0.0008 ~ 0.0028 (0.0008 ~ 0.004)	0.0008 ~ 0.0028 (0.0008 ~ 0.004)	Coolant
Alloy Steel (SCM)	★ 225 ~ 500	☆ 200 ~ 450	-	0.0004 ~ 0.0008	0.0004 ~ 0.0012	0.0004 ~ 0.0016 (0.0004 ~ 0.0020)	0.0004 ~ 0.0016 (0.0004 ~ 0.0028)	0.0004 ~ 0.0016 (0.0004 ~ 0.0028)	0.0008 ~ 0.0028 (0.0008 ~ 0.004)	0.0008 ~ 0.0028 (0.0008 ~ 0.004)	
Stainless Steel (SUS304)	★ 200 ~ 400	☆ 175 ~ 350	-	0.005 ~ 0.00045	0.0004 ~ 0.0008	0.0004 ~ 0.0008 (0.0004 ~ 0.0012)	0.0004 ~ 0.0008 (0.0004 ~ 0.0012)	0.0004 ~ 0.0008 (0.0004 ~ 0.0012)	0.0004 ~ 0.0016 (0.0008 ~ 0.0016)	0.0004 ~ 0.0016 (0.0008 ~ 0.0016)	
Cast Iron (FC/FCD)	-	-	★ 150~ 350	0.0004 ~ 0.0012	0.0004 ~ 0.0016	0.0004 ~ 0.0020	0.0004 ~ 0.0020	0.0004 ~ 0.0020	0.0008 ~ 0.0032	0.0008 ~ 0.0032	
Aluminium	-	-	★ 650 ~ 1500	0.0004 ~ 0.0012	0.0004 ~ 0.0016	0.0004 ~ 0.0020	0.0004 ~ 0.0020	0.0004 ~ 0.0020	0.0008 ~ 0.0032	0.0008 ~ 0.0032	

※ ( ): Tough edge type (TKF..T..)
★ : 1st Recommendation
☆ : 2nd Recommendation

Workpiece Material		PCD KPD001		Remarks
		Grooving	Traversing	
Aluminium	Vc (sfm)	650 ~ 1650		Coolant
	Feed Rate (ipr)	0.0004 ~ 0.0012	0.0008 ~ 0.0047	
Brass	Vc (sfm)	325 ~ 1150		
	Feed Rate (ipr)	0.0004 ~ 0.0020	0.0008 ~ 0.0059	

Recommended Cutting Conditions

(When Using GMM-MT, GMM-TK, GMM-NB type Insert)

CERACUT Plunge & Turn

Work Material	Recommended Grade (Cutting Speed SFM)					Width (inch)					Remarks
	Cermet	CVD Coated	PVD Coated Carbide		Carbide	.059	.079/.098	.118	.157		
	-	CR9025	PR915	PR930	KW10	f(ipr)					
Carbon Steel	-	☆ 270~600	★ 200~500	☆ 200~430		.0004~.002	.0008~.006	.002~.008	.003~.012		Coolant
Alloy Steel	-	☆ 230~500	★ 200~500	☆ 200~430		.0004~.002	.0008~.006	.002~.008	.003~.012		
Stainless Steel	-	☆ 200~460	★ 170~460	★ 170~400		.0004~.002	.0008~.004	.002~.006	.003~.010		
Cast Iron	-	-	-	-	★ 170~330	.0004~.002	.002~.005	.004~.010	.004~.012		
Aluminum	-	-	-	-	★ 660~1490	.0004~.002	.002~.004	.002~.008	.002~.010		
Brass	-	-	-	-	★ 330~660	.0004~.002	.002~.004	.002~.006	.002~.008		

●When machining Steel and Stainless Steel with 4mm(.157") PR930 Insert , decrease the Feed Rate by 20%.

★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Cutting Conditions

(When Using GMM-TMR type Insert)

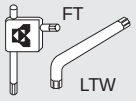
Work Material	Insert Grade (SFM)		Remarks
	PVD Coated	f(ipr)	
	PR1115		
Carbon Steel	200~660	.003~.007	Coolant
Alloy Steel	200~500		
Stainless Steel	170~460		

Alternative Toolholder Reference Table for Cut-off Toolholder (KTKF / KGM)

Conventional Toolholder						Alternative Toolholder			
Description	Overall length (mm)	Spare Parts: Clamp Screw	Spare Parts: Wrench	Spare Parts:	Description	Overall length (mm)	Remarks	Ref. Page
								
KTKFR/L 1010K-12	125	SB-4590TRWN	LTW-10S		KTKFR/L 1010JX-12	120		H8
KTKFR/L 1212M-12	150				KTKFR/L 1212JX-12	120		
KTKFR/L 1616M-12	150				KTKFR/L 1616JX-12	120		
KTKFR/L 1010K-16	125				KTKFR/L 1010JX-16	120		
KTKFR/L 1212M-16	150				KTKFR/L 1212JX-16	120		
KTKFR/L 1616M-16	150				KTKFR/L 1616JX-16	120		
KGMR/L 0810K-1.5-125	125	SE-40120TR	LTW-15S		-	-	No replacement	H18
KGMR/L 1010K-1.5-125	125				KGMR/L 1010JX-1.5	120		
KGMR/L 1212M-1.5-150	150				KGMR/L 1212JX-1.5	120		
KGMR/L 0810K-2-125	125	SE-40120TR	LTW-15S		-	-	No replacement	
KGMR/L 1010K-2-125	125				KGMR/L 1010JX-2	120		
KGMR/L 1212M-2-150	150				KGMR/L 1212JX-2	120		
KGMR/L 1616M-2-150	150	SE-50125TR	LTW-20		KGMR/L 1616JX-2	120		
KGMR/L 1010K-2.5-125	125	SE-40120TR	LTW-15S		KGMR/L 1010JX-2.5	120		
KGMR/L 1212M-2.5-150	150				KGMR/L 1212JX-2.5	120		
KGMR/L 1616M-2.5-150	150	SE-50125TR	LTW-20		KGMR/L 1616JX-2.5	120		
KGMR/L 1616M-3-150	150	SE-50125TR	LTW-20		KGMR/L 1616JX-3	120		

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

Alternative Toolholder Reference Table for Cut-off Toolholder (KTKH-B / KTKH-S)

Conventional Toolholder						Alternative Toolholder			
Description	Cut-Off Diameter	Spare Parts: Supplied wrench	Spare Parts: Clamp Bolt	Spare Parts: Wrench		Description	Cut-Off Diameter	Remarks	Ref. Page
									
KTKHR/L 0808K-1.6-125B	φ10	-	SE-40120TR	FT-15		-	-	No replacement	H18
KTKHR/L 1010K-1.6-125B	φ20					KGMR/L 1010JX-1.5	φ20		
KTKHR/L 1212M-1.6-150B	φ25					KGMR/L 1212JX-1.5	φ25		
KTKHR/L 1414M-1.6-150B	φ26					-	-	No replacement	
KTKHR/L 1010K-2-125B	φ20	-	SE-40120TR	FT-15		KGMR/L 1010JX-2	φ20		
KTKHR/L 1212M-2-150B	φ25					KGMR/L 1212JX-2	φ25		
KTKHR/L 1616M-2-150B	φ32	-	SE-50125TR	LTW-20		KGMR/L 1616JX-2	φ32		
KTKHR/L 1616M-3-150B	φ32					KGMR/L 1616JX-3	φ32		
KTKHR 1010K-2-125S	φ30	LTK-5	-	-		KGMR 1010JX-2	φ20	Processing diameter is small.	
KTKHR/L 1212M-2-150S	φ30					KGMR/L 1212JX-2	φ25	Processing diameter is small.	
KTKHR/L 1616M-2-150S	φ36					KGMR/L 1616JX-2	φ32	Processing diameter is small.	
KTKHR/L 1616M-3-150S	φ45					KGMR/L 1616JX-3	φ32	Processing diameter is small.	

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

Threading



J

J1~J59

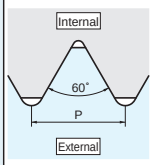
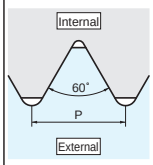
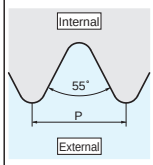
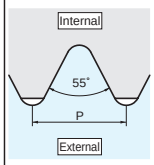
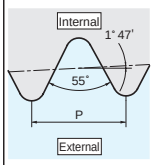
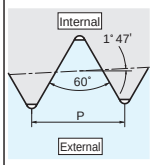
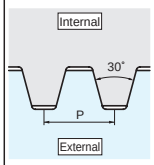
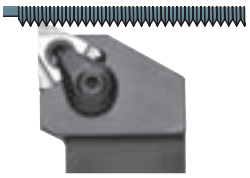
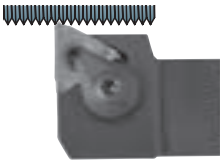
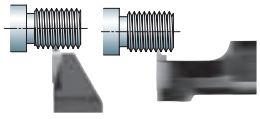
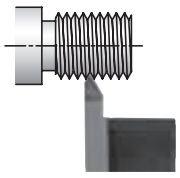
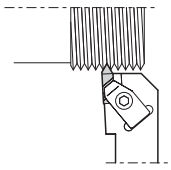
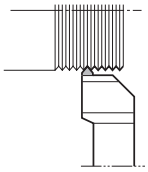
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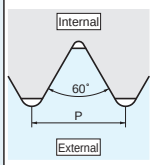
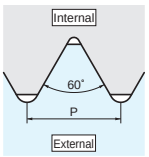
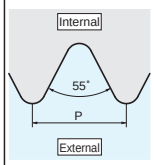
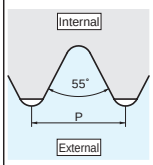
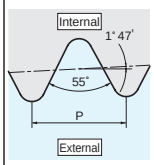
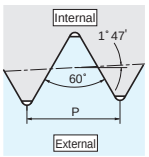
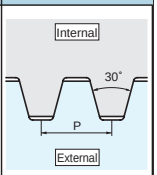
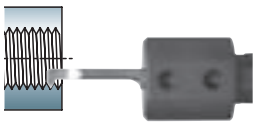
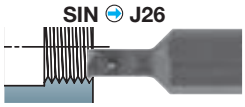
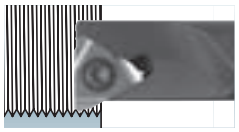
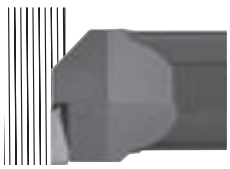
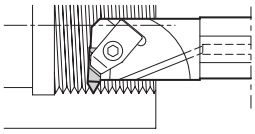


Summary of External Threading

Tooling Application Table (External Thread)

Thread Type		Metric	Unified	Parallel Pipe	Whitworth	Tapered Pipe	American National Pipe	30° Trapezoidal
		M	UN. UNC UNF. UNEF	G(PF)	W	R (PT) (BSBT)	NPT	Tr
Thread shape								
Pitch / Toolholder Shape		mm	TPI	TPI	TPI	TPI	TPI	mm
KTN ➔ J20 	Full Profile	0.5~5.0 ➔ **J8**	24~8 ➔ **J6**	19~11 ➔ **J6**	19~11 ➔ **J6**	28~11 ➔ **J10**	18~11.5 ➔ **J10**	–
	Partial Profile	0.5~5.0 ➔ **J12**	48~5 ➔ **J12**	28~11 ➔ **J14**	48~5 ➔ **J14**	28~11 ➔ **J14**	–	2.0~5.0 ➔ **J14**
KTNS ➔ J20 	Full Profile	0.5~3.0 ➔ **J8**	24~8 ➔ **J6**	19~11 ➔ **J6**	19~11 ➔ **J6**	28~11 ➔ **J10**	18~11.5 ➔ **J10**	–
	Partial Profile	0.5~3.0 ➔ **J12**	48~8 ➔ **J12**	28~11 ➔ **J14**	48~8 ➔ **J14**	28~11 ➔ **J14**	–	2.0~3.0 ➔ **J14**
KTT ➔ J25 	Full Profile	1.0~2.0 ➔ **J21**	–	–	–	–	–	–
	Partial Profile	0.5~3.5 ➔ **J21**	56~8 ➔ **J21**	28~11 ➔ **J21**	24~7 ➔ **J21**	28~11 ➔ **J21**	–	–
KTTX ➔ J23 S-KTTX ➔ J23 	Partial Profile	0.5~2.0 ➔ **J20**	56~14 ➔ **J20**	28~11 ➔ **J20**	24~11 ➔ **J20**	28~11 ➔ **J20**	–	–
KTKF ➔ J21 	Partial Profile	0.2~1.25 ➔ **J17**	64~16 ➔ **J17**	40~16 ➔ **J17**	40~16 ➔ **J17**	40~16 ➔ **J17**	–	–
KKC ➔ J27 	Partial Profile	0.7~4.0 ➔ **J16**	44~5 ➔ **J16**	–	–	–	–	–
STVP ➔ J27 	Partial Profile	0.5~4.0 ➔ **J16**	72~6 ➔ **J16**	–	–	–	–	–

Tooling Application Table (Internal Thread)

Thread Type		Metric	Unified	Parallel Pipe	Whitworth	Tapered Pipe	American National Pipe	30° Trapezoidal
		M	UN. UNC UNF. UNEF	G(PF) Rp(PS)	W	Rc(PT) (BSBT)	NPT	Tr
Thread shape								
Pitch / Toolholder Shape		mm	TPI	TPI	TPI	TPI	TPI	mm
VNT ⇒ J28 	Partial Profile	0.75~1.5 ⇒ **J28**	28~18 ⇒ **J28**	–	–	–	–	–
HPT ⇒ J31 	Partial Profile	0.75~1.5 (0.75~1.5) ⇒ **J31**	28~16 (28~16) ⇒ **J31**	–	24~18 ⇒ **J31**	28~19 ⇒ **J31**	–	–
SIN ⇒ J26 	Full Profile	0.5~5.0 ⇒ **J9**	24~8 ⇒ **J7**	19~11 ⇒ **J7**	16~11 ⇒ **J7**	28~11 ⇒ **J11**	18~11.5 ⇒ **J11**	–
	Partial Profile	0.5~5.0 ⇒ **J13**	48~8 ⇒ **J13**	28~11 ⇒ **J15**	48~11 ⇒ **J15**	28~11 ⇒ **J15**	–	2.0~5.0 ⇒ **J15**
CIN ⇒ J26 	Full Profile	1.0~5.0 ⇒ **J9**	24~8 ⇒ **J7**	19~11 ⇒ **J7**	14~11 ⇒ **J7**	28~11 ⇒ **J11**	11.5 ⇒ **J11**	–
	Partial Profile	0.5~5.0 ⇒ **J13**	48~8 ⇒ **J13**	28~11 ⇒ **J15**	48~11 ⇒ **J15**	28~11 ⇒ **J15**	–	2.0~5.0 ⇒ **J15**
KITG ⇒ J29 	Partial Profile	0.5~3.0 ⇒ **J29**	48~8 ⇒ **J29**	28~11 ⇒ **J29**	24~8 ⇒ **J29**	28~11 ⇒ **J29**	–	–
A-KKC ⇒ J30 	Partial Profile	2.5~3.5 ⇒ **J16**	44~5 ⇒ **J16**	–	–	–	–	–

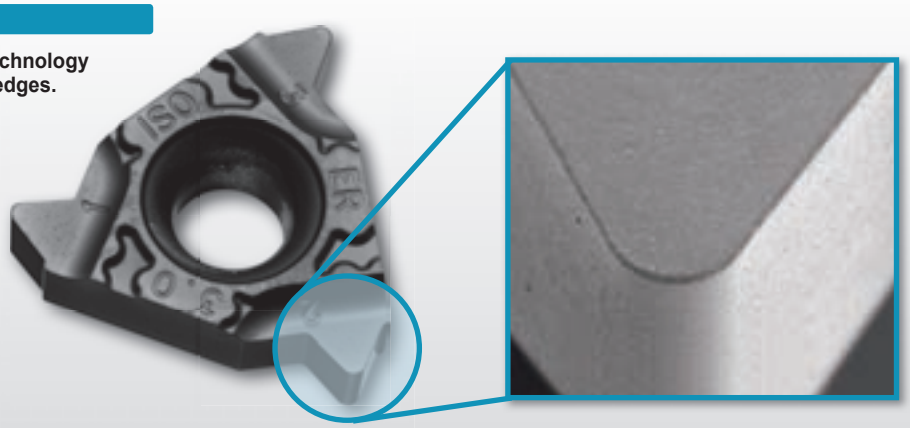
• Pitch shown in ( ) is for PST type.

TF Series Threading Inserts

High Quality Cutting Edge

TF series

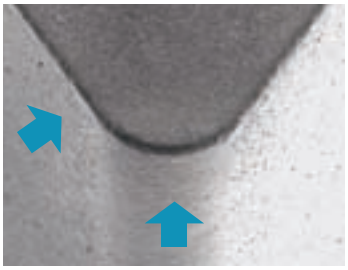
- High precision fine molding technology produces high quality cutting edges.



TF Series Cutting Edge vs. Competitor's Cutting Edge

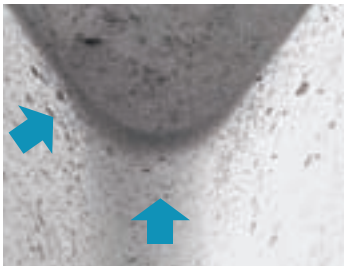
Consistent micro honing technology enables sharpness and high quality thread shape.

Sharp cutting



16ER150ISO-TF

Inconsistent edge honing condition.

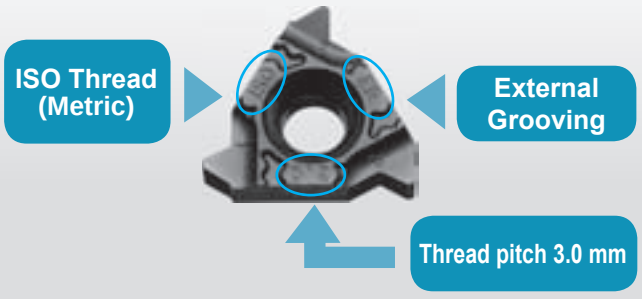


Competitor

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.

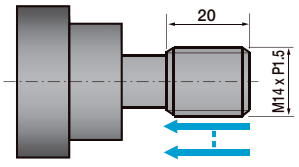


●16⋯-TF has the mark on its top face side, and 11⋯-TF has the mark on its seating face side (bottom side).

Case Studies

3x the Tool Life

- Machine Part
- SCM415
- Vc=200 sfm
- WET



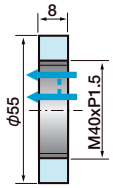
16ER150ISO-TF(PR1115)	1800 pcs/edge
Competitor A	600 pcs/edge

New TF Series extended the tool life 3 times compared to Competitor A.

(Evaluation by the user)

1.7x the Tool Life

- Nut
- 1025
- Vc=850 sfm
- WET



16IR150ISO-TF(PR1115)	500 pcs/edge
Competitor B	300 pcs/edge

New TF Series extended the tool life 1.7 times compared to Competitor B.

(Evaluation by the user)

KTKF J21

Threading

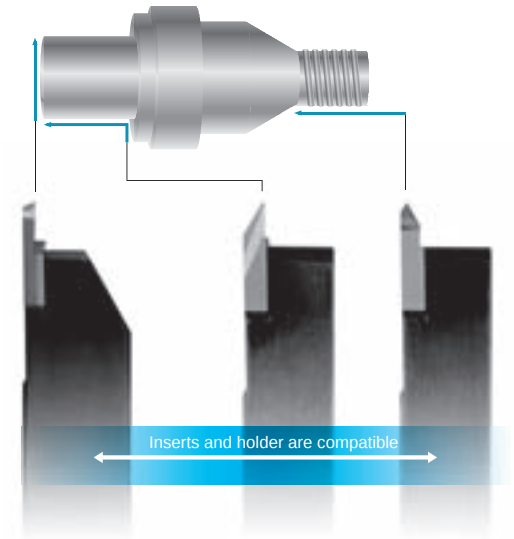
For Threading

TKFT



● Applicable for various type of threading

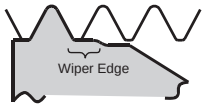
Metric (M)	Parallel Pipe [G (PF)]
Unified (UN)	Tapered Pipe [R (PT) (BSPT)]



Small Diameter Cut-Off **TKF** | Back Turning **TKFB** | Threading **TKFT**

Threading Insert Features

● Full Profile and Partial Profile

	Shape	Function	Features
Full Profile			① Burr-free thread surface; high quality (Smooth feeling) ② Additional stock must be left on the part diameter for full topping ③ Every pitch size requires a specific insert
Partial Profile			① Thread's corner tends to be sharp edged ② Thread's O.D. or I.D. needs to be finished to the size before threading ③ One insert can machine various pitch sizes

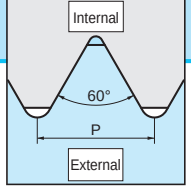
Thread Precision

Type of Thread		Thread Precision Tight ⟷ Loose		
M	External	4g (1st Class)	6g (2nd Class)	8g (3rd Class)
	Internal	5H (1st Class)	6H (2nd Class)	7H (3rd Class)
Unified	External	3A	2A	1A
	Internal	3B	2B	1B
* Applicable precision with Full Profile Insert		×	○	○

* Not recommended if strict thread precision is required.

● With and Without Chipbreaker

	Shape	Condition	Cutting Force	Chip Length
Without Chipbreaker	 **-TS**	・When less cutting force is needed for small or thin part machining	Small	
1-Thread, With Chipbreaker	 **-M02**	・When Better Chip Control is needed	Smaller	
2-Thread, With Chipbreaker		① Fewer passes and less machining time ② For rigid workpiece ③ Wider thread relief groove	Large (2 Edges engage in threading)	



External Threading Inserts

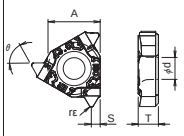
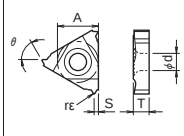
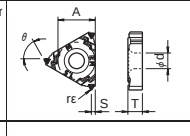
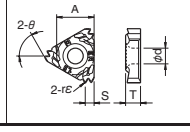
Metric (M)

Full Profile 60° (mm)

Description	Previous Description	A	T	ød
16ER	TNN32ER	9.525	3.68	4.0
22ER	TNN43ER	12.70	4.9	4.85

Classification of usage
● : 1st Choice
○ : 2nd Choice

				PVD Coated Carbide					
P	Carbon Steel / Alloy Steel		●	○					
M	Stainless Steel		●	○					
K	Cast Iron				●				
N	Non-ferrous Metals				●				

Insert (Handed Insert shows Right-hand)			Description	Previous Description	Applicable Thread M	Pitch mm	Dimension (mm) rε	S	Angle (°) θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PR1115 L	PR930 R	PR930 L	Carbide GW15 R	GW15 L	KW10 R	KW10 L	Ref. Page for Depth of Cut & Number of Passes
Full Profile			16ER 100ISO-TF	-	1.0	0.12	0.80	60°				●								J46-J59
			125ISO-TF		1.25	0.15	0.90					●								
			150ISO-TF		1.5	0.19	1.00					●								
			175ISO-TF		1.75	0.22	1.60					●								
			200ISO-TF		2.0	0.25	1.50					●								
			250ISO-TF		2.5	0.33	1.60					●								
			300ISO-TF		3.0	0.41	1.60					●								
			16ER 050ISO	TNN32ER 050M	0.5	0.06	0.40	60°				○	○							
			075ISO	075M	0.75	0.09	0.53					○	○			○				
			100ISO	100M	1.0	0.12	0.80						○			○				
			125ISO	125M	1.25	0.15	0.90						○			○				
			150ISO	150M	1.5	0.19	1.00						○			○				
			175ISO	175M	1.75	0.22	1.50									○				
			200ISO	200M	2.0	0.25	1.50						○							
			250ISO	250M	2.5	0.32	1.60									○				
			22ER 300ISO	TNN43ER 300M	3.0	0.41	2.10									○				
			350ISO	350M	3.5	0.48	2.10					○								
			400ISO	400M	4.0	0.55	2.80					○								
			450ISO	450M	4.5	0.62	2.80					○								
			500ISO	500M	5.0	0.70	2.80					○								
	1-Thread, With Chipbreaker 		16ER 100ISO-TS	TNN32ER 100M-TS	1.0	0.12	0.80	60°						○						
			125ISO-TS	125M-TS	1.25	0.15	0.90							○						
			150ISO-TS	150M-TS	1.5	0.19	1.00							○						
			200ISO-TS	200M-TS	2.0	0.25	1.50							●						
	2-Thread, With Chipbreaker 		16ER 100ISO-M02	TNN32ER 100M02	1.0	0.12	1.80	60°	○					○						
			150ISO-M02	150M02	1.5	0.19	2.25		○					○						
			200ISO-M02	200M02	2.0	0.25	2.90		○					○						

Applicable Toolholder

Description	Applicable Toolholder	Ref. Page for Toolholder
16ER ···	KTNR··-16 KTNSR··-16	J20
16EL ···	KTNL··-16	
22ER ···	KTNR··-22	

For recommended cutting conditions, see page ➡ J45

Applicable Thread		
	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

Threading Inserts Identification System (Full Profile) ➡ J6~J11

16	E	R	100	ISO	-TF
❶	❷	❸	❹	❺	❻

①Insert Size	
16	9.525
22	12.70

②External / Internal	
E	External Threading
I	Internal Threading

③Insert Hand	
R	R-hand
L	L-hand

④Pitch	
Metric	
100	Pitch1mm
150	Pitch1.5mm
Inch Screw Thread	
24	24TPI
20	20TPI
Full Profile	

⑤Type of Applicable Thread	
ISO	Metric
M	Metric
UN	Unified
W	Whitworth
BSPT	Tapered Pipe
NPT	American National Tapered Pipe
Full Profile	

⑥Optional Code	
-TF	TF Cutting Edge
-TS	TS Chipbreaker
-M02	2-Thread

PR930 / PR1115 / GW15 (Threading Insert) is sold in 5 piece boxes.

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express

Internal Threading Inserts

Metric (M)

Full Profile 60°

(mm)

Description	Previous Description	A	T	ød
11IR/L	TNN22IR/L	6.35	3.18	3.0
16IR/L	TNN32IR/L	9.525	3.68	4.0
22IR/L	TNN43IR/L	12.70	4.9	4.85

Classification of usage
● : 1st Choice
○ : 2nd Choice

P	Carbon Steel / Alloy Steel		●	○		
M	Stainless Steel		●	○		
K	Cast Iron				●	
N	Non-ferrous Metals				●	

Insert (Handed Insert shows Right-hand)	Description	Previous Description	Applicable Thread M Pitch mm	Dimension (mm) rε	S	Angle (°) θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Depth of Cut & Number of Passes
Full Profile	11IR/L 100ISO-TF	-	1.0	0.07	0.8	60°			●								J46-J59
	11IR/L 125ISO-TF	-	1.25	0.08	1.1	60°			●								
	11IR/L 150ISO-TF	-	1.5	0.11	1.1	60°			●								
	11IR/L 175ISO-TF	-	1.75	0.12	1.1	60°			●								
	16IR/L 100ISO-TF	-	1.0	0.07	0.8	60°			●								
	16IR/L 125ISO-TF	-	1.25	0.08	1.1	60°			●								
	16IR/L 150ISO-TF	-	1.5	0.11	1.1	60°			●								
	16IR/L 175ISO-TF	-	1.75	0.12	1.1	60°			●								
	16IR/L 200ISO-TF	-	2.0	0.14	1.5	60°			●								
	16IR/L 250ISO-TF	-	2.5	0.17	1.5	60°			●								
	16IR/L 300ISO-TF	-	3.0	0.19	1.6	60°			●								
	11IR/L 050ISO	TNN22IR/L 050M	0.5	0.03	0.55	60°	○		●		○		●				
	11IR/L 075ISO	TNN22IR/L 075M	0.75	0.05	0.68	60°	○		●		○		●				
	11IR/L 100ISO	TNN22IR/L 100M	1.0	0.07	0.8	60°	○		●	●	○	○	●		○		
	11IR/L 125ISO	TNN22IR/L 125M	1.25	0.08	1.1	60°	○		●		○		●				
	11IR/L 150ISO	TNN22IR/L 150M	1.5	0.11	1.1	60°	○		●	●	○	●	●		○		
	11IR/L 175ISO	TNN22IR/L 175M	1.75	0.12	1.1	60°	○		●		○						
	11IR/L 200ISO	TNN22IR/L 200M	2.0	0.14	0.9	60°			●								
	16IR/L 100ISO	TNN32IR/L 100M	1.0	0.07	0.8	60°	○		●	●	○		●		○		
	16IR/L 125ISO	TNN32IR/L 125M	1.25	0.08	1.1	60°	○		●		●						
	16IR/L 150ISO	TNN32IR/L 150M	1.5	0.11	1.1	60°	○		●	●	●	○	●		○		
	16IR/L 175ISO	TNN32IR/L 175M	1.75	0.12	1.1	60°	○		●		●						
	16IR/L 200ISO	TNN32IR/L 200M	2.0	0.14	1.5	60°	○		●	●	○	○	●		○		
	16IR/L 250ISO	TNN32IR/L 250M	2.5	0.16	1.5	60°	○		●		○		●				
	16IR/L 300ISO	TNN32IR/L 300M	3.0	0.19	1.6	60°			●				●				
	22IR/L 300ISO	TNN43IR/L 300M	3.0	0.19	1.8	60°	○				○						
	22IR/L 350ISO	TNN43IR/L 350M	3.5	0.23	2.1	60°	○		○		○						
	22IR/L 400ISO	TNN43IR/L 400M	4.0	0.26	2.8	60°	○		○		○						
	22IR/L 450ISO	TNN43IR/L 450M	4.5	0.30	2.8	60°	○		○		○						
	22IR/L 500ISO	TNN43IR/L 500M	5.0	0.34	2.8	60°	○		○		○						
Single Point, With Chipbreaker	16IR/L 100ISO-TS	TNN32IR/L 100M-TS	1.0	0.07	0.8	60°					●						
	16IR/L 150ISO-TS	150M-TS	1.5	0.11	1.1	60°											
	16IR/L 200ISO-TS	200M-TS	2.0	0.14	1.5	60°					○						

Applicable Toolholder

For recommended cutting conditions, see page J45

Description	Applicable Toolholder	Ref. Page for Toolholder
11IR ···	SINR··-11E SINR··-11	J26
11IL ···	SINL··-11E SINL··-11	

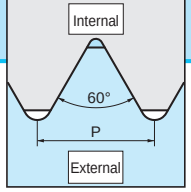
Description	Applicable Toolholder	Ref. Page for Toolholder
16IR ···	SINR··-16 CINR··-16	J26
16IL ···	SINL··-16 CINL··-16	
22IR ···	SINR··-22 CINR··-22	

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

PR930 / PR1115 / GW15 (Threading Insert) is sold in 5 piece boxes.

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express



External Threading Inserts

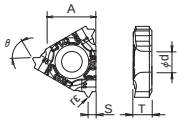
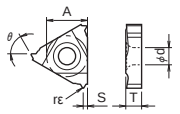
Unified (UN)

Full Profile 60° (mm)

Description	Previous Description	A	T	ød
16ER	TNN32ER	9.525	3.68	4.0
22ER	TNN43ER	12.70	4.9	4.85

Classification of usage
● : 1st Choice
○ : 2nd Choice

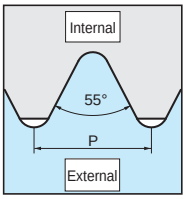
P	Carbon Steel / Alloy Steel			●		○											
M	Stainless Steel			●		○											
K	Cast Iron																
N	Non-ferrous Metals																

Insert			Description	Previous Description	Applicable Thread UN, UNF Pitch TPI	Dimension (mm) rε	Dimension (mm) S	Angle (°) θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Depth of Cut & Number of Passes
Handed Insert shows Right-hand																			
Full Profile			16ER 24UN-TF	-	24	0.12	0.80	60°			●								J46-J59
			16ER 20UN-TF		20	0.15	1.00				●								
			16ER 18UN-TF		18	0.18	1.00				●								
			16ER 16UN-TF		16	0.20	1.10				●								
			16ER 14UN-TF		14	0.23	1.50				●								
			16ER 13UN-TF		13	0.25	1.50				●								
			16ER 12UN-TF		12	0.27	1.50				●								
			16ER 10UN-TF		10	0.34	1.50				●								
			16ER 08UN-TF		8	0.43	1.75				●								
			16ER 24UN	TNN32ER 24UN	24	0.13	0.8	60°	○		○		○						
			16ER 20UN	TNN32ER 20UN	20	0.16	1.0		○		○		○						
			16ER 18UN	TNN32ER 18UN	18	0.18	1.0		○		○		○						
			16ER 16UN	TNN32ER 16UN	16	0.20	1.1		○		○		○						
			16ER 14UN	TNN32ER 14UN	14	0.23	1.5		○		○		○						
			16ER 12UN	TNN32ER 12UN	12	0.27	1.5		○		○		○						
			22ER 08UN	TNN43ER 08UN	8	0.43	2.1		○		○		○						

Applicable Toolholder

For recommended cutting conditions, see page ➡ J45

Description	Applicable Toolholder	Ref. Page for Toolholder
16ER ···	KTNR··-16 KTNSR··-16	J20
22ER ···	KTNR··-22	



External Threading Inserts

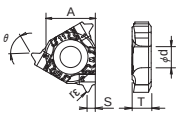
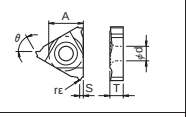
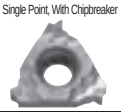
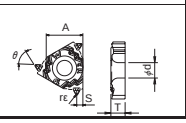
Parallel Pipe [G (PF)] Whitworth (W)

Full Profile 55° (mm)

Description	Previous Description	A	T	ød
16ER	TNN32ER	9.525	3.68	4.0

Classification of usage
● : 1st Choice
○ : 2nd Choice

P	Carbon Steel / Alloy Steel			●		○											
M	Stainless Steel			●		○											
K	Cast Iron																
N	Non-ferrous Metals																

Insert			Description	Previous Description	Applicable Thread G (PF)	Applicable Thread W	Pitch TPI	Dimension (mm) rε	Dimension (mm) S	Angle (°) θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Depth of Cut & Number of Passes
Handed Insert shows Right-hand																					
Full Profile			16ER 19W-TF	-	19	-	16	0.16	1.0	55°			○								J46-J59
			16ER 16W-TF		-	16		0.19	1.1				○								
			16ER 14W-TF		14	14		0.23	1.5				○								
			16ER 11W-TF		11	11		0.30	1.5				○								
			16ER 19W	TNN32ER 19W	19	-		0.16	1.0		○		○		○						
			14W	14W	14	14		0.23	1.5		○		○		○						
			11W	11W	11	11		0.30	1.5		○		○		○						
	Single Point, With Chipbreaker 		16ER 19W-TS	TNN32ER 19W-TS	19	-		0.16	1.0						○						
			14W-TS	14W-TS	14	14		0.23	1.5						○						
			11W-TS	11W-TS	11	11		0.30	1.5						○						

Applicable Toolholder

For recommended cutting conditions, see page ➡ J45

Description	Applicable Toolholder	Ref. Page for Toolholder
16ER ···	KTNR··-16 KTNSR··-16	J20

Applicable Thread		
	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

PR930 / PR1115 / GW15 (Threading Insert) is sold in 5 piece boxes.

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express

Internal Threading Inserts

Unified (UN)

Full Profile 60° (mm)

Description	Previous Description	A	T	ød
16IR/L	TNN32IR/L	9.525	3.68	4.0
22IR/L	TNN43IR/L	12.70	4.9	4.85

Classification of usage
● : 1st Choice
○ : 2nd Choice

		Cermet	PVD Coated Carbide		Carbide	
P	Carbon Steel / Alloy Steel		●	○		
M	Stainless Steel		●	○		
K	Cast Iron					
N	Non-ferrous Metals					

Insert (Handed Insert shows Right-hand)	Description	Previous Description	Applicable Thread: UN, UNF / Pitch / TPI	Dimension (mm): rε	S	Angle (°): θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Depth of Cut & Number of Passes
Full Profile	16IR/L 24UN-TF	-	24	0.06	0.8	60°			●								J46-J59
	16IR/L 20UN-TF		20	0.08	1.0				●								
	16IR/L 18UN-TF		18	0.09	1.0				●								
	16IR/L 16UN-TF		16	0.10	1.1				●								
	16IR/L 14UN-TF		14	0.12	1.5				●								
	16IR/L 13UN-TF		13	0.13	1.5				●								
	16IR/L 12UN-TF		12	0.14	1.5				●								
	16IR/L 10UN-TF		10	0.17	1.5				●								
	16IR/L 08UN-TF		8	0.21	1.8				●								
	16IR/L 24UN	TNN32IR/L 24UN	24	0.05	0.8	60°	○		○		○						
	16IR/L 20UN	20UN	20	0.07	1.0		○		○		○						
	16IR/L 18UN	18UN	18	0.09	1.0		○		○		○						
	16IR/L 16UN	16UN	16	0.10	1.1		○		○		○						
	16IR/L 14UN	14UN	14	0.12	1.5		○		○		○						
	16IR/L 12UN	12UN	12	0.14	1.5		○		○		○						
	22IR/L 08UN	TNN43IR/L 08UN	8	0.20	1.8	60°	○		○		○						

For recommended cutting conditions, see page J45

Applicable Toolholder

Description	Applicable Toolholder	Ref. Page for Toolholder
16IR ···	SINR··-16 CINR··-16	J26
22IR ···	SINR··-22 CINR··-22	

Internal Threading Inserts

Parallel Pipe [G (PF)] Whitworth (W)

Full Profile 55° (mm)

Description	Previous Description	A	T	ød
16IR/L	TNN32IR/L	9.525	3.68	4.0

Classification of usage
● : 1st Choice
○ : 2nd Choice

		Cermet	PVD Coated Carbide		Carbide	
P	Carbon Steel / Alloy Steel		●	○		
M	Stainless Steel		●	○		
K	Cast Iron					
N	Non-ferrous Metals					

Insert (Handed Insert shows Right-hand)	Description	Previous Description	Applicable Thread: G (PF) / W / Pitch / TPI	Dimension (mm): rε	S	Angle (°): θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Depth of Cut & Number of Passes
Full Profile	16IR/L 19W-TF	-	19 -	0.16	1.0	55°			○								J46-J59
	16IR/L 16W-TF		- 16	0.19	1.1				○								
	16IR/L 14W-TF		14 14	0.23	1.5				○								
	16IR/L 11W-TF		11 11	0.30	1.5				○								
	16IR/L 14W	TNN32IR/L 14W	14 14	0.23	1.5	55°	○		○		○						
	16IR/L 11W	11W	11 11	0.30	1.5		○		○		○						
Single Point, With Chipbreaker	16IR/L 14W-TS	TNN32IR/L 14W-TS	14 14	0.23	1.5	55°					○						
	16IR/L 11W-TS	11W-TS	11 11	0.30	1.5						○						

For recommended cutting conditions, see page J45

Applicable Toolholder

Description	Applicable Toolholder	Ref. Page for Toolholder
16IR ···	SINR··-16 CINR··-16	J26
16IL ···	SINL··-16 CINL··-16	

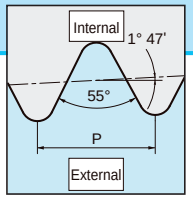
- No wiper effect is expected when threading the internal whitworth screw using 16IR ○○ W- ○○ insert.

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

● : Std. Stock ○ : World Express

PR930 / PR1115 / GW15 (Threading Insert) is sold in 5 piece boxes.

Inserts are sold in 10 piece boxes.



External Threading Inserts

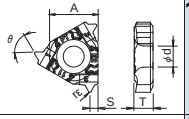
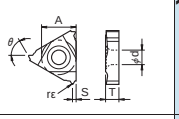
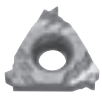
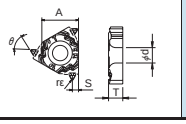
Tapered Pipe [R (PT) (BSPT)]

Full Profile 55° (mm)

Description	Previous Description	A	T	ød
16IR/L	TNN32ER/L	9.525	3.68	4.0

Classification of usage ● : 1st Choice ○ : 2nd Choice

P	Carbon Steel / Alloy Steel		●	○		
M	Stainless Steel		●	○		
K	Cast Iron				●	
N	Non-ferrous Metals				●	

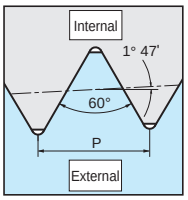
Insert (Handed Insert shows Right-hand)	Description	Previous Description	Applicable Thread R (PT) (BSPT) / Pitch / TPI	Dimension (mm) rε	S	Angle (°) θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Depth of Cut & Number of Passes
Full Profile	 	16ER/L 28BSPT-TF	28	0.10	0.8	55°			○								J46-J59
		16ER/L 19BSPT-TF	19	0.16	1.0				○								
		16ER/L 14BSPT-TF	14	0.22	1.6				○								
		16ER/L 11BSPT-TF	11	0.29	1.6				○								
	 	16ER/L 28BSPT	28	0.10	0.8		○		○		○		○				
		16ER/L 19BSPT	19	0.16	1.0		○		○		○		○		○		
		16ER/L 14BSPT	14	0.22	1.6		○		○		○		○		○		
		16ER/L 11BSPT	11	0.29	1.6		○		○		○		○		○		
	Single Point, With Chipbreaker  	16ER/L 19BSPT-TS	19	0.16	1.0						○						
		16ER/L 14BSPT-TS	14	0.22	1.6						○						
		16ER/L 11BSPT-TS	11	0.29	1.6						○						

		16ER/L 28PT	28	0.10	0.8		○		○		○		○				
		16ER/L 19PT	19	0.16	1.0		○		○		○		○		○		
		16ER/L 14PT	14	0.22	1.6		○		○		○		○		○		
		16ER/L 11PT	11	0.29	1.6		○		○		○		○		○		
		16ER/L 19PT-TS	19	0.16	1.0						○						
		16ER/L 14PT-TS	14	0.22	1.6						○						
		16ER/L 11PT-TS	11	0.29	1.6						○						

Applicable Toolholder

Description	Applicable Toolholder	Ref. Page for Toolholder
16ER ···	KTNR··-16 KTNSR··-16	J20

For recommended cutting conditions, see page J45



External Threading Inserts

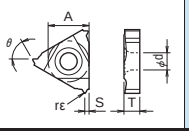
American National Tapered Pipe (NPT60°)

Full Profile 60° (mm)

Description	Previous Description	A	T	ød
16ER/L	TNN32ER/L	9.525	3.68	4.0

Classification of usage ● : 1st Choice ○ : 2nd Choice

P	Carbon Steel / Alloy Steel		●	○		
M	Stainless Steel		●	○		
K	Cast Iron				●	
N	Non-ferrous Metals				●	

Insert (Handed Insert shows Right-hand)	Description	Previous Description	Applicable Thread NPT / Pitch / TPI	Dimension (mm) rε	S	Angle (°) θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Depth of Cut & Number of Passes
Full Profile	 	16ER/L 18NPT	18NPT	18	0.04	0.9	60°	○		●		○		○				J46-J59
		16ER/L 14NPT	14NPT	14	0.05	1.5		○		●		○		○			
		16ER/L 11.5NPT	11.5NPT	11.5	0.06	1.5		○		●		○		○			

Applicable Toolholder

Description	Applicable Toolholder	Ref. Page for Toolholder
16ER ···	KTNR··-16 KTNSR··-16	J20

For recommended cutting conditions, see page J45

Applicable Thread		
	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

PR930 / PR1115 / GW15 (Threading Insert) is sold in 5 piece boxes.

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express

Internal Threading Inserts

Tapered Pipe [Rc (PT) (BSPT)]

Full Profile 55° (mm)

Description	Previous Description	A	T	ød
11IR	TNN22IR	6.35	3.18	3.0
16IR	TNN32IR	9.525	3.68	4.0

Classification of usage ●: 1st Choice ○: 2nd Choice

P	Carbon Steel / Alloy Steel		●	○			
M	Stainless Steel		●	○			
K	Cast Iron				●		
N	Non-ferrous Metals				●		

Insert (Handed Insert shows Right-hand)	Description	Previous Description	Applicable Thread RC (PT) (BSPT) Pitch TPI	Dimension (mm) rε	S	Angle (°) θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Depth of Cut & Number of Passes
Full Profile	11IR 28BSPT-TF	-	28	0.10	0.6	55°			○								J46-J59
	19BSPT-TF		19	0.16	0.78				○								
	14BSPT-TF		14	0.22	0.97				○								
	16IR 14BSPT-TF	-	14	0.22	0.97				○								
	11BSPT-TF		11	0.29	1.5				○								
	11IR 28BSPT	TNN22IR 28PT	28	0.10	0.6		○		○		○		○				
	19BSPT	19PT	19	0.16	0.78		○		○		○		○		○		
	14BSPT	14PT	14	0.22	0.97	55°	○		○		○		○		○		
	16IR 14BSPT	TNN32IR 14PT	14	0.22	0.97		○		○		○		○		○		
	11BSPT	11PT	11	0.29	1.5		○		○		○		○		○		
Single Point, With Chipbreaker	11IR 19BSPT-TS	TNN22IR 19PT-TS	19	0.16	0.78						○						
	14BSPT-TS	14PT-TS	14	0.22	0.97	55°					○						
	16IR 14BSPT-TS	TNN32IR 14PT-TS	14	0.22	0.97						○						
	11BSPT-TS	11PT-TS	11	0.29	1.5						○						

Applicable Toolholder

For recommended cutting conditions, see page J45

Description	Applicable Toolholder	Ref. Page for Toolholder
11IR ··	SINR··-11E SINR··-11	J26
11IL ··	SINL··-11E SINL··-11	
16IR ··	SINR··-16 CINR··-16	

Internal Threading Inserts

American National Tapered Pipe (NPT60°)

Full Profile 60° (mm)

Description	Previous Description	A	T	ød
16IR	TNN32IR	9.525	3.68	4.0

Classification of usage ●: 1st Choice ○: 2nd Choice

P	Carbon Steel / Alloy Steel		●	○			
M	Stainless Steel		●	○			
K	Cast Iron				●		
N	Non-ferrous Metals				●		

Insert (Handed Insert shows Right-hand)	Description	Previous Description	Applicable Thread NPT Pitch TPI	Dimension (mm) rε	S	Angle (°) θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Depth of Cut & Number of Passes
Full Profile	16IR 18NPT	TN-N32IR 18NPT	18	0.04	0.9	60°	○		●		○		○				J46-J59
	14NPT	14NPT	14	0.05	1.5		○		●		○		○				
	11.5NPT	11.5NPT	11.5	0.06	1.5		○		●		○		○				

Applicable Toolholder

For recommended cutting conditions, see page J45

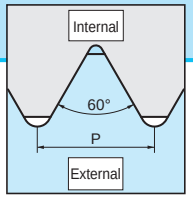
Description	Applicable Toolholder	Ref. Page for Toolholder
16IR ···	SINR··-16 CINR··-16	J26

Applicable Thread		
	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

●: Std. Stock ○: World Express

PR930 / PR1115 / GW15 (Threading Insert) is sold in 5 piece boxes.

Inserts are sold in 10 piece boxes.



External Threading Inserts

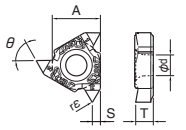
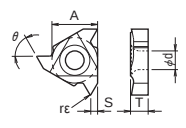
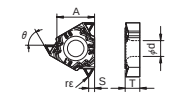
60°Type [Partial Profile / M, UN]

Partial Profile 60° (mm)

Description	Previous Description	A	T	ød
16ER/L	TNN32ER/L	9.525	3.68	4.0
22ER/L	TNN43ER/L	12.70	4.9	4.85

Classification of usage
● : 1st Choice
○ : 2nd Choice

		TC60	PR1115	PR930	GW15	KW10
P	Carbon Steel / Alloy Steel		●	○		
M	Stainless Steel		●	○		
K	Cast Iron				●	○
N	Non-ferrous Metals				●	○

Insert (Handed Insert shows Right-hand)			Description		Previous Description		Applicable Thread M	Applicable Thread UN UNF	Dimension (mm) rε	Dimension (mm) S	Angle (°) θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Depth of Cut & Number of Passes
							Pitch mm	Pitch TPI														
Partial Profile			16ER/L	A60-TF	-		0.5~1.5	48~16	0.06	1.00	60°			●								J46-J59
				G60-TF			1.75~3	14~8	0.22	1.60				●								
				AG60-TF			0.5~3	48~8	0.06	1.60				●								
			16ER/L	A60	-		0.5~1.5	48~16	0.06	1.00	60°							○				
				G60			1.75~3	14~8	0.22	1.60								○				
				AG60			0.5~3	48~8	0.06	1.60								○				
			22ER/L	N60			3.5~5	7~5	0.48	2.50				○				○				
			16ER/L	6001	TNN32ER/L	6001	1.0~2.5	24~11	0.10	1.50		○				○				○		
				6002		6002	1.5~2.5	16~11	0.20	1.50		○				○				○		
	Single Point, With Chipbreaker 		16ER/L	6001-TS	TNN32ER/L	6001-TS	1.0~2.5	24~11	0.09	1.50	60°					○						
				6002-TS		6002-TS	1.5~2.5	16~11	0.19	1.50						○						

Applicable Toolholder

Description	Applicable Toolholder	Ref. Page for Toolholder
16ER ···	KTNR··-16 KTNSR··-16	J20
22ER ···	KTNR··-22	

For recommended cutting conditions, see page J45

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

Threading Inserts Identification System (Partial Profile) J12~J15

16 ❶ | E ❷ | R ❸ | A60 ❹ | -TF ⑤

①Insert Size	
06	3.97
08	4.76
11	6.35
16	9.525
22	12.70
Symbol	I.C. Size (mm)

②External / Internal	
E	External Threading
I	Internal Threading

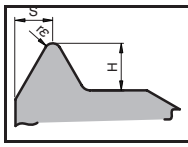
③Insert Hand	
R	R-hand
L	L-hand

④Pitch		
60°	A60	60°Angle (Partial Profile) 0.5~1.5mm
	G60	60°Angle (Partial Profile) 1.75~3mm
	AG60	60°Angle (Partial Profile) 0.5~3mm
55°	A55	55°Angle (Partial Profile) 40~16TPI
	G55	55°Partial Profile 14~8TPI
	AG55	55°Partial Profile 40~8TPI
Vertex angle		Partial Profile

⑤Optional Code	
-TF	TF Cutting Edge
-TS	TS Chipbreaker

④Pitch		
60°	6001	60° Angle (Partial Profile) Corner-R (rε) =0.1mm 1.0~2.5mm
55°	5501	55° Angle (Partial Profile) Corner-R (rε) =0.1mm 28~11TPI
Vertex angle		Partial Profile

•Example of shape of A, G and AG



Description	Dimension (mm) rε	S	H
16ER A60-TF	0.06	1.00	1.5
16ER G60-TF	0.22	1.60	2.6
16ER AG60-TF	0.06	1.60	2.7

Corner-R(rε) Selection for Partial Profile Insert

	External Threading	Internal Threading
Metric Unified	rε ≦ 0.1443P	rε ≦ 0.0720P
Parallel Pipe (Whitworth) Tapered Pipe	(For Both External and Internal Thread) rε ≦ 0.1373P	

Note) Pitch and threads per inch of an insert without wiper depend on the size of insert.

● Metric, Unified Thread
Corner-R(rε) at Internal Threading is almost half of that of External.

● Parallel Pipe, Tapered Pipe, Whitworth Tread
Same Corner-R(rε) for both External and Internal Threading

rε: Corner-R P: Pitch (= $\frac{25.4}{n}$) n: TPI

PR930 / PR1115 / GW15 (Threading Insert) is sold in 5 piece boxes.

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express

Internal Threading Inserts

60°Type [Partial Profile / M, UN]

Partial Profile 60° (mm)

Description	Previous Description	A	T	ød
06IR/L	**TNN06IR/L**	3.97	1.91	2.3
08IR/L	**TNN08IR/L**	4.76	2.38	2.3
11IR/L	**TNN22IR/L**	6.35	3.18	3.0
16IR/L	**TNN32IR/L**	9.525	3.68	4.0
22IR/L	**TNN43IR/L**	12.70	4.9	4.85

Classification of usage
●: 1st Choice
○: 2nd Choice

P	Carbon Steel / Alloy Steel		●	○			
M	Stainless Steel		●	○			
K	Cast Iron				●	○	
N	Non-ferrous Metals				●	○	

Insert (Handed Insert shows Right-hand)			Description		Previous Description	Applicable Thread M	Applicable Thread UN UNF	Dimension (mm) rε	Dimension (mm) S	Angle (°) θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Depth of Cut & Number of Passes
						Pitch mm	Pitch TPI														
Partial Profile			**11IR/L**	**A60**		0.5~1.5	48~16	0.02	1.00				●				●				
			16IR/L	**A60**		0.5~1.5	48~16	0.02	1.00				●				●				
				G60	**-**	1.75~3	14~8	0.11	1.70	60°			●				●				
				AG60		0.5~3	48~8	0.02	1.70				●				●				
			22IR/L	**N60**		3.5~5	7~5	0.22	2.50				○				●				
			06IR/L	**60005**	**TNN06IR/L 60005**	0.75~1.25	28~20	0.05	0.60				○		○						
			08IR/L	**60007**	**TNN08IR/L 60007**	1.0~1.75	20~16	0.07	0.80				○		○						**J46-J59**
			11IR/L	**60005**	**TNN22IR/L 60005**	0.75~1.5	32~16	0.05	1.00	60°	○				○	○			●		
			16IR/L	**6001**	**TNN32IR/L 6001**	1.5~2.5	16~10	0.10	1.50		○				○				●		
				60015	**60015**	2.5	11~10	0.15	1.50		○				○				●		
	Single Point, With Chipbreaker		**16IR/L**	**6001-TS**	**TNN32IR/L 6001-TS**	1.5~2.5	16~11	0.09	1.50	60°					○						
				60015-TS	**60015-TS**	2.5	11~10	0.14	1.50						○						

Applicable Toolholder

For recommended cutting conditions, see page J45

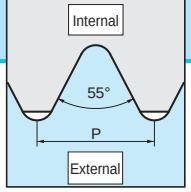
Description	Applicable Toolholder	Ref. Page for Toolholder
06IR ··	**SINR···-06E**	**J26**
08IR ··	**SINR···-08E**	
11IR ··	**SINR···-11E** **SINR···-11**	
11IL ··	**SINL···-11E** **SINL···-11**	
16IR ··	**SINR···-16** **CINR···-16**	
22IR ··	**SINR···-22** **CINR···-22**	

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

PR930 / PR1115 / GW15 (Threading Insert) is sold in 5 piece boxes.

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express



External Threading Inserts

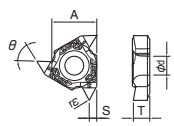
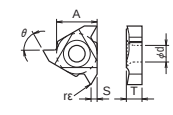
55°Type [Partial Profile / G (PF) R (PT, BSPT) (W)]

Partial Profile 55° (mm)

Description	Previous Description	A	T	ød
16ER	TNN32ER	9.525	3.68	4.0
22ER	TNN43ER	12.70	4.9	4.85

Classification of usage ● : 1st Choice ○ : 2nd Choice

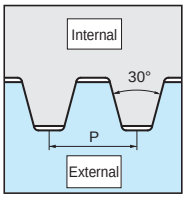
P	Carbon Steel / Alloy Steel		●			
M	Stainless Steel		●			
K	Cast Iron				●	
N	Non-ferrous Metals				●	

Insert (Handed Insert shows Right-hand)			Description	Previous Description	Applicable Thread G(PF) R(PT)	Applicable Thread W	Dimension (mm) rε	Dimension (mm) S	Angle (°) θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Depth of Cut & Number of Passes
					Pitch															
					TPI															
Partial Profile			16ER A55-TF	- 5501 5502	28, 19	48~16	0.06	1.00	55°			○								J46-J59
			16ER G55-TF		14, 11	14~8	0.22	1.60				○								
			16ER AG55-TF		28~11	48~8	0.06	1.60				○								
			16ER A55	-	28, 19	48~16	0.06	1.00	55°							○				
			16ER G55		14, 11	14~8	0.22	1.60								○				
			16ER AG55		28~11	48~8	0.06	1.60								○				
			22ER N55	-	-	7~5	0.47	2.50				○				○				
			16ER 5501	TNN32ER 5501	28~11	24~10	0.10	1.50		○				○				○		
			16ER 5502	TNN32ER 5502	14, 11	16~9	0.20	1.50		○				○				○		

For recommended cutting conditions, see page J45

Applicable Toolholder

Description	Applicable Toolholder	Ref. Page for Toolholder
16ER ···	KTNR··-16 KTNSR··-16	J20
22ER ···	KTNR··-22	



External Threading Inserts

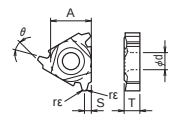
30°Trapezoidal (Tr)

Partial Profile 30° (mm)

Description	Previous Description	A	T	ød
16ER	TNN32ER	9.525	3.68	4.0
22ER	TNN43ER	12.70	4.9	4.85

Classification of usage ● : 1st Choice ○ : 2nd Choice

P	Carbon Steel / Alloy Steel		●	○		
M	Stainless Steel		●	○		
K	Cast Iron					
N	Non-ferrous Metals					

Insert (Handed Insert shows Right-hand)			Description	Previous Description	Applicable Thread Tr Pitch mm	Dimension (mm) rε	Dimension (mm) S	Angle (°) θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Depth of Cut & Number of Passes
Partial Profile			16ER 200TR	TNN32ER 200TR	2.0	0.20	1.6	30°	○		○		○						J46-J59
			16ER 300TR	TNN32ER 300TR	3.0	0.20	1.6		○		○		○						
			22ER 400TR	TNN43ER 400TR	4.0	0.20	2.5	30°	○		○		○						
			22ER 500TR	TNN43ER 500TR	5.0	0.20	2.5		○		○		○						

For recommended cutting conditions, see page J45

Applicable Toolholder

Description	Applicable Toolholder	Ref. Page for Toolholder
16ER ···	KTNR··-16 KTNSR··-16	J20
22ER ···	KTNR··-22	

Applicable Thread		
	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

PR930 / PR1115 / GW15 (Threading Insert) is sold in 5 piece boxes.

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express

Internal Threading Inserts

55°Type [Partial Profile / G(PF) Rc(PT, BSPT) (W)]

Partial Profile 55° (mm)

Description	Previous Description	A	T	ød
06IR/L	TNN06IR/L	3.97	1.91	2.3
08IR/L	TNN08IR/L	4.76	2.38	2.3
11IR/L	TNN22IR/L	6.35	3.18	3.0
16IR/L	TNN32IR/L	9.525	3.68	4.0
22IR/L	TNN43IR/L	12.70	4.9	4.85

Classification of usage
● : 1st Choice
○ : 2nd Choice

P	Carbon Steel / Alloy Steel		●	○		
M	Stainless Steel		●	○		
K	Cast Iron				●	○
N	Non-ferrous Metals				●	○

Insert (Handed Insert shows Right-hand)	Description	Previous Description	Applicable Thread G(PF) Rc(PT)	Applicable Thread W Pitch TPI	Dimension (mm) rε	Dimension (mm) S	Angle (°) θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Depth of Cut & Number of Passes
Partial Profile	11IR/L A55		28, 19	48~16	0.06	1.00	55°			○				○				J46-J59
	16IR/L A55		28, 19	48~16	0.06	1.00				○				○				
	G55	-	14, 11	14~8	0.22	1.70				○				○				
	AG55		28~11	48~8	0.06	1.70				○				○				
	22IR/L N55		-	7~5	0.47	2.50				○				○				
	06IR/L 5501	TNN06IR/L 5501	28	24	0.10	0.60				○		○						
	08IR/L 5501	TNN08IR/L 5501	28, 19	24. 20	0.10	0.80				○		○						
	11IR/L 55005	TNN22IR/L 55005	28~14	24~14	0.05	1.10		○				○				○		
	16IR/L 5501	TNN32IR/L 5501	28~11	24~11	0.10	1.50		○				○				○		
	5502	5502	14, 11	16~11	0.20	1.50		○				○				○		

Applicable Toolholder

For recommended cutting conditions, see page J45

Description	Applicable Toolholder	Ref. Page for Toolholder
06IR ···	SINR··-06E	J26
08IR ···	SINR··-08E	
11IR ···	SINR··-11E SINR··-11	

Description	Applicable Toolholder	Ref. Page for Toolholder
16IR ···	SINR··-16 CINR··-16	J26
22IR ···	SINR··-22 CINR··-22	

Internal Threading Inserts

30°Trapezoidal (Tr)

Partial Profile 30° (mm)

Description	Previous Description	A	T	ød
16IR/L	TNN32IR/L	9.525	3.68	4.0
22IR/L	TNN43ER/L	12.70	4.9	4.85

Classification of usage
● : 1st Choice
○ : 2nd Choice

P	Carbon Steel / Alloy Steel		●	○		
M	Stainless Steel		●	○		
K	Cast Iron					
N	Non-ferrous Metals					

Insert (Handed Insert shows Right-hand)	Description	Previous Description	Applicable Thread Tr Pitch mm	Dimension (mm) rε	Dimension (mm) S	Angle (°) θ	Cermet TC60 R	Cermet TC60 L	PVD Coated Carbide PR1115 R	PVD Coated Carbide PR1115 L	PVD Coated Carbide PR930 R	PVD Coated Carbide PR930 L	Carbide GW15 R	Carbide GW15 L	Carbide KW10 R	Carbide KW10 L	Ref. Page for Depth of Cut & Number of Passes
Partial Profile	16IR/L 200TR	TNN32IR/L 200TR	2.0	0.20	1.6	30°	○		○		○						J46-J59
	300TR	300TR	3.0	0.20	1.6		○		○		○						
	22IR/L 400TR	TNN43IR/L 400TR	4.0	0.20	2.5		○		○		○						
	500TR	500TR	5.0	0.20	2.5		○		○		○						

Applicable Toolholder

For recommended cutting conditions, see page J45

Description	Applicable Toolholder	Ref. Page for Toolholder
16IR ···	SINR··-16 CINR··-16	J26
22IR ···	SINR··-22 CINR··-22	

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

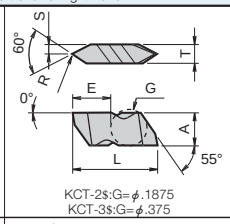
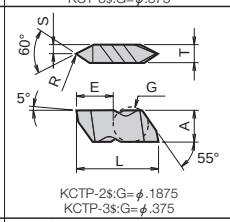
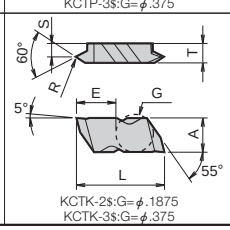
PR930 / PR1115 / GW15 (Threading Insert) is sold in 5 piece boxes.

Inserts are sold in 10 piece boxes.

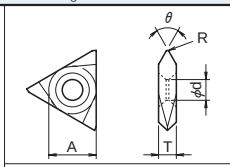
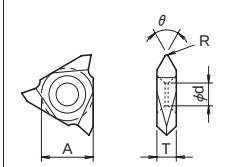
● : Std. Stock ○ : World Express

External Threading Inserts

KCT/KCTP/KCTK

Shape (Handed Insert shows Right-hand)	Description	Applicable Thread	Pitch TPI	Dimension (inch)						Angle	Insert Grade: Cermet			Insert Grade: PVD Coated			Insert Grade: Carbide	Ref. Page for Toolholder
			TPI	A	T	R	E	S	L	θ	TC30	TC40	TC60	PR630	PR660	PR930	KW10	
  KCT-2$:G=ϕ.1875 KCT-3$:G=ϕ.375	**KCT -2R/L**	M UN	External 8-36 Internal 7-20	.219	.150	.004	.2661	.075	.503	60°			●		●			J27
	-3R/L	M UN	External 6-20 Internal 5-12	.344	.195	.007	.3999	.098	.885	60°			●		●			
  KCTP-2$:G=ϕ.1875 KCTP-3$:G=ϕ.375	**KCTP -2R/L**	M UN	External 8-36 Internal 7-20	.219	.150	.004	.2661	.075	.503	60°			●		●			
	-3R/L	M UN	External 6-20 Internal 5-12	.344	.195	.007	.3999	.098	.885	60°			●		●			
  KCTK-2$:G=ϕ.1875 KCTK-3$:G=ϕ.375	**KCTK -2R/L**	M UN	External 14-44 Internal 12-24	.219	.150	.003	.2679	.110	.505	60°			●		●			
	-3R/L	M UN	External 10-44 Internal 9-24	.344	.195	.003	.4022	.141	.887	60°			●		●			

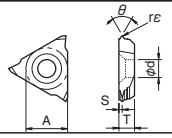
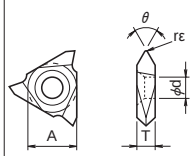
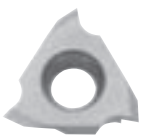
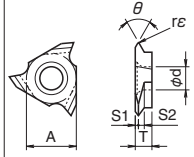
TNMC/TPMC

Shape (Handed Insert shows Right-hand)	Description	Applicable Thread	Pitch TPI	Dimension (inch)						Angle	Insert Grade: Cermet			Insert Grade: PVD Coated			Insert Grade: Carbide	Ref. Page for Toolholder
			mm TPI	A	T	ϕd	R	S1	S2	θ	TC30	TC40	TC60	PR630	PR660	PR930	KW10	
 	**TNMC 32NV60.004**	M UN	36~6	.375	.125	.15	.004	-	-	60°			●	●				-
	TNMC 43NV60.004	M UN	36~6	.500	.188	.203	.004	-	-	60°			●	●				
	**TPMC 32NV60.002**	M UN	72~8	.375	.125	.177	.002	-	-	60°			●					J27
	32NV60.004	M UN	36~8				.004	-				●	●	●				
	32NV60.008	M UN	18~8				.008					●						
	TPMC 43NV60.004	M UN	36~6	.500	.188	.217	.004	-	-	60°			●	●				
	43NV60.008		18~6				.008	-										

● : Std. Stock ○ : World Express

External Threading Inserts

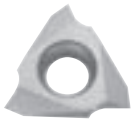
● TT/TTX

	Shape (Handed Insert shows Right-hand)		Description		Applicable Thread	Pitch TPI / mm TPI	Unit	Dimension A	Dimension T	Dimension ϕd	Dimension rε	Dimension S1	Dimension S2	Angle θ	Insert Grade: Cermet TC30	Cermet TC40	Cermet TC60	PVD Coated PR115	PVD Coated PR630	PVD Coated PR660	PVD Coated PR930	Carbide KW10	Ref. Page for Toolholder
Full Profile			TT	43ER100M	M	1.00	mm (in)	12.70 (.500)	4.76 (.187)	5.5 (.217)	0.12	0.8	-	60°			○		○		○		
				43ER125M	M	1.25					0.15	0.9					○		○		○		
				43ER150M	M	1.50					0.19	1.0					○		○		○		
				43ER200M	M	2.00					0.25	1.7					○		○		○		
Partial Profile			TT	32R/L6000	M UN	External 0.5~2.5 56~10	in	.375	.125	.177	0.0	-	-	60°			●				R		
				32R/L6001	M UN	External 1.0~2.5 24~10					.004	-					●		○		R	R	
				32R/L6002	M UN	External 1.5~2.5 16~10					.008	-					○		○		○	○	
				32R/L6003	M UN	External 2.5 11~10					.012	-					○				R		
			TT	43R/L6001	M UN	External 1.0~3.5 24~8		.500	.187	.217	.004	-	-	60°			○		○		○	○	
				43R/L6002	M UN	External 1.5~3.5 16~8					.008	-					○		○		○	○	
				43R/L6003	M UN	External 2.5~3.5 11~8					.012	-					○		○		○		J25
				43R/L6004	M UN	External 3.0~3.5 8					.016	-					○		○		○		
			TT	32R/L5501	G,R W	External 28~11 24~10		.375	.125	.177	.004	-	-	55°			○				○	○	
				32R/L5502	G,R W	External 14~11 14~10					.008	-					○				○	○	
			TT	43R/L5501	G,R W	External 28~11 24~7		.500	.187	.217	.004	-	-	55°			○				R	○	
				43R/L5502	G,R W	External 14~11 14~7					.008	-					○				R	○	
				43R/L5503	G,R W	External 11 10~7					.012	-					○				R		
				43R/L5504	G,R W	External - 8~7					.016	-					○						
			TTX	32R6000	M UN	0.5~1.0 56~32	in	.375	.125	.173	0.00	.024	.044	60°								○	
			TTX	32R60005	M UN	0.5~1.0 48~32					.002	.024	.044				●	●	○		●	●	
			TTX	32R6001	M UN	1.0~2.0 28~14					.004	.043	.064				○	●	○		○	○	
			TTX	32R6000S	M UN	0.5 56~48		.375	.125	.173	0.00	.012	.044	60°				●	○		○	○	J25
			TTX	32R60005S	M UN	0.5 48					.002	.012	.044					●	○		○	○	
			TTX	32R5501	G,R W	28~19 24~20		.375	.125	.173	.004	.030	.039	55°			○				○	○	
			TTX	32R55015	G,R W	19~11 20~11					.006	.047	.057				○				○	○	

● : Std. Stock ○ : World Express

Internal Threading Inserts

● TT

Shape (Handed Insert shows Right-hand)	Description	Applicable Thread	Pitch TPI / mm TPI	Dimension (inch) A	T	ϕd	R	S	Angle θ	Insert Grade: Cermet TC30	TC40	TC60	PVD Coated PR630	PR660	PR930	Carbide KW10	Ref. Page for Toolholder
	**TT 32°L 6000**	M UN	Internal 0.5～2.5 48～10	.375	.125	.177	0.0	-	60°			●			R		J26
	32°L 6001	M UN	Internal 1.5～2.5 16～10				.004	-				●	○		R	○	
	TT 43°L 6001	M UN	Internal 1.5～3.0 16～8	.500	.187	.217	.004	-	60°			○	○		○	○	
	43°L 6002	M UN	Internal 3.0 8				.008	-				○	○		○	○	
	TT 32°L 5501	G,R W	Internal 28～11 24～10	.375	.125	.177	.004	-	55°			○			○	○	
	32°L 5502	G,R W	Internal 14～11 16～10				.008	-				○			○	○	
	TT 43°L 5501	G,R W	Internal 28～11 24～8	.500	.187	.217	.004	-	55°			○			R	○	
	43°L 5502	G,R W	Internal 14～11 16～8				.008	-				○			R	○	
	43°L 5503	G,R W	Internal 11 11～8				.012	-				○			R		
	43°L 5504	G,R W	Internal - 8				.016	-				○					

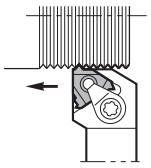
● : Std. Stock ○ : World Express

Internal Threading Inserts

● TPGB

Shape (Handed Insert shows Right-hand)	Description	Applicable Thread	Pitch TPI / mm TPI	Dimension (inch) T	Dimension (inch) φd	Dimension (inch) R	Angle θ	Insert Grade: Cermet TN6020	Cermet TN60	Cermet PV7020	Cermet PV60	PVD Coated Carbide PR660	PVD Coated Carbide PR930	Carbide KW10	Ref. Page for Toolholder
	**TPGB 21.50.1**	M	0.75～1.5	.250	.094	.138 .002	60°		○					○	J35
		UN	28～16												
	21.50.2	M	1.5			.004			○					○	
		UN	16												
	TPGB 220.1	M	0.75～3.5	.250	.094	.130 .002			○					○	
		UN	28～11												
	220.2	M	1.5～3.5			.004			○		○			○	
		UN	16～8												
	220.5	M	3.0～3.5			.008		●	●	○	○			○	
		UN	8												

KTN



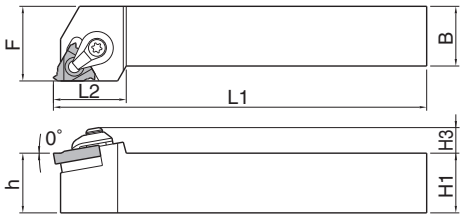
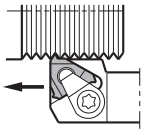


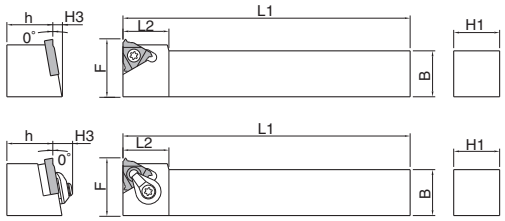
Fig.1

●Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder.

KTNS (For Gang Type NC Lathe)





KTNSR1010H-16
1212K-16

Fig.2

KTNSR1616K-16
2020K-16

Fig.3

●Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder.

Toolholder Dimensions

Description		Std. R	Std. L	Unit	Dimension (mm) H1=h	H3	B	L1	L2	F	Drawing	Spare Parts: Clamp Set	Clamp Screw	Wrench	Shim	Shim Screw	Applicable Inserts
KTNR/L	12-3	●		Inch	0.750	0.900	0.750	5.00	0.87	0.875	Fig.1	CPS-5S	-	FT-15	TN-32	SH3X8	16ER/L
	16-3	●			1.000	1.150	1.000	6.00	0.87	1.250							
KTNR/L	1616H-16	○	○	mm	16	8.5	16	100	25	20		CPS-5S	-	FT-15	TN-32 TNW-32	SP3X8	16ER/L
	2020H-16*	○			20		20			25							
	2020K-16	○	○					125									
	2525M-16	○	○		25		25	150		30							
	2525M-22	○			25	10	25	150	29	32		CPS-6S	-	LW-3	TN-43	SP3X8	22ER/L
	3225P-22	○			32			170	34								
KTNSR/L	1010H-16	○			10	8.5	10	100	16	16	Fig.2	-	SB-3.5TR	FT-15	-	-	16ER/L
	1212K-16	○			12		12		18	18							
	1616K-16	○			16		16	125		22	Fig.3	CPS-5S	-		TN-32 TNW-32	SP3X8	
	2020K-16	○			20		20		20	27.4							

＊mark indicates short shank type.

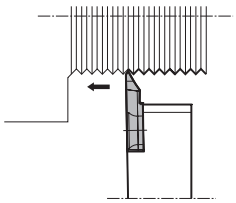
・Shim (TNW-32), when using 2-Thread Insert such as 16ER100ISO-M02, TNN32ER100M02. Purchase separately as necessary.

Reference page for applicable inserts

Type of Thread	Full Profile	Partial Profile	Type of Thread	Full Profile	Partial Profile
M: Metric	**J6**	**J12**	R（PT）（BSPT） Tapered Pipe	**J10**	**J14**
UN: Unified UNF: Unified Fine Thread	**J8**	**J12**	W: Whitworth	**J8**	**J14**
			NPT American National Tapered Pipe	**J10**	**-**
G (PF): Parallel Pipe	**J8**	**J14**	Tr: 30°Trapezoidal	**-**	**J14**

● : Std. Stock ○ : World Express

KTKF / KTKF Goose-neck holder



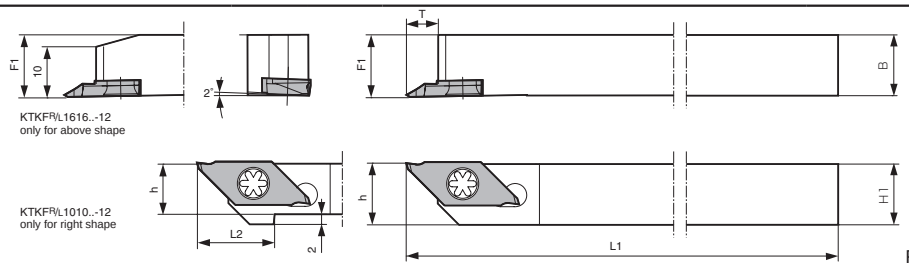
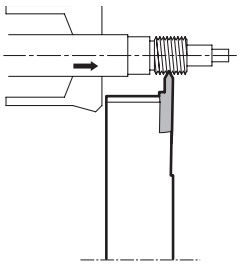


Fig.1

●Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder.



<Goose-neck Holder>

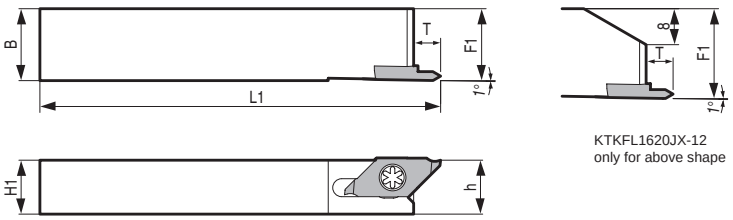


Fig.2

●Left-hand Shown

L-hand Insert for L-hand Toolholder.

Toolholder Dimensions

Description	Std. R	Std. L	Unit	Dimension H1=h	B	L1	L2	F1	T	Drawing	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable Inserts
KTKFR/L 6-12JX	●	●	Inch	0.375	0.375	4.750	0.590	0.375	0.236	Fig.1	SB-4590TRWN	LTW-10S	TKFT12R/L
8-12JX	●	●		0.500	0.500	4.750	-	0.500	0.236				
10-12JX	●	●		0.625	0.625	4.750	-	0.625	0.236				
KTKFL 52-12JX	●	●		0.500	0.625	4.750	-	0.625	0.236	Fig.2			
62.5-12JX	●	●		0.625	0.750	4.750	-	0.750	0.236				
KTKFR/L 1010JX-12	○	○	mm	10	10	120	15	10	6	Fig.1	SB-4590TRWN	LTW-10S	TKFT12R/L
1212JX-12	○	○		12	12		-	12					
1616JX-12	○	○		16	16			16					
KTKFR/L 1212F-12	○	○		12	12	85	-	12	6		SB-4590TRWN	LTW-10S	TKFT12R/L ...
KTKFL 1216JX-12		○		12	16	120	-	16	6	Fig.2	SB-4590TRWN	LTW-10S	TKFT12L..
NEW 1620JX-12		○		16	20			20					

*Dimension T: shows the distance from the Toolholder to the cutting edge.

Applicable Inserts

Insert	Description	Applicable Thread	Pitch mm	Pitch TPI	T	W	H	ød	R(rε)	S1	S2	Angle (°) θ	Insert Grade PVD Coated Carbide PR1025	Insert Grade Carbide KW10	Applicable Toolholder
Partial Profile ● Right-hand Shown	TKFT 12RA6000	M UN	0.2~0.6	64~48 TPI	3.0	2.5	8.7	5.2	Max 0.05 Flat	0.4	2.1	60°	○	○	KTKFR ...12
	12RB6000									2.1	0.4		○	○	
	12RA60005		0.5~1.25	48~24 TPI					0.05	0.8	1.7		●	○	
	12RB60005									1.7	0.8		○	○	
	12RN6001		1~1.5	24~18 TPI					0.1	1.25	1.25		○	○	
	12RA55005	G, R W	-	40~16 TPI					0.05	0.8	1.7	55°	○	○	
	12RB55005									1.7	0.8		○	○	
● Left-hand Shown	TKFT 12LA6000	M UN	0.2~0.6	64~48 TPI	3.0	2.5	8.7	5.2	Max 0.05 Flat	2.1	0.4	60°	○	○	KTKFL ...12
	12LB6000									0.4	2.1		○	○	
	12LA60005		0.5~1.25	48~24 TPI					0.05	1.7	0.8		○	○	
	12LB60005									0.8	1.7		○	○	
	12LN6001		1~1.5	24~18 TPI					0.1	1.25	1.25		○	○	
	12LA55005	G, R W	-	40~16 TPI					0.05	1.7	0.8	55°	○	○	
	12LB55005									0.8	1.7		○	○	

Insert Description (See Table-1)

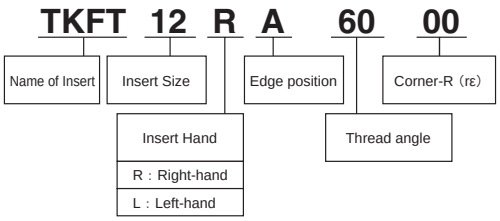
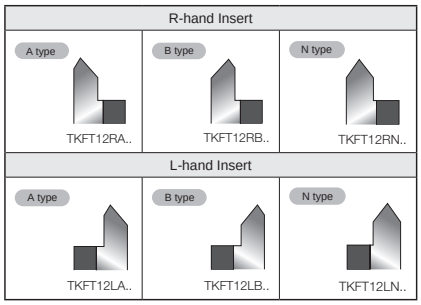


Table-1



Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade	
	PVD Coated Carbide	Carbide
	PR1025	**KW10**
Carbon Steel	Vc = 60~150 m/mim	—
	First ap (Radial) under 0.008in	
Alloy Steel	Vc = 60~150 m/mim	—
	First ap (Radial) under 0.008in	
Stainless Steel	Vc = 50~80 m/mim	—
	First ap (Radial) under 0.006in	
Cast Iron	—	Vc = 100 m/mim
		First ap (Radial) under 0.008in
Non-ferrous Metals	—	Vc = 500~1300 m/mim
		First ap (Radial) under 0.008in

- Coolant is recommended.
- In case of threading stainless steel, please set two to three passes more than <ap - passes> listed below.

Depth of Cut & Number of Passes

TKFT 60° / 55° Partial Profile

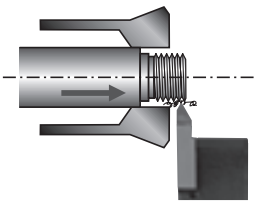
(ap shows the value of radial ap)

Type		Pitch mm • TPI	Description	R(rε)	Total ap (mm)	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12
External Thread	Metric	0.20mm	TKFT 12R/L A/B6000	Max 0.05 Flat	0.15	4	0.06	0.04	0.03	0.02								
		0.25mm			0.19	4	0.07	0.06	0.04	0.02								
		0.30mm			0.23	4	0.08	0.07	0.06	0.02								
		0.35mm			0.27	5	0.08	0.07	0.06	0.04	0.02							
		0.40mm			0.30	5	0.10	0.08	0.06	0.04	0.02							
		0.45mm			0.34	6	0.10	0.08	0.06	0.04	0.04	0.02						
		0.50mm	TKFT 12R/L A/B6000		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							
		0.60mm	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						
		0.70mm	TKFT 12R/L A/B60005	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02						
		0.75mm		0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02					
		0.80mm		0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02					
		1.00mm	TKFT 12R/L A/B60005 12R/L N6001	0.05	0.71	8	0.15	0.15	0.12	0.10	0.08	0.06	0.03	0.02				
				0.10	0.66	7	0.18	0.15	0.12	0.10	0.06	0.03	0.02					
		1.25mm		0.05	0.90	9	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.05	0.02			
				0.10	0.85	8	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.02				
		1.50mm	TKFT 12R/L N6001	0.10	1.04	10	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.02		
	Parallel Pipe	28 TPI	TKFT 12R/L A/B55005	0.05	0.67	7	0.18	0.15	0.12	0.10	0.06	0.04	0.02					
		19 TPI		0.05	1.01	9	0.20	0.18	0.14	0.12	0.12	0.10	0.08	0.05	0.02			
	Whitworth	24 TPI	TKFT 12R/L A/B55005	0.05	0.79	8	0.18	0.18	0.12	0.10	0.08	0.07	0.04	0.02				
		20 TPI		0.05	0.96	9	0.20	0.20	0.15	0.10	0.10	0.08	0.06	0.05	0.02			
		18 TPI		0.05	1.07	10	0.20	0.18	0.15	0.12	0.10	0.10	0.08	0.07	0.05	0.02		
		16 TPI		0.05	1.21	11	0.20	0.18	0.15	0.15	0.12	0.10	0.10	0.08	0.07	0.04	0.02	

Swiss Tool Automatic Lathe (Guide Bush System)

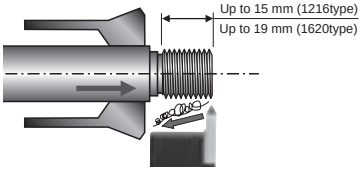
Goose-neck holder is applicable to automatic lathes whose toolholder does not move to longitudinal direction (Z-axis direction).

Conventional Treading Tool



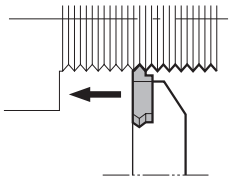
Chips may come into the guide bush and scratch the thread surface.

Goose-neck Holder (for threading)

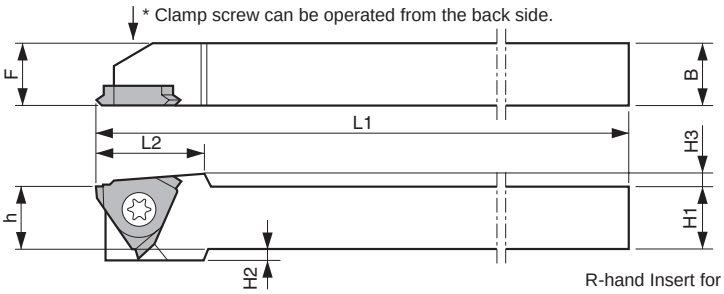


Goose-neck holder is capable of threading without returning the thread part into the guide bush (thread length up to 15 mm or 19 mm).

KTTX



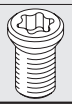
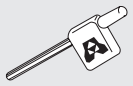
Thread to shoulder



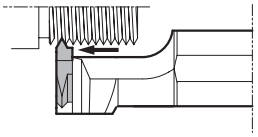
•Right-hand shown

R-hand Insert for R-hand Toolholder.

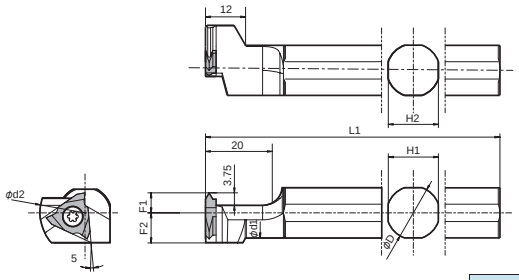
Toolholder Dimensions

Description		Stock	Unit	Dimension							Spare Parts	
											Clamp Screw	Wrench
				H1=h	H2	H3	B	L1	L2	F		
KTTXR	**6-3JXF**	●	Inch	0.375	0.079	0.098	0.375	4.750	0.693	0.383		
	8-3JXF	●		0.500	-	0.098	0.500	4.750	0.693	0.508	SB-4070TRW	FT-8
	10-3JXF	●		0.625	-	0.098	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	-		12			12		
	1616JX-16F	○		16			16			16		
KTTXR	**1212F -16F**	○		12	-	2.5	12	85	17.6	12	SB-4070TRW	FT-8
	2020K -16F	○		20			20	125		20		

S•••KTTX (External Sleeve Holder)



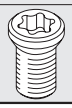
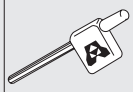
Thread to shoulder



•Left-hand shown

Right-hand Insert for Left-hand Toolholder.

Toolholder Dimensions

Description	Std.	Dimension (mm)							Spare Parts				
									Clamp Screw	Wrench			
		øD	L1	F1	F2	ød1	ød2	H1=H2					
S12F-KTTXL16	○	12.0	80	6.0	9.0	11.0	27	11	SB-4070TRW	FT-8			
S14H-KTTXL16	○	14.0	100			13.0		13					
S15F-KTTXL16	○	15.875	85			14.6		15					
S16F-KTTXL16	○	16.0											
S19G-KTTXL16	○	19.05	90		10.5	17.6		17					
S19K-KTTXL16	○		120										
S20G-KTTXL16	○	20.0	90		11.0	18.6		18					
S20K-KTTXL16	○		120										
S25.0H-KTTXL16	○	25.0	100	10.0	14.0	23.6	32	23					
S25K-KTTXL16	○	25.4	120										

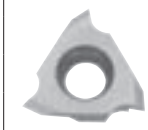
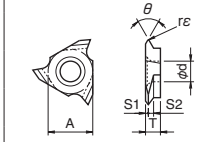
KTTX

Applicable Inserts

(mm)

Description	A	T	ød
TTX32R	9.525	3.18	4.4

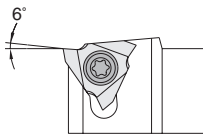
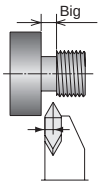
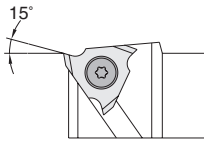
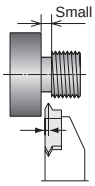
						Classification of usage
P	Carbon Steel / Alloy Steel	○	○	●		● : 1st Choice
M	Stainless Steel		○	●		○ : 2nd Choice
K	Cast Iron				●	
N	Non-ferrous Metals				●	

Insert (Right-hand Shown)	Description		Applicable Thread	Pitch mm	Pitch TPI	Dimension (mm) rε	S1	S2	Angle (°) θ	Cermet TC60	PVD Coated Carbide PR930	PR1115	Carbide KW10	Applicable Toolholder	Ref. Page for Depth of Cut & No. of Passes
Partial Profile  	TTX32R	6000	M UN	0.5~1.0 -	- 56~32	0.00	0.6	1.12	60°	○		○	○	KTTXR···-16 S···KTTXL16	J46
		60005	M UN	0.5~1.0 -	- 48~32	0.05	0.6	1.12		○	●	○	●		
		6001	M UN	1.0~2.0 -	- 28~14	0.10	1.1	1.62		○	○	○	○		
	TTX32R	6000S	M UN	0.5 -	- 56~48	0.00	0.3	1.12	60°		○	○	○		
		60005S	M UN	0.5 -	- 48	0.05	0.3	1.12			○	○	○		
	TTX32R	5501	G, R W	-	28~19 24~20	0.10	0.75	1.01	55°	○	○	○	○		
		55015	G, R W	-	19~11 20~11	0.15	1.20	1.46		○			○		

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

For recommended cutting conditions, see page J45

TT and TTX

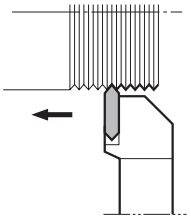
Type	Shape	Features: Rake Angle after Installation	Features: Condition	Features: Dead Space
TT			・One insert can machine various pitch sizes	
TTX			・The Least Cutting Resistance ・Thread to shoulder (Smaller thread relief) ・One Insert can machine various pitch sizes. (less than TT)	

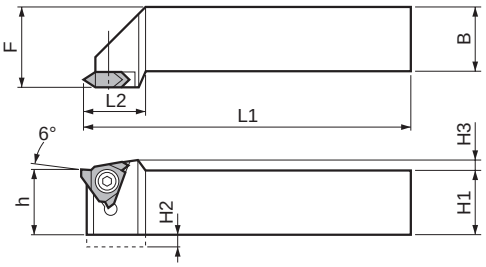
PR930 / PR1115 (Threading) are sold in 5 piece boxes.

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express

KTT





• Right-hand shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder.

Toolholder Dimensions

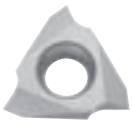
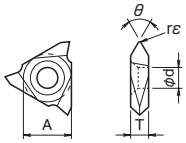
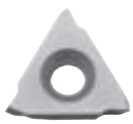
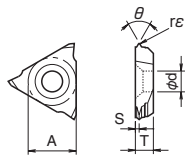
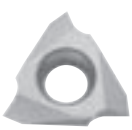
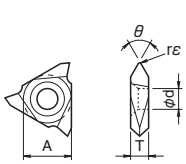
Description		Stock R	Stock L	Dimension (mm) H1=h	H2	H3	B	L1	L2	F	Spare Parts: Clamp Screw		Spare Parts: Wrench		
KTTR/L	1010F-16	○	○	10	4		10	80		12					
	1212H-16	○	○	12	2		12	100		16	SB-4070TRS	-	FT-10	-	
	1616H-16	○	○	16	-	2.5	16	100	18	20					
	2020K-16	○	○	20	-		20	125		25	SB-4TR	-	FT-15	-	
	2525M-16	○	○	25	-		25	150		30					
	2020K-22	○	○	20	-	3.0	20	125	25	25	-	GS-50	-	LW-3	
	2525M-22	○	○	25	-		25	150		30					

Applicable Inserts

(mm)

Description	A	T	ød
TT32R/L	9.525	3.18	4.4
TT43R/L	12.70	4.76	5.5

		Classification of usage
P	Carbon Steel / Alloy Steel	● : 1 st Choice
M	Stainless Steel	○ : 2nd Choice
K	Cast Iron	
N	Non-ferrous Metals	

Insert (Right-hand Shown)			Description		Applicable Thread	Pitch mm	Pitch TPI	Dimension (mm) rε	S1	S2	Angle (°) θ	Cermet TC60	PVD Coated Carbide PR930	PVD Coated Carbide PR1115	Carbide KW10	Applicable Toolholder	Ref. Page for Depth of Cut & No. of Passes
Partial Profile			TT32R/L	6000	M UN	0.5~2.5 -	- 56~10	0.0	-	-	60°	○	○	○		KTTR/L ···-16	J46
				6001	M UN	1.0~2.5 -	- 24~10	0.1				○	○	○	○		
				6002	M UN	1.5~2.5 -	- 16~10	0.2				○	○	○	●		
				6003	M UN	2.5 -	- 11~10	0.3				○	R	R			
			TT32R/L	5501	G,PT W	-	28~11 24~10	0.1	-	-	55°	○	○	R	○		
				5502	G,PT W	-	14~11 14~10	0.2				○	○	R	○		
Full Profile			TT43ER/L	100M	M	1.00	-	0.12	0.8	-	60°	R	R	R			
				125M		1.25		0.15	0.9			R	R	R			
				150M		1.50		0.19	1.0			R	R	R			
				200M		2.00		0.25	1.7			R	R	R			
Partial Profile			TT43R/L	6001	M UN	1.0~3.5 -	- 24~8	0.1	-	-	60°	○	○	○	○	KTTR/L ···-22	
				6002	M UN	1.5~3.5 -	- 16~8	0.2				○	○	○	○		
				6003	M UN	2.5~3.5 -	- 11~8	0.3				○	○	R			
				6004	M UN	3.0~3.5 -	- 8	0.4				○	○	R			
			TT43R/L	5501	G,PT W	-	28~11 24~7	0.1	-	-	55°	○	R	R	○		
				5502	G,PT W	-	14~11 16~7	0.2				○	R	R	○		
				5503	G,PT W	-	11 10~7	0.3				○	R	R			
				5504	G,PT W	-	- 8~7	0.4				○					

For recommended cutting conditions, see page J45

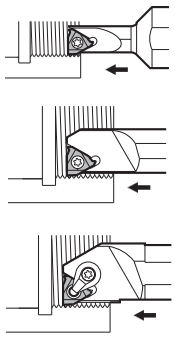
Applicable Thread		
	M: Metric	R, Rc(PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

PR930 / PR1115 (Threading) are sold in 5 piece boxes.

Inserts are sold in 10 piece boxes.

● : Std. Stock ○ : World Express

SIN / CIN



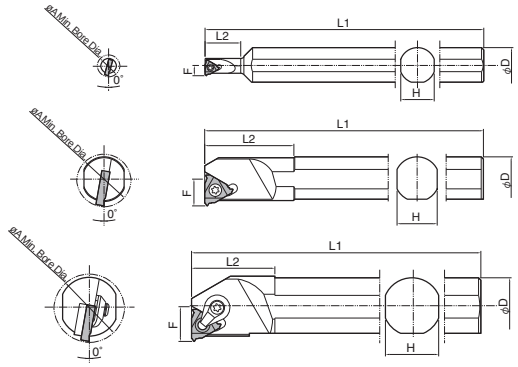


Fig.1

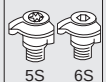
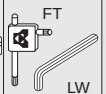
Fig.2

Fig.3

● Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder.

Toolholder Dimensions

Description		Stock R	Stock L	Unit	Min. Bore Dia. øA	Dimension øD	Dimension H	Dimension L1	Dimension L2	Dimension F	Drawing	Spare Parts: Clamp Screw	Spare Parts: Clamp Set	Spare Parts: Wrench	Spare Parts: Shim	Spare Parts: Shim Screw	Applicable Inserts ➡ J6 - J15
													 5S 6S	 FT LW			
S10M-SINR-2		●		Inch	0.590	0.625	0.56	5.91	1.18	0.295	Fig. 1	-	SB-2TR	FT-8	-	-	**11 IR/L...**
S10M-SINR-3		●			0.790	0.625	0.584	5.91	1.46	0.369	Fig. 2	-	SB-3.5TR	FT-15	-	-	**16 IR/L...**
S12X-SINR-3		●			0.940	0.750	0.710	7.09	1.57	0.470							
SIN R/L	**0612S-06E**	○		mm	6.4	12	11	100	10	3.8	Fig.1	SB-2040TR	-	FT-6	-	-	**06 IR/L...**
	0816S-08E	○			7.8	16	15	125	16	4.0		SB-2050TR	-	FT-6	-	-	**08 IR/L...**
	1216S-11E	○	○		12	16	14	150	25	6.3		SB-2TR	-	FT-8	-	-	**11 IR/L...**
	1516S-11	○	○		15				30	7.5							
	2016S-16	○	○		20	16	14	150	37	10.0	Fig.2	SB-3.5TR	-	FT-15	-	-	**16 IR/L...**
	2420S-16	○	○		24	20	18	180	40	12.0							
	2420S-22	○			24	20	18	180	40	13.5		SB-4085TR	-	FT-15	-	-	**22 IR/L...**
CIN R/L	**3025S-16**	○	○		30	25	23	200	36	15.0	Fig.3	-	CPS-5S	FT-15	TN-32	SP3X8	**16 IR/L...**
	3732S-16	○			37	32	30	250	45	18.5							
	3025S-22	○			30	25	23	200	40	16.5		-	CPS-6S	LW-3	TN-43	SP3X8	**22 IR/L...**
	3732S-22	○			37	32	30	250	45	20							

Reference page for applicable inserts

Type of Thread	Full Profile	Partial Profile	Type of Thread	Full Profile	Partial Profile
M: Metric	**J7**	**J13**	Rc (PT) (BSPT) Tapered Pipe	**J11**	**J15**
UN: Unified UNF: Unified Fine Thread	**J9**	**J13**	W: Whitworth	**J9**	**J15**
			NPT • American National Tapered Pipe	**J11**	**-**
G (PF): Parallel Pipe	**J9**	**J15**	Tr: 30°Trapezoidal	**-**	**J15**

Guide for Internal Threading

For the internal threading, pay extra attention to “Stabilizing Bore Dia.” and “chip evacuation”.

1 “Stabilizing Bore Dia.”

Because small pitch internal threading has small corner-R(rε), there is variation in the Bore Dia. which may greatly influence the tool life of an insert.
In order to eliminate the variation in the Bore Dia., “0” cutting (zero cutting) should be performed as the zero pass, before the first pass in threading.
The Bore Dia. is cut with the specified dimension, and the first pass of threading becomes stable.

2 “Chip evacuation”

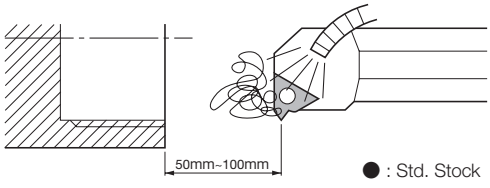
If cutting process is continued when chips are tangled with a holder and other parts of the machine, it may cause damages to the insert. Therefore, please confirm if there are no tangled chips in the machine by the following method.

<When processing the first work piece>

Move the program with the single block.
Keep the threading starting point 50mm~100mm away from the side of workpiece, and confirm that coolant is flushing down the chips for each pass.

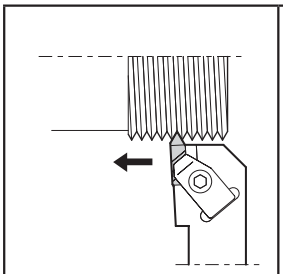
<When processing the second workpiece and later>

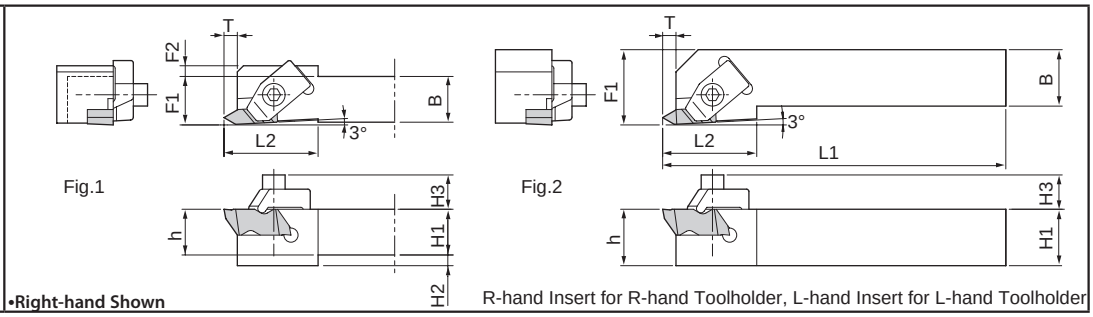
Confirm that chips are not tangled; then, execute continuous run.



● : Std. Stock ○ : World Express

KKC





•Right-hand Shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder

Toolholder Dimensions

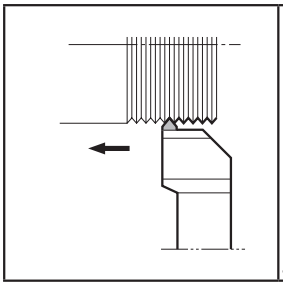
Description		Stock R	Stock L	Unit	H1=h	H2	H3	B	L1	L2	F1	F2	T	Fig		Clamp Screw	Wrench
KKC[R/L]	1010K-2-125F	●		mm	10mm	2mm	9.2mm	10mm	125mm	19.05mm	10.25mm	2mm	3.5mm	1	CKC-2[R/L]	SKC-2	(7/64 Hex)
				inch	0.394	0.106	0.362	0.394	4.921	0.75	0.482	0.106	0.126				
	1212M-2-150F	●		mm	12mm	-	9.2mm	12mm	150mm	19.05mm	12.25mm	-	3.5mm	1			
				inch	0.472	-	0.362	0.472	5.906	0.75	0.482	-	0.126				
KKC[R/L]	6-2X	●	●		0.375	-	0.362	0.375	2.50	0.750	0.562	-	0.138	2	CKC-2[R/L]	SKC-2	(7/64 Hex)
	6-2CF	●	●		0.375	0.125	0.362	0.375	5.00	0.750	0.385	0.125	0.138	1			
	8-2X	●	●		0.500	-	0.362	0.500	3.50	0.750	0.750	-	0.138	2			
	8-2DF	●	●		0.500	-	0.362	0.500	6.00	0.750	0.510	-	0.138	1			
	10-2DF	●	●	inch	0.625	-	0.362	0.625	6.00	0.750	0.635	-	0.138	1			
	12-2B	●	●		0.750	-	0.362	0.750	4.50	0.750	1.000	-	0.138	2			
	12-2C	●	●		0.750	-	0.362	0.750	5.00	0.750	1.000	-	0.138	2			
	16-2C	●	●		1.000	-	0.362	1.000	5.00	0.750	1.250	-	0.138	2			
	16-2D	●	●		1.000	-	0.362	1.000	6.00	0.750	1.250	-	0.138	2			
	12-3B	●	●		0.750	-	0.465	0.750	4.50	1.250	1.000	-	0.210	2	CKC-3[R/L]	SKC-3	(LW-156)
	12-3C	●	●		0.750	-	0.465	0.750	5.00	1.250	1.000	-	0.210	2			
	16-3C	●	●	inch	1.000	-	0.465	1.000	5.00	1.250	1.250	-	0.210	2			
	16-3D	●	●		1.000	-	0.465	1.000	6.00	1.250	1.250	-	0.210	2			
	20-3D	●	●		1.250	-	0.465	1.250	6.00	1.250	1.500	-	0.210	2			

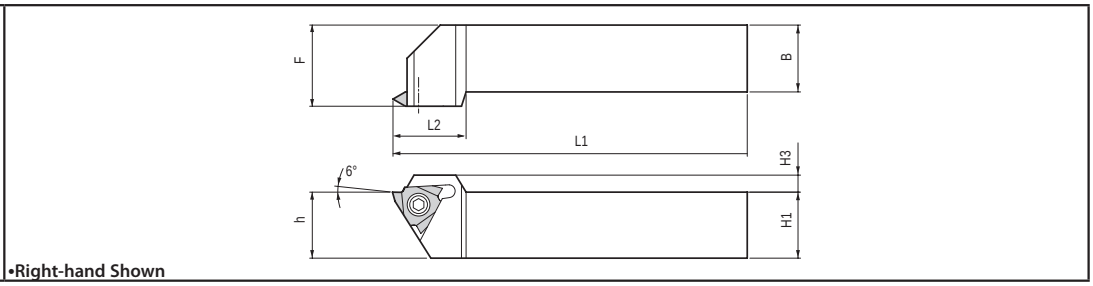
●Clamp : CKC-○R for Right-hand Toolholder, CKC-○L for Left-hand Toolholder

Applicable Insert

Toolholder	Insert ➡ J16
KKC[R/L] ···2-	KCT-2[R/L], KCTK-2[R/L], KCTP-2[R/L]
KKC[R/L] ···3	KCT-3[R/L], KCTK-3[R/L], KCTP-3[R/L]

STVP





•Right-hand Shown

Toolholder Dimensions

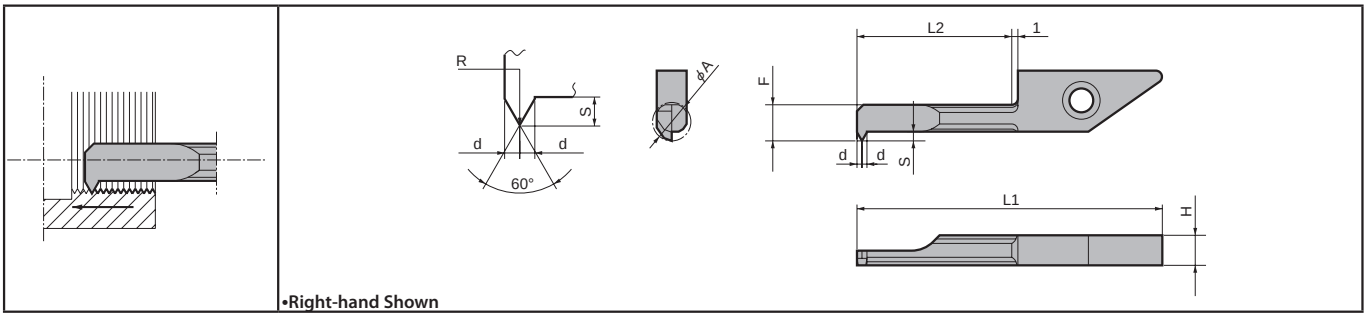
Description		Stock R	Stock L	Unit	Dimension H1=h	H3	B	L1	L2	F	Spare Parts: Insert Screw	Spare Parts: Wrench
STVP[R/L]	12-3	●		inch	0.750	0.100	0.750	4.50	0.750	0.875	SB-4TR	FT-15
	16-3	●			1.000		1.000	6.00	0.750	1.125		
	12-4				0.750	0.150	0.750	4.50	0.950	0.875	GS-50	LW-3
	16-4	●			1.000		1.000	6.00	0.950	1.125		

Applicable Inserts

Toolholder	Insert ➡ J16
STVPR -3	TPMC32NV
STVPR -4	TPMC43NV

Swiss IQ Bar for Micro Internal Threading

VNT



•Right-hand Shown

Dimensions

Description		Min. Bore Dia.	Dimension (mm,inch)							Insert Grade		Metric		Unified	
										PVD Coated	Carbide				
		φA	H	L1	L2	F	S	d	R	PR930	KW10	Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)
VNTR	**045-11**	4.5 (.177)	3.9 (.154)	30.8 (1.212)	11 (.433)	3.6 (.142)	1.3 (.051)	0.6 (.024)	0.05 (.002)	●	●	over M6	P0.75 ~P1.25	over 1/4-20UNC, 1/4-28UNF	28~20
	060-11	6.0 (.236)	3.9 (.154)	30.8 (1.212)	11 (.433)	4.6 (.181)	1.6 (.063)	0.8 (.024)	0.05 (.002)	●	●	over M8	P0.75 ~P1.50	over 5/16-18UNC, 5/16-24UNF	24~18

●: Std. Stock ○: World Express

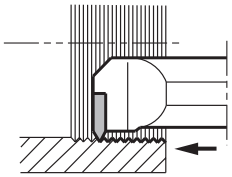
Swiss IQ Bars are sold in a 5-pc box.

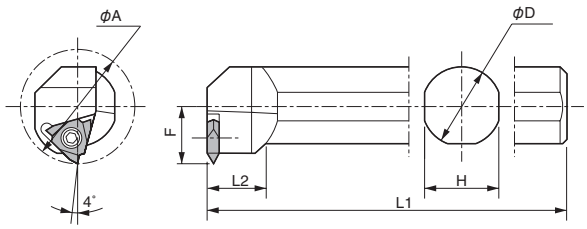
Depth of Cut & Number of Pass

Pitch (mm)	Total D.O.C. (mm)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
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

Caution 1)The Standard Cutting Speed is 30 - 50sfm. At small dia. and high RPM conditions, the feed may not reach the expected conditions depending on the machine capabilities.
2)Coolant is recommended.

KITG





• Right-hand shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

Toolholder Dimensions

Description		Stock R	Stock L	Min. Bore Dia. øA	Dimension (mm) øD	H	L1	L2	F	Spare Parts: Clamp Screw		Spare Parts: Wrench	
KITGR/L	3525T-16	●	●	35	25	23	220	18	17.5	SB-4TR	-	FT-15	-
	4532T-22	●	●	45	32	30	250	20	22.5	-	GS-50	-	LW-3

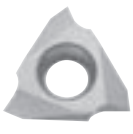
• Max. available Pitch: KITGR/L3525T-16…P2.5 or 10 TPI, KITGR/L4532T-22…P3.0 or 8 TPI.

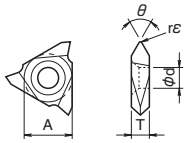
Applicable Inserts

Description	A	T	ød
TT32R/L	9.525	3.18	4.4
TT43R/L	12.70	4.76	5.5

						Classification of usage
P	Carbon Steel / Alloy Steel		○	○	●		● : 1st Choice
M	Stainless Steel			○	●		○ : 2nd Choice
K	Cast Iron					●	
N	Non-ferrous Metals					●	

Insert (Right-hand Shown)	Description	Applicable Thread	Pitch mm	Pitch TPI	Dimension (mm) rε		Angle (°) θ	Cermet TC60	PVD Coated Carbide PR930	PR1115	Carbide KW10	Applicable Toolholder	Ref. Page for Depth of Cut & No. of Passes
Partial Profile	TT32R/L 6000	M UN	0.5~2.5 -	- 48~10	0.0		60°	●	●	●		KITGR/L····-16	J46
	6001	M UN	1.5~2.5 -	- 16~10	0.1			●	●	●	●		
	TT32R/L 5501	G,PT W	-	28~11 24~10	0.1		55°	●	●	R	●		
	5502	G,PT W		- 16~18	0.2			●	●	R	●		
	TT43R/L 6001	M UN	1.5~3.0 -	14~11 16~10	0.1		60°	●	●	●	●		
	6002	M UN	3.0 -	- 8	0.2			●	●	●	●		
	TT43R/L 5501	G,PT W	-	28~11 24~8	0.1		55°	●	R	R	●	KITGR/L····-22	
	5502	G,PT W		14~11 16~8	0.2			●	R	R	●		
	5503	G,PT W		11 11~8	0.3			●	R	R			
	5504	G,PT W		- 8	0.4			●					

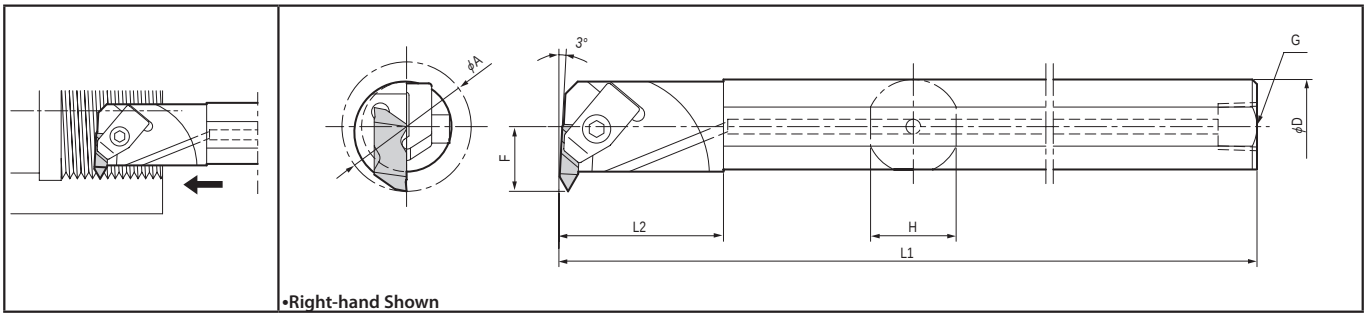




For recommended cutting conditions, see page J45

Applicable Thread		
	M: Metric	R, Rc(PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

A-KKC



•Right-hand Shown

Toolholder Dimensions

Description	Stock R	Stock L	Unit	Min. Cutting Dia. φA	Dimension φD	Dimension L1	Dimension F	Dimension G	Spare Parts: Clamp	Spare Parts: Clamp Screw	Spare Parts: Wrench
A10M-KKCR-2	●		inch	1.000	0.625	6.00	0.500	1/8-27 NPT	**CKC-2L**	**SKC-2**	**(7/64 Hex)**
A10S-KKCR-2	●			1.000	0.625	10.00	0.500				
A12R-KKCR-2	●			1.125	0.750	8.00	0.562				
A12S-KKCR-2	●			1.125	0.750	10.00	0.562				
A16T-KKCR/L-2	●	●	inch	1.375	1.000	12.00	0.688	1/4-18 NPT	**CKC-3 1/8R**	**SKC-3**	**(LW-156)**
A16X-KKCR/L-3	●			1.375	1.000	9.00	0.688				
A16T-KKCR/L-3	●	●		1.375	1.000	12.00	0.688				
A20U-KKCR/L-3	●	●		1.750	1.250	14.00	0.875				
A24U-KKCR/L-3	●	●		2.000	1.500	14.00	1.000				
A28U-KKCR/L-3	●			2.250	1.750	14.00	1.125				
A32V-KKCR/L-3	●	●		2.500	2.000	16.00	1.250				

●Clamp : CKC-○R for Left-hand Toolholder, CKC-○L for Right-hand Toolholder.

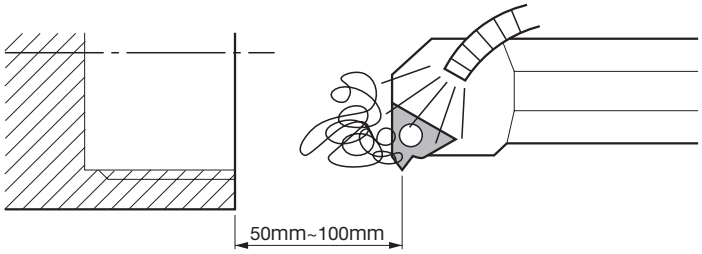
Applicable Inserts

Toolholder	Insert ➡ **J16**
A-KKCR -2	**KCT-2L, KCTP-2L, KCTK-2L**
A-KKCR -3	**KCT-3L, KCTP-3L, KCTK-3L**

Guide for Internal Threading

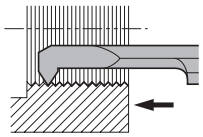
Good chip evacuation is important when internal threading.
If entangled chips damage the insert, the following countermeasures are recommended.

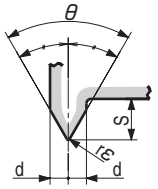
● Start the threading from a position of 1" away from the workpiece.



● : Std. Stock ○ : World Express

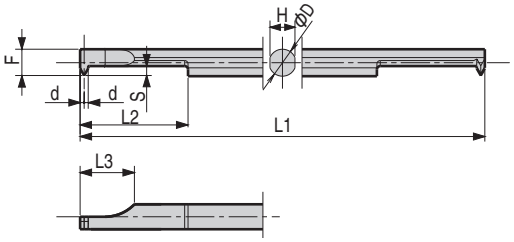
HPT (Micro Internal Threading)





Details of Edge





● Right-hand shown

Dimensions

Description		Min. Bore Dia.	Dimension (mm)										Insert Grade		Applicable Thread			
													PVD Coated Carbide	Carbide	Metric		Unified	
		øA	øD	H	L1	L2	L3	F	S	d	rε	θ	PR930	KW10	Nominal Thread	Pitch (mm)	Nominal Thread	Pitch (TPI)
HPTR	04504-60-005	4.5	4	3.7	60	16	8	3.9	1.3	0.6	0.05	60°	○	○	M6 and over	P0.75 ~P1.25	1/4-20UNC 1/4-28UNF and over	28~20
	06005-60-005	6	5	4.6	70	21		4.9	1.6	0.8			○	○	M8 and over	P0.75 ~P1.50	5/16-18UNC 5/16-24UNF and over	24~18
	07507-60-005	7.5	7	6.4	80	26	10	6.9	2	1			○	○	M10 and over	P0.75 ~P1.50	3/8-16UNC 3/8-24UNF and over	24~16
															Whitworth		Parallel Pipe Tapered Pipe	
HPTR	06005-55-010	6	5	4.6	70	21	8	4.9	1.6	0.8	0.1	55°	○	○	W10 TPI 20 W10 TPI 24 and over	24~20	G1/16 and over R1/16 and over	28
	08007-55-010	8	7	6.4	80	26	10	6.9	2.0	1.0			○	○	W11 TPI 18 W11 TPI 20 and over	20~18	G1/8 and over R1/8 and over	28~19

Description Table for Tip-Bars and Applicable Sleeves

Description		Applicable Sleeve ⇒ J33	
HPTR	04504-60-005	PSH	04···-···
	06005-60-005		05···-···
	07507-60-005		07···-···
HPTR	06005-55-010	PSH	05···-···
	08007-55-010		07···-···

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)	
	PVD Coated Carbide	Carbide
	PR930	KW10
Carbon Steel / Alloy Steel	★ 30~100	—
Stainless Steel	★ 30~80	—
Non-ferrous Metals	—	★ ~300

★: 1st Recommendation ☆: 2nd Recommendation

<Note>
1) The standard cutting speed is Vc=30~50sfm. The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds.
2) Coolant is recommended.

Depth of Cut & Number of Passes (Metric / M)

Pitch (mm)	Total ap (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

Depth of Cut & Number of Passes (Whitworth / W)

TPI	Total ap (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
24	0.65	13	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03				
20	0.81	15	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	0.03	0.03		
18	0.91	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	0.03	0.03	0.03

Depth of Cut & Number of Passes (Unified / UN. UNC. UNF. UNEF)

TPI	Total ap (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
28	0.54	12	0.07	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03						
24	0.64	12	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.03						
20	0.77	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03				
18	0.87	17	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03	
16	0.98	18	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	0.05	0.04	0.04	0.04	0.03

Application of Parallel Pipe / Tapered Pipe Thread

Parallel Pipe: G(PF), Rp(PS)

Nominal Thread Symbol (Previous Symbol)	TPI (TPI)	Internal (G,Rp) Insert		Bore Dia.	Same Root's Radius
$G^{1}/_{16}$ (-)	28	**HPTR**	**06005-55-010**	6.56	0.12
G ⅛ (PF ⅛)			**08007-55-010**	8.57	
G ¼ (PF ¼)	19	**HPTR**	**08007-55-010**	11.45	0.18
G ⅜ (PF ⅜)				14.95	

Tapered Pipe: R, Rc(PT) (BSPT)

Nominal Thread Symbol (Previous Symbol)	TPI (TPI)	Internal (G,Rp) Insert		Bore Dia.	Same Root's Radius
$R^{1}/_{16}Rc^{1}/_{16}$ (-)	28	**HPTR**	**06005-55-010**	-	0.12
R ⅛, Rc ⅛ (PT ⅛)			**08007-55-010**	-	
R ¼, Rc ¼ (PT ¼)	19	**HPTR**	**08007-55-010**	-	0.18
R ⅜, Rc ⅜ (PT ⅜)				-	

• When using "HPT type" for Parallel Pipe / Tapered Pipe threading, 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.

Depth of Cut & Number of Passes (Parallel Pipe/G(PF), Tapered Pipe/BSPT (PT) (Rc))

TPI	Total ap (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
28	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						
19	0.95	18	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03

Application of ANSI Tapered Pipe Thread (NPT)

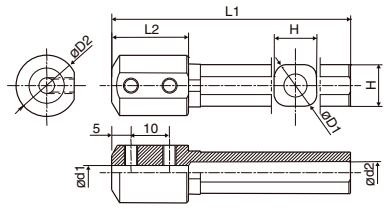
Nominal Thread	TPI	Internal Thread Toolholder	Insert Partial Profile	Insert Full Profile
$^{1}/_{16}$ NPT ⅛ NPT	27	**No Tools Available**		
¼ NPT ⅜ NPT	18	**PSH** Sleeve (See J26)	**HPTR06005-60-005** **HPTR07507-60-005**	-
½ NPT ¾ NPT	14	**PSH** Sleeve (See J26)	**HPTR07507-60-005**	-
½ NPT	14	**SINR2016S-16** cannot pass through the processing diameter.		
¾ 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 available to NPTF.

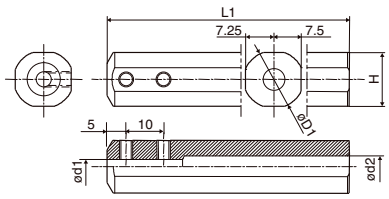
Depth of Cut & Number of Passes (American National Tapered Pipe)

TPI	Total ap (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
18	1.23	16	0.18	0.14	0.12	0.12	0.10	0.09	0.08	0.08	0.07	0.06	0.05	0.04	0.03	0.03	0.02	0.02			
14	1.56	19	0.18	0.16	0.14	0.14	0.12	0.10	0.09	0.09	0.08	0.07	0.07	0.06	0.05	0.05	0.04	0.04	0.03	0.03	0.02

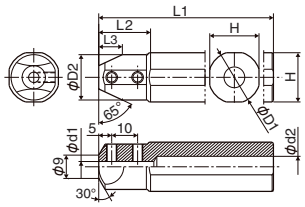
Applicable Sleeves



(Tip-Bar installation side) Fig.1



(Tip-Bar installation side) Fig.2



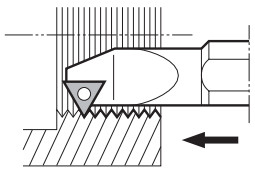
(Tip-Bar installation side) Fig.3

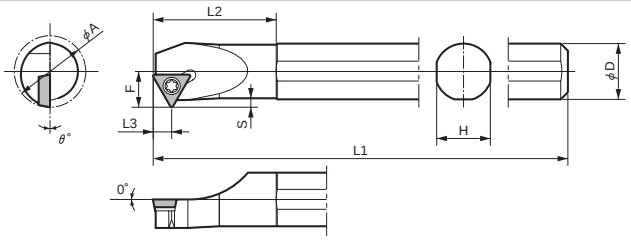
Description		Stock	Dimension (mm)								Drawing	Spare Parts		Applicable Machine manufacturer	Ref. Page for Applicable Tip-Bar (Ref. Page for Other Applicable Tip-Bar)
			* ød1	øD1	øD2	ød2	H	L1	L2	L3		Screw	Wrench		
PSH	0412-80	○	4	12	16	6	11	80	20	-	Fig.1	HS4×4P	LW-2	(General use)	Threading Tip-Bar (HPT)⇒**J31** Boring Tip-Bar (HPB)⇒**F24** Back Boring Tip-Bar (HPBT)⇒**F24** Grooving Tip-Bar (HPG)⇒**G66** Face Grooving Tip-Bar (HPFG)⇒**G87**
	0512-80	○	5												
	0712-80	○	7			8									
PSH	0416-100	○	4	16	-	6	15	100	-	-	Fig.2	HS4×4P	LW-2		
	0516-100	○	5												
	0716-100	○	7			8									
PSH	0420-120	○	4	20	17.5	6	19	120	20	9	Fig.3	HS4×4P	LW-2	Amada Wasino Eguro Precision Tsugami Miyano (General use)	
	0520-120	○	5												
	0720-120	○	7			8				7.5					
PSH	0425.0-135	○	4	25	18	6	24	135	23	9.5	Fig.3	HS4×4P	LW-2		
	0525.0-135	○	5												
	0725.0-135	○	7			8				8					
PSH	0419-120	○	4	19.05	17.5	6	18	120	20	9	Fig.3	HS4×4P	LW-2	Citizen Machinery	
	0519-120	○	5												
	0719-120	○	7			8				7.5					
PSH	0420-120	○	4	20	17.5	6	19	120	20	9	Fig.3	HS4×4P	LW-2		
	0520-120	○	5												
	0720-120	○	7			8				7.5					
PSH	0425-120	○	4	25.4	18	6	24.4	120	23	9.5	Fig.3	HS4×4P	LW-2		
	0525-120	○	5												
	0725-120	○	7			8				8					
PSH	0422-135	○	4	22	18	6	21	135	22	9.5	Fig.3	HS4×4P	LW-2	Star Micronics Nomura VTC	
	0522-135	○	5												
	0722-135	○	7			8				8					
PSH	0423-120	○	4	23	18	6	22	120	22	9.5	Fig.3	HS4×4P	LW-2	Nomura VTC	
	0523-120	○	5												
	0723-120	○	7			8				8					

*: Length of ød1…20mm (PSH04 type)
…25mm (PSH05, PSH07 type)

- Select a sleeve dimension ød1 by adjusting for tip-bar dimension øD.
- Names of machining manufacturer in random order.

S...STWP

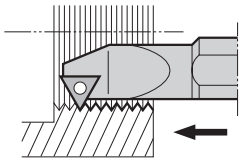


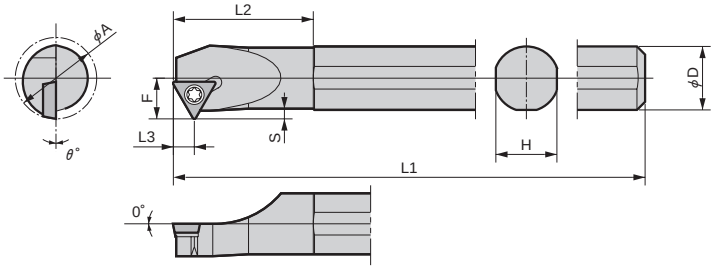


● Right-hand shown

This Tool can also be used as a boring bar.

S...STWP-E Excellent Bar





● Right-hand shown

This Tool can also be used as a boring bar.

Toolholder Dimensions

Description	Std. R	Std. L	Min. Bore Dia. øA	Dimension (mm) øD	H	L1	L2	L3	F	S	Available Pitch (mm)	Spare Parts: Clamp Screw	Spare Parts: Wrench	Applicable Insert → J35: Partial Profile
S06M -STWP R/L-2	●		0.476	0.375	0.340	6.00	0.910	0.217	0.238	0.050	14-32 TPI	SB-3STR	FT-10	TPGB21.5 ○○
S08M -STWP R/L-2	●		0.630	0.500	0.475	6.00	1.200	0.217	0.315	0.065				
S10X -STWP R/L-2	●		0.786	0.625	0.595	7.00	1.400	0.217	0.393	0.080	8-32 TPI			TPGB22 ○○
S12R -STWP R/L-2	●		0.970	0.750	0.720	8.00	1.600	0.217	0.485	0.110				
S16R -STWP R/L-2	●		1.240	1.000	0.970	8.00	2.00	0.217	0.620	0.120				
S10M -STWP R/L 11-12	○		12	10	9.2	150	23	5.5	6	1.0	1.5 and under	SB-3STR	FT-10	TPGB21.5 ○○
S12M -STWP R/L 11-16	○		16	12	11	150	30		8	1.5	2.0 and under			TPGB22 ○○
S16Q -STWP R/L 11-20	○		20	16	15	180	35		10	2.0	3.0 and under	SB-3TR		
S20R -STWP R/L 11-25	○		25	20	19	200	40		12.5	2.5	3.5 and under			
S10M -STWP R/L 11-12E	○	○	12	10	9.2	150	23	5.5	6	1.0	1.5 and under	SB-3STR	FT-10	TPGB21.5 ○○
S12M -STWP R/L 11-16E	○	○	16	12	11	150	30		8	1.5	2.0 and under			TPGB22 ○○
S16R -STWP R/L 11-20E	○	○	20	16	15	200	35		10	2.0	3.0 and under	SB-3TR		
S20X -STWP R/L 11-25E	○	○	25	20	19	220	40		12.5	2.5	3.5 and under			

・Dimension S: shows the Max. available ap.

Tip-Bars are sold in 1 piece boxes.

System Tip-Bars are are sold in 5 piece boxes.

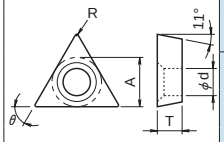
● : Std. Stock ○ : World Express

Applicable Inserts

(mm)

Description	A	T	ød
TPGB1102···	6.35 (11)	2.38	3.5
TPGB1103···	6.35 (11)	3.18	3.3

							Classification of usage
P	Carbon Steel / Alloy Steel		●				● : 1st Choice
M	Stainless Steel						○ : 2nd Choice
K	Cast Iron					●	
N	Non-ferrous Metals					●	

Insert			Description		Applicable Thread	Pitch		Dimension (mm)			Angle (°)	Cermet		PVD Coated Carbide		Carbide	Applicable Toolholder	Ref. Page for Depth of Cut & No. of Passes
						mm	TPI	rε			θ	TN6020	TN60	PV7020	PV60	KW10		
Partial Profile			**TPGB**	**215013**	M UN	0.75~1.5 -	- 28~16	0.05			60°		○			○	···STWP R/L 11-12(E)	J46
				21502	M UN	1.5 -	- 16	0.10					○			○		
			TPGB	**22013**	M UN	0.75~3.5 -	- 28~11	0.05					○			○	···STWP R/L 11-16(E)	
				2202	M UN	1.5~3.5 -	- 16~8	0.10					○		○	○	···STWP R/L 11-20(E)	
				2205	M UN	3.0~3.5 -	- 8	0.20				○	○	○	○	○	···STWP R/L 11-25(E)	

Applicable Thread	M: Metric	R, RC (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Tapered Pipe
	G (PF): Parallel Pipe	Tr: 30°Trapezoidal

For recommended cutting conditions, see page ➔ **J45**

Inserts are sold in 10 piece boxes.

External

KTN / KTNS

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)			
	Cermet	PVD Coated Carbide		Carbide
	TC60	**PR930**	**PR1115**	**GW15 (KW10)**
Carbon Steel	☆ 325~500	☆ 325~500	★ 325~500	-
First ap (Radial)	under .012in	under 0.012in	under 0.012in	
Alloy Stee	☆ 325~500	☆ 325~500	★ 325~500	-
First ap (Radial)	under 0.012in	under 0.012in	under 0.012in	
Stainless Steel	☆ 200~260	☆ 200~260	★ 200~260	-
First ap (Radial)	under 0.010in	under 0.010in	under 0.010in	
Cast Iron	-	-	-	★ 325
First ap (Radial)				under 0.012in
Non-ferrous Metals	-	-	-	★ 500~1300
First ap (Radial)				under 0.012in

KTT

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)			
	Cermet	PVD Coated Carbide		Carbide
	TC60	**PR930**	**PR1115**	**KW10**
Carbon Steel	☆ 325~500	☆ 325~500	★ 325~500	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Alloy Steel	☆ 325~500	☆ 325~500	★ 325~500	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Stainless Steel	☆ 200~260	☆ 200~260	★ 200~260	-
First ap (Radial)	under 0.25mm	under 0.25mm	under 0.25mm	
Cast Iron	-	-	-	★ 325
First ap (Radial)				under 0.3mm
Non-ferrous Metals	-	-	-	★ 500~1300
First ap (Radial)				under 0.3mm

KTTX / S-KTTX

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)			
	Cermet	PVD Coated Carbide		Carbide
	TC60	**PR930**	**PR1115**	**KW10**
Carbon Steel	☆ 325~500	☆ 325~500	★ 325~500	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Alloy Steel	☆ 325~500	☆ 325~500	★ 325~500	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Stainless Steel	☆ 200~260	☆ 200~260	★ 200~260	-
First ap (Radial)	under 0.25mm	under 0.25mm	under 0.25mm	
Cast Iron	-	-	-	★ 325
First ap (Radial)				under 0.3mm
Non-ferrous Metals	-	-	-	★ 500~1300
First ap (Radial)				under 0.3mm

Indicates
★ : 1st Recommendation ☆ : 2nd Recommendation

- Coolant is recommended.
- In case of using cermet insert, honing edge with hand rapper slightly makes more stability.
- In case of threading stainless steel, please set two to three passes more than previous description of <ap - passes>.

Internal

SIN / CIN

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)			
	Cermet	PVD Coated Carbide		Carbide
	TC60	PR930	PR1115	GW15 (KW10)
Carbon Steel	☆ 325~500	☆ 325~500	★ 325~500	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Alloy Steel	☆ 325~500	☆ 325~500	★ 325~500	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Stainless Steel	☆ 200~260	☆ 200~260	★ 200~260	-
First ap (Radial)	under 0.25mm	under 0.25mm	under 0.25mm	
Cast Iron	-	-	-	★ 325
First ap (Radial)				under 0.3mm
Non-ferrous Metals	-	-	-	★ 500~1300
First ap (Radial)				under 0.3mm

- For TNN06IR / 08IR, please lower it to a figure under 40% of above condition list

KITG

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)			
	Cermet	PVD Coated Carbide		Carbide
	TC60	PR930	PR1115	KW10
Carbon Steel	☆ 325~500	☆ 325~500	★ 325~500	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Alloy Steel	☆ 325~500	☆ 325~500	★ 325~500	-
First ap (Radial)	under 0.3mm	under 0.3mm	under 0.3mm	
Stainless Steel	☆ 200~260	☆ 200~260	★ 200~260	-
First ap (Radial)	under 0.25mm	under 0.25mm	under 0.25mm	
Cast Iron	-	-	-	★ 325
First ap (Radial)				under 0.3mm
Non-ferrous Metals	-	-	-	★ 500~1300
First ap (Radial)				under 0.3mm

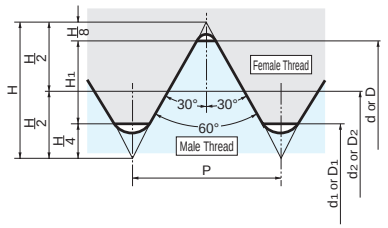
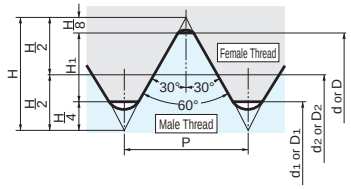
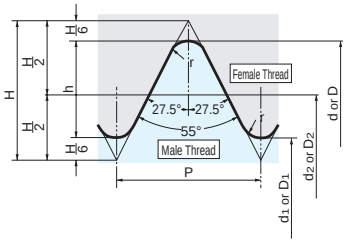
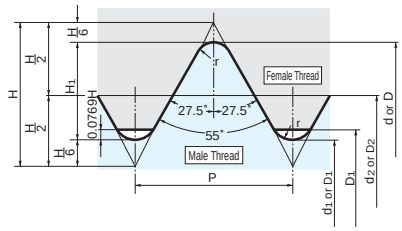
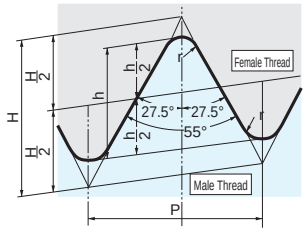
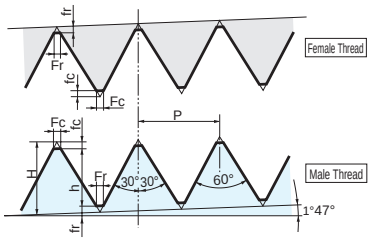
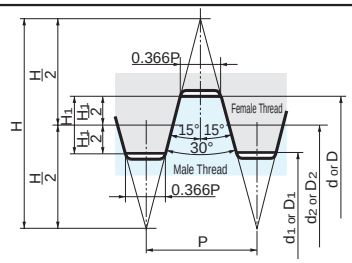
S…STWP (-E)

Workpiece Material	Recommended Insert Grade (Cutting Speed: sfm)				
	Cermet		PVD Coated Cermet		Carbide
	TN6020	TN60	PV7020	PV60	KW10
Carbon Steel	☆ 325~500	☆ 325~500	★ 325~500	☆ 325~500	-
First ap (Radial)	under 0.25mm	under 0.25mm	under 0.25mm	under 0.25mm	
Alloy Steel	☆ 325~500	☆ 325~500	★ 325~500	☆ 325~500	-
First ap (Radial)	under 0.25mm	under 0.25mm	under 0.25mm	under 0.25mm	
Stainless Steel	-	-	-	-	-
First ap (Radial)					
Cast Iron	-	-	-	-	★ 325
First ap (Radial)					under 0.25mm
Non-ferrous Metals	-	-	-	-	★ 500~1300
First ap (Radial)					under 0.25mm

Indicates
★ : 1st Recommendation ☆ : 2nd Recommendation

- Coolant is recommended.
- In case of using cermet insert, honing edge with hand rapper slightly makes more stability.
- In case of threading stainless steel, please set two to three passes more than previous description of <ap - passes>.

Thread Types & Basic Profile / Applicable Toolholders & Inserts

	Basic Profile	Symbol (Old Symbol)		Applicable Insert	Applicable Toolholder
Metric		**M** e.g.) M30	Male Thread	○○E R/L ○○○ISO(-TF) 16E R/L ○○○ISO-TS 16E R/L 60○○(-TS)	KTN R/L ○○○○□-○○ KTNSR○○○○□-16
				TT43E R/L ○○○M TT○○ R/L 60○○	KTT R/L ○○○○□-○○
				TTX32 R/L 60○○	KTTX R/L ○○○○□-16F
			Female Thread	○○I R/L ○○○ISO(-TF) ○○I R/L ○○○ISO-TS ○○I R/L 60○○(○)(-TS)	SIN R/L ○○○○S-○○(E) CIN R/L ○○○○S-○○
				TT○○ L/R 60○○	KITG R/L ○○○○T-○○
				TPGB2○○○	S○○□-STWP R/L 11-○○(E)
Unified		**UN** **UNC** **UNF** **UNEF** e.g.) 3/4-16 UNF	Male Thread	TPMC○○NV	STVP R/L ○○-○
				KCT(K/P)○ R/L	KKC R/L ○○-○
				○○E R/L ○○○UN(-TF) 16E R/L 60○○(-TS)	KTN R/L ○○○○□-○○ KTNS R/L ○○○○□-16
				TT○○ R/L 60○○	KTT R/L ○○○○□-○○
				TTX32 R/L 60○○	KTTX R/L ○○○○□-16F
			Female Thread	○○I R/L ○○○UN(-TF) ○○I R/L 60○○(○)(-TS)	SIN R/L ○○○○S-○○(E) CIN R/L ○○○○S-○○
				TT○○ L/R 60○○	KITG R/L ○○○○T-○○
				TPGB2○○○	S○○□-STWP R/L ○-○○(E)
				KCT(K/P)○ L/R	S○○□-KKC R/L
Parallel Pipe		Male Thread: **G(PF)** Female Thread: **G(PF)** **Rp(PS)** e.g.) G3/4(PF3/4)	Male Thread	○○E R/L ○○○W(-TF) 16E R/L ○○○W-TS 16E R/L 55○○	KTN R/L ○○○○□-○○ KTNSR○○○○□-16
				TT○○ R/L 55○○	KTT R/L ○○○○□-○○
				TTX32 R/L 55○○	KTTX R/L ○○○○□-16F
			Female Thread	○○I R/L ○○○W(-TF) ○○I R/L ○○○W-TS ○○I R/L 55○○(○)	SIN R/L ○○○○S-○○(E) CIN R/L ○○○○S-○○
				TT○○ L/R 55○○	KITG R/L ○○○○T-○○
Whitworth		**W** e.g.) W3/8	Male Thread	○○E R/L ○○W(-TF) 16E R/L ○○W-TS 16E R/L 55○○	KTN R/L ○○○○□-○○ KTNS R/L ○○○○□-16
				TT○○ R/L 55○○	KTT R/L ○○○○□-○○
				TTX32 R/L 55○○	KTTX R/L ○○○○□-16F, S○○□-KTTX R/L 16
			Female Thread	○○I R/L ○○W(-TF) ○○I R/L ○○W-TS ○○I R/L 55○○(○)	SIN R/L ○○○○S-○○(E) CIN R/L ○○○○S-○○
				TT○○ L/R R55○○	KITG R/L ○○○○T-○○
Tapered Pipe		Male Thread: **R(PT)** Female Thread: **Rc(PT)** e.g.) R1/2(PT1/2)	Male Thread	○○E R/L ○○○BSPT(-TF) 16E R/L ○○○BSPT-TS	KTN R/L ○○○○□-○○ KTNS R/L ○○○○□-16
				TT○○ R/L 55○○✻	KTT R/L ○○○○□-○○
				TTX32 R/L 55○○✻	KTTX R/L ○○○○□-16F
			Female Thread	○○I R/L ○○○BSPT(-TF) ○○I R/L ○○○BSPT-TS	SIN R/L ○○○○S-○○(E) CIN R/L ○○○○S-○○
				TT○○ L/R 55○○✻	KITG R/L ○○○○T-○○
American National Pipe		**NPT** e.g.) 3/8-18 NPT	Male Thread	○○E R/L ○○○NPT	KTN R/L ○○○○□-○○ KTNS R/L ○○○○□-16
			Female Thread	○○I R/L ○○○NPT	SIN R/L ○○○○S-○○ CIN R/L ○○○○S-○○
30° Trapezoidal		**Tr** e.g.) Tr 26×3	Male Thread	○○E R/L ○○○TR	KTN R/L ○○○○□-○○ KTNS R/L ○○○○□-16
			Female Thread	○○I R/L ○○○TR	SIN R/L ○○○○S-○○ CIN R/L ○○○○S-○○

✻···When the thread's roundishness can be ignored

The standard specification of the inch size thread is based on the dimension of 1/8 inch.

The applicable toolholders & inserts table is based on TNN type's right-hand tools.

Parallel Pipe: G(PF), Rp (PS)

Nominal Thread Inch	Nominal Thread Symbol (Old Symbol)	TPI	Male Thread (G) Toolholder	Male Thread (G) Insert Partial Profiling	Male Thread (G) Insert Full Profiling	Female Thread (G,Rp) Toolholder	Female Thread (G,Rp) Insert Partial Profiling	Female Thread (G,Rp) Insert Full Profiling	Bore Dia.	Root's Radius Male/Female (mm)
-	G 1/16 (-)	28	KTNR○○○○□-16 KTNSR○○○○□-16	16ERA55-TF 16ERAG55-TF 16ERA55 16ERAG55 16ER5501	-	SINR0612S-06E	06IR5501	-	6.56	0.12
'1/8	G 1/8 (PF 1/8)								8.57	
'2/8	G 1/4 (PF 1/4)	19	KTNR○○○○□-16 KTNSR○○○○□-16	16ERA55-TF 16ERAG55-TF 16ERA55 16ERAG55 16ER5501	16ER19W(-TF) 16ER19W-TS	SINR0816S-08E	08IR5501	-	11.45	0.18
'3/8	G 3/8 (PF 3/8)					SINR1216S-11E	11IRA55 11IR55005	-	14.95	
'4/8	G 1/2 (PF 1/2)	14	KTNR○○○○□-16 KTNSR○○○○□-16	16ERAG55-TF 16ERG55-TF 16ERAG55 16ERG55 16ER5501 16ER5502	16ER14W(-TF) 16ER14W-TS	SINR1516S-11	11IR55005	-	18.63	0.25
'5/8	G 5/8 (PF 5/8)					SINR2016S-16	16IRAG55 16IRG55 16IR5501 16IR5502	16IR14W(-TF) 16IR14W-TS	20.59	
'6/8	G 3/4 (PF 3/4)								24.12	
'7/8	G 7/8 (PF 7/8)					SINR2420S-16			27.88	
'8/8	G 1 (PF 1)	11	KTNR○○○○□-16 KTNSR○○○○□-16	16ERAG55-TF 16ERG55-TF 16ERAG55 16ERG55 16ER5001 16ER5502	16ER11W(-TF) 16ER11W-TS	SINR2420S-16	16IRAG55 16IRG55 16IR5501 16IR5502	16IR11W(-TF) 16IR11W-TS	30.29	0.32
'9/8	G 1 1/8 (PF 1 1/8)					CINR3025S-16			34.94	
'10/8	G 1 1/4 (PF 1 1/4)					CINR3732S-16			38.95	
			Hereafter, all the threads are 11 TPI and the root's radius 0.32, use the same tool as G1 1/4.							

Tapered Pipe: R, Rc (PT) (BSPT)

Nominal Thread Inch	Nominal Thread Symbol (Old Symbol)	TPI	Male Thread (R) Toolholder	Male Thread (R) Insert Partial Profiling	Male Thread (R) Insert Full Profiling	Female Thread (Rc) Toolholder	Female Thread (Rc) Insert Partial Profiling	Female Thread (Rc) Insert Full Profiling		Root's Radius Male/Female (mm)
-	R 1/16, Rc 1/16 (-)	28	KTNR○○○○□-16 KTNSR○○○○□-16	(16ERA55-TF) (16ERAG55-TF) (16ERA55) (16ERAG55)	16ER28BSPT(-TF)	SINR0612S-06E	06IR5501	-		0.12
'1/8	R 1/8, Rc 1/8 (PT 1/8)									
'2/8	R 1/4, Rc 1/4 (PT 1/4)	19	KTNR○○○○□-16 KTNSR○○○○□-16	(16ERA55-TF) (16ERAG55-TF) (16ERA55) (16ERAG55)	16ER19BSPT(-TF) 16ER19BSPT-TS	SINR0816S-08E	08IR5501	-		0.18
'3/8	R 3/8, Rc 3/8 (PT 3/8)					SINR1216S-11E	(11IRA55) (11IRA55005)	11IR19BSPT(-TF) 11IR19BSPT-TS		
'4/8	R 1/2, Rc 1/2 (PT 1/2)	14	KTNR○○○○□-16 KTNSR○○○○□-16	(16ERAG55-TF) (16ERG55-TF) (16ERAG55) (16ERG55)	16ER14BSPT(-TF) 16ER14BSPT-TS	SINR1516S-11	(11IR55005)	11IR14BSPT(-TF) 11IR14BSPT-TS		0.25
'6/8	R 3/4, Rc 3/4 (PT 3/4)					SINR2016S-16	(16IRAG55) (16IRG55) (16IR5501) (16IR5502)	16IR14BSPT(-TF) 16IR14BSPT-TS		
'8/8	R 1, Rc 1 (PT 1)	11	KTNR○○○○□-16 KTNSR○○○○□-16	(16ERAG55-TF) (16ERG55-TF) (16ERAG55) (16ERG55)	16ER11BSPT(-TF) 16ER11BSPT-TS	SINR2420S-16		16IR11BSPT(-TF) 16IR11BSPT-TS		0.32
'10/8	R 1 1/4, Rc 1 1/4 (PT 1 1/4)					CINR3025S-16				
'12/8	R 1 1/2, Rc 1 1/2 (PT 1 1/2)					CINR3732S-16				
			Hereafter, all the threads are 11 TPI and the root's radius 0.32, use the same tool as R1 1/2.			Hereafter, all the threads are 11 TPI and the root's radius 0.32, use the same tool as Rc1 1/2.				

※The largest toolholder available for the minimum bore dia. is recommended to the female threading in these tables.
Then, the toolholder whose min. bore dia. is smaller than the recommended toolholder can be used for threading.
e.g.) SINR2420S-16 (min. bore dia.:24mm) is recommended for the tool of G7/8 female threading in the above table, but SINR2016S-16 can also be used.

American National Pipe: NPT

Nominal Thread	TPI	Male Thread			Female Thread			
		Toolholder	Insert		Toolholder	Insert		
			Partial Profiling	Full Profiling		Partial Profiling	Full Profiling	
1/16 NPT 1/8 NPT	27	KTTR○○○○□-16 KTTXR○○○○□-16F	TT32R6000 TTX32R6000	-	No Tools Available			
1/4 NPT 3/8 NPT	18	KTNR○○○○□-16 KTNSR○○○○□-16	-	16ER18NPT	No Tools Available	-	-	
1/2 NPT 3/4 NPT	14	KTNR○○○○□-16 KTNSR○○○○□-16	-	16ER14NPT	No Tools Available	-	-	
					SINR2016S-16	-	16IR14NPT	
1 NPT 1 1/4 NPT 1 1/2 NPT 2 NPT	11.5	KTNR○○○○□-16 KTNSR○○○○□-16	-	16ER11.5NPT	SINR2420S-16	-	16IR11.5NPT	
					CINR3025S-16			
					CINR3732S-16			

• Application to NPTF Thread

30° Trapezoidal: Tr

The JIS Standard Trapezoidal Sizes to be machined by TNN Insert are shown.

Nominal Thread	Pitch (mm)	Male Thread			Female Thread			Bore Dia. (mm)
		Toolholder	Insert		Toolholder	Insert		
			Partial Profiling	Full Profiling		Partial Profiling	Full Profiling	
Tr 16X2	2	No Tools Available						14.00
Tr 18X2	2	KTNR○○○○□-16	16ER200TR	-	No Tools Available	-	-	16.00
Tr 20X2	2	KTNSR○○○○□-16						18.00
Tr 22X3	3	KTNR○○○○□-16 KTNSR○○○○□-16	16ER300TR	-	No Tools Available	-	-	19.00
Tr 24X3	3				SINR2016S-16	16IR300TR	-	21.00
Tr 26X3	3							23.00
Tr 28X3	3				SINR2420S-16	16IR300TR	-	25.00
Tr 30X3	3							27.00
Tr 32X3	3							29.00
Tr 34X3	3				CINR3025S-16	16IR300TR	-	31.00
Tr 36X3	3							33.00
Tr 38X3	3							35.00
Tr 40X3	3							37.00
Tr 42X3	3				CINR3732S-16	16IR300TR	-	39.00
Tr 44X3	3							41.00
Tr 46X3	3							43.00
Tr 48X3	3							45.00
Tr 50X3	3							47.00
Tr 52X3	3							49.00
Tr 55X3	3							52.00
Tr 60X3	3							57.00
Tr 65X3	3							62.00
Tr 70X4	4	KTNR○○○○□-22	22ER400TR	-	CINR3732S-22	22IR400TR	-	66.00
Tr 75X4	4							72.00
Tr 80X4	4							81.00
Tr 90X4	4							86.00
Tr 95X4	4							91.00
Tr 100X4	4							96.00
Tr 105X4	4							101.00
Tr 110X4	4							106.00

• TM Thread:
TM Thread of old JIS 30° Trapezoidal Thread was discontinued. If the Nominal Dia. X Pitch is the same, the above Tr Thread insert can be used.
• TW Thread:
TW Thread is 29° Trapezoidal Thread and the above Inserts are not available.

Metric Coarse Thread: M

Nominal Thread	Pitch (mm)	Female Thread			
		Toolholder	Insert		Bore Dia. (mm)
			Partial Profiling	Full Profiling	
M 1	0.25	No Tools Available	-	-	0.73
.					.
.					.
.					.
M3	0.5				2.46
M4	0.7				3.24
M5	0.8				4.13
M6	1.0	-	HPTR04504-60 / VNTR045-11		4.92
M7	1.0				5.92
M8	1.25	-	HPTR06005-60 / VNTR060-11		6.65
		SINR0612S-06E	06IR60005		
M9	1.25	SINR0612S-06E	06IR60005	-	7.65
M10	1.5	SINR0816S-08E	08IR60007	-	8.38
M11	1.5				9.38
M12	1.75	SINR0816S-08E	08IR60007	-	10.11
M16	2.0	No Tools Available			13.84
M18	2.5				15.29
M20	2.5				17.29
M22	2.5				19.29
M24	3.0	SINR2016S-16	16IRAG60 / G60	16IR300ISO	20.75
M27	3.0				23.75
M30	3.5	SINR2420S-22	-	22IR350ISO	26.21
M33	3.5				29.21
M36	4.0	CINR3025S-22	-	22IR400ISO	31.67
M39	4.0				34.67
M42	4.5	CINR3732S-22	-	22IR450ISO	37.19
M45	4.5				40.19
M48	5.0	CINR3732S-22	-	22IR500ISO	42.59
M52	5.0				46.59
M56	5.5	※ Threading of M56 and over is not available due to too large a pitch size.			50.05
.					.
.					.
.					.

Metric Fine Thread: M

Part 1

Nominal Thread	Pitch (mm)	Female Thread			
		Toolholder	Insert		Bore Dia. (mm)
			Partial Profiling	Full Profiling	
M 1×0.2	0.2	No Tools Available	-	-	0.78
.					.
.					.
.					.
M 5.5×0.5	0.5				4.96
M 6×0.75	0.75	-	HPTR04504-60 / VNTR045-11		5.19
M 7×0.75	0.75	-	HPTR06005-60 / VNTR045-11		6.20
M 8×1.0	1.0	-	HPTR06005-60 / VNTR060-11		6.92
		SINR0612S-06E	06IR60005	-	
M 8×0.75	0.75	-	HPTR06005-60 / VNTR060-11		7.19
		SINR0612S-06E	06IR60005	-	
M 9×1.0	1.0	-	HPTR07507-60 / VNTR060-11		7.92
		SINR0612S-06E	06IR60005	-	
		SINR0816S-08E	08IR60007		
M 9×0.75	0.75	-	HPTR07507-60 / VNTR060-11		8.19
		SINR0612S-06E	06IR60005	-	
M10×1.25	1.25	-	HPTR07507-60 / VNTR060-11		8.65
		SINR0816S-08E	08IR60007	-	
M10×1.0	1.0	-	HPTR07507-60 / VNTR060-11		8.92
		SINR0816S-08E	08IR60007	-	
M10×0.75	0.75	-	HPTR07507-60 / VNTR060-11		9.19
		SINR0612S-06E	06IR600005	-	
M11×1.0	1.0	-	HPTR07507-60 / VNTR060-11		9.92
		SINR0816S-08E	08IR60007	-	
M11×0.75	0.75	-	HPTR07507-60 / VNTR060-11		10.19
		SINR0612S-06E	06IR60005	-	
M12×1.5	1.5	SINR0816S-08E	08IR60007	-	10.38
M12×1.25	1.25				10.65
M12×1.0	1.0				10.92
M14×1.5	1.5	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO···	12.38
M14×1.25	1.25			11IR125ISO···	12.65
M14×1.0	1.0			11IR100ISO···	12.92
M15×1.5	1.5	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO···	13.38
M15×1.0	1.0			11IR100ISO···	13.92
M16×1.5	1.5	SINR1216S-11E	11IRA60 11IR60005	11IR150ISO···	14.38
M16×1.0	1.0			11IR100ISO···	14.92

Metric Fine Thread: M

Part 2

Nominal Thread	Pitch (mm)	Female Thread			
		Toolholder	Insert		Bore Dia. (mm)
			Partial Profiling	Full Profiling	
M17×1.5	1.5	SINR1516S-11	11IRA60 11IR60005	11IR150ISO···	15.38
M17×1.0	1.0			11IR100ISO···	15.92
M18×2.0	2.0	SINR1516S-11	-	11IR200ISO	15.84
M18×1.5	1.5		11IRA60 11IR60005	11IR150ISO···	16.38
M18×1.0	1.0			11IR100ISO···	16.92
M20×2.0	2.0	SINR1516S-11	-	11IR200ISO	17.84
M20×1.5	1.5		11IRA60 11IR60005	11IR150ISO···	18.38
M20×1.0	1.0			11IR100ISO···	18.92
M22×2.0	2.0	SINR1516S-11	-	11IR200ISO	19.84
M22×1.5	1.5	SINR2016S-16	Table 2	16IR150ISO···	20.38
M22×1.0	1.0		Table 3	16IR100ISO···	20.92
M24×2.0	2.0	SINR2016S-16	Table 1	16IR200ISO···	21.84
M24×1.5	1.5		Table 2	16IR150ISO···	22.38
M24×1.0	1.0		Table 3	16IR100ISO···	22.92
M25×2.0	2.0	SINR2016S-16	Table 1	16IR200ISO···	22.84
M25×1.5	1.5		Table 2	16IR150ISO···	23.38
M25×1.0	1.0		Table 3	16IR100ISO···	23.92
M26×1.5	1.5	SINR2420S-16	Table 2	16IR150ISO···	24.38
M27×2.0	2.0	SINR2420S-16	Table 1	16IR200ISO···	24.84
M27×1.5	1.5		Table 2	16IR150ISO···	25.38
M27×1.0	1.0		Table 3	16IR100ISO···	25.92
M28×2.0	2.0	SINR2420S-16	Table 1	16IR200ISO···	25.84
M28×1.5	1.5		Table 2	16IR150ISO···	26.38
M28×1.0	1.0		Table 3	16IR100ISO···	26.92
M30×3.0	3.0	SINR2420S-22	-	22IR300ISO	26.75
		SINR2420S-16	16IRG60 16IRAG60	16IR300ISO···	
M30×2.0	2.0	SINR2420S-16	Table 1	16IR200ISO···	27.84
M30×1.5	1.5		Table 2	16IR150ISO···	28.38
M30×1.0	1.0		Table 3	16IR100ISO···	28.92
M32×2.0	2.0	SINR2420S-16	Table 1	16IR200ISO···	29.84
M32×1.5	1.5	CINR3025S-16	Table 2	16IR150ISO···	30.38
M33×3.0	3.0	SINR2420S-22	-	22IR300ISO	29.75
		SINR2420S-16	16IRG60 16IRAG60	16IR300ISO···	
M33×2.0	2.0	CINR3025S-16	Table 1	16IR200ISO···	30.84
M33×1.5	1.5		Table 2	16IR150ISO···	31.38
M35×1.5	1.5	CINR3025S-16	Table 2	16IR150ISO···	33.38
M36×3.0	3.0	CINR3025S-22	-	22IR300ISO	32.75
M36×2.0	2.0	CINR3025S-16	Table 1	16IR200ISO···	33.84
M36×1.5	1.5		Table 2	16IR150ISO···	34.38
M38×1.5	1.5	CINR3025S-16	Table 2	16IR150ISO···	36.38
M39×3.0	3.0	CINR3025S-22	-	22IR300ISO	35.75
M39×2.0	2.0	CINR3025S-16	Table 1	16IR200ISO···	36.84
M39×1.5	1.5	CINR3732S-16	Table 2	16IR150ISO···	37.38
M40×3.0	3.0	CINR3025S-22	-	22IR300ISO	36.75
M40×2.0	2.0	CINR3732S-16	Table 1	16IR200ISO···	37.84
M40×1.5	1.5		Table 2	16IR150ISO···	38.38
M42×4.0	4.0	CINR3732S-22	22IRN60	22IR400ISO	37.67
M42×3.0	3.0		-	22IR300ISO	38.75
M42×2.0	2.0	CINR3732S-16	Table 1	16IR200ISO···	39.84
M42×1.5	1.5		Table 2	16IR150ISO···	40.38
M45×4.0	4.0	※ Threading of M45 and over can be machined by the same Tool for M42. (P=4.0, 3.0, 2.0, 1.5)			40.67
.					.
.					.
.					.

Table 1 (P=2mm)	Table 2 (P=1.5mm)	Table 3 (P=1.0mm)
16IRG60 16IRAG60 16IR6001(-TS)	16IRA60 16IRAG60 16IR6001(-TS)	16IRA60 16IRAG60

Unified Coarse Thread: UNC

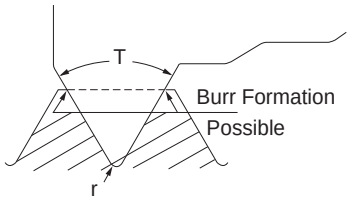
Nominal Thread	TPI	Female Thread			
		Toolholder	Insert		Bore Dia. (in)
			Partial Profiling	Full Profiling	
2-56 UNC . . . 10-24 UNC	56 24	No Tools Available	-	-	0.066 . . . 0.145
1/4-20 UNC	20	-	HPTR04504-60 / VNTR045-11		0.196
5/16-18 UNC	18	-	HPTR06005-60 / VNTR060-11		0.252
3/8-16 UNC	16	-	HPTR07507-60-005		0.307
7/16-14 UNC	14	No Tools Available			0.360
1/2-13 UNC	13				0.416
9/16-12 UNC	12				0.472
5/8-11 UNC	11				0.526
3/4-10 UNC	10				0.642
7/8- 9 UNC . . .	9	No Tools Available			0.735

Unified Fine Thread: UNF

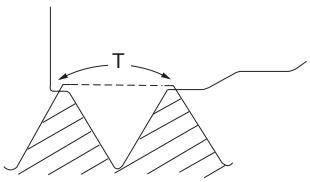
Nominal Thread	TPI	Female Thread			
		Toolholder	Insert		Bore Dia. (in)
			Partial Profiling	Full Profiling	
0-80 UNF . . . 10-32 UNF	80 32	No Tools Available	-	-	0.046 . . . 0.156
1/4-28 UNF	28	-	HPTR04504-60 / VNTR045-11		0.211
5/16-24 UNF	24	-	HPTR06005-60 / VNTR060-11		0.267
		SINR0612S-06E	06IR60005	-	
3/8-24 UNF	24	-	HPTR06005-60 / VNTR060-11		0.330
		SINR0612S-06E	06IR60005	-	
7/16-20 UNF	20	SINR0816S-08E	08IR60007	-	0.383
1/2-20 UNF	20				0.446
9/16-18 UNF	18	SINR1216S-11E	11IRA60		0.502
5/8-18 UNF	18		11IR60005	-	0.565
3/4-16 UNF	16	SINR1516S-11	11IRA60 11IR60005	-	0.682
7/8-14 UNF	14	SINR2016S-16	16IR6001(-TS)	16IR14UN(-TF)	0.798
1 -12 UNF	12	SINR2016S-16	16IR6001(-TS)	16IR12UN(-TF)	0.909
1 1/8-12 UNF	12	SINR2420S-16			1.035
1 1/4-12 UNF	12				1.160
1 3/8-12 UNF	12	CINR3025S-16			1.285
1 1/2-12 UNF	12				1.449

Threading Insert Design

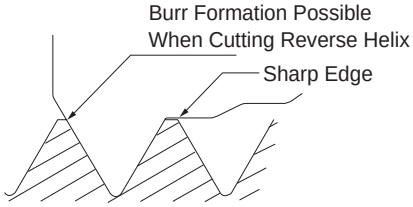
The insert design should optimize the quality of thread and the tool life. There are two basic designs for threading inserts, partial profiling and full profiling. Examples of each design are shown below.



Partial profiling or non-topping inserts generate threads without topping the crest of the thread. Inserts are selected by the root radius, flank angle and kind of thread (external or internal).



Full profiling inserts generate the complete thread form including topping the crest, thereby removing burrs. Each kind of thread (external or Internal), thread form and pitch requires a specific insert.



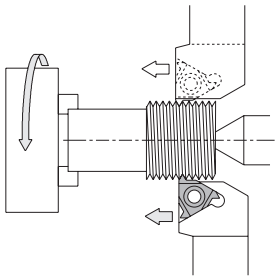
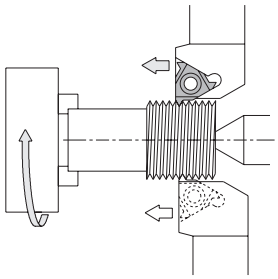
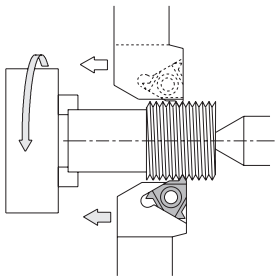
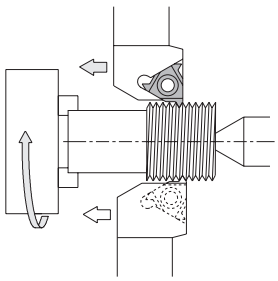
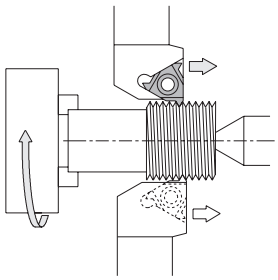
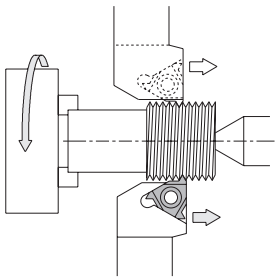
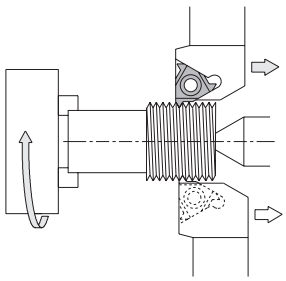
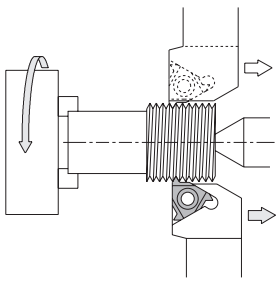
Full profiling inserts, crest cutting on one side only, may generate a burr when cutting in reverse helix mode (lefthanded threads) and leave a sharp edge.

The basic V-height is designed for maximum material conditions for both external and internal threads. As the flank wear develops, radial adjustments keep the pitch diameter constant and the crest diameter becomes smaller.

The nose radius of the insert, which is generally exposed to higher wear when compared to the flank or crest cutting portion of the insert, is designed to have the smallest radius permissible for external threads and the largest radius permissible for internal threads by thread standards. Kyocera full profiling inserts are crest cutting on both sides of the V.

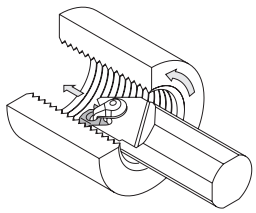
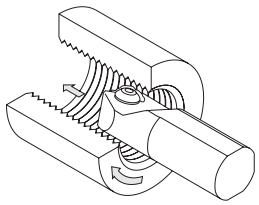
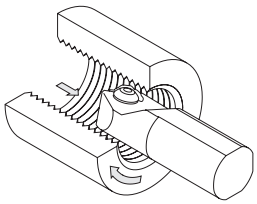
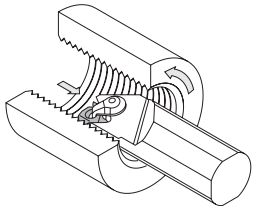
External Threading (R-hand Thread • L-hand Thread)

External Threading

R-hand Thread		L-hand Thread	
Toolholder	R-hand (R)	Toolholder	L-hand (L)
Insert	R-hand (R)	Insert	L-hand (L)
			
Toolholder	L-hand (L)	Toolholder	R-hand (R)
Insert	L-hand (L)	Insert	R-hand (R)
			
Toolholder	R-hand (R)	Toolholder	L-hand (L)
Insert	R-hand (R)	Insert	L-hand (L)
			
Toolholder	L-hand (L)	Toolholder	R-hand (R)
Insert	L-hand (L)	Insert	R-hand (R)
			

Internal Threading (R-hand Thread • L-hand Thread)

Internal Threading

R-hand Thread		L-hand Thread	
	Toolholder R-hand (R) / Insert R-hand (R)		Toolholder L-hand (L) / Insert L-hand (L)
	Toolholder L-hand (L) / Insert L-hand (L)		Toolholder R-hand (R) / Insert R-hand (R)

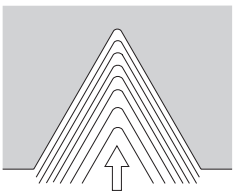
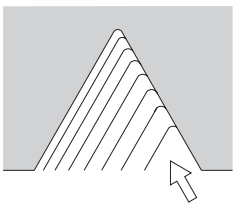
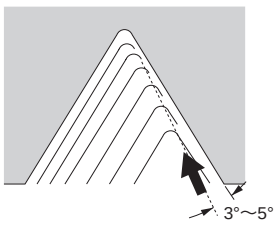
※These Tables are based on TNN type Tools.
KITG Type Tool: L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder

Internal threading toolholder and the method of cutting an "external thread"

<table>
<tr><th colspan="4">External Thread</th></tr>
<tr><th colspan="2">R-hand Thread</th><th colspan="2">L-hand Thread</th></tr>
<tr><td>Toolholder
Insert
The direction of spindle revolution</td><td>L-hand
L-hand
M03</td><td>Toolholder
Insert
The direction of spindle revolution</td><td>R-hand
R-hand
M04</td></tr>
<tr><td>Toolholder
Insert
The direction of spindle revolution</td><td>R-hand
R-hand
M04</td><td>Toolholder
Insert
The direction of spindle revolution</td><td>L-hand
L-hand
M03</td></tr>
</table>

✻ Use a portial profile insert.

Infeed Methods

Infeed Methods	Feature
 Radial Infeed	· The most common method. The cutting edge moves toward the center of the work every pass. · Suitable for relatively small pitch size threading. · V-shape chips are generated and chip control may be difficult depending on work material.
 Flank Infeed	· Suitable for large pitch size threading. · Wear of right side edge of the figure (no d.o.c.) tends to become large. · Chips flow to one side.
 Flank Compound Infeed	· Revised compound methods of the above flank infeed method. · No "no d.o.c." Condition · Chips flow to one side. · This method is recommended to threading by 2-thread insert.

Recommended Cutting Conditions

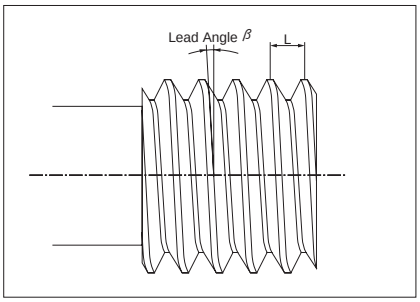
Work Material	Recommended Insert Grade (Cutting Speed: SFM)								
	Cermet			PVD Coated Carbide				Uncoated Carbide	
	TC30	TC40	TC60	PR630	PR660	PR930	PR1115	KW10	W15
Carbon Steel	200～600	200～600	200～600	200～600	200～350	150～450	330～500	-	-
Depth of cut for 1st pass	Under .010"	Under .010"	Under .012"	Under .012"	Under .012"	Under .012"	Under .012"		
Alloy Steel	250～500	250～500	250～500	250～500	150～350	150～400	330～500	-	-
Depth of cut for 1st pass	Under .010"	Under .010"	Under .012"	Under .012"	Under .012"	Under .012"	Under .012"		
Stainless Steel	-	-	100～400	100～400	100～300	100～300	200～270	-	-
Depth of cut for 1st pass			Under .010"	Under .010"	Under .010"	Under .010"	Under .010"		
Cast Iron	200～500	200～500	-	-	-	-	-	100～350	350
Depth of cut for 1st pass	Under .010"	Under .010"						Under .012"	Under .012"
Heat Resistant Alloys	-	-	-	-	50～150	30～100	30～100	25～75	25～75
Depth of cut for 1st pass					Under .010"	Under .010"	Under .010"	Under .010"	Under .010"
Non-ferrous	-	-	-	-	-	-	-	500～1300	500～1300
Depth of cut for 1st pass								Under .012"	Under .012"

Lead Angle of Thread

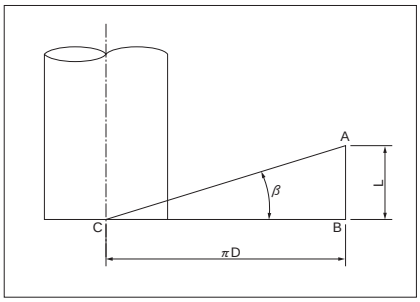
Thread's Lead Angle β as shown in Fig. 1 decides from the Work Diameter (Pitch Dia.) "D" and Lead "L"(in case of Single-start Thread , it is the same as Pitch "P"). Rolling a right-angled Triangle around a Cylinder and the Angle ACB in Fig. 2 becomes the Lead Angle β. The Calculation Formula is shown as follows.

$$\tan\beta = \frac{L}{\pi D} = \frac{nP}{\pi D}$$

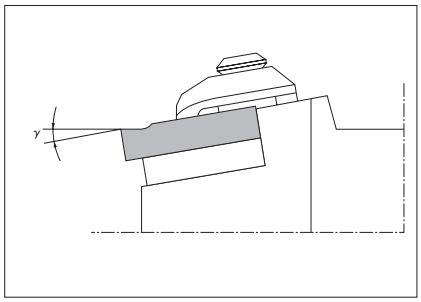
β: Lead Angle D: Pitch Dia. n: Number of Thread (such as double-start thread) P: Pitch
L: Lead (In case of single-start thread, it is equal to P. In case of n-start thread, it is equal to n×P)



(Fig.1)



(Fig.2)

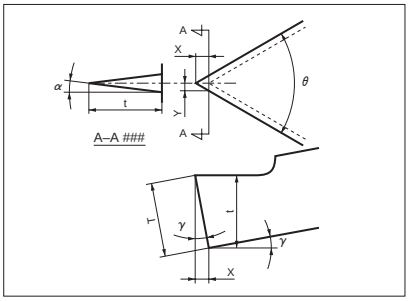


(Fig.3)

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)

$$\tan\alpha = \tan\gamma \times \tan\left(\frac{\theta}{2}\right)$$



(Fig.4)

Symbol	Example
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	

$X = T\sin\gamma$
$Y = X\tan(\theta/2) = t\tan\alpha$
$t = T\cos\gamma$

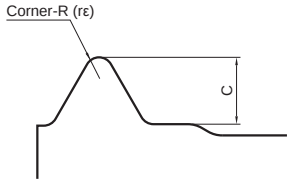
(Chart 1)

Inserts	α: Side Relief Angle	
	External	Internal
60° Thread (M, UN, NPT)	5°49'	8°47'
55° Thread (W, PT)	5°14'	7°56'
30° Thread (TR)	2°43'	5°7'

This Side Relief Angle α becomes as shown in Chart 1 depending on the Insert.
However, the Side Relief Angle is prepared to Toolholder itself for 1°, and the actual Side Relief Angle becomes α+ 1°.

Depth of Cut & Number of Passes
(Inch style)

Caution
1) Max. d.o.c. is based on the Value of C+0.002～C+0.003".
2) Final d.o.c. for Finishing shall be 0.0008～0.002".
3) Prepare Chamfering for C0.012～C0.020" to the Work to prevent the Insert Crack at the 1st Pass.
4) Coolant is recommended.



TNN Type (Full Profiling)

(d.o.c. shows Value of Radial d.o.c.)

		Pitch TPI	Description	C (in)	Total d.o.c. (in)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Unified (inch)	Male Thread	24 TPI	16E R/L 24UN-TF	0.026	0.030	5	0.009	0.008	0.006	0.004	0.002														
		20 TPI	20UN-TF	0.031	0.034	6	0.009	0.008	0.006	0.005	0.004	0.002													
		18 TPI	18UN-TF	0.035	0.038	6	0.010	0.009	0.007	0.006	0.004	0.002													
		16 TPI	16UN-TF	0.040	0.043	7	0.010	0.009	0.007	0.006	0.005	0.004	0.002												
		14 TPI	14UN-TF	0.045	0.048	8	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.002											
		13 TPI	13UN-TF	0.049	0.052	9	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.003	0.002										
		12 TPI	12UN-TF	0.053	0.056	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	0.063	0.066	12	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002	0.002							
		8 TPI	08UN-TF	0.078	0.081	15	0.012	0.010	0.009	0.008	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.002	0.002	0.001				
		24 TPI	16ER 24UN	0.026	0.030	5	0.009	0.008	0.006	0.004	0.002														
		20 TPI	20UN	0.031	0.034	6	0.009	0.008	0.006	0.005	0.004	0.002													
		18 TPI	18UN	0.035	0.038	6	0.010	0.009	0.007	0.006	0.004	0.002													
		16 TPI	16UN	0.040	0.043	7	0.010	0.009	0.007	0.006	0.005	0.004	0.002												
		14 TPI	14UN	0.045	0.048	8	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.002											
		12 TPI	12UN	0.053	0.056	11	0.010	0.009	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002								
		8 TPI	22ER 08UN	0.078	0.081	15	0.012	0.010	0.009	0.008	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.002	0.002	0.001				
	Female Thread	24 TPI	16I R/L 24UN-TF	0.024	0.028	5	0.009	0.007	0.006	0.004	0.002														
		20 TPI	20UN-TF	0.030	0.033	6	0.009	0.008	0.006	0.005	0.003	0.002													
		18 TPI	18UN-TF	0.033	0.036	6	0.009	0.007	0.006	0.006	0.004	0.002													
		16 TPI	16UN-TF	0.037	0.040	7	0.009	0.008	0.007	0.006	0.004	0.004	0.002												
		14 TPI	14UN-TF	0.042	0.045	8	0.009	0.009	0.007	0.006	0.005	0.004	0.004	0.002											
		13 TPI	13UN-TF	0.045	0.048	9	0009	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.002										
		12 TPI	12UN-TF	0.049	0.052	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	0.058	0.061	12	0.009	0.009	0.008	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.002							
		8 TPI	08UN-TF	0.072	0.076	15	0.009	0.009	0.008	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.002	0.002	0.001				
		24 TPI	16IR 24UN	0.024	0.028	5	0.009	0.007	0.006	0.004	0.002														
		20 TPI	20UN	0.030	0.033	6	0.009	0.008	0.006	0.005	0.003	0.002													
		18 TPI	18UN	0.033	0.036	6	0.009	0.007	0.006	0.006	0.004	0.002													
		16 TPI	16UN	0.037	0.040	7	0.009	0.008	0.007	0.006	0.004	0.004	0.002												
		14 TPI	14UN	0.042	0.045	8	0.009	0.009	0.007	0.006	0.005	0.004	0.004	0.002											
		12 TPI	12UN	0.049	0.052	11	0.009	0.009	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002								
		8 TPI	22IR 08UN	0.072	0.076	15	0.009	0.009	0.008	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.002	0.002	0.001				
American National Pipe (inch)	Male Thread	18 TPI	16ER 18NPT	0.045	0.048	13	0.008	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.001						
		14 TPI	14NPT	0.057	0.061	15	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001				
		11.5 TPI	11.5NPT	0.070	0.073	16	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.001			
	Female Thread	18 TPI	16IR 18NPT	0.045	0.048	13	0.008	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.001						
		14 TPI	14NPT	0.057	0.061	15	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001				
		11.5 TPI	11.5NPT	0.070	0.073	16	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.001			

06/08 type (60° • 55° Partial Profiling, For Internal Small Dia.)

(d.o.c. shows Value of Radial d.o.c.)

		Pitch TPI	Description	Corner-R (in)	Total d.o.c. (in)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Unified (inch) (60°)	Female Thread	28 TPI	06IR 60005	.002	.021	11	.003	.003	.003	.002	.002	.002	.002	.001	.001	.001	.001								
		24 TPI	06IR 60005	.002	.025	13	.003	.003	.003	.003	.002	.002	.002	.002	.001	.001	.001	.001	.001						
		20 TPI	08IR 60007	.003	.030	14	.003	.003	.003	.003	.003	.003	.002	.002	.002	.002	.001	.001	.001	.001					
		18 TPI	08IR 60007	.003	.033	16	.003	.003	.003	.003	.003	.003	.002	.002	.002	.002	.002	.001	.001	.001	.001	.001			
		16 TPI	08IR 60007	.003	.038	18	.003	.003	.003	.003	.003	.003	0.003	.002	.002	.002	.002	.002	.002	.001	.001	.001	.001	.001	

Caution 1)The Standard Cutting Speed is 30 - 50m/min. Under the Small Dia. and High Revolution Situation, the Table Feed may not follow the Expected Conditions depending on the Machine.
2)Wet cutting is recommended.

11/16 type (60° • 55° Partial Profiling)

(d.o.c. shows Value of Radial d.o.c.)

		Pitch TPI	Description	Corner-R (in)	Total d.o.c. (in)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Unified (inch) (60°)	Male Thread	32 TPI	16ER 6001	0.004	0.021	4	0.007	0.006	0.005	0.003															
		28 TPI	16ER 6001	0.004	0.025	5	0.007	0.006	0.005	0.004	0.003														
		24 TPI	16ER 6001	0.004	0.029	6	0.008	0.007	0.005	0.004	0.003	0.002													
		20 TPI	16ER 6001	0.004	0.035	7	0.008	0.007	0.006	0.005	0.004	0.003	0.002												
		18 TPI	16ER 6002	0.008	0.036	7	0.009	0.007	0.006	0.005	0.004	0.003	0.002												
		16 TPI	16ER 6002	0.008	0.041	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002											
		14 TPI	16ER 6002	0.008	0.048	9	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.002										
		13 TPI	16ER 6002	0.008	0.051	9	0.009	0.008	0.007	0.007	0.006	0.005	0.004	0.003	0.002										
		12 TPI	16ER 6002	0.008	0.056	9	0.011	0.010	0.008	0.007	0.006	0.005	0.004	0.003	0.002										
		11 TPI	16ER 6002	0.008	0.061	10	0.011	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002									
		10 TPI	16ER 6002	0.008	0.067	11	0.010	0.009	0.008	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002								
	Female Thread	32 TPI	11IR 60005	0.002	0.021	5	0.005	0.005	0.004	0.004	0.003														
		28 TPI	11IR 60005	0.002	0.024	6	0.005	0.005	0.004	0.004	0.003	0.003													
		24 TPI	11IR 60005	0.002	0.026	6	0.006	0.005	0.005	0.004	0.003	0.003													
		20 TPI	11IR 60005	0.002	0.032	7	0.007	0.006	0.005	0.004	0.004	0.003	0.003												
		18 TPI	16IR 6001	0.004	0.034	7	0.007	0.007	0.006	0.005	0.004	0.003	0.002												
		16 TPI	16IR 6001	0.004	0.037	8	0.007	0.007	0.006	0.005	0.004	0.003	0.003	0.002											
		14 TPI	16IR 60015	0.006	0.043	8	0.008	0.008	0.007	0.006	0.005	0.004	0.003	0.002											
		13 TPI	16IR 60015	0.006	0.047	9	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002										
		12 TPI	16IR 60015	0.006	0.049	9	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003										
		11 TPI	16IR 60015	0.006	0.056	10	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002									
		10 TPI	16IR 60015	0.006	0.062	11	0.010	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.002								

Caution
1) Select the Insert with Suitable Corner-R Designated by Pitch Respectively.
2) Do not exceed 0.3mm for the 1st d.o.c.
3) Final d.o.c. for Finishing shall be 0.02～0.05mm.
4) Prepare Chamfering for C0.3～C0.5 to the Work to prevent the Insert Crack at the 1st Pass.
5) Coolant is recommended.

TT type (60° Partial Profiling)

(d.o.c. shows Value of Radial d.o.c.)

		Pitch TPI	Description	Corner-R (in)	Total d.o.c. (in)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Unified (inch) (60°)	Male Thread	32TPI	TT32/43R 6001	0.004	0.021	4	0.007	0.006	0.005	0.003													
		28TPI	TT32/43R 6001	0.004	0.025	5	0.007	0.006	0.005	0.004	0.003												
		24TPI	TT32/43R 6001	0.004	0.029	6	0.008	0.007	0.005	0.004	0.003	0.002											
		20TPI	TT32/43R 6001	0.004	0.035	7	0.008	0.007	0.006	0.005	0.004	0.003	0.002										
		18TPI	TT32/43R 6002	0.008	0.036	7	0.008	0.007	0.006	0.005	0.004	0.003	0.003										
		16TPI	TT32/43R 6002	0.008	0.041	7	0.008	0.008	0.007	0.006	0.005	0.004	0.003										
		14TPI	TT32/43R 6002	0.008	0.048	8	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003									
		13TPI	TT32/43R 6002	0.008	0.051	9	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003								
		12TPI	TT32/43R 6002	0.008	0.056	9	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.003								
		11TPI	TT32/43R 6003	0.012	0.060	10	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003							
		10TPI	TT43R 6003	0.012	0.066	11	0.010	0.009	0.008	0.007	0.007	0.006	0.005	0.004	0.004	0.003	0.003						
		8TPI	TT43R 6004	0.016	0.081	13	0.010	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.003				
	Female Thread	32TPI	TT32R 6000	0	0.021	5	0.006	0.005	0.004	0.003	0.003												
		28TPI	TT32R 6000	0	0.025	6	0.006	0.005	0.005	0.004	0.003	0.002											
		24TPI	TT32R 6000	0	0.028	7	0.006	0.005	0.005	0.004	0.003	0.003	0.002										
		20TPI	TT32/43R 6001	0.004	0.030	6	0.007	0.006	0.005	0.005	0.004	0.003											
		18TPI	TT32/43R 6001	0.004	0.034	7	0.009	0.007	0.006	0.005	0.004	0.003											
		16TPI	TT32/43R 6001	0.004	0.037	7	0.008	0.007	0.006	0.005	0.004	0.004	0.003										
		14TPI	TT32/43R 6001	0.004	0.045	8	0.008	0.007	0.007	0.006	0.005	0.005	0.004	0.003									
		13TPI	TT32/43R 6001	0.004	0.049	9	0.008	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.003								
		12TPI	TT32/43R 6001	0.004	0.051	9	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003								
		11TPI	TT32/43R 6001	0.004	0.057	10	0.009	0.008	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003							
		10TPI	TT43R 6002	0.008	0.059	11	0.009	0.008	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002						
		8TPI	TT43R 6002	0.008	0.074	13	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.002				

Depth of Cut & Number of Passes
(Inch style)

60° Partial Profiling

		Pitch TPI	Description	Corner-R (in)	Total D.O.C (in)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Unified (inch)	Male Thread	48TPI	16ER A60-TF	0.002	0.014	5	0.004	0.003	0.003	0.002	0.002														
			AG60-TF	0.002	0.014	5	0.004	0.003	0.003	0.002	0.002														
		24TPI	16ER A60-TF	0.002	0.030	7	0.007	0.006	0.005	0.004	0.003	0.003	0.002												
			AG60-TF	0.002	0.030	7	0.007	0.006	0.005	0.004	0.003	0.003	0.002												
		20TPI	16ER A60-TF	0.002	0.036	8	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002											
			AG60-TF	0.002	0.036	8	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002											
		18TPI	16ER A60-TF	0.002	0.040	8	0.008	0.007	0.006	0.006	0.005	0.003	0.003	0.002											
			AG60-TF	0.002	0.040	8	0.008	0.007	0.006	0.006	0.005	0.003	0.003	0.002											
		16TPI	16ER A60-TF	0.002	0.045	10	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002									
			AG60-TF	0.002	0.045	10	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002									
		14TPI	16ER G60-TF	0.009	0.045	9	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002										
			AG60-TF	0.002	0.052	11	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002								
		13TPI	16ER G60-TF	0.009	0.050	9	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002										
			AG60-TF	0.002	0.056	11	0.010	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002								
		12TPI	16ER G60-TF	0.009	0.054	10	0.010	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.002									
			AG60-TF	0.002	0.061	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							
		10TPI	16ER G60-TF	0.009	0.067	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							
			AG60-TF	0.002	0.074	13	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.002						
		9TPI	16ER G60-TF	0.009	0.076	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						
			AG60-TF	0.002	0.082	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					
		8TPI	16ER G60-TF	0.009	0.086	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				
			AG60-TF	0.002	0.093	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	0.003	0.002	0.002			
		48TPI	16ER A60	0.002	0.014	5	0.004	0.003	0.003	0.002	0.002														
			AG60	0.002	0.014	5	0.004	0.003	0.003	0.002	0.002														
		24TPI	16ER A60	0.002	0.030	7	0.007	0.006	0.005	0.004	0.003	0.003	0.002												
			AG60	0.002	0.030	7	0.007	0.006	0.005	0.004	0.003	0.003	0.002												
		20TPI	16ER A60	0.002	0.036	8	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002											
			AG60	0.002	0.036	8	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002											
		18TPI	16ER A60	0.002	0.040	8	0.008	0.007	0.006	0.006	0.005	0.003	0.003	0.002											
			AG60	0.002	0.040	8	0.008	0.007	0.006	0.006	0.005	0.003	0.003	0.002											
		16TPI	16ER A60	0.002	0.045	10	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002									
			AG60	0.002	0.045	10	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002									
		14TPI	16ER G60	0.009	0.045	9	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002										
			AG60	0.002	0.052	11	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002								
		13TPI	16ER G60	0.009	0.050	9	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002										
			AG60	0.002	0.056	11	0.010	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002								
		12TPI	16ER G60	0.009	0.054	10	0.010	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.002									
			AG60	0.002	0.061	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							
		10TPI	16ER G60	0.009	0.067	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							
			AG60	0.002	0.074	13	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.002						
		9TPI	16ER G60	0.009	0.076	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						
			AG60	0.002	0.082	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					
		8TPI	16ER G60	0.009	0.086	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				
			AG60	0.002	0.093	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	0.003	0.002	0.002			
		7TPI			0.089	15	0.011	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002				
		6TPI	22ER N60	0.019	0.107	18	0.011	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.003	0.002	0.002	
		5TPI			0.133	19	0.012	0.011	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002
	Female Thread	48TPI			0.013	5	0.003	0.003	0.003	0.002	0.002														
		24TPI			0.026	7	0.006	0.005	0.005	0.004	0.003	0.002	0.002												
		20TPI	11IR A60	0.001	0.031	8	0.006	0.005	0.005	0.005	0.004	0.003	0.002	0.002											
		18TPI			0.035	9	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002										
		16TPI			0.040	10	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.002									
		48TPI	16IR A60	0.001	0.013	5	0.003	0.003	0.003	0.002	0.002														
			AG60	0.001	0.013	5	0.003	0.003	0.003	0.002	0.002														
		24TPI	16IR A60	0.001	0.026	7	0.006	0.005	0.005	0.004	0.003	0.002	0.002												
			AG60	0.001	0.026	7	0.006	0.005	0.005	0.004	0.003	0.002	0.002												
		20TPI	16IR A60	0.001	0.031	8	0.006	0.005	0.005	0.005	0.004	0.003	0.002	0.002											
			AG60	0.001	0.031	8	0.006	0.005	0.005	0.005	0.004	0.003	0.002	0.002											
		18TPI	16IR A60	0.001	0.035	9	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002										
			AG60	0.001	0.035	9	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002										
		16TPI	16IR A60	0.001	0.040	10	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.002									
			AG60	0.001	0.040	10	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.002									
		14TPI	16IR G60	0.004	0.042	9	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002										
			AG60	0.001	0.046	11	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002								
		13TPI	16IR G60	0.004	0.046	10	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002									
			AG60	0.001	0.049	12	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002	0.002							
		12TPI	16IR G60	0.004	0.050	11	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002	0.002	0.002								
			AG60	0.001	0.053	13	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002						
		10TPI	16IR G60	0.004	0.061	14	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.001					
			AG60	0.001	0.064	16	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.001			
		9TPI	16IR G60	0.004	0.068	16	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.001			
			AG60	0.001	0.071	17	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001		
		8TPI	16IR G60	0.004	0.077	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		
			AG60	0.001	0.080	19	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002	0.002	0.002	0.001	0.001
		7TPI			0.084	14	0.010	0.009	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.002					
		6TPI	22IR N60	0.009	0.100	17	0.011	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002		
		5TPI			0.121	19	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002

TTX (60° Partial Profiling)

(d.o.c. shows Value of Radial d.o.c.)

		Pitch TPI	Description	Corner-R (in)	Total d.o.c. (in)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Unified (inch) (60°)	Male Thread	32 TPI	TTX32R□ 6001	0.004	0.021	4	0.007	0.006	0.005	0.003													
		28 TPI	TTX32R□ 6001	0.004	0.025	5	0.007	0.006	0.005	0.004	0.003												
		24 TPI	TTX32R□ 6001	0.004	0.029	6	0.008	0.007	0.005	0.004	0.003	0.002											
		20 TPI	TTX32R□ 6001	0.004	0.035	7	0.008	0.007	0.006	0.005	0.004	0.003	0.002										
		18 TPI	TTX32R□ 6001	0.004	0.040	8	0.009	0.008	0.007	0.005	0.005	0.003	0.002	0.001									
		16 TPI	TTX32R□ 6001	0.004	0.045	9	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.001								
		14 TPI	TTX32R□ 6001	0.004	0.052	10	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.002							
		13 TPI	TTX32R□ 6001	0.004	0.055	11	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.001						
		12 TPI	TTX32R□ 6001	0.004	0.060	12	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.001					
		11 TPI	TTX32R□ 6001	0.004	0.066	13	0.009	0.008	0.008	0.007	0.007	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.001				
		10 TPI	TTX32R□ 6001	0.004	0.073	14	0.010	0.009	0.008	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002	0.001			
		8 TPI	TTX32R□ 6001	0.004	0.088	15	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.001		

Caution
1) Select the Insert with Suitable Corner-R Designated by Pitch Respectively.
2) Do not exceed 0.011" for the 1st d.o.c.
3) Final d.o.c. for Finishing shall be 0.0008～0.002".

• **TTX**

Suitable for threading of smaller pitch size or more TPI than TT type.
Suitable for threading to the shoulder.

Insert \ Thread Type	Metric (mm)	Unified (TPI)	Parallel Pipe (TPI)	Whitworth (TPI)
TTX32R6000	0.5～1.0	56～32	-	-
60005	0.5～1.0	48～32	-	-
6001	1.0～2.0	28～14	-	-
TTX32R6000S	0.5	56～48	-	-
60005S	0.5	48	-	-
TTX32R5501	-	-	28～19	24～20
55015	-	-	19～11	20～14

◆ Corner-R Selection for Partial Profiling Insert

	Male Thread	Female Thread
Metric Unified	R≦0.1443P	R≦0.0720P
Parallel Pipe (Whitworth) Tapered Pipe	(For Both Male and Female Thread) R≦0.1373P	

R: Corner-R P: Pitch (= $\frac{25.4}{n}$) n: TPI

● Metric, Unified Thread

Corner-R for Female Threading is almost half of that of Male.

● Parallel Pipe, Tapered Pipe, Whitworth Thread

Same Corner-R for Both Male and Female Threading

TPGB type (60° Partial Profile)

(d.o.c. shows Value of Radial d.o.c.)

		Pitch TPI	Description	Corner-R (in)	Total d.o.c. (in)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Unified (inch) (60°)	Female Thread	28 TPI	TPGB 21.50.1 TPGB 220.1	\0.002	\0.023	5	0.007	0.006	0.005	0.003	0.002												
		24 TPI	TPGB 21.50.1 TPGB 220.1	0.002	0.026	6	0.007	0.006	0.005	0.004	0.003	0.001											
		20 TPI	TPGB 21.50.2 TPGB 220.2	0.004	0.030	8	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.001									
		18 TPI	TPGB 21.50.2 TPGB 220.2	0.004	0.033	9	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.001								
		16 TPI	TPGB 21.50.2 TPGB 220.2	0.004	0.037	10	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.001							
		14 TPI	TPGB 21.50.2 TPGB 220.2	0.004	0.042	11	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.001						
		18 TPI	TPGB 21.50.2 TPGB 220.2	0.004	0.033	9	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.001								
		13 TPI	TPGB 220.2	0.004	0.047	12	0.007	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.001					
		12 TPI	TPGB 220.2	0.004	0.050	12	0.007	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.001					
		11 TPI	TPGB 220.5	0.008	0.052	13	0.007	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001				
		10 TPI	TPGB 220.5	0.008	0.057	14	0.007	0.007	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.001			
		8 TPI	TPGB 220.5	0.008	0.072	15	0.008	0.008	0.007	0.007	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.001		

Depth of Cut & Number of Passes
(Metric style)

11/16/22 type (Full Profile)

(D.O.C. shows value of radial D.O.C.)

		pitch mm·TPI	Description	C (mm)	Total D.O.C. (mm)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Metric (mm)	Male Thread	1.00 mm	16E 100ISO-TF	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05														
		1.25 mm	125ISO-TF	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05													
		1.50 mm	150ISO-TF	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05													
		1.75 mm	175ISO-TF	1.11	1.19	8	0.26	0.22	0.19	0.16	0.13	0.10	0.08	0.05											
		2.00 mm	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									
		2.50 mm	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							
		3.00 mm	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					
		0.50 mm	16E 050ISO	0.33	0.38	4	0.14	0.12	0.08	0.04															
		0.75 mm	075ISO	0.48	0.53	5	0.17	0.14	0.10	0.08	0.04														
		1.00 mm	100ISO	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05														
		1.25 mm	125ISO	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05													
		1.50 mm	150ISO	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05													
		2.00 mm	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									
		2.50 mm	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							
		3.00 mm	22E 300ISO	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					
		3.50 mm	350ISO	2.18	2.26	15	0.28	0.25	0.22	0.20	0.20	0.18	0.16	0.15	0.15	0.12	0.10	0.10	0.08	0.05	0.02				
		4.00 mm	400ISO	2.48	2.56	17	0.28	0.25	0.24	0.22	0.20	0.18	0.16	0.15	0.15	0.14	0.12	0.12	0.10	0.10	0.08	0.05	0.02		
		4.50 mm	450ISO	2.79	2.87	18	0.30	0.28	0.26	0.24	0.22	0.20	0.18	0.16	0.16	0.14	0.14	0.13	0.12	0.10	0.10	0.07	0.05	0.02	
		5.00 mm	500ISO	3.10	3.18	19	0.30	0.28	0.27	0.26	0.23	0.20	0.18	0.18	0.17	0.16	0.16	0.15	0.15	0.13	0.12	0.10	0.07	0.05	0.02
	Female Thread	1.00 mm	11I 100ISO-TF	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04														
		1.25 mm	125ISO-TF	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04												
		1.50 mm	150ISO-TF	0.88	0.96	8	0.24	0.18	0.14	0.10	0.10	0.08	0.07	0.05											
		1.75 mm	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										
		0.50 mm	11I 050ISO	0.31	0.36	4	0.14	0.10	0.08	0.04															
		0.75 mm	075ISO	0.45	0.50	5	0.15	0.14	0.10	0.07	0.04														
		1.00 mm	100ISO	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04														
		1.25 mm	125ISO	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04												
		1.50 mm	150ISO	0.88	0.96	8	0.24	0.18	0.14	0.10	0.10	0.08	0.07	0.05											
		1.75 mm	175ISO	1.02	1.10	9	0.24	0.18	0.16	0.14	0.10	0.10	0.08	0.05	0.05										
		2.00 mm	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									
		1.00 mm	16I 100ISO-TF	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04														
		1.25 mm	125ISO-TF	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04												
		1.50 mm	150ISO-TF	0.88	0.96	8	0.22	0.18	0.14	0.12	0.10	0.08	0.07	0.05											
		1.75 mm	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										
		2.00 mm	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									
		2.50 mm	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							
		3.00 mm	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	0.02					
		1.00 mm	16I 100ISO	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04														
		1.25 mm	125ISO	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04												
		1.50 mm	150ISO	0.88	0.96	8	0.22	0.18	0.14	0.12	0.10	0.08	0.07	0.05											
		2.00 mm	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									
		2.50 mm	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							
		3.00 mm	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	0.02					
		3.00 mm	22I 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	0.02					
		3.50 mm	350ISO	2.05	2.13	15	0.26	0.24	0.22	0.20	0.17	0.17	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.05	0.02				
		4.00 mm	400ISO	2.34	2.42	17	0.26	0.24	0.22	0.20	0.18	0.18	0.16	0.15	0.14	0.13	0.12	0.12	0.10	0.10	0.05	0.05	0.02		
		4.50 mm	450ISO	2.63	2.71	18	0.27	0.26	0.24	0.22	0.22	0.20	0.18	0.17	0.15	0.13	0.13	0.12	0.12	0.10	0.10	0.05	0.05	0.02	
		5.00 mm	500ISO	2.92	3.00	19	0.28	0.26	0.24	0.22	0.20	0.20	0.18	0.18	0.16	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10	0.05	0.02
Unified (mm)	Male Thread	24 TPI	16E 24UN-TF	0.67	0.75	5	0.24	0.20	0.16	0.10	0.05														
		20 TPI	20UN-TF	0.80	0.88	6	0.24	0.20	0.16	0.13	0.10	0.05													
		18 TPI	18UN-TF	0.89	0.97	6	0.26	0.22	0.18	0.15	0.11	0.05													
		16 TPI	16UN-TF	1.01	1.09	7	0.26	0.22	0.18	0.15	0.12	0.11	0.05												
		14 TPI	14UN-TF	1.15	1.23	8	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.05											
		13 TPI	13UN-TF	1.24	1.32	9	0.26	0.22	0.18	0.16	0.14	0.12	0.11	0.08	0.05										
		12 TPI	12UN-TF	1.34	1.42	11	0.26	0.22	0.18	0.16	0.13	0.12	0.10	0.08	0.07	0.05	0.05								
		10 TPI	10UN-TF	1.59	1.67	12	0.26	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.07	0.05	0.05							
		8 TPI	08UN-TF	1.98	2.06	14	0.26	0.24	0.22	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.08	0.05	0.05					
		24 TPI	16E 24UN	0.67	0.75	5	0.24	0.20	0.16	0.10	0.05														
		20 TPI	20UN	0.80	0.88	6	0.24	0.20	0.16	0.13	0.10	0.05													
		18 TPI	18UN	0.89	0.97	6	0.26	0.22	0.18	0.15	0.11	0.05													
		16 TPI	16UN	1.01	1.09	7	0.26	0.22	0.18	0.15	0.12	0.11	0.05												
		14 TPI	14UN	1.15	1.23	8	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.05											
		12 TPI	12UN	1.34	1.42	11	0.26	0.22	0.18	0.16	0.13	0.12	0.10	0.08	0.07	0.05	0.05								
		8 TPI	22E 08UN	1.98	2.06	15	0.30	0.26	0.22	0.20	0.16	0.15	0.14	0.13	0.10	0.10	0.10	0.07	0.06	0.05	0.02				
	Female Thread	24 TPI	16I 24UN-TF	0.62	0.70	5	0.22	0.19	0.15	0.10	0.04														
		20 TPI	20UN-TF	0.75	0.83	6	0.22	0.20	0.16	0.12	0.08	0.05													
		18 TPI	18UN-TF	0.83	0.91	6	0.24	0.20	0.18	0.14	0.10	0.05													
		16 TPI	16UN-TF	0.94	1.02	7	0.24	0.20	0.18	0.14	0.11	0.10	0.05												
		14 TPI	14UN-TF	1.07	1.15	8	0.24	0.22	0.18	0.14	0.12	0.10	0.10	0.05											
		13 TPI	13UN-TF	1.15	1.23	9	0.24	0.22	0.18	0.14	0.12	0.10	0.10	0.08	0.05										
		12 TPI	12UN-TF	1.24	1.32	11	0.24	0.22	0.16	0.15	0.12	0.10	0.10	0.07	0.07	0.05	0.04								
		10 TPI	10UN-TF	1.48	1.56	12	0.24	0.22	0.20	0.16	0.15	0.12	0.12	0.10	0.09	0.07	0.05	0.04							
		8 TPI	08UN-TF	1.86	1.94	14	0.24	0.22	0.20	0.18	0.16	0.16	0.14	0.14	0.12	0.12	0.10	0.07	0.05	0.04					
		24 TPI	16I 24UN	0.62	0.70	5	0.22	0.19	0.15	0.10	0.04														
		20 TPI	20UN	0.75	0.83	6	0.22	0.20	0.16	0.12	0.08	0.05													
		18 TPI	18UN	0.83	0.91	6	0.24	0.18	0.16	0.14	0.10	0.05													
		16 TPI	16UN	0.94	1.02	7	0.24	0.20	0.18	0.14	0.11	0.10	0.05												
		14 TPI	14UN	1.07	1.15	8	0.24	0.22	0.18	0.14	0.12	0.10	0.10	0.05											
		12 TPI	12UN	1.24	1.32	11	0.24	0.22	0.16	0.15	0.12	0.10	0.10	0.07	0.07	0.05	0.04								
		8 TPI	22I 08UN	1.84	1.92	15	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.12	0.10	0.10	0.09	0.05	0.05	0.02				

11/16 type (Full Profile)

(D.O.C. shows value of radial D.O.C.)

		pitch mm·TPI	Description	Corner-R (mm)	Total D.O.C. (mm)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Parallel Pipe (mm)	Male Thread	19 TPI	16ER 19W-TF	0.89	0.97	6	0.27	0.22	0.18	0.15	0.10	0.05													
		14 TPI	14W-TF	1.19	1.27	9	0.27	0.22	0.18	0.16	0.11	0.10	0.10	0.08	0.05										
		11 TPI	11W-TF	1.50	1.58	12	0.27	0.22	0.18	0.16	0.12	0.12	0.12	0.10	0.10	0.07	0.07	0.05							
	Female Thread	19 TPI	16IR 19W-TF	0.88	0.96	6	0.25	0.21	0.20	0.15	0.10	0.05													
		14 TPI	14W-TF	1.19	1.27	9	0.27	0.22	0.18	0.16	0.11	0.10	0.10	0.08	0.05										
		11 TPI	11W-TF	1.50	1.58	12	0.27	0.22	0.18	0.16	0.12	0.12	0.12	0.10	0.10	0.07	0.07	0.05							
Whitworth (mm)	Male Thread	16 TPI	16ER 16W-TF	1.05	1.13	8	0.25	0.21	0.18	0.16	0.12	0.08	0.08	0.05											
		14 TPI	14W-TF	1.19	1.27	9	0.27	0.22	0.18	0.16	0.11	0.10	0.10	0.08	0.05										
		11 TPI	11W-TF	1.50	1.58	12	0.27	0.22	0.18	0.16	0.12	0.12	0.12	0.10	0.10	0.07	0.07	0.05							
	Female Thread	16 TPI	16IR 16W-TF	1.05	1.13	8	0.25	0.21	0.18	0.16	0.12	0.08	0.08	0.05											
		14 TPI	14W-TF	1.19	1.27	9	0.27	0.22	0.18	0.16	0.11	0.10	0.10	0.08	0.05										
		11 TPI	11W-TF	1.50	1.58	12	0.27	0.22	0.18	0.16	0.12	0.12	0.12	0.10	0.10	0.07	0.07	0.05							
Tapered Pipe (mm)	Male Thread	28 TPI	16ER 28BSPT-TF	0.58	0.63	5	0.20	0.15	0.13	0.11	0.04														
		19 TPI	19BSPT-TF	0.86	0.94	6	0.26	0.20	0.18	0.15	0.10	0.05													
		14 TPI	14BSPT-TF	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04										
		11 TPI	11BSPT-TF	1.48	1.56	12	0.26	0.22	0.18	0.16	0.12	0.12	0.11	0.10	0.10	0.07	0.07	0.05							
		28 TPI	16ER 28BSPT	0.58	0.63	5	0.20	0.15	0.13	0.11	0.04														
		19 TPI	19BSPT	0.86	0.94	6	0.26	0.20	0.18	0.15	0.10	0.05													
		14 TPI	14BSPT	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04										
		11 TPI	11BSPT	1.48	1.56	12	0.26	0.22	0.18	0.16	0.12	0.12	0.11	0.10	0.10	0.07	0.07	0.05							
	Female Thread	28 TPI	11IR 28BSPT-TF	0.58	0.63	5	0.20	0.16	0.13	0.10	0.04														
		19 TPI	19BSPT-TF	0.86	0.94	7	0.22	0.20	0.18	0.14	0.10	0.06	0.04												
		14 TPI	14BSPT-TF	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04										
		28 TPI	11IR 28BSPT	0.58	0.63	5	0.20	0.16	0.13	0.10	0.04														
		19 TPI	19BSPT	0.86	0.94	7	0.22	0.20	0.18	0.14	0.10	0.06	0.04												
		14 TPI	14BSPT	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04										
		14 TPI	16IR 14BSPT-TF	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04										
		11 TPI	11BSPT-TF	1.48	1.56	12	0.26	0.22	0.18	0.16	0.12	0.12	0.11	0.10	0.10	0.07	0.07	0.05							
		14 TPI	16IR 14BSPT	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04										
		11 TPI	11BSPT	1.48	1.56	12	0.26	0.22	0.18	0.16	0.12	0.12	0.11	0.10	0.10	0.07	0.07	0.05							
American National Pipe (mm)	Male Thread	18 TPI	16ER 18NPT	1.14	1.22	13	0.20	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.07	0.06	0.05	0.04	0.02						
		14 TPI	14NPT	1.46	1.54	15	0.20	0.18	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.04	0.02				
		11.5 TPI	11.5NPT	1.77	1.85	16	0.22	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.10	0.08	0.08	0.07	0.06	0.04	0.02			
	Female Thread	18 TPI	16IR 18NPT	1.14	1.22	13	0.20	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.07	0.06	0.05	0.04	0.02						
		14 TPI	14NPT	1.46	1.54	15	0.20	0.18	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.04	0.02				
		11.5 TPI	11.5NPT	1.77	1.85	16	0.22	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.10	0.08	0.08	0.07	0.06	0.04	0.02			

60° • 55° (Partial Profile)

(D.O.C. shows value of radial D.O.C.)

		pitch mm·TPI	Description	Corner-R (rε)	Total D.O.C. (mm)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Metric (mm)	Male Thread	0.5 mm	16ER A60-TF	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03														
			AG60-TF	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03														
		0.75 mm	16ER A60-TF	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04													
			AG60-TF	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04													
		1.00 mm	16ER A60-TF	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04												
			AG60-TF	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04												
		1.25 mm	16ER A60-TF	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05											
			AG60-TF	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05											
		1.50 mm	16ER A60-TF	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05										
			AG60-TF	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05										
		1.75 mm	16ER G60-TF	0.22	1.11	8	0.24	0.20	0.18	0.16	0.13	0.10	0.06	0.04											
			AG60-TF	0.06	1.27	11	0.22	0.20	0.18	0.13	0.11	0.09	0.09	0.08	0.07	0.06	0.04								
		2.00 mm	16ER G60-TF	0.22	1.30	10	0.24	0.20	0.18	0.16	0.14	0.12	0.09	0.07	0.06	0.04									
			AG60-TF	0.06	1.46	11	0.25	0.22	0.20	0.16	0.14	0.12	0.10	0.09	0.08	0.06	0.04								
		2.50 mm	16ER G60-TF	0.22	1.67	12	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.08	0.06	0.04							
			AG60-TF	0.06	1.84	13	0.25	0.22	0.20	0.19	0.17	0.16	0.14	0.11	0.10	0.09	0.09	0.07	0.05						
		3.00 mm	16ER G60-TF	0.22	2.05	14	0.25	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.07	0.05					
			AG60-TF	0.06	2.22	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.09	0.08	0.05				
		0.5 mm	16ER A60	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03														
			AG60	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03														
		0.75 mm	16ER A60	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04													
			AG60	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04													
		1.00 mm	16ER A60	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04												
			AG60	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04												
		1.25 mm	16ER A60	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05											
			AG60	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05											
		1.50 mm	16ER A60	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05										
			AG60	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05										
		1.75 mm	16ER G60	0.22	1.11	8	0.24	0.20	0.18	0.16	0.13	0.10	0.06	0.04											
			AG60	0.06	1.27	11	0.22	0.20	0.18	0.13	0.11	0.09	0.09	0.08	0.07	0.06	0.04								
		2.00 mm	16ER G60	0.22	1.30	10	0.24	0.20	0.18	0.16	0.14	0.12	0.09	0.07	0.06	0.04									
			AG60	0.06	1.46	11	0.25	0.22	0.20	0.16	0.14	0.12	0.10	0.09	0.08	0.06	0.04								
		2.50 mm	16ER G60	0.22	1.67	12	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.08	0.06	0.04							
			AG60	0.06	1.84	13	0.25	0.22	0.20	0.19	0.17	0.16	0.14	0.11	0.10	0.09	0.09	0.07	0.05						
		3.00 mm	16ER G60	0.22	2.05	14	0.25	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.07	0.05					
			AG60	0.06	2.22	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.09	0.08	0.05				

Depth of Cut & Number of Passes
(Metric style)

60° • 55° (Partial Profile)

(D.O.C. shows value of radial D.O.C.)

		pitch mm·TPI	Description	Corner-R (rε)	Total D.O.C. (mm)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Metric (mm)	Male Thread	3.50 mm	22ER N60	0.48	2.17	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.05				
		4.00 mm			2.55	17	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05		
		4.50 mm			2.93	18	0.30	0.28	0.26	0.25	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05	
		5.00 mm			3.31	19	0.30	0.28	0.27	0.26	0.25	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.09	0.08	0.07	0.06	0.05
	Female Thread	0.75 mm	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									
		1.00 mm	06IR 60005	0.05	0.60	12	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.03							
			08IR 60007	0.07	0.58	12	0.07	0.06	0.06	0.06	0.06	0.05	0.04	0.04	0.04	0.04	0.03	0.03							
		1.25 mm	06IR 60005	0.05	0.76	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03					
			08IR 60007	0.07	0.74	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03					
		1.5 mm	08IR 60007	0.07	0.90	17	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03		
		1.75 mm		0.07	1.07	19	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
		0.50 mm	11IR A60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04														
		1.00 mm			0.63	6	0.16	0.14	0.12	0.10	0.07	0.04													
		1.50 mm			0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04										
		0.5 mm	16IR A60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04														
			AG60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04														
		0.75 mm	16IR A60	0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04													
			AG60	0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04													
		1.00 mm	16IR A60	0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04													
			AG60	0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04													
		1.25 mm	16IR A60	0.02	0.79	7	0.16	0.15	0.14	0.13	0.10	0.07	0.04												
			AG60	0.02	0.79	7	0.16	0.15	0.14	0.13	0.10	0.07	0.04												
		1.50 mm	16IR A60	0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04										
			AG60	0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04										
		1.75 mm	16IR G60	0.11	1.03	9	0.20	0.17	0.15	0.13	0.11	0.10	0.08	0.05	0.04										
			AG60	0.02	1.12	10	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.06	0.05	0.04									
		2.00 mm	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									
			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							
		2.50 mm	16IR G60	0.11	1.51	14	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05	0.04	0.02					
			AG60	0.02	1.6	16	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05	0.05	0.04	0.04	0.02			
		3.00 mm	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			
			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	
		3.50 mm	22IR N60	0.22	2.05	14	0.26	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.08	0.06	0.05					
		4.00 mm			2.38	16	0.26	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.10	0.08	0.06	0.05			
		4.50 mm			2.7	18	0.26	0.24	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10	0.08	0.06	0.05	
		5.00 mm			3.03	19	0.30	0.27	0.25	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10	0.08	0.06	0.05
Unified (mm)	Male Thread	48 TPI	16ER A60-TF	0.06	0.35	5	0.10	0.08	0.07	0.06	0.04														
			AG60-TF	0.06	0.35	5	0.10	0.08	0.07	0.06	0.04														
		24 TPI	16ER A60-TF	0.06	0.75	7	0.18	0.15	0.13	0.10	0.08	0.07	0.04												
			AG60-TF	0.06	0.75	7	0.18	0.15	0.13	0.10	0.08	0.07	0.04												
		20 TPI	16ER A60-TF	0.06	0.91	8	0.18	0.16	0.14	0.12	0.10	0.09	0.07	0.05											
			AG60-TF	0.06	0.91	8	0.18	0.16	0.14	0.12	0.10	0.09	0.07	0.05											
		18 TPI	16ER A60-TF	0.06	1.01	8	0.20	0.18	0.16	0.14	0.12	0.08	0.08	0.05											
			AG60-TF	0.06	1.01	8	0.20	0.18	0.16	0.14	0.12	0.08	0.08	0.05											
		16 TPI	16ER A60-TF	0.06	1.15	10	0.22	0.18	0.15	0.13	0.11	0.10	0.08	0.08	0.06	0.04									
			AG60-TF	0.06	1.15	10	0.22	0.18	0.15	0.13	0.11	0.10	0.08	0.08	0.06	0.04									
		14 TPI	16ER G60-TF	0.22	1.15	9	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.07	0.05										
			AG60-TF	0.06	1.32	11	0.22	0.20	0.18	0.15	0.13	0.10	0.09	0.08	0.07	0.06	0.04								
		13 TPI	16ER G60-TF	0.22	1.26	9	0.24	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05										
			AG60-TF	0.06	1.43	11	0.25	0.23	0.20	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04								
		12 TPI	16ER G60-TF	0.22	1.38	10	0.25	0.22	0.20	0.17	0.15	0.12	0.10	0.07	0.06	0.04									
			AG60-TF	0.06	1.55	12	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.09	0.07	0.06	0.04							
		10 TPI	16ER G60-TF	0.22	1.71	12	0.25	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.06	0.05							
			AG60-TF	0.06	1.87	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.06	0.04						
		9 TPI	16ER G60-TF	0.22	1.92	13	0.27	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.06	0.04						
			AG60-TF	0.06	2.08	14	0.27	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.07	0.05					
		8 TPI	16ER G60-TF	0.22	2.19	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.10	0.09	0.08	0.05				
			AG60-TF	0.06	2.35	16	0.30	0.25	0.23	0.20	0.18	0.17	0.16	0.14	0.12	0.12	0.11	0.10	0.09	0.08	0.05	0.05			
		48 TPI	16ER A60	0.06	0.35	5	0.10	0.08	0.07	0.06	0.04														
			AG60	0.06	0.35	5	0.10	0.08	0.07	0.06	0.04														
		24 TPI	16ER A60	0.06	0.75	7	0.18	0.15	0.13	0.10	0.08	0.07	0.04												
			AG60	0.06	0.75	7	0.18	0.15	0.13	0.10	0.08	0.07	0.04												
		20 TPI	16ER A60	0.06	0.91	8	0.18	0.16	0.14	0.12	0.10	0.09	0.07	0.05											
			AG60	0.06	0.91	8	0.18	0.16	0.14	0.12	0.10	0.09	0.07	0.05											
		18 TPI	16ER A60	0.06	1.01	8	0.20	0.18	0.16	0.14	0.12	0.08	0.08	0.05											
			AG60	0.06	1.01	8	0.20	0.18	0.16	0.14	0.12	0.08	0.08	0.05											
		16 TPI	16ER A60	0.06	1.15	10	0.22	0.18	0.15	0.13	0.11	0.10	0.08	0.08	0.06	0.04									
			AG60	0.06	1.15	10	0.22	0.18	0.15	0.13	0.11	0.10	0.08	0.08	0.06	0.04									
		14 TPI	16ER G60	0.22	1.15	9	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.07	0.05										
			AG60	0.06	1.32	11	0.22	0.20	0.18	0.15	0.13	0.10	0.09	0.08	0.07	0.06	0.04								
		13 TPI	16ER G60	0.22	1.26	9	0.24	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05										
			AG60	0.06	1.43	11	0.25	0.23	0.20	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04								
		12 TPI	16ER G60	0.22	1.38	10	0.25	0.22	0.20	0.17	0.15	0.12	0.10	0.07	0.06	0.04									
			AG60	0.06	1.55	12	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.09	0.07	0.06	0.04							
		10 TPI	16ER G60	0.22	1.71	12	0.25	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.06	0.05							
			AG60	0.06	1.87	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.06	0.04						
		9 TPI	16ER G60	0.22	1.92	13	0.27	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.06	0.04						
			AG60	0.06	2.08	14	0.27	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.07	0.05					
		8 TPI	16ER G60	0.22	2.19	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.10	0.09	0.08	0.05				
			AG60	0.06	2.35	16	0.30	0.25	0.23	0.20	0.18	0.17	0.16	0.14	0.12	0.12	0.11	0.10	0.09	0.08	0.05	0.05			
		7 TPI	22ER N60	0.48	2.27	15	0.27	0.25	0.24	0.23	0.20	0.18	0.15	0.13	0.12	0.11	0.10	0.10	0.08	0.06	0.05				
		6 TPI			2.73	18	0.27	0.25	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.10	0.10	0.08	0.06	0.05	
		5 TPI			3.37	19	0.30	0.29	0.28	0.27	0.26	0.25	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.09	0.08	0.07	0.06	0.05
	Female Thread	28 TPI	06IR 60005	0.05	0.54	12	0.07	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03							
		24 TPI		0.05	0.64	12	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.04	0.03						
		20 TPI	06IR 60005	0.05	0.77	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03					
			08IR 60007	0.07	0.75	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.03	0.03					

60° • 55° (Partial Profile)

(D.O.C. shows value of radial D.O.C.)

		pitch mm·TPI	Description	Corner-R (rε)	Total D.O.C. (mm)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Unified (mm)	Female Thread	18 TPI	08IR 60007	0.07	0.85	17	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		
		16 TPI	08IR 60007	0.07	0.96	18	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	
		48 TPI	11IR A60	0.02	0.32	5	0.08	0.07	0.07	0.06	0.04														
		24 TPI			0.67	7	0.14	0.13	0.12	0.10	0.08	0.06	0.04												
		20 TPI			0.8	8	0.14	0.13	0.12	0.12	0.11	0.08	0.06	0.04											
		18 TPI			0.9	9	0.15	0.14	0.13	0.12	0.11	0.08	0.07	0.06	0.04										
		16 TPI			1.01	10	0.15	0.14	0.13	0.12	0.12	0.10	0.08	0.07	0.06	0.04									
		48 TPI	16IR A60	0.02	0.32	5	0.08	0.07	0.07	0.06	0.04														
			AG60	0.02	0.32	5	0.08	0.07	0.07	0.06	0.04														
		24 TPI	16IR A60	0.02	0.67	7	0.14	0.13	0.12	0.10	0.08	0.06	0.04												
			AG60	0.02	0.67	7	0.14	0.13	0.12	0.10	0.08	0.06	0.04												
		20 TPI	16IR A60	0.02	0.80	8	0.14	0.13	0.12	0.12	0.11	0.08	0.06	0.04											
			AG60	0.02	0.80	8	0.14	0.13	0.12	0.12	0.11	0.08	0.06	0.04											
		18 TPI	16IR A60	0.02	0.90	9	0.15	0.14	0.13	0.12	0.11	0.08	0.07	0.06	0.04										
			AG60	0.02	0.90	9	0.15	0.14	0.13	0.12	0.11	0.08	0.07	0.06	0.04										
		16 TPI	16IR A60	0.02	1.01	10	0.15	0.14	0.13	0.12	0.12	0.10	0.08	0.07	0.06	0.04									
			AG60	0.02	1.01	10	0.15	0.14	0.13	0.12	0.12	0.10	0.08	0.07	0.06	0.04									
		14 TPI	16IR G60	0.11	1.07	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.04										
			AG60	0.02	1.16	11	0.15	0.14	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.06	0.04								
		13 TPI	16IR G60	0.11	1.16	10	0.20	0.18	0.16	0.14	0.12	0.11	0.08	0.07	0.06	0.04									
			AG60	0.02	1.25	12	0.18	0.16	0.15	0.13	0.12	0.11	0.10	0.09	0.07	0.06	0.04	0.04							
		12 TPI	16IR G60	0.11	1.26	11	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.08	0.06	0.05	0.04								
			AG60	0.02	1.35	13	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.08	0.07	0.06	0.05	0.04	0.04						
		10 TPI	16IR G60	0.11	1.54	14	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05	0.04	0.02					
			AG60	0.02	1.63	16	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05	0.05	0.04	0.04	0.02			
		9 TPI	16IR G60	0.11	1.72	16	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.07	0.06	0.04	0.02			
			AG60	0.02	1.81	17	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.11	0.10	0.10	0.08	0.07	0.06	0.05	0.03	0.02		
		8 TPI	16IR G60	0.11	1.95	17	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05	0.03	0.02		
			AG60	0.02	2.04	19	0.20	0.19	0.18	0.17	0.15	0.14	0.14	0.13	0.13	0.11	0.10	0.09	0.07	0.06	0.05	0.04	0.04	0.03	0.02
		7 TPI	22IR N60	0.22	2.14	14	0.26	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.07	0.06	0.05					
		6 TPI	22IR N60		2.53	17	0.28	0.26	0.23	0.22	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.05		
		5 TPI	22IR N60		3.08	19	0.30	0.28	0.26	0.25	0.23	0.22	0.20	0.17	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.10	0.08	0.06	0.05
Parallel Pipe · Tapered Pipe (mm)	Male Thread	28 TPI	16ER A55-TF	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04												
			AG55-TF	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04												
		19 TPI	16ER A55-TF	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05											
			AG55-TF	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05											
		14 TPI	16ER G55-TF	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.04										
			AG55-TF	0.06	1.40	11	0.24	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04								
		11 TPI	16ER G55-TF	0.22	1.60	12	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.08	0.06	0.05	0.04							
			AG55-TF	0.06	1.79	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05	0.03						
		28 TPI	16ER A55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04												
			AG55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04												
		19 TPI	16ER A55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05											
			AG55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05											
		14 TPI	16ER G55	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.04										
			AG55	0.06	1.40	11	0.24	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04								
		11 TPI	16ER G55	0.22	1.60	12	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.08	0.06	0.05	0.04							
			AG55	0.06	1.79	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05	0.03						
	Female Thread	28 TPI	06IR 5501	0.10	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							
			08IR 5501																						
		19 TPI	08IR 5501	0.10	0.95	18	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	
		28 TPI	11IR A55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04												
		19 TPI	11IR A55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05											
		28 TPI	16IR A55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04												
			AG55	0.06	0.67	7	0.16	0.14	0.10	0.09	0.08	0.06	0.04												
		19 TPI	16IR A55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05											
			AG55	0.06	1.02	8	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.05											
		14 TPI	16IR G55	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.04										
			AG55	0.06	1.40	11	0.24	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04								
		11 TPI	16IR G55	0.22	1.60	12	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.08	0.06	0.05	0.04							
			AG55	0.06	1.79	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05	0.03						
Whitworth (mm)	Male Thread	48 TPI	16ER A55-TF	0.06	0.37	5	0.12	0.09	0.07	0.05	0.04														
			AG55-TF	0.06	0.37	5	0.12	0.09	0.07	0.05	0.04														
		24 TPI	16ER A55-TF	0.06	0.79	7	0.18	0.16	0.14	0.11	0.08	0.07	0.05												
			AG55-TF	0.06	0.79	7	0.18	0.16	0.14	0.11	0.08	0.07	0.05												
		20 TPI	16ER A55-TF	0.06	0.96	8	0.20	0.18	0.15	0.13	0.10	0.08	0.07	0.05											
			AG55-TF	0.06	0.96	8	0.20	0.18	0.15	0.13	0.10	0.08	0.07	0.05											
		18 TPI	16ER A55-TF	0.06	1.07	9	0.20	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05										
			AG55-TF	0.06	1.07	9	0.20	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05										
		16 TPI	16ER A55-TF	0.06	1.22	11	0.20	0.18	0.16	0.13	0.11	0.10	0.09	0.08	0.07	0.06	0.04								
			AG55-TF	0.06	1.22	11	0.20	0.18	0.16	0.13	0.11	0.10	0.09	0.08	0.07	0.06	0.04								
		14 TPI	16ER G55-TF	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.04										
			AG55-TF	0.06	1.40	11	0.24	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04								
		12 TPI	16ER G55-TF	0.22	1.44	10	0.24	0.22	0.20	0.18	0.15	0.12	0.12	0.09	0.07	0.05									
			AG55-TF	0.06	1.64	12	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.06	0.05							
		11 TPI	16ER G55-TF	0.22	1.60	12	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.08	0.06	0.05	0.04							
			AG55-TF	0.06	1.79	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05	0.03						
		10 TPI	16ER G55-TF	0.22	1.78	12	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.13	0.12	0.09	0.07	0.05							
			AG55-TF	0.06	1.98	14	0.25	0.22	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.05				
		9 TPI	16ER G55-TF	0.22	2.01	14	0.24	0.22	0.20	0.19	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.08	0.07	0.05					
			AG55-TF	0.06	2.20	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.10	0.09	0.08	0.05				
		8 TPI	16ER G55-TF	0.22	2.29	15	0.28	0.26	0.24	0.22	0.19	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.09	0.08	0.05				
			AG55-TF	0.06	2.49	16	0.30	0.28	0.26	0.24	0.20	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.09	0.08	0.06	0.05			
		48 TPI	16ER A55	0.06	0.37	5	0.12	0.09	0.07	0.05	0.04														
			AG55	0.06	0.37	5	0.12	0.09	0.07	0.05	0.04														

Depth of Cut & Number of Passes
(Metric style)

60° • 55° (Partial Profile)

(D.O.C. shows value of radial D.O.C.)

		pitch mm·TPI	Description	Corner-R (rε)	Total D.O.C. (mm)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Whitworth (mm)	Male Thread	24 TPI	16ER A55	0.06	0.79	7	0.18	0.16	0.14	0.11	0.08	0.07	0.05												
			AG55	0.06	0.79	7	0.18	0.16	0.14	0.11	0.08	0.07	0.05												
		20 TPI	16ER A55	0.06	0.96	8	0.20	0.18	0.15	0.13	0.10	0.08	0.07	0.05											
			AG55	0.06	0.96	8	0.20	0.18	0.15	0.13	0.10	0.08	0.07	0.05											
		18 TPI	16ER A55	0.06	1.07	9	0.20	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05										
			AG55	0.06	1.07	9	0.20	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05										
		16 TPI	16ER A55	0.06	1.22	11	0.20	0.18	0.16	0.13	0.11	0.10	0.09	0.08	0.07	0.06	0.04								
			AG55	0.06	1.22	11	0.20	0.18	0.16	0.13	0.11	0.10	0.09	0.08	0.07	0.06	0.04								
		14 TPI	16ER G55	0.22	1.20	9	0.22	0.19	0.17	0.15	0.13	0.12	0.10	0.08	0.04										
			AG55	0.06	1.40	11	0.24	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04								
		12 TPI	16ER G55	0.22	1.44	10	0.24	0.22	0.20	0.18	0.15	0.12	0.12	0.09	0.07	0.05									
			AG55	0.06	1.64	12	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.06	0.05							
		11 TPI	16ER G55	0.22	1.60	12	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.10	0.08	0.06	0.05	0.04							
			AG55	0.06	1.79	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05	0.03						
		10 TPI	16ER G55	0.22	1.78	12	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.13	0.12	0.09	0.07	0.05							
			AG55	0.06	1.98	14	0.25	0.22	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.05					
		9 TPI	16ER G55	0.22	2.01	14	0.24	0.22	0.20	0.19	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.08	0.07	0.05					
			AG55	0.06	2.20	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.10	0.09	0.08	0.05				
		8 TPI	16ER G55	0.22	2.29	15	0.28	0.26	0.24	0.22	0.19	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.09	0.08	0.05				
			AG55	0.06	2.49	16	0.30	0.28	0.26	0.24	0.20	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.09	0.08	0.06	0.05			
		7 TPI	22ER N55	0.47	2.43	16	0.30	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.10	0.10	0.09	0.08	0.06	0.05			
		6 TPI			2.92	18	0.30	0.27	0.25	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.08	0.06	0.05	
		5 TPI			3.6	21	0.30	0.28	0.27	0.26	0.25	0.24	0.22	0.20	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.11	0.10	0.09	0.07
							0.05	0.04																	
	Female Thread	28 TPI	06IR 5501 08IR 5501	0.10	0.65	13	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03						
		19 TPI	08IR 5501	0.10	0.81	15	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	0.03	0.03				
		48 TPI	11IR A55	0.06	0.33	5	0.08	0.08	0.07	0.06	0.04														
		24 TPI			0.72	7	0.16	0.14	0.12	0.10	0.08	0.07	0.05												
		20 TPI			0.87	8	0.16	0.15	0.14	0.13	0.11	0.08	0.06	0.04											
		18 TPI			0.97	8	0.20	0.18	0.16	0.14	0.10	0.08	0.06	0.05											
		16 TPI			1.1	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.07	0.05										
		48 TPI	16IR A55	0.06	0.33	5	0.08	0.08	0.07	0.06	0.04														
			AG55	0.06	0.33	5	0.08	0.08	0.07	0.06	0.04														
		24 TPI	16IR A55	0.06	0.72	7	0.16	0.14	0.12	0.10	0.08	0.07	0.05												
			AG55	0.06	0.72	7	0.16	0.14	0.12	0.10	0.08	0.07	0.05												
		20 TPI	16IR A55	0.06	0.87	8	0.16	0.15	0.14	0.13	0.11	0.08	0.06	0.04											
			AG55	0.06	0.87	8	0.16	0.15	0.14	0.13	0.11	0.08	0.06	0.04											
		18 TPI	16IR A55	0.06	0.97	8	0.20	0.18	0.16	0.14	0.10	0.08	0.06	0.05											
			AG55	0.06	0.97	8	0.20	0.18	0.16	0.14	0.10	0.08	0.06	0.05											
		16 TPI	16IR A55	0.06	1.10	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.07	0.05										
			AG55	0.06	1.10	9	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.07	0.05										
		14 TPI	16IR G55	0.22	1.06	8	0.21	0.19	0.17	0.15	0.12	0.10	0.07	0.05											
			AG55	0.06	1.27	11	0.20	0.18	0.17	0.15	0.13	0.10	0.09	0.08	0.07	0.06	0.04								
		12 TPI	16IR G55	0.22	1.28	9	0.22	0.20	0.19	0.17	0.15	0.13	0.10	0.08	0.04										
			AG55	0.06	1.48	11	0.24	0.22	0.20	0.18	0.16	0.13	0.11	0.09	0.06	0.05	0.04								
		11 TPI	16IR G55	0.22	1.42	10	0.24	0.22	0.20	0.18	0.15	0.12	0.10	0.09	0.07	0.05									
			AG55	0.06	1.62	12	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05							
		10 TPI	16IR G55	0.22	1.59	12	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04							
			AG55	0.06	1.79	13	0.25	0.22	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05	0.03						
		9 TPI	16IR G55	0.22	1.79	12	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.13	0.12	0.10	0.07	0.05							
			AG55	0.06	1.99	14	0.25	0.23	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.05					
		8 TPI	16IR G55	0.22	2.05	14	0.24	0.23	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.08	0.07	0.05					
			AG55	0.06	2.25	15	0.28	0.26	0.24	0.21	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.10	0.09	0.08	0.05				
		7 TPI	22IR N55	0.47	2.09	14	0.24	0.23	0.22	0.20	0.19	0.17	0.15	0.14	0.13	0.12	0.10	0.08	0.07	0.05					
		6 TPI			2.53	16	0.30	0.28	0.25	0.23	0.21	0.20	0.18	0.16	0.13	0.11	0.10	0.10	0.09	0.08	0.06	0.05			
		5 TPI			3.14	19	0.30	0.28	0.27	0.26	0.24	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.12	0.11	0.10	0.10	0.08	0.06	0.05
Trapezoidal 30° (mm)	Male Thread	2.0 mm	16ER 200TR	-	1.25	10	0.22	0.20	0.17	0.16	0.13	0.12	0.10	0.07	0.05	0.03									
		3.0 mm	16ER 300TR	-	1.75	14	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.10	0.10	0.07	0.05	0.03					
		4.0 mm	22ER 400TR	-	2.24	15	0.26	0.24	0.22	0.20	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03				
		5.0 mm	22ER 500TR	-	2.73	17	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03		
	Female Thread	2.0 mm	16IR 200TR	-	1.25	10	0.22	0.20	0.17	0.16	0.13	0.12	0.10	0.07	0.05	0.03									
		3.0 mm	16IR 300TR	-	1.75	14	0.24	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.10	0.10	0.10	0.07	0.05	0.03					
		4.0 mm	22IR 400TR	-	2.24	15	0.26	0.24	0.22	0.20	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03				
		5.0 mm	22IR 500TR	-	2.73	17	0.28	0.26	0.24	0.22	0.21	0.20	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.10	0.07	0.05	0.03		

◆ Corner-R Selection for Partial Profiling Insert

	Male Thread	Female Thread
Metric Unified	R≦0.1443P	R≦0.0720P
Parallel Pipe (Whitworth) Tapered Pipe	(For Both Male and Female Thread) R≦0.1373P	

R: Corner-R P: Pitch (= $\frac{25.4}{n}$ n: TPI

● Metric, Unified Thread

Corner-R for Female Threading is almost half of that of Male.

● Parallel Pipe, Tapered Pipe, Whitworth Thread

Same Corner-R for Both Male and Female Threading

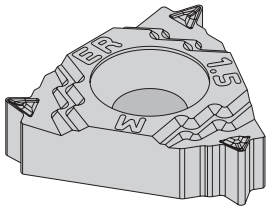
11/16 type (Full Profile)

TS-Chipbreaker

(D.O.C. shows value of radial D.O.C.)

		pitch mm·TPI	Description	Corner-R (mm)	Total D.O.C. (mm)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Metric (mm)	Male Thread	1.00 mm	16ER 100ISO-TS	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05														
		1.25 mm	125ISO-TS	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05													
		1.50 mm	150ISO-TS	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05													
		2.00 mm	200ISO-TS	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									
	Female Thread	1.00 mm	16IR 100ISO-TS	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04														
		1.50 mm	150ISO-TS	0.88	0.96	8	0.24	0.18	0.14	0.10	0.10	0.08	0.07	0.05											
		2.00 mm	200ISO-TS	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									
Parallel Pipe (mm)	Male Thread	19 TPI	16ER 19W-TS	0.89	0.97	6	0.28	0.20	0.18	0.16	0.10	0.05													
		14 TPI	14W-TS	1.19	1.27	9	0.29	0.20	0.18	0.16	0.11	0.10	0.10	0.08	0.05										
		11 TPI	11W-TS	1.50	1.58	12	0.29	0.20	0.18	0.16	0.12	0.12	0.12	0.10	0.10	0.07	0.07	0.05							
	Female Thread	14 TPI	16IR 14W-TS	1.19	1.27	9	0.29	0.20	0.18	0.16	0.11	0.10	0.10	0.08	0.05										
		11 TPI	11W-TS	1.50	1.58	12	0.29	0.20	0.18	0.16	0.12	0.12	0.12	0.10	0.10	0.07	0.07	0.05							
Whitworth (mm)	Male Thread	14 TPI	16ER 14W-TS	1.19	1.27	9	0.29	0.20	0.18	0.16	0.11	0.10	0.10	0.08	0.05										
		11 TPI	11W-TS	1.50	1.58	12	0.29	0.20	0.18	0.16	0.12	0.12	0.12	0.10	0.10	0.07	0.07	0.05							
	Female Thread	14 TPI	16IR 14W-TS	1.19	1.27	9	0.29	0.20	0.18	0.16	0.11	0.10	0.10	0.08	0.05										
		11 TPI	11W-TS	1.50	1.58	12	0.29	0.20	0.18	0.16	0.12	0.12	0.12	0.10	0.10	0.10	0.07	0.05							
Tapered Pipe (mm)	Male Thread	19 TPI	16ER 19BSPT-TS	0.86	0.94	6	0.26	0.20	0.18	0.15	0.10	0.05													
		14 TPI	14BSPT-TS	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04										
		11 TPI	11BSPT-TS	1.48	1.56	12	0.26	0.22	0.18	0.16	0.12	0.12	0.11	0.10	0.10	0.07	0.07	0.05							
	Female Thread	19 TPI	11IR 19BSPT-TS	0.86	0.94	7	0.22	0.20	0.18	0.14	0.10	0.06	0.04												
		14 TPI	14BSPT-TS	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04										
		14 TPI	16IR 14BSPT-TS	1.16	1.24	9	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.04										
		11 TPI	11BSPT-TS	1.48	1.56	12	0.26	0.22	0.18	0.16	0.12	0.12	0.11	0.10	0.10	0.07	0.07	0.05							

Chip Control of Threading Insert with Chipbreaker



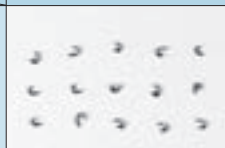
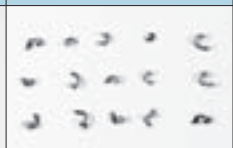
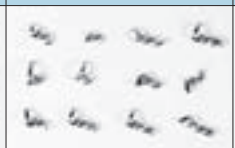
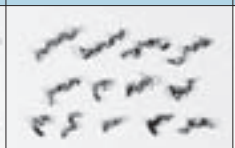
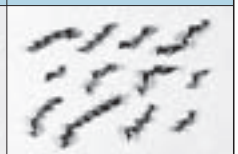
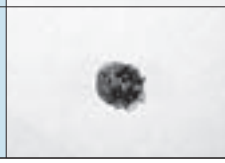
Threading Insert with "TS" Chipbreaker

Insert with TS Chipbreaker improves chip control.

· Advantage of TS Chipbreaker Insert

1. Provides good chip evacuation.
2. High precision molded insert is economical

Cutting Conditions: 330 SFM, P=1.5 mm, No. of Passes: 6 Pass, 4135, Coolant, Flank Infeed (External Threading)

Pass	1st Pass	2nd Pass	3rd Pass	5th Pass	6th Pass
TS Chipbreaker Insert					
Conventional Insert					

Depth of Cut & Number of Passes
(Metric style)

11/16 type (60° • 55° Partial Profile)

(D.O.C. shows value of radial D.O.C.)

		pitch mm·TPI	Description	Old Description	Corner-R (rε)	Total D.O.C. (mm)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Metric (mm)	Male Thread	1.00 mm	16ER 6001(-TS)	TNN32ER 6001(-TS)	0.10	0.66	5	0.20	0.18	0.12	0.09	0.05														
		1.25 mm	16ER 6001(-TS)	TNN32ER 6001(-TS)	0.10	0.85	6	0.23	0.20	0.14	0.12	0.07	0.05													
		1.50 mm	16ER 6001(-TS)	TNN32ER 6001(-TS)	0.10	1.04	8	0.23	0.21	0.19	0.15	0.11	0.06	0.05	0.04											
			6002(-TS)	6002(-TS)	0.20	0.94	7	0.23	0.20	0.18	0.14	0.10	0.05	0.04												
		1.75 mm	16ER 6001(-TS)	TNN32ER 6001(-TS)	0.10	1.23	9	0.25	0.22	0.20	0.17	0.14	0.09	0.07	0.05	0.04										
			6002(-TS)	6002(-TS)	0.20	1.13	8	0.25	0.22	0.20	0.16	0.14	0.07	0.05	0.04											
		2.00 mm	16ER 6001(-TS)	TNN32ER 6001(-TS)	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								
			6002(-TS)	6002(-TS)	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									
		2.50 mm	16ER 6001(-TS)	TNN32ER 6001(-TS)	0.10	1.79	13	0.25	0.22	0.20	0.18	0.16	0.16	0.14	0.12	0.10	0.09	0.08	0.05	0.04						
			6002(-TS)	6002(-TS)	0.20	1.69	12	0.25	0.22	0.20	0.18	0.16	0.16	0.12	0.12	0.10	0.08	0.06	0.04							
	Female Thread	0.75 mm	11IR 60005	TNN22IR 60005	0.05	0.44	5	0.14	0.12	0.10	0.06	0.02														
		1.00 mm	11IR 60005	TNN22IR 60005	0.05	0.60	6	0.18	0.15	0.10	0.08	0.05	0.04													
		1.25 mm	11IR 60005	TNN22IR 60005	0.05	0.76	7	0.18	0.15	0.12	0.10	0.10	0.07	0.04												
		1.50 mm	11IR 60005	TNN22IR 60005	0.05	0.92	9	0.18	0.16	0.12	0.10	0.10	0.08	0.08	0.06	0.04										
			16IR 6001(-TS)	TNN32IR 6001(-TS)	0.10	0.87	8	0.18	0.16	0.12	0.10	0.10	0.08	0.08	0.05											
		1.75 mm	16IR 6001(-TS)	TNN32IR 6001(-TS)	0.10	1.04	9	0.20	0.18	0.15	0.12	0.12	0.10	0.08	0.05	0.04										
		2.00 mm	16IR 6001(-TS)	TNN32IR 6001(-TS)	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								
		2.50 mm	16IR 6001(-TS)	TNN32IR 6001(-TS)	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					
			60015(-TS)	60015(-TS)	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 (mm)	Male Thread	28 TPI	16ER 5501	TNN32ER 5501	0.10	0.61	5	0.20	0.16	0.12	0.08	0.05														
		19 TPI	16ER 5501	TNN32ER 5501	0.10	0.95	7	0.22	0.20	0.16	0.14	0.10	0.08	0.05												
		14 TPI	16ER 5501	TNN32ER 5501	0.10	1.34	10	0.24	0.20	0.18	0.16	0.13	0.10	0.10	0.10	0.08	0.05									
			5502	5502	0.20	1.22	9	0.24	0.20	0.18	0.16	0.11	0.10	0.10	0.08	0.05										
		11 TPI	16ER 5501	TNN32ER 5501	0.10	1.73	13	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.02						
			5502	5502	0.20	1.62	12	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.08	0.05	0.04	0.02							
	Female Thread	28 TPI	11IR 55005	TNN22IR 55005	0.05	0.67	7	0.18	0.15	0.12	0.08	0.06	0.05	0.03												
			16IR 5501	TNN32IR 5501	0.10	0.61	6	0.18	0.15	0.12	0.08	0.05	0.03													
		19 TPI	11IR 55005	TNN22IR 55005	0.05	1.01	8	0.20	0.18	0.16	0.14	0.12	0.08	0.08	0.05											
			16IR 5501	TNN32IR 5501	0.10	0.95	7	0.20	0.18	0.16	0.14	0.12	0.10	0.05												
		14 TPI	11IR 55005	TNN22IR 55005	0.05	1.39	11	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.05								
			16IR 5501	TNN32IR 5501	0.10	1.34	10	0.20	0.18	0.18	0.16	0.14	0.14	0.11	0.10	0.08	0.05									
			5502	5502	0.20	1.22	9	0.20	0.18	0.18	0.16	0.15	0.12	0.10	0.08	0.05										
		11 TPI	16IR 5501	TNN32IR 5501	0.10	1.73	12	0.25	0.20	0.18	0.18	0.16	0.16	0.14	0.12	0.12	0.10	0.07	0.05							
			5502	5502	0.20	1.62	11	0.25	0.20	0.18	0.18	0.16	0.16	0.14	0.12	0.12	0.08	0.05								
Whitworth (mm)	Male Thread	24 TPI	16ER 5501	TNN32ER 5501	0.10	0.73	6	0.22	0.18	0.12	0.09	0.07	0.05													
		20 TPI	16ER 5501	TNN32ER 5501	0.10	0.90	6	0.22	0.18	0.17	0.16	0.12	0.05													
		18 TPI	16ER 5501	TNN32ER 5501	0.10	1.01	7	0.24	0.20	0.18	0.16	0.10	0.08	0.05												
		16 TPI	16ER 5501	TNN32ER 5501	0.10	1.15	9	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.06	0.05										
			5502	5502	0.20	1.04	8	0.24	0.20	0.16	0.14	0.10	0.08	0.07	0.05											
		14 TPI	16ER 5501	TNN32ER 5501	0.10	1.34	10	0.24	0.20	0.18	0.16	0.13	0.10	0.10	0.10	0.08	0.05									
			5502	5502	0.20	1.22	9	0.24	0.20	0.18	0.16	0.11	0.10	0.10	0.08	0.05										
		12 TPI	16ER 5501	TNN32ER 5501	0.10	1.58	12	0.25	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.08	0.07	0.05							
			5502	5502	0.20	1.46	11	0.25	0.20	0.18	0.16	0.15	0.14	0.10	0.08	0.08	0.07	0.05								
		11 TPI	16ER 5501	TNN32ER 5501	0.10	1.73	12	0.25	0.20	0.18	0.18	0.16	0.16	0.14	0.12	0.12	0.10	0.07	0.05							
			5502	5502	0.20	1.62	11	0.25	0.20	0.18	0.18	0.16	0.16	0.14	0.12	0.10	0.08	0.05								
		10 TPI	16ER 5501	TNN32ER 5501	0.10	1.92	14	0.25	0.23	0.23	0.20	0.18	0.16	0.12	0.12	0.10	0.10	0.08	0.08	0.05	0.02					
			5502	5502	0.20	1.80	13	0.25	0.23	0.23	0.20	0.18	0.16	0.12	0.10	0.10	0.08	0.08	0.05	0.02						
		9 TPI	16ER 5502	TNN32ER 5502	0.20	2.03	14	0.25	0.23	0.23	0.20	0.20	0.18	0.16	0.12	0.12	0.10	0.08	0.08	0.06	0.02					
	Female Thread	24 TPI	11IR 55005	TNN22IR 55005	0.05	0.71	7	0.18	0.15	0.12	0.10	0.08	0.05	0.03												
			16IR 5501	TNN32IR 5501	0.10	0.65	6	0.18	0.15	0.12	0.10	0.07	0.03													
		20 TPI	11IR 55005	TNN22IR 55005	0.05	0.87	8	0.18	0.16	0.14	0.12	0.10	0.06	0.06	0.05											
			16IR 5501	TNN32IR 5501	0.10	0.81	7	0.18	0.16	0.14	0.12	0.10	0.06	0.05												
		18 TPI	11IR 55005	TNN22IR 55005	0.05	0.97	8	0.20	0.18	0.16	0.14	0.10	0.08	0.06	0.05											
			16IR 5501	TNN32IR 5501	0.10	0.91	7	0.20	0.18	0.16	0.14	0.10	0.08	0.05												
		16 TPI	11IR 55005	TNN22IR 55005	0.05	1.09	9	0.20	0.18	0.16	0.14	0.10	0.10	0.08	0.08	0.05										
			16IR 5501	TNN32IR 5501	0.10	1.04	8	0.20	0.18	0.16	0.15	0.12	0.10	0.08	0.05											
			5502	5502	0.20	0.92	7	0.20	0.18	0.16	0.15	0.10	0.08	0.05												
		14 TPI	11IR 55005	TNN22IR 55005	0.05	1.26	10	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.10	0.08	0.05									
			16IR 5501	TNN32IR 5501	0.10	1.20	9	0.20	0.18	0.17	0.16	0.14	0.12	0.10	0.08	0.05										
			5502	5502	0.20	1.08	8	0.20	0.18	0.18	0.16	0.13	0.10	0.08	0.05											
		12 TPI	16IR 5501	TNN32IR 5501	0.10	1.42	10	0.25	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.05									
			5502	5502	0.20	1.30	9	0.25	0.22	0.18	0.16	0.14	0.12	0.10	0.08	0.05										
		11 TPI	16IR 5501	TNN32IR 5501	0.10	1.56	11	0.25	0.20	0.18	0.16	0.16	0.14	0.12	0.12	0.10	0.08	0.05								
			5502	5502	0.20	1.44	10	0.25	0.20	0.18	0.16	0.16	0.14	0.12	0.10	0.08	0.05									

Caution 1) Select the insert with suitable corner-R(rε) determined by the pitch. 2) Do not exceed 0.3mm for the 1st ap.
3) Final ap for Finishing shall be 0.02-0.05mm. 4) Prepare chamfering for C0.3-C0.5 to prevent cracking the insert at the 1st pass.
5) Coolant is recommended.

TT (60° • 55° Partial Profile) (1/2)

(D.O.C. shows value of radial D.O.C.)

		pitch mm·TPI	Description	Corner-R (rε)	Total D.O.C. (mm)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Metric (mm)	Male Thread	0.50 mm	TT32° 6000	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02											
		0.70 mm	TT32° 6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02										
		0.75 mm	TT32° 6000	0.00	0.57	8	0.10	0.10	0.10	0.08	0.08	0.05	0.04	0.02									
		0.80 mm	TT32° 6000	0.00	0.61	8	0.10	0.10	0.10	0.10	0.08	0.06	0.05	0.02									
		1.00 mm	TT32° 6000	0.00	0.76	8	0.15	0.13	0.12	0.12	0.10	0.08	0.06	0.02									
			TT32/43° 6001	0.10	0.66	6	0.20	0.15	0.12	0.10	0.07	0.02											
		1.25 mm	TT32° 6000	0.00	0.95	9	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.05	0.02								
			TT32/43° 6001	0.10	0.85	7	0.25	0.20	0.13	0.10	0.10	0.05	0.02										
		1.50 mm	TT32° 6000	0.00	1.14	10	0.20	0.18	0.16	0.14	0.12	0.10	0.10	0.07	0.05	0.02							
			TT32/43° 6001	0.10	1.04	9	0.25	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.02								
			6002	0.20	0.94	8	0.25	0.18	0.14	0.12	0.10	0.08	0.05	0.02									
		1.75 mm	TT32° 6000	0.00	1.33	11	0.25	0.23	0.20	0.13	0.10	0.10	0.10	0.08	0.07	0.05	0.02						
			TT32/43° 6001	0.10	1.23	10	0.25	0.23	0.20	0.13	0.10	0.10	0.08	0.07	0.05	0.02							
			6002	0.20	1.13	9	0.25	0.23	0.20	0.13	0.10	0.08	0.07	0.05	0.02								
		2.00 mm	TT32° 6000	0.00	1.52	12	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.10	0.08	0.05	0.02					
			TT32/43° 6001	0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.08	0.05	0.02						
			6002	0.20	1.32	10	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.08	0.05	0.02							
		2.50 mm	TT32° 6000	0.00	1.89	13	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.14	0.13	0.10	0.08	0.06	0.02				
			TT32/43° 6001	0.10	1.79	12	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.10	0.06	0.02					
			6002	0.20	1.69	11	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.13	0.10	0.08	0.02						
			6003	0.30	1.59	11	0.27	0.25	0.20	0.18	0.17	0.15	0.12	0.10	0.08	0.05	0.02						
		3.00 mm	TT43° 6001	0.10	2.17	14	0.30	0.25	0.23	0.20	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.05	0.02			
			6002	0.20	2.07	13	0.30	0.25	0.23	0.20	0.20	0.18	0.15	0.14	0.13	0.12	0.10	0.05	0.02				
			6003	0.30	1.97	12	0.30	0.25	0.23	0.20	0.20	0.18	0.15	0.14	0.12	0.10	0.08	0.02					
			6004	0.40	1.87	12	0.30	0.25	0.23	0.20	0.20	0.18	0.14	0.12	0.10	0.08	0.05	0.02					
		3.50 mm	TT43° 6001	0.10	2.55	16	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.08	0.05	0.02	
			6002	0.20	2.45	15	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.10	0.10	0.05	0.02		
			6003	0.30	2.35	14	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.02			
			6004	0.40	2.25	14	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.02			
	Female Thread	0.50 mm	TT32° 6000	0.00	0.32	5	0.12	0.08	0.06	0.04	0.02												
		0.70 mm	TT32° 6000	0.00	0.45	6	0.15	0.10	0.08	0.06	0.04	0.02											
		0.75 mm	TT32° 6000	0.00	0.49	6	0.15	0.12	0.08	0.07	0.05	0.02											
		0.80 mm	TT32° 6000	0.00	0.52	6	0.15	0.12	0.10	0.08	0.05	0.02											
		1.00 mm	TT32° 6000	0.00	0.65	7	0.15	0.14	0.12	0.10	0.08	0.04	0.02										
		1.25 mm	TT32° 6000	0.00	0.81	8	0.18	0.16	0.14	0.12	0.10	0.05	0.04	0.02									
		1.50 mm	TT32° 6000	0.00	0.97	9	0.20	0.18	0.16	0.14	0.10	0.08	0.05	0.04	0.02								
			TT32/43° 6001	0.10	0.87	8	0.20	0.18	0.16	0.14	0.08	0.05	0.04	0.02									
		1.75 mm	TT32° 6000	0.00	1.14	10	0.20	0.18	0.16	0.13	0.12	0.10	0.10	0.08	0.05	0.02							
			TT32/43° 6001	0.10	1.04	9	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.05	0.02								
		2.00 mm	TT32° 6000	0.00	1.30	12	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.10	0.08	0.05	0.03	0.02					
			TT32/43° 6001	0.10	1.20	11	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.08	0.05	0.03	0.02						
		2.50 mm	TT32° 6000	0.00	1.62	14	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.03	0.02			
			TT32/43° 6001	0.10	1.52	13	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02				
		3.00 mm	TT43° 6001	0.10	1.85	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.05	0.02		
			6002	0.20	1.75	14	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.08	0.07	0.05	0.05	0.02			
Parallel Pipe · Tapered Pipe (mm)	Male Thread	28 TPI	TT32° 5501	0.10	0.61	5	0.20	0.18	0.15	0.06	0.02												
		19 TPI	TT32/43° 5501	0.10	0.95	8	0.20	0.18	0.15	0.13	0.12	0.10	0.05	0.02									
		14 TPI	TT32/43° 5501	0.10	1.34	10	0.25	0.22	0.20	0.16	0.14	0.12	0.10	0.08	0.05	0.02							
			5502	0.20	1.22	9	0.25	0.22	0.20	0.18	0.12	0.10	0.08	0.05	0.02								
		11 TPI	TT32/43° 5501	0.10	1.73	13	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.02				
			5502	0.20	1.62	12	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.08	0.05	0.04	0.02					
			5503	0.30	1.50	11	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.04	0.02						
	Female Thread	28 TPI	TT32/43° 5501	0.10	0.61	6	0.18	0.15	0.12	0.08	0.06	0.02											
		19 TPI	TT32/43° 5501	0.10	0.95	7	0.20	0.18	0.16	0.14	0.12	0.10	0.05										
		14 TPI	TT32/43° 5501	0.10	1.34	10	0.20	0.18	0.18	0.16	0.14	0.14	0.11	0.10	0.08	0.05							
			5502	0.20	1.22	9	0.20	0.18	0.18	0.16	0.15	0.12	0.10	0.08	0.05								
		11 TPI	TT32/43° 5501	0.10	1.73	13	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.02				
			5502	0.20	1.62	12	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.08	0.05	0.04	0.02					
			5503	0.30	1.50	11	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.04	0.02						
Whitworth (mm)	Male Thread	24 TPI	TT32/43° 5501	0.10	0.73	6	0.20	0.18	0.16	0.12	0.05	0.02											
		20 TPI	TT32/43° 5501	0.10	0.90	7	0.20	0.18	0.16	0.14	0.12	0.08	0.02										
		18 TPI	TT32/43° 5501	0.10	1.01	8	0.20	0.18	0.18	0.16	0.12	0.10	0.05	0.02									
		16 TPI	TT32/43° 5501	0.10	1.15	9	0.25	0.20	0.18	0.14	0.12	0.10	0.08	0.06	0.02								
			5502	0.20	1.04	8	0.25	0.20	0.18	0.14	0.10	0.08	0.07	0.02									
		14 TPI	TT32/43° 5501	0.10	1.34	10	0.25	0.22	0.20	0.16	0.14	0.12	0.10	0.08	0.05	0.02							
			5502	0.20	1.22	9	0.25	0.22	0.20	0.18	0.12	0.10	0.08	0.05	0.02								
		12 TPI	TT32/43° 5501	0.10	1.58	12	0.25	0.20	0.18	0.16	0.15	0.14	0.12	0.12	0.10	0.08	0.06	0.02					
			5502	0.20	1.46	11	0.25	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.06	0.02						
		11 TPI	TT32/43° 5501	0.10	1.73	13	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.02				
			5502	0.20	1.62	12	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.08	0.05	0.04	0.02					
			TT43° 5503	0.30	1.50	11	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.07	0.04	0.02						
		10 TPI	TT32/43° 5501	0.10	1.92	14	0.25	0.23	0.23	0.20	0.18	0.16	0.12	0.12	0.10	0.10	0.08	0.08	0.05	0.02			
			5502	0.20	1.80	13	0.25	0.23	0.23	0.20	0.18	0.16	0.12	0.10	0.10	0.08	0.08	0.05	0.02				
			TT43° 5503	0.30	1.68	12	0.25	0.23	0.20	0.18	0.18	0.14	0.13	0.12	0.10	0.08	0.05	0.02					
		9 TPI	TT43° 5501	0.10	2.14	14	0.25	0.23	0.23	0.20	0.20	0.18	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.02			
			5502	0.20	2.03	13	0.25	0.23	0.23	0.20	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.08	0.02				
			5503	0.30	1.91	12	0.30	0.25	0.23	0.23	0.20	0.18	0.15	0.12	0.10	0.08	0.05	0.02					
		8 TPI	TT43° 5501	0.10	2.43	15	0.27	0.25	0.23	0.23	0.20	0.20	0.18	0.16	0.16	0.14	0.12	0.12	0.10	0.05	0.02		
			5502	0.20	2.31	14	0.27	0.25	0.23	0.23	0.20	0.20	0.18	0.16	0.16	0.14	0.12	0.10	0.05	0.02			
			5503	0.30	2.19	13	0.30	0.27	0.25	0.23	0.20	0.18	0.18	0.15	0.14	0.12	0.10	0.05	0.02				
			5504	0.40	2.08	12	0.30	0.27	0.25	0.23	0.23	0.20	0.18	0.15	0.12	0.08	0.05	0.02					

Depth of Cut & Number of Passes
(Metric style)

TT type (60° • 55° Partial Profile) (2/2)

(D.O.C. shows value of radial D.O.C.)

	pitch mm·TPI	Description	Corner-R (rε)	Total D.O.C. (mm)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Whitworth (mm) Female Thread	24 TPI	TT32/43°℄ 5501	0.10	0.65	6	0.20	0.16	0.12	0.10	0.05	0.02											
	20 TPI	TT32/43°℄ 5501	0.10	0.81	7	0.20	0.18	0.16	0.12	0.08	0.05	0.02										
	18 TPI	TT32/43°℄ 5501	0.10	0.91	8	0.20	0.18	0.16	0.15	0.10	0.05	0.05	0.02									
	16 TPI	TT32/43°℄ 5501	0.10	1.04	9	0.20	0.18	0.15	0.14	0.12	0.10	0.08	0.05	0.02								
		5502	0.20	0.92	8	0.20	0.18	0.16	0.13	0.10	0.08	0.05	0.02									
	14 TPI	TT32/43°℄ 5501	0.10	1.20	10	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.05	0.02							
		5502	0.20	1.08	9	0.20	0.18	0.16	0.15	0.14	0.10	0.08	0.05	0.02								
	12 TPI	TT32/43°℄ 5501	0.10	1.42	10	0.23	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.05	0.02							
		5502	0.20	1.30	9	0.25	0.22	0.20	0.18	0.16	0.12	0.10	0.05	0.02								
	11 TPI	T32/43°℄ 5501	0.10	1.56	11	0.25	0.22	0.22	0.18	0.16	0.14	0.12	0.10	0.10	0.05	0.02						
		5502	0.20	1.44	10	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.05	0.02							
		T43°℄ 5503	0.30	1.33	9	0.25	0.22	0.20	0.18	0.16	0.14	0.10	0.06	0.02								
	10 TPI	TT32/43°℄ 5501	0.10	1.73	12	0.25	0.22	0.20	0.18	0.16	0.15	0.14	0.14	0.12	0.10	0.05	0.02					
		5502	0.20	1.61	11	0.25	0.22	0.20	0.18	0.17	0.16	0.14	0.12	0.10	0.05	0.02						
		T43°℄ 5503	0.30	1.50	10	0.25	0.22	0.22	0.20	0.18	0.14	0.12	0.10	0.05	0.02							
	9 TPI	TT43°℄ 5501	0.10	1.93	13	0.25	0.23	0.22	0.20	0.18	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.02				
		5502	0.20	1.82	12	0.25	0.23	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.10	0.05	0.02					
		5503	0.30	1.70	11	0.25	0.22	0.22	0.20	0.20	0.18	0.14	0.12	0.10	0.05	0.02						
	8 TPI	TT43°℄ 5501	0.10	2.19	15	0.27	0.25	0.23	0.21	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.08	0.06	0.05	0.02		
		5502	0.20	2.07	14	0.27	0.25	0.23	0.21	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.02			
		5503	0.30	1.96	13	0.30	0.25	0.23	0.22	0.20	0.18	0.15	0.12	0.10	0.08	0.06	0.05	0.02				
		5504	0.40	1.84	12	0.30	0.25	0.23	0.21	0.20	0.18	0.14	0.12	0.08	0.06	0.05	0.02					

TT type (60° Full Profile)

(D.O.C. shows value of radial D.O.C.)

	pitch mm·TPI	Description	Corner-R (mm)	Total D.O.C. (mm)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Metric (mm) Male Thread	1.00 mm	TT43E°℄ 100M	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05												
	1.25 mm	125M	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05											
	1.50 mm	150M	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05											
	2.00 mm	200M	1.27	1.35	10	0.26	0.21	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05							

TTX type (60° Partial Profile)

(D.O.C. shows value of radial D.O.C.)

	pitch mm·TPI	Description	Corner-R (rε)	Total D.O.C. (mm)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Metric (mm) Male Thread	0.50 mm	TTX32R 6000 6000S	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02											
		60005 60005S	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02												
	0.70 mm	TTX32R 6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02										
		60005	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02											
	0.75 mm	TTX32R 6000	0.00	0.57	8	0.10	0.10	0.10	0.08	0.08	0.05	0.04	0.02									
		60005	0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02										
	0.80 mm	TTX32R 6000	0.00	0.61	8	0.10	0.10	0.10	0.10	0.08	0.06	0.05	0.02									
		60005	0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02										
	1.00 mm	TTX32R 6000	0.00	0.76	8	0.15	0.13	0.12	0.12	0.10	0.08	0.04	0.02									
		60005	0.05	0.71	7	0.18	0.15	0.12	0.10	0.08	0.06	0.02										
		6001	0.10	0.66	6	0.20	0.15	0.12	0.10	0.07	0.02											
	1.25 mm	TTX32R 6001	0.10	0.85	7	0.25	0.20	0.13	0.10	0.10	0.05	0.02										
	1.50 mm		0.10	1.04	9	0.25	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.02								
	1.75 mm		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							
	2.00 mm		0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.08	0.05	0.02	0.02					
Parallel Pipe · Tapered Pipe (mm) Male Thread	28 TPI	TTX32R 5501	0.10	0.61	5	0.20	0.18	0.15	0.06	0.02												
	19 TPI	TTX32R 5501	0.10	0.95	8	0.20	0.18	0.15	0.13	0.12	0.10	0.05	0.02									
		55015	0.15	0.90	7	0.20	0.18	0.16	0.14	0.12	0.08	0.02										
	14 TPI	TTX32R 55015	0.15	1.28	10	0.25	0.20	0.18	0.16	0.12	0.12	0.10	0.08	0.05	0.02							
	11 TPI		0.15	1.67	12	0.25	0.22	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.06	0.02					
Whitworth (mm) Male Thread	24 TPI	TTX32R 5501	0.10	0.73	6	0.20	0.18	0.16	0.12	0.05	0.02											
	20 TPI	TTX32R 5501	0.10	0.90	7	0.20	0.18	0.16	0.14	0.12	0.08	0.02										
		TTX32R 55015	0.15	0.84	7	0.20	0.18	0.16	0.12	0.10	0.06	0.02										
	18 TPI	TTX32R 55015	0.15	0.95	8	0.20	0.18	0.15	0.14	0.12	0.10	0.04	0.02									
	16 TPI		0.15	1.10	9	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.06	0.02								
	14 TPI		0.15	1.28	10	0.25	0.20	0.18	0.16	0.12	0.12	0.10	0.08	0.05	0.02							
	12 TPI		0.15	1.52	11	0.25	0.20	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.05	0.02						
	11 TPI		0.15	1.67	12	0.25	0.22	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.06	0.02					

Caution)
1) Select the insert with suitable corner-R designated by pitch respectively.
2) Do not exceed 0.3mm for the 1st d.o.c.
3) Final d.o.c. for finishing shall be 0.02～0.05mm.
4) Prepare chamfering for C0.3～C0.5 to prevent the insert from cracking at the 1st pass.
5) Coolant is recommended.

• TTX type

Suitable for threading of smaller pitch size or more TPI than TT type.
Suitable for threading to the shoulder.

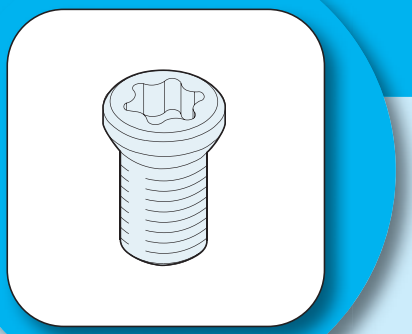
Insert \ Thread Type	Metric (mm)	Unified (TPI)	Parallel Pipe (TPI)	Whitworth (TPI)
TTX32R6000	0.5～1.0	56～32	-	-
60005	0.5～1.0	48～32	-	-
6001	1.0～2.0	28～14	-	-
TTX32R6000S	0.5	56～48	-	-
60005S	0.5	48	-	-
TTX32R5501	-	-	28～19	24～20
55015	-	-	19～11	20～14

TPGB type (60° Partial Profile)

(D.O.C. shows value of radial D.O.C.)

		pitch mm·TPI	Description	Corner-R (rε)	Total D.O.C. (mm)	No. of Pass	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Metric (mm)	Female Thread	0.75 mm	TPGB 1102005 1103005	0.05	0.44	5	0.15	0.12	0.10	0.05	0.02												
		0.80 mm	TPGB 1102005 1103005	0.05	0.47	5	0.15	0.14	0.10	0.06	0.02												
		1.00 mm	TPGB 1102005 1103005	0.05	0.60	6	0.18	0.14	0.12	0.10	0.04	0.02											
		1.25 mm	TPGB 1102005 1103005	0.05	0.76	7	0.18	0.16	0.14	0.12	0.10	0.04	0.02										
		1.50 mm	TPGB 1102005 1103005	0.05	0.92	8	0.20	0.18	0.16	0.14	0.10	0.08	0.04	0.02									
			110201 110301	0.10	0.87	8	0.20	0.18	0.16	0.14	0.08	0.05	0.04	0.02									
		1.75 mm	TPGB 1102005 1103005	0.05	1.09	9	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.04	0.02								
			110301	0.10	1.04	9	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.05	0.02								
		2.00 mm	TPGB 1102005 1103005	0.05	1.25	11	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.10	0.06	0.04	0.02						
			110301	0.10	1.20	11	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.08	0.05	0.03	0.02						
		2.50 mm	TPGB 1102005 1103005	0.05	1.57	13	0.23	0.20	0.18	0.18	0.14	0.13	0.12	0.10	0.08	0.07	0.07	0.05	0.02				
			110301	0.10	1.52	13	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02				
		3.00 mm	TPGB 1102005 1103005	0.05	1.90	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.12	0.10	0.08	0.08	0.07	0.05	0.02		
			110301	0.10	1.85	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.05	0.02		
			110302	0.20	1.75	14	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.08	0.07	0.05	0.05	0.02			
		3.50 mm	TPGB 1102005 1103005	0.05	2.22	16	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.05	0.02	
			110301	0.10	2.17	16	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.10	0.08	0.07	0.05	0.02	
			110302	0.20	2.07	15	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.08	0.07	0.05	0.02		

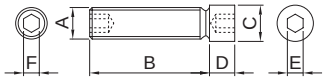
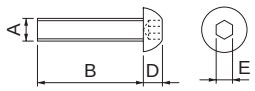
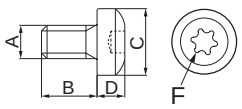
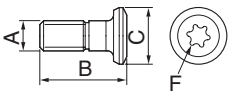
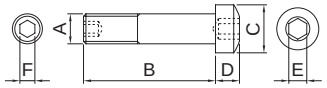
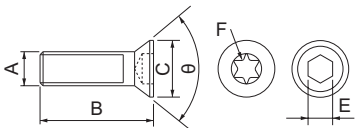
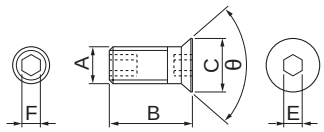
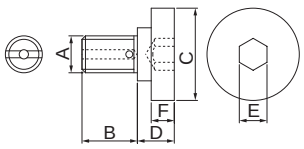
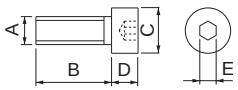
Spare Parts

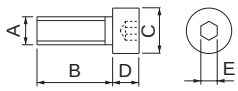
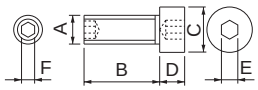
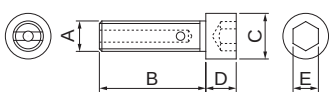


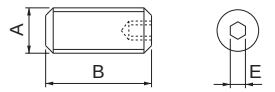
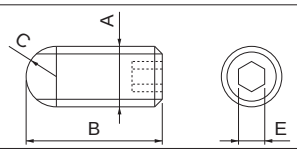
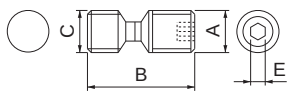
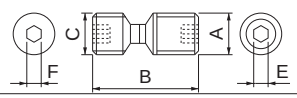
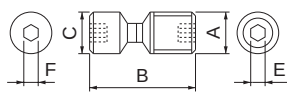
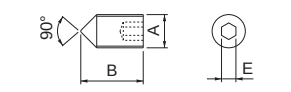
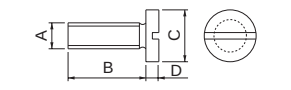
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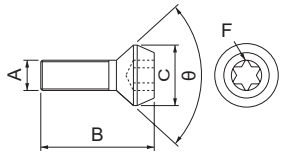
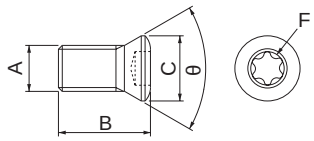
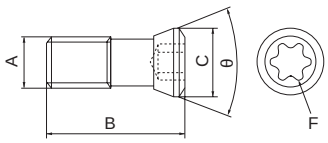
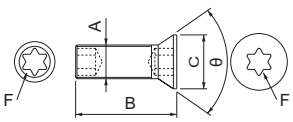
P1~P18

Screws	P2~P6
Pins	P7
Shims	P8~P12
Cartridges	P12
Clamp Sets	P13~P14
Clamps	P15
Chipbreakers	P16
Wrenches	P17~P18
Wrenches / Springs / Nuts / Punches / Other	P18

Shape	Description		Dimension (mm)						Angle (°)		Torque (N • m)	Remarks
			A	B	C	D	E	F	α	θ		
	AJ	-6X38	M6X1.0	38.0	6.0	10.0	3.0	3.0	-	-	-	
		-8X44-9.5	M8X1.25	44.0	9.5	6.0	4.0	4.0	-	-		
		-10X46	M10X1.5	46.0	11.5	8.0	5.0	5.0	-	-		
	BH	3X6	M3X0.5	6.0	-	1.7	2.0	-	-	-	-	
		3X12	M3X0.5	12.0	-	1.7	2.0	-	-	-		
		6X25	M6X1.0	25.0	-	3.3	4.0	-	-	-		
		8X30	M8X1.25	30.0	-	4.4	5.0	-	-	-		
	BH	6X10TR	M6X1.0	10.0	12.0	5.0	-	T25	-	-	6.5	
	CP	8X15TL	M8X1.25	15.0	15.0	-	-	T25	-	-	6.0	L…shows Left-hand Thread
		8X23TL		23.0								
	CS	-2D	M4X0.7	21.5	6.4	3.5	2.5	2.0	-	-	-	
		-3D	M5X0.8	22.0	8.0	4.0	3.0	2.5	-	-		
		-5D	M5X0.8	28.0	8.0	4.0	3.0	2.5	-	-		
	GS	-50	M5X0.8	13.0	7.5	-	3.0	-	-	82°	-	
		-50S	M5X0.8	9.0	7.5	-	3.0	-	-	82°		
	GS	-4090T₹W	M4X0.7	9.0	5.8	-	2.0	2.0	-	82°	-	R…shows Right-hand Thread L…shows Left-hand Thread
	HF	20X53H	M20X2.5	35.0	43.0	18.0	14.0	14.0	-	-	-	With Coolant Hole
		24X60H	M24X3.0	40.5	65.0	19.5	17.0					
	HH	3X6	M3X0.5	6.0	5.5	3.0	2.5	-	-	-	-	
		3X12		12.0								
	HH	4X16	M4X0.7	16.0	7.0	4.0	3.0	-	-	-		
	HH	5X15	M5X0.8	15.0	8.5	5.0	4.0	-	-	-	-	
		5X16		16.0								
		5X20		20.0								
		5X25		25.0								
		5X30		30.0								
	HH	6X12	M6X1.0	12.0	10.0	6.0	5.0	-	-	-		
		6X20		20.0								
		6X25		25.0								
		6X30		30.0								

Shape	Description		Dimension (mm)						Angle (°)		Torque (N • m)	Remarks
			A	B	C	D	E	F	α	θ		
	HH	8X25	M8X1.25	25.0	13.0	8.0	6.0	-	-	-	-	
		8X35		35.0								
		8X40		40.0								
		8X50		50.0								
		8X55		55.0								
		8X65		65.0								
		8X70		70.0								
		8X80		80.0								
		8X85		85.0								
		8X100		100.0								
		8X110		110.0								
	HH	10X25	M10X1.5	25.0	16.0	10.0	8.0	-	-	-		
		10X30		30.0								
		10X30M		30.0								
		10X30S		30.0		6.0	7.0					
		10X35		35.0		10.0	8.0					
		10X40		40.0								
	HH	12X25	M12X1.75	25.0	18.0	12.0	10.0	-	-	-		
		12X30		30.0								
		12X35		35.0								
		12X35M		35.0								
		12X40		40.0								
		12X55		55.0								
		12X65		65.0								
		12X80		80.0								
		12X85		85.0								
		12X100		100.0								
		12X110		110.0								
		12X120		120.0								
		12X130		130.0								
		12X140		140.0								
		12X150		150.0								
	HH	16X35	M16X2.0	35.0	24.0	16.0	14.0	-	-	-		
		16X40		40.0								
		16X45		45.0								
		16X65		65.0								
		16X90		90.0								
		16X110		110.0								
		16X130		130.0								
	HH	20X40	M20X2.5	40.0	30.0	20.0	17.0	-	-	-		
		20X55		55.0								
		20X75		75.0								
		20X90		90.0								
		20X110		110.0								
		20X120		120.0								
		20X140		140.0								
		20X150		150.0								
		20X170		170.0								
	HH	24X40	M24X3.0	40.0	36.0	24.0	19.0	-	-	-		
		24X60		60.0								
		24X75		75.0								
		24X90		90.0								
		24X110		110.0								
		24X120		120.0								
		24X140		140.0								
		24X150		150.0								
		24X170		170.0								
	HH	4X12	M4X0.7	12.0	7.0	4.0	3.0	2.0	-	-	-	
	HH	8X25H	M8X1.25	25.0	13.0	8.0	5.0	-	-	-	-	With Coolant Hole
		10X30H	M10X1.5	30.0	16.0	10.0	6.0					
		12X35H	M12X1.75	35.0	18.0	12.0	8.0					
		16X52H	M16X2.0	36.0	24.0	16.0	12.0					

Shape	Description		Dimension (mm) A	B	C	D	E	F	Angle (°) α	θ	Torque (N • m)	Remarks
	HS	3X4P	M3X0.5	3.9	-	-	1.5	-	-	-	-	HS4X4P and HS6X4P have a flat edge
		3X4		4.0								
		3X8		8.0								
		3X12		12.0								
		3X16		16.0								
	HS	4X4P	M4X0.7	3.9	-	-	2.0	-	-	-		
		4X4		4.0								
		5X5	M5X0.8	5.0			2.5					
	HS	6X4P	M6X0.75	3.9	-	-	3.0	-	-	-		
		6X6	M6X1.0	6.0								
		6X14		14.0								
		6X22		22.0								
	HS	8X10	M8X1.25	10.0	-	-	4.0	-	-	-		
		8X12		12.0								
	HS	10X10	M10X1.5	10.0	-	-	5.0	-	-	-		Clamp screw equivalent to JIS B-1177
		10X16		16.0								
	HS	12X12	M12X1.75	12.0	-	-	6.0	-	-	-		
		12X16		16.0								
		12X18		18.0								
		12X20		20.0								
		12X25		25.0								
		12X30		30.0								
		12X35		35.0								
	HS	16X12	M16X2.0	12.0	-	-	8.0	-	-	-		
		16X18		18.0								
		16X20		20.0								
	HSB	4X8R/L	M4X0.7	8.0	R2.0	-	2.0	-	-	-	-	R…shows Right-hand ThreadL…shows Left-hand Thread
	LS	-03	M5X0.8	10.0	M5X0.8	-	2.0	-	-	-	2.0	
		-03S		12.2			2.5				3.0	
	LS	-03N		9.7	M5X0.8	-	2.0	-	-	-	2.0	N: Silver coated
		-03SN		12.0			2.5				3.0	
	LS	-05	M5X0.8	15.5	M5X0.8	-	2.0	2.0	-	-	2.0	
	LS	-1	M6X1.0	17.0	6.0	-	2.5	2.5	-	-	3.0	N: Silver coated
		-1N										
		-1S		14.2								
		-1SN										
		-1T		21.0								
	LS	-2	M8X1.0	20.0	8.0	-	3.0	3.0	-	-	4.0	
		-2N										
		-3		22.0								
		-4		24.0								
		-4N										
	LS	-1P	M6X1	16.5	6.0	-	10IP	10IP	-	-	1.4	○○IP shows Torx Plus
		-2P	M8X1	18.2	8.0		15IP	15IP			3.5	
		-3P		21.8								
	LS	-11	M6X1.0	9.5	-	-	3.0	-	-	-	-	
		-15		12.5								
	M	3X8	M3X0.5	8.0	5.5	2.0	-	-	-	-	-	Flat fillister head screw equivalent to JIS B-1101
		3X12		12.0								
		4X10	M4X0.7	10.0	7.0	2.6						

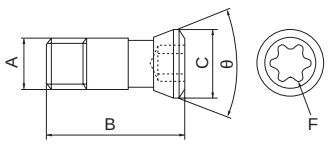
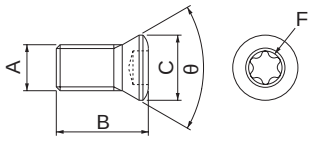
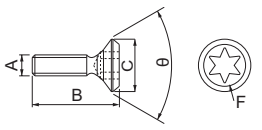
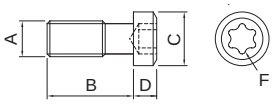
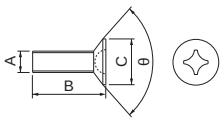
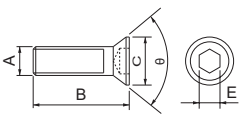
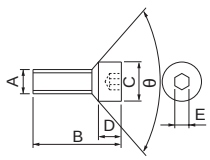
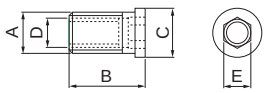
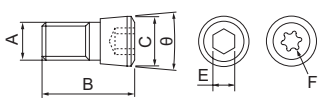
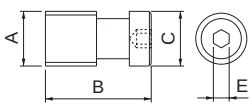
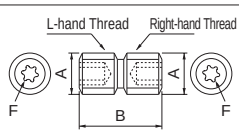
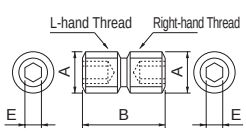
Shape	Description	Dimension (mm)						Angle (°)		Torque (N • m)	Remarks
		A	B	C	D	E	F	α	θ		
	SB -1TR	M2X0.4	5.3	3.8	-	-	T6	-	82°	0.5	R…shows Right-hand Thread
	-2TR	M2.5X0.45	6.2	4.5			T8			1.2	
	-3TR	M3X0.5	7.2	4.8			T10			1.4	
	-3STR		6.4	5.2							
	-3.5TR	M3.5X0.6	9.3	5.6			T15			3.5	
	-4TR	M4X0.7	7.7	5.8							
	-5TR	M5X0.8	20.0	8.7			T20		90°	4.5	
	-2290TR	M2.2X0.45	9.2	2.8			T6		60°	0.5	
	-25100TR	M2.5X0.45	10.0	3.5			T7			0.8	
	-40115TR	M4X0.7	11.5	5.5			T15			3.5	
	-5070TR	M5X0.8	7.0	6.8			T20			4.5	
	-5090TR		9.0								
	-50120TR		12.0								
	SB -1635TR	M1.6X0.35	3.3	2.6	-	-	T6	-	60°	0.5	R…shows Right-hand Thread○○IP shows Torx Plus
	SB -1STR	M2X0.4	5.0	3.1							
	-2035TR		3.7	3.0							
	-2035TRG		3.5	2.7							
	-2040TR		3.8	3.0							
	-2040TRG		4.0	3.0							
	-2042TRG		4.1	2.7							
	-2045TR		4.3	2.7							
	-2045TRN		4.3	2.8					37°		
	-2050TR		4.8	3.0					60°		
	-2060TR		5.8	3.5			T8			1.2	
	-2080TR		8.3	2.8			T6			0.5	
	SB -2250TR	M2.2X0.45	5.1	3.1	-	-	T7	-	60°	0.8	
	-2255TR		5.5	3.5							
	-2260TR		5.8	3.1							
	SB -2545TR	M2.5X0.45	4.6	3.5	-	-	T8	-	60°	1.2	
	-2555TRG		5.4								
	-2560TR		5.7								
	-2570TR		6.8								
	SB -3060TR	M3X0.5	5.3	4.2	-	-	T10	-	60°	1.4	
	-3060TRG		5.9								
	-3070TRG		7.0								
	-3080TR		8.0								
	SB -3580TR	M3.5X0.6	8.0	5.3	-	-	T15	-	60°	3.5	
	-3590TRP		9.0				15IP				
SB-40125TRN	-3592TR		9.2	5.1			T10			1.4	
	SB -4050TRN	M4X0.5	4.6	5.1	-	-	T10	-	57°	1.4	
	-4060TR	M4X0.7	5.9	5.5			T15		60°	3.5	
	-4065TR		6.7								
	-4070TRG		7.0								
	-4070TRN		6.9	5.4							
	-4070TRS		6.7	5.5			T10			1.4	
	-4082TPR		8.2	5.5			15IP			3.5	
	-4085TR		8.5	5.5			T15				
	-40125TRN		12.5	5.2					50°		
	-40140TR		14.0	5.5					60°		
	-40140TRN		14.0	6.7					75°		
	SB -45130TR	M4.5X0.75	13.0	6.6	-	-	20IP	-	55°	4.5	
	SB -5085TR	M5X0.8	8.5	6.8	-	-	T20	-	50°	4.5	
	-50120TRS		12.0	7.2			15IP		60°	3.5	
	-50140TR		14.0	7.3			T15		50°	3.5	
	SB -60120TR	M6X1.0	12.0	8.5			T25		60°	6.0	
	SB -4070TRW	M4X0.7	6.7	5.5	-	-	T8	-	60°	1.2	R…shows Right-hand Thread
	-4590TRWN	M4.5X0.75	9.3	5.6			T10		57°	1.4	

Reference

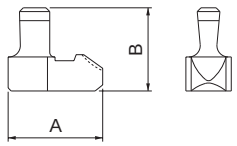
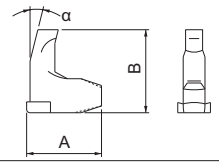
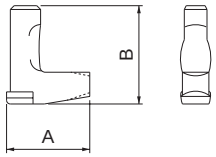
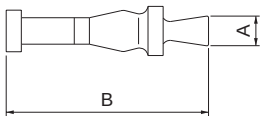
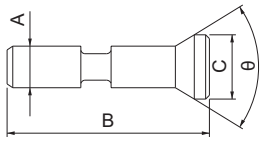
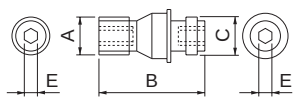
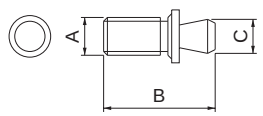
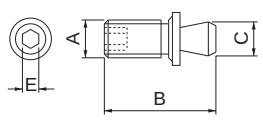
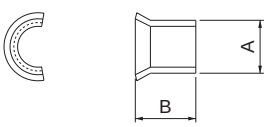
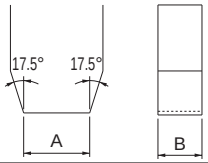
Torx and Torx Plus have different cross-section.

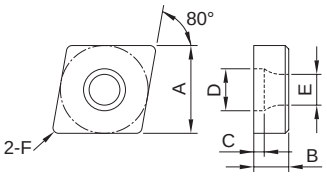
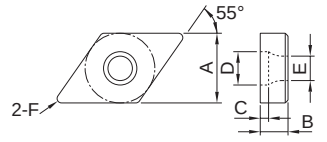
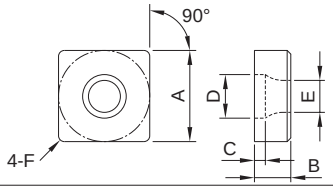
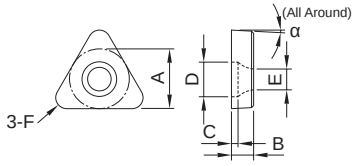
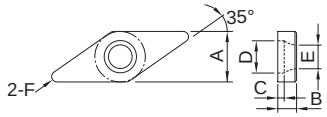
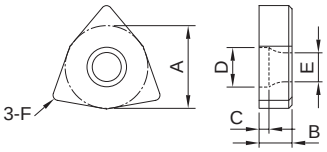
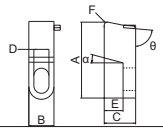
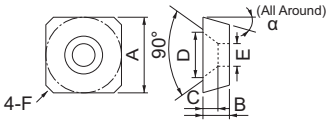
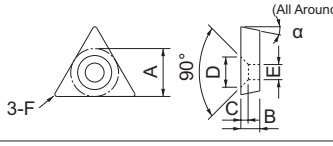
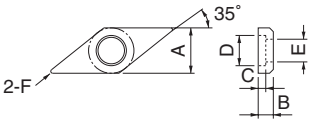


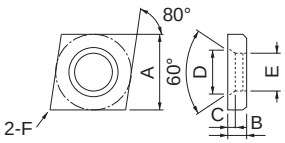
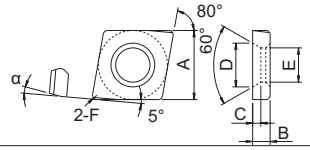
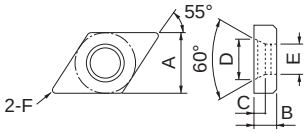
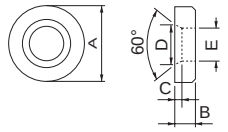
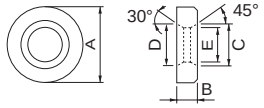
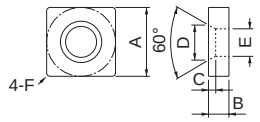
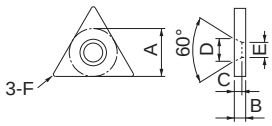
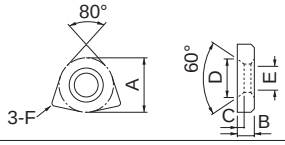
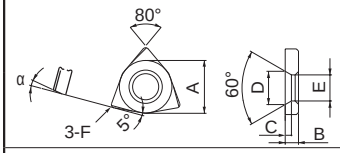
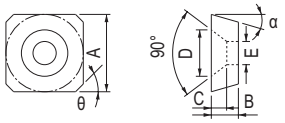
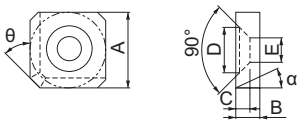
Torx Torx Plus

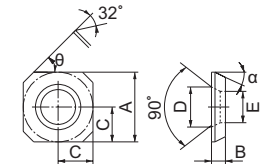
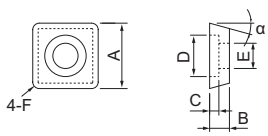
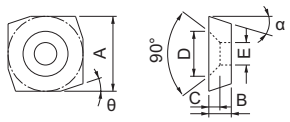
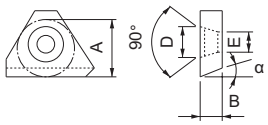
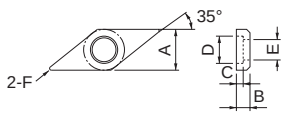
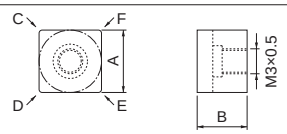
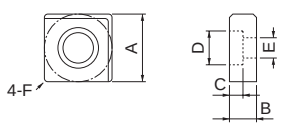
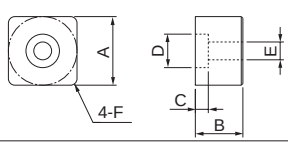
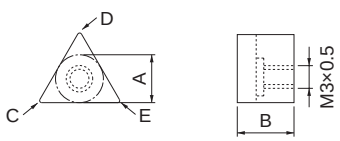
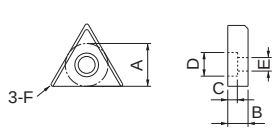
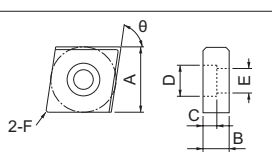
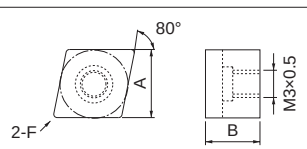
Shape	Description		Dimension (mm) A	B	C	D	E	F	Angle (°) α	θ	Torque (N • m)	Remarks
	SC	-30067	M3X0.35	6.7	4.4	-	-	T8	-	60°	1.2	
		-35085	M3.5X0.35	8.5	5.7			T10			1.4	
		-40100	M4X0.5	10.0	6.0			T15			3.5	
		-50130	M5X0.5	13.0	6.6			T20		40°	4.5	
		-60160	M6X0.75	16.0	8.0			T25			6.0	
		-60210		21.0	9.6			T30			8.0	
	SE	-3070TRP	M3X0.5	7.0	4.3	-	-	9IP	-	43°	1.2	○○IP shows Torx Plus
		-40050TR	M4X0.7	5.0	5.0			T15			3.5	
		-40055TR		5.5								
		-40068TR		6.8								
		-40080TR		8.0								
		-40090TR		9.0								
		-40100TR		10.0								
	SE	-40120TR	M4X0.7	12.0	5.6	-	-	T15	-	60°	3.5	
		-50125TR	M5X0.8	12.5	6.4			T20			4.5	
	SH	-50150TR	M5X0.8	15.1	7.4	3.2	-	T20	-	-	4.5	
	SP	3X4	M3X0.5	4.0	4.0	-	-	-	-	90°	-	Below flat head screw additionally processed item
		3X6		6.0	6.0							Cross recessed flat head screw equivalent to JIS…B-1111
		3X8		8.0								
		3X10		10.0								
	SP	4X9	M4X0.7	9.0	5.6	-	2.0	-	-	90°	-	
	SP	8X35	M8X1.25	35.0	11.0	4.4	5.0	-	-	90°	-	
	SPW	-6045	M6X0.75	9.0	7.5	M4.5X0.75	4.5	-	-	-	-	A shows External, D shows Internal External and Internal threads are both Right-hand threads
		-7050	M7X0.75	9.0	8.8	M5X0.8	5.0	-	-	-		
	SS	-4N	M5.5X0.5	8.5	6.6	M4X0.7	4.0	-	-	-		
	SV	-60136R	M6X1.0	13.6	6.3	-	4.0	-	-	6°	-	Hexagon socket
		-60136TR					-	T20	-		4.5	Torx
	TH	8X15	M8X1.25	20.0	8.5	-	4.0	-	-	-	-	
	W	6X17	M6X1.0	17.0	-	-	-	T20	-	-	4.5	
		8X16	M8X1.0	16.0				T25			6.0	
	W	6X18	M6X1.0	17.5	-	-	3.0	-	-	-	-	
		6X20	M6X1.0	20.5								
		8X18	M8X1.25	18.0			4.0					
		8X21	M8X1.0	21.0								

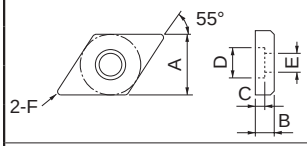
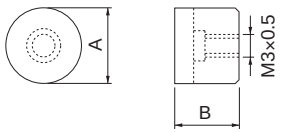
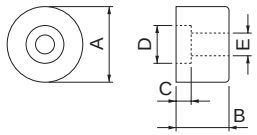
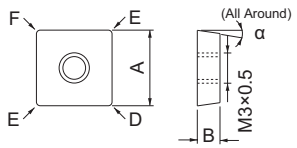
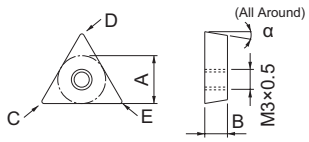
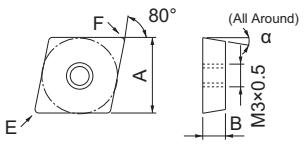
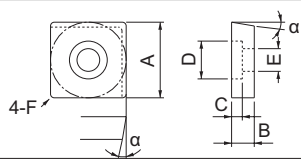
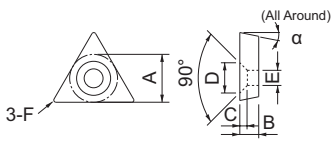
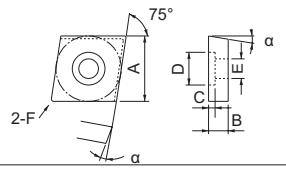
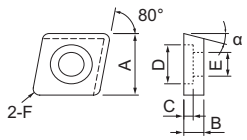
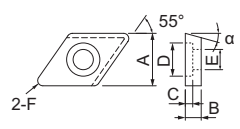
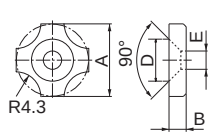
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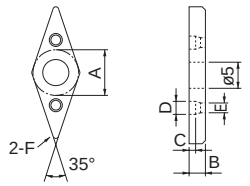
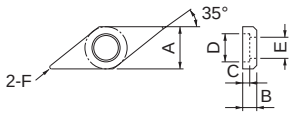
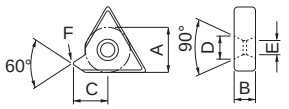
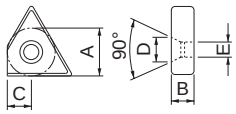
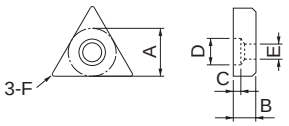
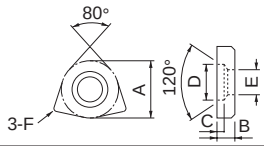
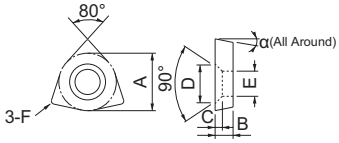
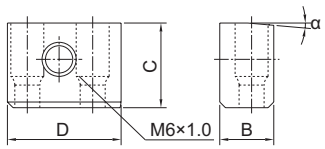
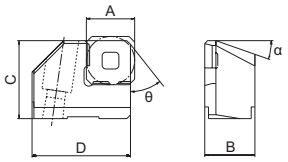
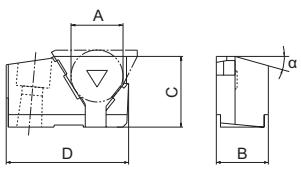
Shape	Description		Dimension (mm) A	B	C	D	E	F	Angle (°) α	θ	Remarks
	LL	-03	7.8	6.3	-	-	-	-	-	-	
		-03N	7.8	6.3							
		-03S	11.1	8.9							
		-03SN	11.1	8.9							
		-03T	8.3	8.9							
		-03TN	8.3	8.9							
	LL	-05C	10.7	11.7	-	-	-	-	12°	-	
		-1C	13.0	13.3					14°		
		-1CN	13.0	13.3					14°		
		-2C	18.8	17.6					14°		
	LL	-1	10.3	12.0	-	-	-	-	-	-	
		-1K	10.0	12.0							
		-1N	10.3	12.0							
		-1D	12.3	12.0							
		-1DN	12.3	12.0							
		-2	13.5	13.0							
		-2K	13.3	13.2							
		-2N	13.5	13.0							
		-3	16.4	13.0							
		-3K	16.0	14.8							
		-3N	16.4	13.0							
		-4	16.4	14.7							
		-5	17.1	16.7							
		-5N	17.1	16.7							
	LP	-2S	3.65	20.0	-	-	-	-	-	-	
		-6S	3.65	25.0	-	-	-	-	-	-	
	LPA	-11	2.8	11.0	4.2	-	-	-	-	60°	
		-13		13.0							
		-17		17.0							
	LPF	-11	2.5	11.0	3.5	-	-	-	-	60°	
		-1113		13.0							
		-1117		17.0							
		-13	3.8	13.0	5.5						
		-17		17.0							
	TS	-3S	M5X0.8	15.0	3.60	-	2.0	-	-	-	
	WP	-1S	M5X0.8	17.5	3.65	-	-	-	-	-	
		5X15		15.0	5.0						
	WP	5X11	M5X0.8	10.5	5.0	-	2.0	-	-	-	
	LSP	-1	5.0	5.3	-	-	-	-	-	-	
		-2	6.5	5.6							
		-3	8.25	7.9							
	LSP	-2K	5.1	5.2							
		-3K	6.7	5.7							
	P	-03	2.8	1.95	-	-	-	-	-	-	
		-03S	3.5	1.95	-	-	-	-	-	-	

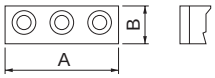
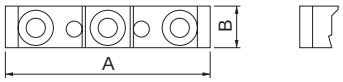
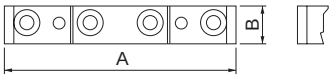
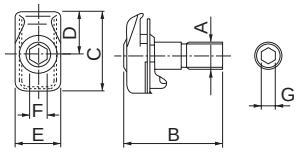
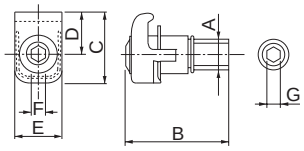
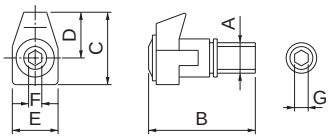
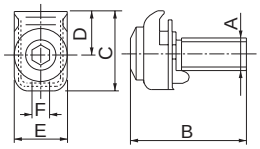
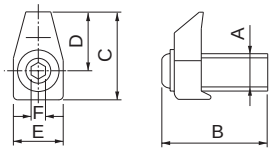
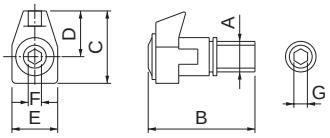
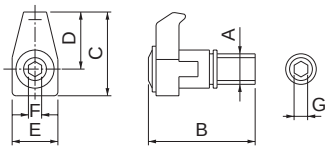
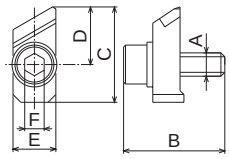
Shape	Description	Dimension (mm)						Angle (°)		Remarks
		A	B	C	D	E	F	α	θ	
	**DC -44**	12.55	5.0	1.5	6.0	4.4	R0.8	-	-	Shim Screw: SB-4085TR
	**DD -43**	12.55	3.4	1.3	6.0	4.4	R0.8	-	-	Shim Screw: SB-4085TR
	-44		5.0	1.5						
	**DS -44**	12.55	5.0	1.5	6.0	4.4	R0.8	-	-	Shim Screw: SB-4085TR
	**DT -32**	8.63	3.2	0.95	5.0	3.4	R1.6	3°	-	Shim Screw: SB-3080TR
	**DV -33**	9.40	3.5	1.2	6.0	4.4	R1.0	-	-	Shim Screw: SB-4085TR
	**DW -44**	12.65	5.0	1.5	6.0	4.4	R0.8	-	-	Shim Screw: SB-4085TR
	**556 C℄**	34.0	10.0	12.7	5.6	7.5	1.6	0°	55°	R…shows Right-Hand, L…shows Left-hand Shim Screw: HH5X16
	**KPS -42**	11.5	3.2	2.0	7.2	3.2	C1.0	7°	-	Shim Screw: SP3X8
	**KPT -32**	8.0	3.2	1.9	7.0	3.2	R0.4	11°	-	Shim Screw: SP3X8 : SP3X10
	-42	10.5	3.18	1.9	7.0	3.2	R0.8	11°	-	
	**KVN -32**	9.525	3.175	2.1	7.6	5.5	R0.8	-	-	Lock Pin: LP-6S : LP-2S

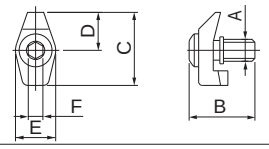
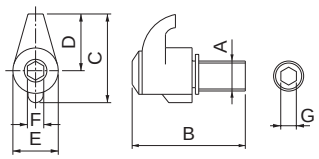
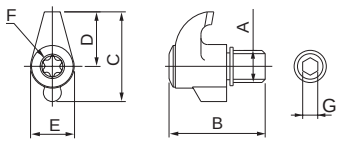
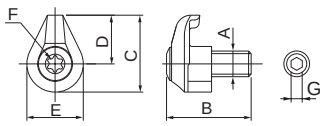
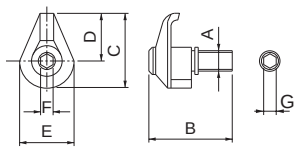
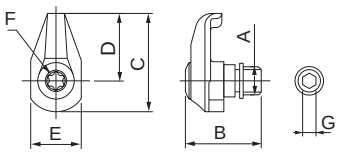
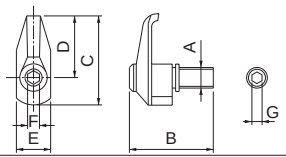
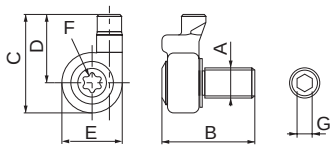
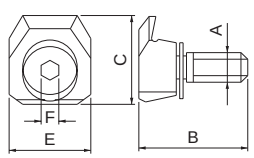
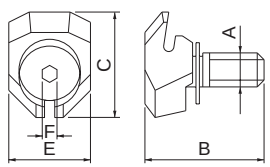
Shape Handed Spare Parts show Right-hand	Description		Dimension (mm)						Angle (°)		Remarks
			A	B	C	D	E	F	α	θ	
	LC	-32	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim Pin: LSP-1
		-32N	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim Pin: LSP-1
		-4K	11.7	3.2	1.4	8.1	6.73	R0.8	-	-	Shim Pin: LSP-3K
		-42	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin: LSP-2
		-42N	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin: LSP-2
		-53	15.9	4.8	1.7	10.0	8.0	R1.2	-	-	Shim Pin: LSP-3
		-53N	15.9	4.8	1.7	10.0	8.0	R1.2	-	-	Shim Pin: LSP-3
	LC	-42R/L	12.65	3.2	1.5	8.01	6.28	R0.8	10°	-	R...shows Right-hand, L...shows Left-hand Shim Pin: LSP-2
		-42NR/L	12.65	3.2	1.5	8.01	6.28	R0.8	10°	-	R...shows Right-hand, L...shows Left-hand Shim Pin: LSP-2
	LD	-32	9.47	2.4	1.3	6.18	4.68	R0.4	-	-	Shim Pin: LSP-1
		-32N	9.47	2.4	1.3	6.18	4.68	R0.4	-	-	
		-4K	11.7	3.2	1.4	8.1	6.73	R0.8	-	-	Shim Pin: LSP-3K
		-4K43		4.8	3.0	8.3	6.60	R1.2			
		-42	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin: LSP-2
		-42-20						R2.0			
		-43	12.65	4.8	3.1	8.5	6.28	R0.8	-	-	
		-43-20						R2.0			
	LR	-80	9.47	3.2	1.3	6.25	4.75	-	-	-	Shim Pin: LSP-1
		-81	12.65	3.2	1.5	8.01	6.28	-	-	-	Shim Pin: LSP-2
	LR	-10C	8.5	3.18	6.3	6.3	4.7	-	-	-	Shim Pin: LSP-1
		-12C	10.0	3.18	6.3	6.3	4.7	-	-	-	
		-16C	16.0	3.18	7.9	8.01	6.28	-	-	-	Shim Pin: LSP-2
	LS	-32	9.47	3.2	1.3	6.18	4.68	R0.8	-	-	Shim Pin: LSP-1
		-42	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin: LSP-2
	LT	-3K	8.53	2.7	1.0	6.1	5.13	R0.8	-	-	Shim Pin: LSP-2K
		-32	9.47	2.7	1.3	6.18	4.68	R0.8	-	-	Shim Pin: LSP-1
		-32N	9.47	2.7	1.3	6.18	4.68	R0.8	-	-	Shim Pin: LSP-1
		-32N-20						R2.0			
		-42	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin: LSP-2
		-42N	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	
		-42N-20						R2.0			
	LW	-32	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim Pin: LSP-1
		-32N	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	
		-42	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin: LSP-2
		-42N	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	
	LW	-42R/L	12.65	3.2	1.5	8.01	6.28	R0.8	10°	-	R...shows Right-hand, L...shows Left-hand Shim Pin: LSP-2
		-42NR/L	12.65	3.2	1.5	8.01	6.28	R0.8	10°	-	R...shows Right-hand, L...shows Left-hand Shim Pin: LSP-2
	MSD	-42	10.7	3.18	1.85	7.0	3.3	-	20°	45°	Shim Screw: SP3X8
	MSE	-4245S	10.3	3.18	2.0	6.0	5.0	-	20°	45°	Shim Screw: SP4X9
	MSE	-4215	10.53	3.18	1.5	6.4	3.4	-	25°	15°	Shim Screw: SP3X8
		-4245	10.53	3.18	1.5	6.4	3.4	-	25°	45°	Shim Screw: SP3X8

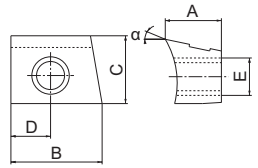
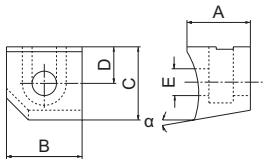
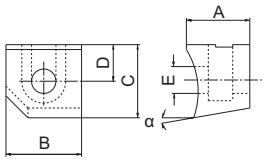
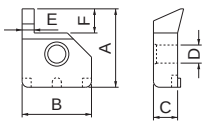
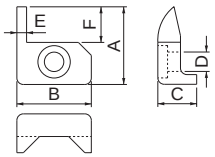
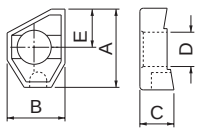
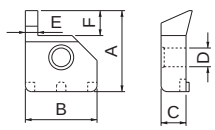
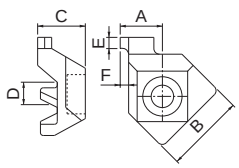
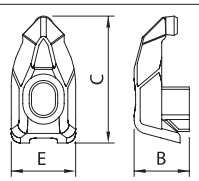
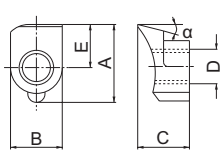
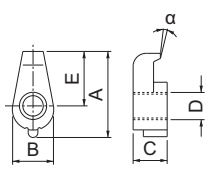
Shape	Description	Dimension (mm)						Angle (°)		Remarks
		A	B	C	D	E	F	α	θ	
	**MSO -4T245**	10.0	2.0	4.7	6.4	4.8	-	27 °	45 °	Shim Screw: SP3X6
	**MSO -5200**	12.6	3.18	1.8	8.0	6.5	R0.8	15 °	-	Shim Screw: SPW-6045
	**MSP -42**	11.3	3.18	1.85	7.0	3.3	-	11 °	15 °	Shim Screw: SP3X8
	**MTE -42**	9.8	3.18	-	6.4	3.4	-	25 °	-	Shim Screw: SP3X8
	**MVN -32**	9.525	3.2	2.1	7.4	6.5	R0.8	-	-	Lock Pin: TS-3S
	**SP -129**	9.52	9.52	R0.8	R1.6	R1.2	R1.6	-	-	Shim Screw: HH3X12
	**SP -141**	12.7	4.0	2.4	6.2	3.3	R1.2	-	-	Shim Screw: M3X8
	-143	12.7	7.2	2.4	6.2	3.3	R1.2	-	-	Shim Screw: M3X12
	-162	15.8	6.0	3.4	8.0	4.4	R1.5	-	-	Shim Screw: M4X10
	**SP -148**	12.7	8.8	2.4	6.2	3.3	R1.2	-	-	Shim Screw: BH3X12
	**SP -219**	6.35	9.52	R0.8	R1.2	R1.6	-	-	-	Shim Screw: HH3X12
	**SP -221**	9.52	4.0	2.5	6.5	3.5	R1.2	-	-	Shim Screw: M3X8
	-223	9.52	7.2	2.5	6.5	3.5	R1.2	-	-	Shim Screw: M3X12
	**SP -342**	12.7	6.0	2.5	6.5	3.5	R1.2	-	75 °	Shim Screw: M3X8
	-441	12.7	4.0	2.5	6.5	3.5	R0.8	-	80 °	Shim Screw: M3X8
	-443	12.7	7.2	2.5	6.5	3.5	R0.8	-	80 °	Shim Screw: M3X12
	-454	15.7	8.0	3.4	8.0	4.5	R1.6	-	80 °	Shim Screw: M4X10
	**SP -429**	9.52	9.52	-	-	-	R1.2	-	-	Shim Screw: HH3X12

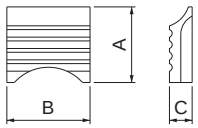
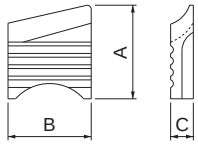
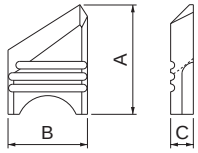
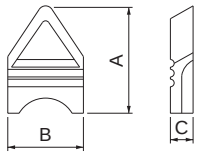
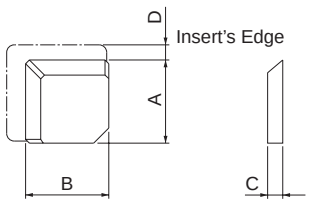
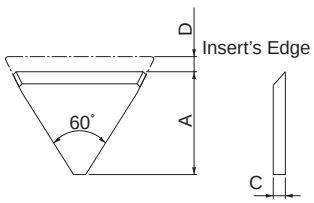
Shape	Description	Dimension (mm)						Angle (°)		Remarks
		A	B	C	D	E	F	α	θ	
	SP -521	10.0	4.0	2.5	6.0	3.4	R1.2	-	-	Shim Screw: M3X8
	-523		7.2							Shim Screw: M3X12
	-541	12.7	4.0	2.5	6.0	3.4	R1.2	-	-	Shim Screw: M3X8
	-543		7.2							Shim Screw: M3X12
	SP -826	9.5	7.9	-	-	-	-	-	-	Shim Screw: HH3X12
	-829	9.52	9.52	-	-	-	-	-	-	
	SP -841	12.7	4.0	2.4	6.2	3.3	-	-	-	Shim Screw: M3X8
	-843	12.7	7.2	2.4	6.2	3.3	-	-	-	Shim Screw: M3X12
	-849	12.7	8.8	2.4	6.2	3.3	-	-	-	Shim Screw: BH3X12
	-861	15.8	6.0	3.4	8.0	4.4	-	-	-	Shim Screw: M4X10
	SP -130A	9.525	3.2	-	R0.4	R0.8	R1.2	8°	-	Shim Screw: BH3X12
	SP -210A	6.35	3.2	R0.4	R0.8	R1.2	-	8°	-	Shim Screw: BH3X6
	SP -420A	9.525	3.22	-	-	R0.8	R1.2	8°	-	Shim Screw: BH3X6
	SP -141P	12.6	4.0	2.5	6.5	3.5	R1.2	7°	-	Shim Screw: M3X8
	-143P	12.7	7.2	2.4	6.2	3.3	R1.2	7°	-	Shim Screw: M3X12
	SP -230P	8.3	3.2	2.0	7.2	3.2	R0.5	7°	-	Shim Screw: SP3X10
	SP -341P	12.6	4.0	2.5	6.5	3.5	R1.2	7°	-	Shim Screw: M3X8
	SP -441P	12.7	4.0	2.5	6.3	3.5	R1.2	11°	-	Shim Screw: M3X8
	-443P		7.2							Shim Screw: M3X12
	SP -521P	10.0	4.0	2.5	6.0	3.5	R1.2	11°	-	Shim Screw: M3X8
	-523P		7.2							Shim Screw: M3X12
	SP -RC	12.6	3.0	-	7.35	3.35	-	-	-	Shim Screw: SP3X8

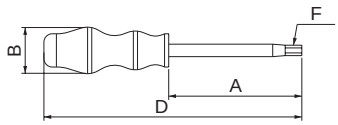
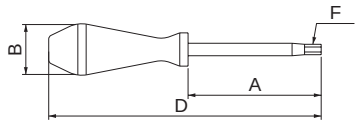
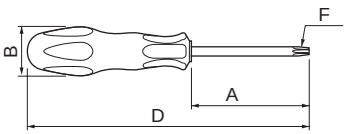
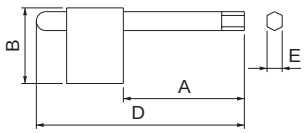
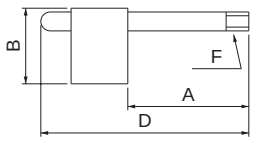
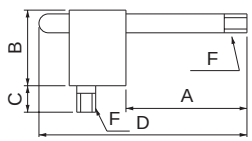
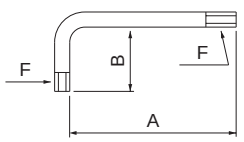
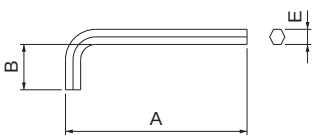
Shape Handed Spare Parts show Right-hand	Description	Dimension (mm)						Angle (°)		Remarks
		A	B	C	D	E	F	α	θ	
	**SVN -32**	8.0	3.18	1.5	3.1	2.3	R0.4	-	-	Shim Screw: SB-2050TR
	**SVN -32N**	8.2	3.18	1.5	7.0	5.9	R0.6	-	-	Shim Screw: SS-4N
	**TN -32**	9.52	3.2	6.5	7.0	4.2	R0.4	-	-	Shim Screw: SP3X8
	-43	12.70	3.2	8.1	7.0	4.2	R0.5	-	-	
	**TNW -32**	9.52	3.2	4.8	7.0	4.2	-	-	-	Shim Screw: SP3X8
	**WTN -33**	9.52	4.76	2.5	7.0	5.3	R0.8	-	-	Shim Pin: WP-1S
	-33-20						R2.0			
	**WWN -42**	12.7	3.0	1.4	7.0	5.3	R1.2	-	-	Shim Pin: WP5X15
	**WWP -42**	12.7	3.0	1.5	8.3	5.3	R1.2	11°	-	Shim Pin: WP5X11
	-42-16						R1.6			
	**MAP -2506**	-	9.5	14.9	20	-	-	5°	-	Clamp Screw: SB-40140TR
	**LSD -445R**	12.7	13.0	20.0	26.5	-	-	20°	45°	Dimension A shows I.D. of Insert
	LSE -445R	12.7	13.0	19.5	26.0	-	-	20°	45°	
	LSO -445R	13.494	12.0	21.3	23.5	-	-	27°	45°	
	LSP -415R	12.7	13.0	18.0	26.0	-	-	15°	15°	
	**LTE -490R**	12.7	12.0	17.0	30.0	-	-	15°	-	Dimension A shows I.D. of Insert

Shape Handed Spare Parts show Right-hand	Description		Dimension (mm)							Remarks
			A	B	C	D	E	F	G	
	**BCS**	**-1**	64.0	13.0	-	-	-	-	-	
		-5	48.0	16.5	-	-	-	-	-	
	**BCS**	**-2**	74.0	15.0	-	-	-	-	-	
		-3	88.0	16.0	-	-	-	-	-	
	**BCS**	**-4**	98.0	16.0	-	-	-	-	-	
	**CE**	**-010**	M8X1.25	28.0	24.0	6.5	13.0	4.0	4.0	G: Indicates hexagon hole two side widths of back side of bolts
		-220			27.0	15.8	15.0			
	**CE**	**-020**	M8X1.25	30.0	17.0	10.5	12.7	4.0	4.0	G: Indicates hexagon hole two side widths of back side of bolts
	**CE**	**-030**	M8X1.25	30.0	19.0	12.5	12.7	4.0	4.0	G: Indicates hexagon hole two side widths of back side of bolts
		-040			22.5	16.0				
	**CE**	**-320**	M6X1.0	20.0	18.2	9.7	12.7	4.0	-	
	**CE**	**-360S**	M6X1.0	16.0	18.0	10.55	12.4	4.0	-	
	**CE**	**-030A**	M8X1.25	30.0	20.0	13.7	12.7	4.0	-	G: Indicates hexagon hole two side widths of back side of bolts
	**CE**	**-410**	M8X1.25	30.0	26.0	19.5	12.7	4.0	4.0	G: Indicates hexagon hole two side widths of back side of bolts
		-430			29.0	22.5				
	**CP**	**-RC**R/L	M6X1.0	20.0	24.5	14.8	11.0	5.0	-	R…shows Right-hand, L…shows Left-hand

Shape Handed Spare Parts show Right-hand	Description	Dimension (mm)							Remarks
		A	B	C	D	E	F	G	
	**CPS -1**	M3X0.5	9.0	10.0	5.2	5.5	2.0	-	
	**CPS -2**	M5X0.8	14.5	14.0	8.5	6.8	2.5	2.5	G: Indicates hexagon hole two side widths of back side of bolts
	-2P		18.0						
	-3	M6X1.0	19.0	16.5	10.0	8.8	3.0	3.0	
	**CPS -2S**	M5X0.8	13.5	14.0	8.5	6.8	T15	2.5	G: Indicates hexagon hole two side widths of back side of bolts
	-2TR		15.0						
	**CPS -4V**	M4X0.7	8.9	11.3	7.3	8.0	T10	-	G: Indicates hexagon hole two side widths of back side of bolts
	-5F	M5X0.8	11.3	12.7	7.5	10.3	T15	2.5	
	-5S		18.0	15.0	9.5	11.0			
	-5V		13.5	12.7	7.5	10.3			
	**CPS -6F**	M6X1.0	16.5	15.6	9.5	12.2	3.0	-	G: Indicates hexagon hole two side widths of back side of bolts
	-6M		18.5	17.5	11.0	13.0		3.0	
	-6S			18.0	12.0	12.0			
	-6V			15.6	9.5	12.2			
	-8V	M8X1.25	24.0	20.8	13.0	15.5	4.0	4.0	
	**CPS -5E**	M5X0.8	13.5	17.5	12.0	9.0	T15	2.5	G: Indicates hexagon hole two side widths of back side of bolts
	**CPS -5R/L**	M5X0.8	18.0	17.5	12.0	9.0	2.5	2.5	G: Indicates hexagon hole two side widths of back side of bolts R…shows Right-hand, L…shows Left-hand
	**LGBA -16R/L 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
	-22R/L S			17.6	12.7				
	**WCS -1N**	M6X1.0	21.0	16.7	-	15.0	3.0	-	
	**WCS -8**	M6X1.0	21.0	19.4	-	15.0	3.0	-	

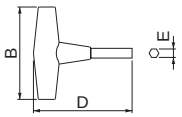
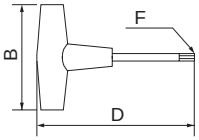
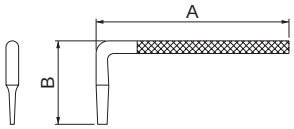
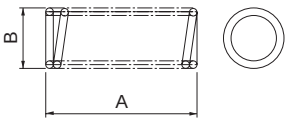
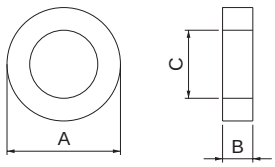
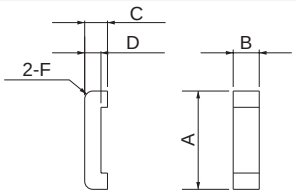
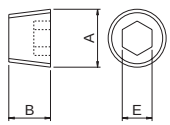
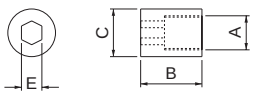
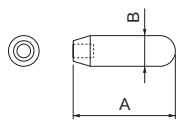
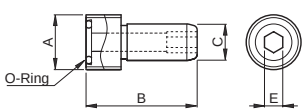
Shape Handed Spare Parts show Right-hand	Description	Dimension (mm)						Angle (°)		Remarks
		A	B	C	D	E	F	α	θ	
	**C 17R**	12.2	19.5	14.3	8.5	M8X1.25 (L-hand Thread)	-	12°	-	Clamp Screw: W8X18
	**C 20R**	15.1	15.5	15.0	7.5	5.3	-	10°	-	Clamp Screw: TH8X15
	CH -20R	13.1	15.5	14.8	7.5	5.3	-	10°	-	Clamp Screw: TH8X15
	**C 25R**	13.2	15.5	15.0	7.5	5.3	-	10°	-	Clamp Screw: TH8X15
	**CE -111**	35.0	25.0	10.0	8.0	3.0	10.0	-	-	Right-Hand
	-121									Left-hand
	-131							-	-	Right-Hand
	-141					4.5				Left-hand
	**CGA -3R/L**	24.0	17.66	12.0	6.2	1.9	11.0	-	-	R...shows Right-hand, L... shows Left-hand
	-4R/L	24.0	17.66	12.0	6.2	2.9	11.0	-	-	
	-5R/L	27.5	18.66	12.0	6.2	3.9	14.5	-	-	
	**CGB R/L**	19.0	14.0	8.2	6.35	9.5	-	-	-	R...shows Right-hand, L... shows Left-hand
	**CGH -1R/L**	25.0	22.0	8.0	6.05	3.0	5.5	-	-	R...shows Right-hand, L... shows Left-hand
	-2R/L					5.0				
	-3R/L	29.0	23.0	8.5		6.0	6.0			
	**CGIA -3R**	10.7	17.0	10.5	5.2	1.8	2.0	-	-	
	-4R					2.5				
	-5R	15.7				3.5	7.0			
	**CP -2D**	-	11.2	21.6	-	10.4	-	-	-	
	-3D		12.0	27.6		14.0				
	-5D		13.0	32.0						
	**CP -8TE**	17.9	12.0	12.0	M8X1.25 (L-hand Thread)	10.0	-	15°	-	
	**CP -8W**	20.9	12.0	8.0	M8X1.25 (L-hand Thread)	13.0	-	3°	-	

Shape Handed Spare Parts show Right-hand	Description		Dimension (mm)						Angle (°)		Remarks
			A	B	C	D	E	F	α	θ	
	CB	-11	11.5	12.7	3.5	-	-	-	-	-	
		-51	16.0	15.6	3.5	-	-	-	-	-	
	CB	-12	13.8	12.7	3.5	-	-	-	-	-	Right-hand
		-13	13.8	12.7	3.5	-	-	-	-	-	Left-hand
	CB	-14	18.51	12.7	3.5	-	-	-	-	-	Right-hand
		-15	18.51	12.7	3.5	-	-	-	-	-	Left-hand
	CB	-16	18.0	12.7	3.5	-	-	-	-	-	
		-17	21.0	15.6	3.5	-	-	-	-	-	
	CB	-S3220	7.94	7.94	1.0	2.0	-	-	-	-	
		-S4220	11.12	11.12	2.0	2.0	-	-	-	-	
	CB	-T2212	7.48	-	1.5	1.2	-	-	-	-	
		-T3220	10.87	-	2.0	2.0	-	-	-	-	

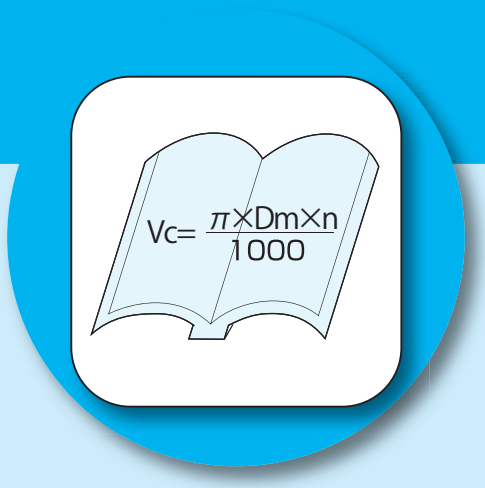
Shape	Description		Dimension (mm)						Angle (°)		Remarks
			A	B	C	D	E	F	α	θ	
	**DT**	**-7**	44	16	-	114	-	T7	-	-	Torx
		-8	70	26	-	150	-	T8	-	-	
	**DT**	**-10**	70	29	-	160	-	T10	-	-	Torx
		-15	70	32	-	170	-	T15	-	-	
		-20	90	32	-	190	-	T20	-	-	
		-25	82	36	-	190	-	T25	-	-	
	**DTM**	**-6**	39	17	-	113	-	T6	-	-	Top of Torx is magnetized
		-7	40	17	-	115	-	T7	-	-	
		-8	70	24	-	150	-	T8	-	-	
		-10	70	28	-	167	-	T10	-	-	
		-15	70	31	-	174	-	T15	-	-	
	DTP	**-15**	81	33	-	186	-	15IP	-	-	○○ IP shows Torx Plus
		-20	100			206		20IP			
	**FH**	**-2**	42	20	-	73	2.0	-	-	-	Hexagon
		-2.5	42	20	-	73	2.5	-	-	-	
	**FT**	**-6**	30	20	-	65	-	T6	-	-	Torx
		-7	34	15	-	62	-	T7	-	-	
		-8	35	20	-	74	-	T8	-	-	
		-10	40	20	-	74	-	T10	-	-	
	**FT**	**-15**	43	25.0	10.0	80	-	T15	-	-	Torx
	**LTW**	**-8SS**	45	6.0	-	-	-	T8	-	-	Torx
		-10S	65	10.0	-	-	-	T10	-	-	
		-10SS	50	7.0	-	-	-	T10	-	-	
		-15S	65	10.0	-	-	-	T15	-	-	
		-20	57	20.0	-	-	-	T20	-	-	
	**LW**	**-1.5**	45	14	-	-	1.5	-	-	-	Hexagon
		-2	50	16	-	-	2.0	-	-	-	
		-2.5	56	18	-	-	2.5	-	-	-	
		-3	63	20	-	-	3.0	-	-	-	
		-4	70	25	-	-	4.0	-	-	-	
		-4.5	78	26	-	-	4.5	-	-	-	
		-5	80	28	-	-	5.0	-	-	-	
		-6	90	32	-	-	6.0	-	-	-	
		-8	109	36	-	-	8.0	-	-	-	
		-10	112	40	-	-	10.0	-	-	-	
		-14	140	56	-	-	14.0	-	-	-	
		-17	160	63	-	-	17.0	-	-	-	
		-19	180	70	-	-	19.0	-	-	-	

Reference

L-shape type (LTP-10, LTP-15: described in **F64** and **F65**) is Torx Plus.
Screwdriver type DTP-9 (described in **M126** and **M127**) is also Torx Plus.

Shape	Description		Dimension (mm)						Angle (°)		Remarks
			A	B	C	D	E	F	α	θ	
	**TH**	**-4**	-	80	-	83	4.0	-	-	-	Hexagon
	**TT**	**-15**	-	70	-	138	-	T15	-	-	Torx
		-25		70		70		T25			
		-25L		80		145		T25			
		-30		80		110		T30			
	TTC	**-20**	-	98	-	130	-	T20	-	-	
		-25						T25			
	**LTK**	**-5**	70	30	-	-	-	-	-	-	
	**SP**	**-2D**	8.5	5.6	-	-	-	-	-	-	Spring
		-3D	12.0	7.0							
		-5	12.0	6.7							
		-5D	12.0	7.2							
		-6	12.0	7.7							
		-8	11.0	9.7							
	**W**	**-6**	11.5	1.6	6.4	-	-	-	-	-	Washer
		6-14	11.5	1.4	6.4						
		-8	15.5	1.6	8.4						
	WB	**-5**	10.0	1.0	5.3	-	-	-	-	-	Washer (Brass)
		-6	11.5	1.6	6.4						
		-8	15.5	1.6	8.4						
	**WSP**	**-1**	15.1	4.0	3.5	2.5	-	R1.25	-	-	Spacer
	**GP**	**-1**	PT1/8	7.0	-	-	5.0	-	-	-	Plug
		-2	PT1/4	9.0	-	-	6.0	-	-	-	
	**WN**	**-1**	M5X8	10.0	7.0	-	3.0	-	-	-	Nut
	**PC**	**-1**	60.0	8.5	-	-	-	-	-	-	Punch
		-2	65.0	10.0	-	-	-	-	-	-	
	**CL**	**63-1**	M18X1.0	36.5	12	-	6.0	-	-	-	Coolant Pipe
		100-1	M24X1.5	44.0	16.0		8.0				

Technical Information



R

R1~R40

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Inch Metric Conversion Chart

Cutting Speed (Vc)

Cutting Speed (Vc)	
SFM	m/min
300	91
600	183
900	274

SFM=(0.262x rpm) x dia (inch)
3.28feet/min (SFM)=1m/min

SFM (surface feet per minute)

D.O.C. (ap)

D.O.C. (ap)	
inch	mm
0.02	0.5
0.04	1.0
0.08	2.0

1inch=25.4mm
0.04inch=1mm

Feed Rate

1) ipr

Feed Rate (f)	
ipr	mm/rev
0.002	0.05
0.004	0.1
0.008	0.2

1ipr=25.4mm/rev
0.004ipr=0.1mm/rev

ipr (inch per revolution)
mm/rev (mm per revolution)

2) ipt

Feed Rate (fz)	
ipt	mm/t
0.002	0.05
0.004	0.1
0.008	0.2

1ipt=25.4mm/t
0.004ipt=0.1mm/t

ipt (inch per tooth)
mm/t (mm per tooth)

Torque

lbft	Nm
0.738	1

lbft (pound · feet)
Nm (Newton · meter)

SI Derived Units Conversion Chart

(Extracted from JIS Handbook “Iron & Steel”)

Force

N	kgf	dyn
1	$1.019\ 72\times10^{-1}$	1×10^{5}
9.806 65	1	$9.806\ 65\times10^{5}$
1×10^{-5}	$1.019\ 72\times10^{-6}$	1

Stress

1Pa=1N/m^2,1MPa=1N/mm^2

Pa or **N/m²**	**MPa** or **N/**	kgf/mm^2	kgf/cm^2	kgf/m^2
1	1×10^{-6}	$1.019\ 72\times10^{-7}$	$1.019\ 72\times10^{-5}$	$1.019\ 72\times10^{-1}$
1×10^{6}	1	$1.019\ 72\times10^{-1}$	$1.019\ 72\times10$	$1.019\ 72\times10^{5}$
$9.806\ 65\times10^{6}$	9.806 65	1	1×10^{2}	1×10^{6}
$9.806\ 65\times10^{4}$	$9.806\ 65\times10^{-2}$	1×10^{-2}	1	1×10^{4}
9.806 65	$9.806\ 65\times10^{-6}$	1×10^{-6}	1×10^{-4}	1

Power

1W=1J/s, PS: Horsepower

W	**kW**	kgf·m/s	PS	kcal/h
1	1×10^{-3}	$1.019\ 72\times10^{-1}$	$1.359\ 62\times10^{-3}$	$8.600\ 00\times10^{-1}$
1×10^{3}	1	$1.019\ 72\times10^{2}$	1.359 62	$8.600\ 00\times10^{2}$
9.806 65	$9.806\ 65\times10^{-3}$	1	$1.333\ 33\times10^{-2}$	8.433 71
7.355×10^{2}	7.355×10^{-1}	7.5x10	1	$6.325\ 29\times10^{2}$
1.162 79	$1.162\ 79\times10^{-3}$	$1.185\ 72\times10^{-1}$	$1.580\ 95\times10^{-3}$	1

Revolution

min^{-1}	**s**$^{-1}$	r.p.m.
1	0.0167	1
60	1	60

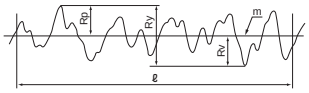
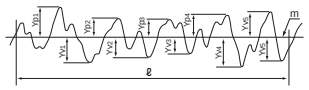
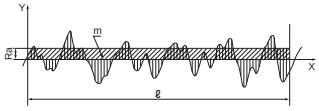
Theoretical (Geometrical) Surface Roughness

Theoretical Surface Roughness at Turning indicates the minimum roughness value from the cutting conditions and it is shown by the formula as follows:

$$Rz(h)=\frac{f^2}{8R(r\varepsilon)}\times 10^3$$

Rz(h)：Theoretical Surface Roughness〔μm〕
f ：Feed Rate〔mm/rev〕
R(rε)：Corner Radius of Insert〔mm〕

How to Obtain Surface Roughness Values

Type	Symbol	How to Obtain	Explanation
Max. Height Roughness	Rz	Ry is obtained from the distance in micron meter between the highest peak and the lowest valley in the range of sampled reference length (ℓ) to the direction of mean line of the roughness curve. $Rz=Rp+Rv$	
Ten Points Mean Roughness	RzJIS	Rz is obtained from the total in micron meter of the mean value of the each distance between the mean line and 5 peaks (Yp) from the highest one, and the mean value of the each distance between the mean line and the 5 valleys (Yv) from the lowest one, of the roughness curve in the range of sampled reference length "ℓ". $RzJIS=\frac{(Yp1+Yp2+Yp3+Yp4+Yp5)+(Yv1+Yv2+Yv3+Yv4+Yv5)}{5}$	 *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 when the roughness curve is expressed by y=f(x), taking X-axis to the mean line direction and Y-axis to the vertical magnification of the roughness curve in the range of sampled reference length "ℓ". $Ra=\frac{1}{\ell}\int_0^{\ell}\{f(x)\}\,dx$	

Relationship with Triangle Symbol

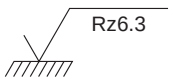
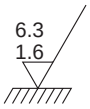
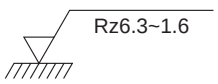
Arithmetical Mean Roughness Ra(μm)	Max. Height Roughness Rz(μm)	Ten PointsMean Roughness RzJIS(μm)	Note: (Relationship with Triangle)
0.025 0.05 0.1 0.2	0.1 0.2 0.4 0.8	0.1 0.2 0.4 0.8	▽▽▽▽
0.4 0.8 1.6	1.6 3.2 6.3	1.6 3.2 6.3	▽▽▽
3.2 6.3	12.5 25	12.5 25	▽▽
12.5 25	50 100	50 100	▽

Note: Finishing symbol (Triangle▽and wave~) was abolished from JIS standard from 1994 Revision.

・How to Indicate

Example
①When Ra is 1.6μm→1.6μmRa
②When Rz is 6.3μm→6.3μmRz
③When RzJIS is 6.3μm→6.3μmRzJIS

Indication in JIS Standard

Example of Ra Indication		Example of Ry, (Rz) Indication	
①When indicating the upper limit only (when upper limit is 6.3μmRa)		①When indicating upper limit only Indicate surface roughness following the parameter symbol.	
②When indicating both lower and upper limit (when upper limit is 6.3μmRa, lower limit is 1.6μmRa)		②When 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.

Surface Roughness Symbol Caution

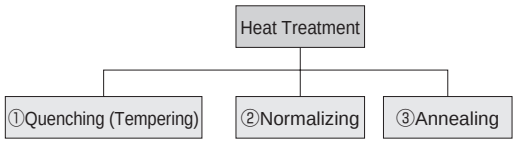
The above information is based on JIS B 0601-2001.
However, some symbols were revised as shown in the right table in accordance with ISO Standard from JIS B 0601-2001 version.
Ten Points Mean Roughness (Rz) was eliminated from 2001 version but it still remains as RzJIS reference, since it was popular in Japan.

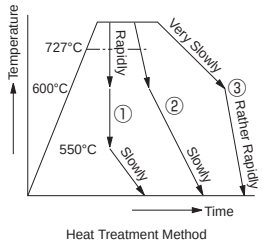
Type	Symbol of JIS B 0601-1994		Symbol of JIS B 0601-2001
Max. Height Roughness	Ry	→	Rz
Ten Points Mean Roughness	Rz	→	(RzJIS)
Arithmetical Mean Roughness	Ra	→	Ra

Heat Treatment and Hardness Expression

Heat Treatment

One of the ways to determine the hardness of steel is the heat treatment and it is classified to 3 types.



	・Quenching (Tempering)	After heating to over 727°C, cool rapidly down to 550°C in water or oil.	Quenching makes steel hard because it cools down red-hot steel very rapidly in water or oil, but it may promote internal stress. In order to remove such internal stress, tempering is used. (After cooled down once, reheat it to 200°C~600°C)
	・Normalizing	After heating to over 727°C, cool down rapidly to 600°C and then to normal temperature.	It miniaturizes the crystals. (Steel is also composed of small cells.) It is used to improve the mechanical character or machinability.
	・Annealing	After heating to over 727°C, cool down very slowly to 600°C, then to normal temperature.	It miniaturizes the crystals like the process of normalizing, but the crystal size is bigger than that of normalizing. It targets machinability improvement and distortion correction.

Heat Treatment Method

Hardness Value

Hardness	Reference Standard	Example	Explanation of Example
Brinell Hardness	JIS Z 2243：1992	250HB	Hardness Value : 250, Hardness Symbol : HB
		200~250HB	When the hardness has the range
Vickers Hardness	JIS Z 2244：1998	640HV	Hardness Value : 640, Hardness Symbol : HV
Rockwell Hardness	JIS Z 2245：1992	60HRC	Hardness Value : 60, Hardness Symbol : HRC
Shore Hardness	JIS Z 2246：1992	50HS	Hardness Value : 50, Hardness Symbol : HS

Vickers Hardness Conversion 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 1.6mm Dia. 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
320	303	303	66.4	(107.0)	32.2	45	1005
310	294	294	65.8	–	31.0	–	980
300	284	284	65.2	(105.5)	29.8	42	950
295	280	280	64.8	–	29.2	–	935
290	275	275	64.5	(104.5)	28.5	41	915
285	270	270	64.2	–	27.8	–	905
280	265	265	63.8	(103.5)	27.1	40	890
275	261	261	63.5	–	26.4	–	875
270	256	256	63.1	(102.0)	25.6	38	855
265	252	252	62.7	–	24.8	–	840
260	247	247	62.4	(101.0)	24.0	37	825
255	243	243	62.0	–	23.1	–	805
250	238	238	61.6	99.5	22.2	36	795
245	233	233	61.2	–	21.3	–	780
240	228	228	60.7	98.1	20.3	34	765
230	219	219	–	96.7	(18.0)	33	730
220	209	209	–	95.0	(15.7)	32	695
210	200	200	–	93.4	(13.4)	30	670
200	190	190	–	91.5	(11.0)	29	635
190	181	181	–	89.5	(8.5)	28	605
180	171	171	–	87.1	(6.0)	26	580
170	162	162	–	85.0	(3.0)	25	545
160	152	152	–	81.7	(0.0)	24	515
150	143	143	–	78.7	–	22	490
140	133	133	–	75.0	–	21	455
130	124	124	–	71.2	–	20	425
120	114	114	–	66.7	–	–	390
110	105	105	–	62.3	–	–	–
100	95	95	–	56.2	–	–	–
95	90	90	–	52.0	–	–	–
90	86	86	–	48.0	–	–	–
85	81	81	–	41.0	–	–	–

·Extracted from JIS Handbook "Iron & Steel" (SAE J 417)
Note (1) 1MPa = 1N/mm²
(2) Value in ( ) is not in practical use, but reference only

Metal

Classification		Name of JIS Standard	Symbol
Structural Steel		Rolled Steel for Welded Structure	SM
		Re-Rolled Steel	SRB
		Rolled Steel for General Structure	SS
		Light Guage Steel for General Structure	SSC
		Hot-Rolled Steel Plate, Sheet and Strip for Automobile Structural Use	SAPH
Steel Sheet		Cold-Rolled Steel Plate, Sheet and Strip	SPC
		Hot-Rolled Soft Steel Plate, Sheet and Strip	SPH
Steel Pipe		Carbon Steel Pipe for Ordinary Piping	SGP
		Carbon Steel Pipe for Boiler / Heat Exchanger	STB
		Seamless Steel Pipe for High Pressure Gas Cylinder	STH
		Carbon Steel Pipe for General Structural Use	STK
		Carbon Steel Pipe for Machine Structural Use	STKM
		Alloy Steel Pipe for Structural Use	STKS
		Stainless Steel Pipe for Machine Structural Use	SUS-TK
		Steel Square Pipe for General Structural Use	STKR
		Alloy Steel Pipe for Ordinary Piping	STPA
		Carbon Steel Pipe for Pressure Service	STPG
		Carbon Steel Pipe for High-Temperature Service	STPT
		Carbon Steel Pipe for High-Pressure Service	STS
		Stainless Steel Pipe for Ordinary Piping	SUS-TP
Steel for Machine Structural Use		Carbon Steel for Machine Structural Use	SxxC, SxxCK
		Aluminium Chromium Molybdenum Steel	SACM
		Chromium Molybdenum Steel	SCM
		Chromium Steel	SCr
		Nickel Chromium Steel	SNC
		Nickel Chromium Molybdenum Steel	SNCM
		Manganese Steel and Manganese Chromium Steel for Machine Structural Use	SMn, SMnC
Special Steel	Tool Steel	Carbon Tool Steel	SK
		Hollow Drill Steel	SKC
		Alloy Tool Steel	SKS, SKD, SKT
		High Speed Tool Steel	SKH
	Special Steel	Free Cutting Carbon Steel	SUM
		High Carbon Chromium Bearing Steel	SUJ
		Spring Steel	SUP
	Stainless Steel	Stainless Steel Bar	SUS-B
		Hot-Rolled Stainless Steel Plate, Sheet and Strip	SUS-HP, SUS-HS
		Cold-Rolled Stainless Steel Plate, Sheet and Strip	SUS-CP, SUS-CS
	Heat Resisting 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

Classification	Name of JIS Standard	Symbol
Copper	Copper and Copper Alloy Sheet / Strip	CxxxxP CxxxxPP CxxxxR
	Copper and Copper Alloy Rod and Bar	CxxxxBD CxxxxBDS CxxxxBE
Aluminum Alloy and Aluminum Alloy Expanded Material	Aluminum and Al. Alloy Sheet / Strip	AxxxxP AxxxxPC
	Aluminum and Al. Alloy Rod, Bar, and Wire	AxxxxBE AxxxxBES AxxxxBD AxxxxBDS AxxxxW AxxxxWS
	Aluminum and Al. Alloy Extruded Shape	AxxxxS
	Aluminum and Al. Alloy Forging	AxxxxFD AxxxxFH
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

● Steel

Classification	Germany	UK	France	Russia	USA	Japan	China
	DIN	BS	NF	ГОСТ	AISI / SAE	JIS	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	

Material Cross Reference Table

● Steel

Classification	Germany	UK	France	Russia	USA	Japan	China
	DIN	BS	NF	ГОСТ	AISI / SAE	JIS	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	

● Steel

Classification	Germany	UK	France	Russia	USA	Japan	China
	DIN	BS	NF	ГОСТ	AISI / SAE	JIS	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			15Х		SCr415H	15CrH
	17Cr3			20Х	5120H	SCr420H	20Cr1H
	34Cr4 34CrS3	34Cr4 34CrS4	34Cr4 34CrS4	30Х	5130H 5132H	SCr430H	
	37Cr4 34CrS4	37Cr4 37CrS4	37Cr4 37CrS4	35Х	5135H	SCr435H	
	41Cr4 41CrS4	41Cr4 41CrS4	41Cr4 41CrS4	40Х	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

Material Cross Reference Table

● Steel

Classification	Germany	UK	France	Russia	USA		Japan	China
	DIN	BS	NF	ГОСТ	UNS	AISI	JIS	GB
Stainless Steel			Z12CMN17-07Az		S20100	201	SUS 201	1Cr17Mn6Ni5N
		284S16		12Х17Г9АН4	S20200	202	SUS 202	1Cr18Mn8Ni5N
	X12CrNi17 7	301S21	Z11CN17-08	07Х16Н6	S30100	301	SUS 301	1Cr18Mn10Ni5Mo3N 1Cr17Ni7
	X2CrNiN18-7						SUS 301L	
	X12CrNi17 7						SUS 301J1	
		302S25	Z12CN18-09	12Х18Н9	S30200	302	SUS 302	1Cr18Ni9
					S30215	302B	SUS 302B	
	X10CrNiS18 9	303S21	Z8CNF18-09		S30300	303	SUS 303	Y1Cr18Ni9
		303S41		12Х18Н10Е	S30323	303Se	SUS 303Se	Y1Cr18Ni9Se
	X5CrNi18 10	304S31	Z7CN18-09	08Х18Н10	S30400	304	SUS 304	0Cr18Ni9
	X2CrNi19 11	304S11	Z3CN19-11	03Х18Н11	S30403	304L	SUS 304L	00Cr18Ni10
			Z6CN19-09Az		S30451	304N	SUS 304N1	0Cr18Ni9N
					S30452		SUS 304N2	0Cr19Ni10NbN
	X2CrNiN18 10		Z3CN18-10Az		S30453	304LN	SUS 304LN	00Cr18Ni10N
							SUS 304J1	
							SUS 304J2	
					S30431	S30431	SUS 304J3	
	X5CrNi18 12	305S19	Z8CN18-12	06Х18Н11	S30500	305	SUS 305	1Cr18Ni12
							SUS 305J1	
			Z10CN24-13		S30908	309S	SUS 309S	0Cr23Ni13
		310S31	Z8CN25-20	10Х23Н18	S31008	310S	SUS 310S	0Cr25Ni20
	X5CrNiMo17 12 2	316S31	Z7CND17-12-02		S31600	316	SUS 316	0Cr17Ni12Mo2
	X5CrNiMo17 13 3		Z6CND18-12-03					
	X2CrNiMo17 13 2	316S11	Z3CND17-12-02		S31603	316L	SUS 316L	00Cr17Ni14Mo2
	X2CrNiMo17 14 3		Z3CND17-13-03	03Х17Н14М3				
					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	08Х17Н13М2Т	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	08Х18Н10Т	S32100	321	SUS 321	1Cr18Ni9Ti 0Cr18Ni10Ti
	X6CrNiNb18 10	347S31	Z6CNNb18-10	08Х18Н12Б	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	08Х21Н6М2Т	S39240	S31803	SUS 329J3L	
			Z3CNDU25-07Az		S39275	S31260	SUS 329J4L	

Steel

Classification	Germany	UK	France	Russia	USA		Japan	China
	DIN	BS	NF	ГОСТ	UNS	AISI	JIS	GB
Stainless Steel	X6CrAl13	405S17	Z8CA12		S40500	405	SUS 405	0Cr13Al 0Cr13
			Z3C14				SUS 410L	00Cr12
					S42900	429	SUS 429	
	X6Cr17	430S17	Z8C17	12Х17	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	08Х13	S41008	410S	SUS 410S	
							SUS 410F2	
	X12CrS13				S41025		SUS 410J1	1Cr13Mo 1Cr12Mo
		416S21	Z11CF13		S41600	416	SUS 416	Y1Cr13
	X20Cr13	420S29	Z20C13	20Х13	S42000	420	SUS 420J1	2Cr13
	X30Cr13	420S37	Z33C13	30Х13	S42000	420	SUS 420J2	3Cr13
			Z30CF13		S42020	420F	SUS 420F	Y3Cr13
							SUS 420F2	
							SUS 429J1	
	X20CrNi17 2	431S29	Z15CN16-02	20Х17Н2	S43100	431	SUS 431	1Cr17Ni2
			Z70C15		S44002	440A	SUS 440A	7Cr17
					S44003	440B	SUS 440B	8Cr17
			Z100CD17	95Х18	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	09Х17Н7 Ю	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 Hardening related)

JIS
SUS630
SUS631

Material Cross Reference Table

● Steel

Classifi-cation	Germany	UK	France	Russia	USA		Japan	China
	DIN	BS	NF	ГОСТ	UNS	AISI	JIS	GB
Heat Resisting Steel		331S42	Z35CNWS14-14	45Х14Н14В2М			SUH 31	
		349S52	Z52CMN21-09Az				SUH 35	
	X53CrMnNi21 9	349S54	Z55CMN21-09Az	55Х20 Г 9АН4	S63008		SUH 36	5Cr21Mn9Ni4N
		381S34			S63017		SUH 37	2Cr21Ni12N
							SUH 38	
		309S24	Z15CN24-13		S30900	309	SUH 309	2Cr23Ni13
	CrNi2520	310S24	Z15CN25-20	20Х25Н20С2	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	15Х28	S44600	446	SUH 446	2Cr25N
	X45CrSi9 3	401S45	Z45CS9		S65007		SUH 1	4Cr9Si2
			Z40CSD10	40Х10С2М			SUH 3	4Cr10Si2Mo
		443S65	Z80CSN20-02				SUH 4	8Cr20Si2Ni
				40Х 9С2			SUH 11	
				20Х12ВНМБФР			SUH 600	2Cr12MoVNbN
					S42200		SUH 616	2Cr12NiMoWV

● Representative Classification of Heat Resisting Steell

● 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

● Steel

Classification	Germany	UK	France	Russia	USA	Japan	China
	DIN	BS	NF	ГОСТ	AISI / ASTM	JIS	GB
Carbon Tool Steel			C140E3U	У13		SK140 (SK1)	T13
			C120E3U	У12	W1-11 1/2	SK120 (SK2)	T12
	C105W1		C105E2U	У11	W1-10	SK105 (SK3)	T11
			C90E2U	У10	W1-9	SK95 (SK4)	T10
	C80W1		C90E2U C80E2U	У8Г У9	W1-8	SK85 (SK5)	T8Mn T9
	C80W1		C80E2U C70E2U	У8		SK75 (SK6)	T8
	C70W2		C70E2U	У7		SK65 (SK7)	T7
High Speed Tool Steel		BT1	HS18-0-1	Р18	T1	SKH2	W18Cr4V
	S18-1-2-5	BT4	HS18-1-1-5	Р18К5Ф2	T4	SKH3	W18Cr4VCo5
		BT5	HS18-0-2-9	Р18К5Ф	T5	SKH4	W18Cr4V2Co8
	S12-1-4-5	BT15	HS12-1-5-5		T15	SKH10	W12Cr4V5Co5
	S6-5-2	BM2	HS6-5-2	Р6М5	M2	SKH51	W6Mo5Cr4V2
				Р6М5Ф3	M3-1	SKH52	CW6Mo5Cr4V2 W6Mo5Cr4V3
	S6-5-3		HS6-5-3	Р6М5Ф3	M3-2	SKH53	CW6Mo5Cr4V3
		BM4	HS6-5-4		M4	SKH54	
	S6-5-2-5	BM35	HS6-5-2-5HC	Р6М5К5	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				ХВ4	F2	SKS11	
	105WCr6		105WCr5	ХВГ		SKS2	
						SKS21	W
						SKS5	
					L6	SKS51	
						SKS7	
			C140E3UCr4	13Х		SKS8	Cr06
				6ХВ2С 5ХВ2СФ	S1	SKS4	5CrW2Si 6CrW2Si
				4ХВ2С	S1	SKS41	4CrW2Si
		BW2	100V2		W2-9 1/2	SKS43	
					W2-8	SKS44	
				9ХВГ		SKS3	9CrWMn
	105WCr6		105WCr5	ХВГ		SKS31	CrWMn
						SKS93	
						SKS94	
						SKS95	8MnSi
	X210Cr12	BD3	X200Cr12	Х12	D3	SKD1	Cr12
	X153CrMoV12			Х12МФ	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	4Х5МФС	H11	SKD6	4Cr5MoSiV
	X40CrMoV51	BH13	X40CrMoV5	4Х5МФ1С	H13	SKD61	4Cr5MoSiV1
		BH12	X35CrWMoV5	3Х3М3Ф	H12	SKD62	
	X32CrMoV33	BH10	32CrMoV12-18		H10	SKD7	4Cr3Mo3SiV
		BH19			H19	SKD8	
			55CrNiMoV4			SKT3	
	55NiCrMoV6	BH224 / 5	55NiCrMoV7	5ХНМ		SKT4	5CrNiMo

Material Cross Reference Table

● Steel

Classification	Germany	UK	France	Russia	USA	Japan	China
	DIN	BS	NF	ГОСТ	AISI / ASTM	JIS	GB
Spring Steel				75 80 85	1075 1078	SUP3	
	56SiCr7		60Si7	60С2		SUP6	55Si2Mn
	61SiCr7		60Si7	60С2Г	9260	SUP7	60Si2Mn 60Si2MnA
	55Cr3		55Cr3		5155	SUP9	55CrMnA
	55Cr3		60Cr3		5160	SUP9A	60CrMnA
	50CrV4	735A51, 735H51	51CrV4	ХФА50ХГФА	6150	SUP10	50CrVA
	51CrV4			50ХГР	51B60	SUP11A	60CrMnBA
	54SiCr6	685A57, 685H57	54SiCr6		9254	SUP12	
	60CrMn3-2	705A60, 705H60	60CrMo4		4161	SUP13	60CrMnMoA
Free Cutting Carbon Steel					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	ШХ15	52100	SUJ2	GCr5
					ASTM A 485 Grade 1	SUJ3	GCr15SiMn
						SUJ4	GCr15SiMo
						SUJ5	GCr18Mo

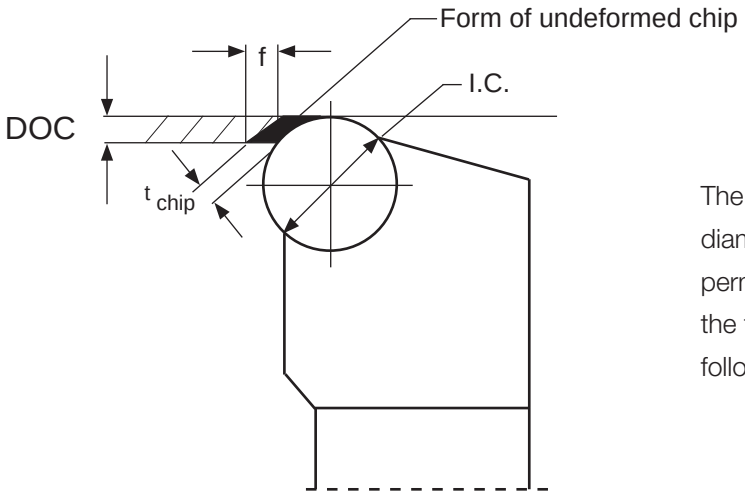
● Cast Iron

Classification	Germany	UK	France	Russia	USA	Japan	China
	DIN	BS	NF	ГОСТ	AISI / SAE	JIS	GB
Gray Cast Iron		100		СЧ10	NO.20	FC100	HT100
	GG15	150	FGL150	СЧ15	NO.30	FC150	HT150
	GG20	200	FGL200	СЧ20	NO.35	FC200	HT200
	GG25	250	FGL250	СЧ25	NO.45	FC250	HT250
	GG30	300	FGL300	СЧ30	NO.50	FC300	HT300
	GG35	350	FGL350	СЧ35	NO.60	FC350	HT350
	GG40		FGL400	СЧ40			
Nodular Cast Iron	GGG40	400/17	FGS370-17	ВЧ40	60-40-18	FCD400	QT400-18
		420/12	FGS400-12	ВЧ45	65-45-12	FCD450	QT450-10
	GGG50	500/7	FGS500-7	ВЧ50	70-50-05	FCD500	QT500-7
	GGG60	600/7	FGS600-2	ВЧ60	80-60-03	FCD600	QT600-3
	GGG70	700/2	FGS700-2	ВЧ70	100-70-03	FCD700	QT700-2
	GGG80	800/2	FGS800-2	ВЧ80	120-90-02	FCD800	QT800-2
		900/2		ВЧ100			QT900-2

● Non-ferrous Metal

Classification	Germany	UK	France	Russia	USA	Japan	China
	DIN	BS	NF	ГОСТ	ASTM	JIS	GB
Aluminum Alloy	A199.99R			А99	1199		1A99
	A199.98R			А97			1A97
				А95			1A95
	A199.90	1080(1A)	1080A	А8		A1080	1A80
	A199.50	1050(1B)	1050A	А5	1050	A1050	1A50
	AlMg2.5	NS4	5052	Амг	5052	A5052	5A02
		NS5		АМг3			5A03
	AlMg5	NB6		АМг5В	5056	A5056	5A05
		NG61	5957		5456	A5556	5A30
	AlCu2.5Mg0.5		2117	Д18	2036	A2117	2A01
	AlCuMg1	HF15	2017S	Д1		A2017	2A11
	AlCuMg2		2024	Д16АВТВ	2124	A2024	2A12
					2319		2B16
				АК4		A2N01	2A80
				АК2	2218	A2018	2A90
	AlCuSiMn		2014	АК8	2014	A2014	2A14
	AlZnMgCu1.5		7075	В95Р	7175	A7075	7A09
Aluminum Alloy Casting	G-AlSi7Mg	LM25			356.2	AC4C	ZAlSi7Mn
	G-Al12	LM6	A-S12-Y4	АЛ2	413.2	AC3A	ZAlSi12
				АЛ5	355.2		ZAlSi5Cu1Mg
	G-Al12(Cu)				413.0	AC8A	ZAlSi2Cu2Mg1
				АЛ19			ZAlCu5Mn
					201.0		ZAlCu5MnCdVA
	G-AlMg10	LM10	AG11	АЛ8	520.2		ZAlMg10
	G-AlMg5Si			АЛ13			ZAlMg5Si

Round Insert Feed Compensation



The feedrate "f" depends on the depth of cut and the diameter of the insert. After determining the maximum permissable chip thickness "t_{chip}" from Table 1, select the factor from Table 2 to calculate the feedrate by following this formula:

$$f = t_{chip} \times M$$

TABLE 1				
HARDNESS				RECOMMENDED MAX. CHIP THK.
BRINNELL	SHORE C	VICKERS	ROCKWELL	
225	34	237	20	0.014
255	38	266	25	0.013
285	42	302	30	0.012
325	48	345	35	0.011
370	54	390	40	0.010
400	57	425	43	0.009
480	67	513	50	0.008
525	71	560	53	0.007
580	73	613	56	0.006
635	80	674	59	0.005
690	85	746	62	0.004

TABLE 2							
DEPTH OF CUT	FACTOR M FOR ROUND INSERT WITH VARIOUS I.C.						
	1/4	3/8	1/2	5/8	3/4	1	1 1/4
0.012	2.3	2.8	3.3	3.6	4.0	4.6	5.1
0.020	1.8	2.2	2.6	2.8	3.1	3.6	4.0
0.040	1.4	1.6	1.8	2.0	2.2	2.6	2.8
0.060	-	1.4	1.5	1.7	1.8	2.1	2.3
0.080	-	-	1.4	1.5	1.6	1.8	2.0
0.120	-	-	-	1.3	1.4	1.5	1.7
0.160	-	-	-	-	-	1.4	1.5

STEELS

MACHINING PARAMETERS

MATERIAL			FEEDRATE*								
			FINISHING			SEMI-FINISHING			SEMI-ROUGHING ROUGHING		
		CBN	See Below			See Below			See Below		
		CERAMIC	See Below			See Below					
MATERIAL GROUP	HARDNESS	GRADE	CUTTING SPEED (SFM)								
			FROM	MEDIAN	TO	FROM	MEDIAN	TO	FROM	MEDIAN	TO
4	44Rc 0.009 IPR MAX	A65	240	800	1050	240	800	1050			
		A66N	240	800	1050	240	800	1050			
		PT600M	240	800	1050	240	800	1050			
		KBN510	240	900	1200						
		KBN525	240	900	1200						
		KBN900				300	400	500	300	400	500
		KBN05M	290	1089	1450	290	1089	1450			
		KBN10M	264	990	1320	264	990	1320			
		KBN25M	264	990	1320	264	990	1320			
		KBN30M	240	890	1190	240	890	1190			
		KBN35M	240	890	1190	240	890	1190			
	48Rc 0.009 IPR MAX	A65	230	750	980	230	750	980			
		A66N	230	750	980	230	750	980			
		PT600M	230	750	980	230	750	980			
		KBN510	230	850	1150						
		KBN525	230	850	1150						
		KBN900				300	400	500	300	400	500
		KBN05M	280	1030	1400	280	1030	1400			
		KBN10M	230	850	1140	230	850	1140			
		KBN25M	253	935	1265	253	935	1265			
		KBN30M	230	850	1140	230	850	1140			
		KBN35M	230	850	1140	230	850	1140			
	52Rc 0.008 IPR MAX	A65	200	660	800	200	660	800			
		A66N	200	660	800	200	660	800			
		PT600M	200	660	800	200	660	800			
		KBN510	200	700	1000						
		KBN525	200	700	1000						
		KBN900				250	350	450	250	350	450
		KBN05M	240	850	1210	240	850	1210			
		KBN10M	220	770	1100	220	770	1100			
		KBN25M	220	770	1100	220	770	1100			
		KBN30M	200	700	1000	200	700	1000			
		KBN35M	200	700	1000	200	700	1000			
	56Rc 0.006 IPR MAX	A65	175	550	650	175	550	650			
		A66N	175	550	650	175	550	650			
		PT600M	175	550	650	175	550	650			
		KBN510	175	600	800						
		KBN525	175	600	800						
		KBN900				200	300	400	200	300	400
		KBN05M	240	850	1210	240	850	1210			
		KBN10M	220	770	1100	220	770	1100			
		KBN25M	220	770	1100	220	770	1100			
		KBN30M	200	700	1000	200	700	1000			
		KBN35M	200	700	1000	200	700	1000			
	60Rc 0.004 IPR MAX	A65	150	450	650	150	450	650			
		A66N	150	450	650	150	450	650			
		PT600M	150	450	650	150	450	650			
		KBN510	150	500	675						
		KBN525	150	500	675						
		KBN900				150	250	350	150	250	350
		KBN05M	180	600	825	180	600	825			
		KBN10M	165	550	750	165	550	750			
		KBN25M	165	550	750	165	550	750			
		KBN30M	150	500	675	150	500	675			
		KBN35M	150	500	675	150	500	675			
	64Rc 0.004 IPR MAX	A65	100	400	450	100	400	450			
		A66N	100	400	450	100	400	450			
		PT600M	100	400	450	100	400	450			
		KBN510	100	450	550						
		KBN525	100	450	550						
		KBN900				100	200	300	100	200	300
		KBN05M	120	550	660	120	550	660			
		KBN10M	110	500	600	110	500	600			
		KBN25M	110	500	600	110	500	600			
		KBN30M	100	450	540	100	450	540			
		KBN35M	100	450	540	100	450	540			

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	Hitachi	Iscar	Kennametal WIDIA	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy
Class	Symbol										
P (Steel)	P01	CA5505	HC5000 HG3305	IC8150 IC9150	KC910 KC9105	UE6005 UE6015		GC4005 GC4205	TP1000	AC700G AC810P	T9005
	P10	CA5505 CA5515	GM10 GM20 GM8015 HG8010	IC8150 IC9150 IC9250	KC9010 KC9110	UE6110 UE6005 UE6010 UE6020	CP2 CP5	GC4015 GC3115 GC4215	TP1000 TP100	AC700G AC2000 AC820P	T9005 T9015 T9115
	P20	CA5515 CA5525 CR9025	GM20 GM8020 HG8025	IC8150 IC9125 IC9250 IC9350	KC8050 KC9025 KC9125	UC6010 UE6110 UE6020 F7030	CP2 CP5 CP7	GC4020 GC4025 GC4215 GC4225	TP2000 TP200	AC2000 AC3000 AC820P	T9015 T9025 T9125
	P30	CA5525 CA5535 CR9025	GM25 GM8035 HG8025 HG8035	IC635 IC8350 IC9350	KC5025 KC9040 KC9140	UE6035 UH6400 F7030		GC4030 GC4225 GC4230 GC4235	TP2500 TP200 TP300	AC3000 AC630M AC830P	T9025 T9035 T3130
	P40	CA5535	GX30	IC635	KC9045 KC9240	UE6035 UH6400		GC4235	TP40	AC630M AC830P	T9035
M (Stainless Steel)	M10	CA6515	GM10	IC8250 IC9250 IC9350	KC5010 KC9010 KC9110 KC9210	US7020	CP2 CP5	GC2015	TP100	AC610M	T9015 T9115
	M20	CA6525	GM8020 HG8025	IC8350 IC9250 IC9350	KC8050 KC9025 KC9125 KC9225	US7020 F7030	CP2 CP5	GC2025 GC2030	TM2000 TP200	AC610M AC630M	T6020 T9025 T9125
	M30		GM25 GM8035 HG8035	IC4050	KC9040 KC9230 KC9240	US735 F7030		GC2035	TM4000 TP300	AC630M	T6030 T3130
	M40		GX30		KC9045 KC9245				TP40		
K (Cast Iron)	K01	CA4010 CA4505 CA5505	HC5000 GM3005 HG3305	IC428 IC9007 IC9150	KC5410 KC9315 KC910	UC5105 UC5015		GC3205 GC3210	TX100	AC300G AC410K	T5105 T5010
	K10	CA4010 CA4115 CA4505 CA4515 CA5505	GM10 GM8015 HG8010 HG3315	IC418 IC428 IC9015	KC5010 KC7310 KC9010 KC9320	UC5015 UC5115 UE6010	CP1 CP2 CP5	GC3205 GC3210 GC3215	TK1000 TX150	AC700G AC410K	T5105 T5115 T5010 T1015
	K20	CA4115 CA4120 CA4515	GM8020 HG8025	IC418 IC9015	KC8050 KC9025 KC9120 KC9325	UE6010	CP5	GC3020 GC3215 K20W	TK2000 TX150 TP200	AC700G AC820P AC420K	T5115 T5125 T5020
	K30							GC3040	TP200		T5125 T9125

PVD Coated Carbide (Turning)

• This table is Kyocera´s own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Hitachi	Iscar	Kennametal WIDIA	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy
Class	Symbol										
P (Steel)	P01	PR915 PR1005								ACZ150	
	P10	PR915 PR930 PR1005 PR1025 PR1115 PR1215 PR1225	CY15 CY150 IP2000	IC507 IC807 IC907	KC5010 KC5510 KU10T	VP10MF		GC1025	CP200	ACZ150 ACZ310	AH710
	P20	PR930 PR1025 PR1115 PR1215 PR1225	CY150 IP2000	IC507 IC907 IC908	KC5025 KC5525 KC7215 KC7315 KU25T	VP15TF VP20MF UP20M	QM1 VM1 TA1 TAS	GC1020 GC1025 GC4125	CP250	ACZ310 ACZ330 AC520U	AH710 AH725 AH730
	P30		CY250 CY9020 HC844 IP3000	IC328 IC928 IC3028	KC7015 KC7020 KC7235 KU25T	VP15TF VP20MF UP20M	ZM3 QM3 TAS		CP500	ACZ330 ACZ350 AC530U	GH330 AH120 AH740
	P40		CY250 HC844	IC328 IC3028	KC7030 KC7040 KC7140		ZM3 QM3 TAS	GC1120 GC2145	CP500	ACZ350	AH740 J740
M (Stainless Steel)	M10	PR915 PR1025 PR1215 PR1225	IP050S	IC507 IC520 IC907	KC5010 KC5510 KC6005 KC6015	VP10MF		GC1005 GC1025	TS2000 CP200	EH510Z ACZ150 AC510U	AH710
	M20	PR915 PR930 PR1025 PR1125 PR1215 PR1225	IP100S	IC308 IC507 IC907 IC908 IC3028	KC5025 KC5525 KC7020 KC7025	VP15TF VP20MF UP20M	QM1 VM1 TA1 TAS	GC2030 GC4125	TS2500 CP200 CP500	EH520Z ACZ150 ACZ310 AC520U	AH725 AH730 GH330 GH730 SH730
	M30	PR1125	CY250 CY9020	IC908 IC1008 IC1028 IC3028	KC7030 KC7225	VP15TF VP20MF UP20M	ZM3 QM3 TAS	GC1020 GC1120 GC2035	CP500	ACZ330 ACZ350 AC530U	AH120
	M40			IC928			ZM3 QM3 TAS	GC2145		ACZ350	J740
K (Cast Iron)	K01			IC910						EH10Z	AH110
	K10	PR905 PR1215	CY100H CY10H	IC507 IC908	KC5010 KC7210	VP05RT		GC1010	TS2000 CP200	EH10Z EH510Z AC510U	GH110 AH110
	K20	PR905 PR1215	CY9020	IC507 IC908	KC7015 KC7215 KC7315	VP10RT VP15TF	QM1 TA1	GC1020 GC1120	TS2500 CP200 CP250	EH20Z ACZ310 AC520U	AH120 AH725
	K30			IC508 IC3028	KC7225	VP15TF	QM3 TA3	GC4125	CP500	ACZ310	

Insert 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	Hitachi	Iscar	Kennametal WIDIA	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy
Class	Symbol										
P (Steel)	P01	TN30 **PV30** TN6010 **PV7010**	CH350	IC20N **IC520N**	KT1120 KT125 HTX	NX1010	T3N T15 **Q15**			T110A	NS520 **GT530** **GT720**
	P10	TN60 TN6010 TN6020 **PV7010** **PV7020** **PV7025**	CH350 **CZ25**	IC20N **IC520N** **IC530N** IC75T	**KT315** KT175 HT2	NX2525 **AP25N**	T15 **C7Z** **Z15**	CT5015 CT525	CM	**T2000Z** T1200A T1500A	NS520 **AT530** **GT530** **GT730**
	P20	TN90 TN6020 **PV7020** **PV7025**	CH550 CH7030 **CZ1025**	IC20N **IC520N** **IC530N** IC75T IC30N	PS5 **KT5020**	NX2525 NX3035 **AP25N** **UP35N**	C7X **C7Z**	CT530 **GC1525**		T1200A T1500A **T2000Z** **T3000Z**	NS530 NS730 **AT530** **GT530** **GT730**
	P30			IC75T IC30N		NX4545 **VP45N**	N40 C7X			**T3000Z**	NS740
M (Stainless Steel)	M10	TN60 TN6020 **PV7020** **PV7025**	CH350	IC20N **IC520N**	KT1120 **KT315** KT125	NX2525 **AP25N**	T15 C7X **C7Z** **Z15**	CT5015 CT525	CM	T110A	NS520
	M20	TN90 TN6020 **PV7020** **PV7025**	CH550 CH7030 **CZ1025**	IC30N **IC530N**	KT175 HT2 PS5 **KT5020**	NX2525 NX3035 **AP25N**	C7X **C7Z** **Q15**	CT530 **GC1525**		T1200A **T2000Z**	NS530 NS730 **GT730**
	M30					NX4545				**T3000Z**	NS740
K (Cast Iron)	K01	TN30 **PV30** **PV7005**			KT1120	NX1010	T3N T15 **Q15**			T110A	NS520
	K10	TN60 TN6010 **PV7005** **PV7010**	CH350		**KT315** HTX	NX2525 **AP25N**	T15 C7X **C7Z** **Z15**	CT5015		T1200A **T2000Z**	NS530 NS730 **GT730**
	K20				**KT5020**	NX2525 **AP25N**					

• **Boldface** grade shows PVD Coated Cermet.

Carbide

Classification		Kyocera	Hitachi	Iscar	Kennametal WIDIA	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy
Class	Symbol										
P (Steel)	P10		WS10	IC70	K2885	STi10T		S1P		ST10P	TX10S
	P20		EX35	IC70 IC50M	K125M	STi20		SMA	S10M	ST20E	TX20 TX25
	P30	PW30	EX35 EX40	IC50M IC54	KMF			SM30	S25M	A30N A30 ST30E	TX30 UX30
	P40		EX45	IC54	PVA			S6	S60M	ST40E	TX40
K (Cast Iron)	K01		WH02 WH05	IC04	K68 K313	HTi05T		H1P		H2 H1	TH03
	K10	KW10 GW15	WH10	IC20	KMI K8735	HTi10		H1P H10 HM		EH10 EH510	G1F TH10 H10T
	K20	GW25	WH20	IC20 IC10	KMF	HTi20T	KM1	H13A	883 890 HX	G10E EH20 EH520	G2F G2 KS20
	K30			IC10 IC28			KM3			G3	G3
V (Wear and Shock Resistant Tool)	V40		WH50			GTi30				G5	D40
	V50	VW50	WH60			GTi35 GTi40 GTi30S				G6	D50
	V60		WB60			GTi40S GTi50S				G7 G8	D60

Ceramic

• This table is Kyocera´s own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Iscar	Kennamtal WIDIA	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy
Class	Symbol									
K (Cast Iron)	K01	KA30 A65 KT66 **PT600M** **CS7050**		KW80 KY1615 AC5		HC1 HC2 HC5 HC6 HW2	CC620 CC650		NB90S NB90M WX120	LX11 LX21
	K10	A65 KT66 **A66N** **PT600M** **CS7050** KS6050		KB90 KB90X KY3000		WA1 SX1 **SP2** SX9	CC6090 CC6190 **GC1690**		WX120 **NS260C**	WG300
	K20	KS6000 KS6050		KY1320 **KY3400** KY3500		SX1 SX8 **SP9**	CC6090 CC6190 **GC1690**		**NS260C** NS260	FX105 CX710
S (Difficult-to-Cut Material)	S01			KY2100						
	S10	CF1		KY4300 KY1525 KY1540		WA1 SX9	CC670 CC6080		WX120	WG300
	S20									
H (Hardened Material)	H01	A65 KT66 **A66N** **PT600M**				HC4 HC7 **ZC7**	CC650 CC670		**NB100C**	LX11
	H10	A65 KT66 **A66N** **PT600M**		KY4300 **KY4400**		**ZC7** WA1				

• **Boldface** grade shows PVD Coated Ceramic.

CBN

Classification		Kyocera	Hitachi	Iscar	Kennametal WIDIA	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy
Class	Symbol										
K (Cast Iron)	K01	**KBN60M**		IB85	PB100	MB710	B20 B22	CB7050 CB7525	CBN050C	BN500 **BNC500**	BX930 BX950 BX90S
	K10	**KBN60M** **KBN900**	BH200		KB1630 **KB9610**	MB710 MB730	B22		CBN20 CBN300	BN600 BN700	BX950 BXC90
	K20	**KBN900**	BH250		**KB9640**	MB730 MBS140	B16		CBN350	BNS800	
H (Hardened Material)	H01	KBN510 **KBN10C** **KBN05M** **KBN10M**			**KB1610**	**MBC010** MB810	B52	CB7020 CB7025	**CBN050C** CBN10 CBN100	BNX10 **BNC100** **BNC160**	BXA30 BX310 BXC30 **BXM10**
	H10	KBN525 **KBN25C** **KBN05M** **KBN25M**	BH200	IB50	KB1615 **KB9610**	**MBC020** **BC8020** MB8025	B36	CB7050 CB7525	CBN150 CBN200 CBN160P	BNX20 BN2000 **BNC200**	BXA40 BX330 BX360 **BXC50**
	H20	**KBN30M** **KBN35M** **KBN900**	BH250	IB55	KB1340 KB5625 **KB9640**	**MBC020** MB835 MB8025	B22		CBN350 **CBN300P**	BNX25 BN350 **BNC300**	BX380 **BXC50** **BXM20**
Sintered Steel	-	KBN65B **KBN65M** **KBN70M**								BN700 BN7000 BN7500	

• **Boldface** grade shows PVD Coated CBN.

PCD

Classification		Kyocera	Hitachi	Iscar	Kennametal WIDIA	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy
Class	Symbol										
N (Non-ferrous Material)	N01	KPD001			PD100 KD1400 KD1405	MD205	PD1		PD10	DA90 DA1000 DA2200	DX180 DX160
	N10	KPD001 KPD010 KPD230		ID5	KD100 KD1415	MD220		CD10	PD20	DA150 DA1000 DA2200	DX140
	N20	KPD001 KPD010 KPD230			KD1425	MD230			PD30	DA1000 DA2200	DX110 DX120

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 Postive 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.**								

Molded Chipbreaker Cross Reference Table

• This table is Kyocera´s own estimation based on publications and is not authorized by companies mentioned in it.

Negative Inserts

Cutting Range		Kyocera		Hitachi	Iscar	Kennametal WIDIA	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy
		General Chip-breaker	Chipbreaker for Sticky Material / Soft Steel									
Carbon Steel / Alloy Steel	Finishing (With Wiper Edge)	WP				FW	SW		WF	MF2	LUW	AFW
	Finishing - Medium (With Wiper Edge)	WQ			WG	MW	MW		WM	M3	GUW	ASW
	Finishing	DP GP VF	XP XP-T	BE BH FE	SF	FF UF	F FH FS FY PK	WM ZF1	QF PF	FF1	SU FP SP FA FL LU	TF 01 AS TSF
	Finishing - Medium	HQ CQ CJ	XQ	AB B CE CT	NF	FN	SH C SA MV SY	WV WR	QM	MF2	EX GU SK SJ SX UU UJ	TS NS NM CB 11 17 27 ZF
	Medium - Roughing	GS CS HS PS	XS	AE DE AH	TF	MN	MA MH	Z5 ZW1	SM PM	M3 MF3	UA UG	DM TM ZM
	Medium-Roughing High Feed Rate	PT GT HT		AR AY	NR	P	GH	GS	MR	M5 MR5	MU UX	TH 32Y 32 37
	Roughing	Standard PH		RE	GN	PR MG RN	MT Standard	G	Standard 23	MR7	MC MU MX UZ	31 33 F-K
	Roughing One Side / High Feed Rate	PX		H HX HE TE UE	NM	RH RM	HV HX HZ HXD		QR PR HR	R4 R5 R6 R7 RP	HG HP MP	TU 57 65
Stainless Steel	Finishing	GU MQ		BH MP		FP	FS SH FJ	ZF1	MF		SU	SS
	Medium - Roughing	MS MU TK		DE SE PV	TF PP	MP	MS MA MJ ES MH GH GJ	ZP WS	MM MR	MF1 MF3 A3 A5	EX MU UP	SM SA S
Cast Iron	Medium	C Standard		AH VA VY			Standard		KF KM		GZ UX UJ	Standard 33 CF
	Roughing	GC ZS				UN	GH		KR		UZ	CM CH
Non-ferrous Metals	Medium - Roughing	AH			PP	GP MS			AL	95	AG	P

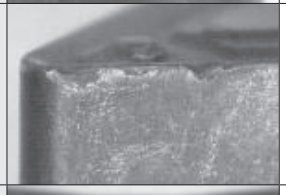
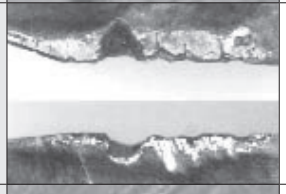
Positive Inserts

Cutting Range		Kyocera		Hitachi	Iscar	Kennametal WIDIA	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy
		General Chip-breaker	Chipbreaker for Sticky Material / Soft Steel									
Carbon Steel / Alloy Steel	Minute ap	CF										01
	Finishing	DP GP VF	XP		PF SM	11 GF UF	FV SQ SV SMG	AZ3 AZ7	PF UF	FF1	FC FK FP LU	PF 23
	Finishing - Medium ①	HQ	XQ	JE	14	LF	MQ MV	AF1	PM UM	F1	SF SU	PS 24
	Finishing - Medium ②	GK		JQ			No Indication	QD	PF PM			
	Medium	Standard		J	Standard	GM MR	Standard	AM3	PR UR KM	F2	MU SC	PM
Stain-less Steel	Finishing	MQ			WF	FW MW	FV		MF		LU	PF SS
Non-ferrous Metals	Finishing - Medium	AH			AF AS	HP	AZ		AL		AG AW	AL

Positive Inserts (Automatic Lathe)

Cutting Range		Kyocera	Hitachi	Iscar	Kennametal WIDIA	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy
Carbon Steel / Alloy Steel	Minute ap	CF									01
	Finishing	CK GF	JQ MP	PF SM	11 UF	FV SV SMG	AZ7 ZR	PF	FF1	FC	PF
	Finishing - Medium	GQ	JE	14	LF	AM MV	AM3	PM	F1	SU	PS
	Medium	GK	J	Standard	MF	Standard	QD	PR	F2	SC	PM
Stain-less Steel	Finishing	MQ		WF	FW MW	FV		MF		LU	PF
Non-ferrous Metals	Finishing - Medium	AH		AF AS	HP	AZ		AL		AG AW	AL

Cutting Edges Figuration and Countermearsures

Typical Cutting Edge Figuration		Observation	Causes	Countermeasures
Nose Wear		• Deterioration of surface roughness and dimensional accuracy	• Too high Vc • End of tool life	• Reduce Vc • Change to higher wear resistant grade
Notching		• Burr formation • Cutting force increase	• Too high f and Vc	• Sharper cutting performance • Reduce Vc • Change to higher heat resistant grade
Crater Wear		• Chip control deterioration • Surface finish deterioration (peeled surface)	• Too high Vc	• Reduce Vc • Change to high speed type like Cermet or Al_2O_3 coated insert
Plastic Deformation		• Workpiece dimension's change • Crack at nose	• Too high cutting load • Inappropriate tool grade	• Change to harder grade • Reduce f and a*p*
Crack from Wear		• Surface finish's sudden deterioration • Workpiece dimension changes	• Too high Vc	• Reduce the pre-set tool life • Change to higher wear resistant grade
Chipping		• Cutting force increase • Surface roughness deterioration	• Too high f • Chattering • Lack of insert toughness	• Reduce f and a*p* • Change to more rigid toolholder • Change to tougher grade
Crack from Welding or Built-up Edge		• Surface finish deterioration • Cutting force increase	• Too low Vc	• Increase Vc • Improve sharp cutting performance (rake angle, chamfer)
Mechanical Fracture		• Sudden cracking • Unstable tool life	• Too high f and a*p* • Chattering	• Change to tougher grade • Enlarge chamfer • Enlarge Corner-R(rε) • Change to more rigid toolholder
Fracture from Thermal Crack		• Cracking by heat cycle • Possible in interrupted cutting and milling	• Too high Vc and f	• Reduce f • Reduce Vc • Change to dry cutting
Flaking		• Possible in high-hardness material cutting • Possible in machining with chattering	• Lack of insert toughness • Lack of toolholder's rigidity	• Change to harder grade (TiC-base ceramic to CBN.) • Change to more rigid toolholder • Change edge preparation

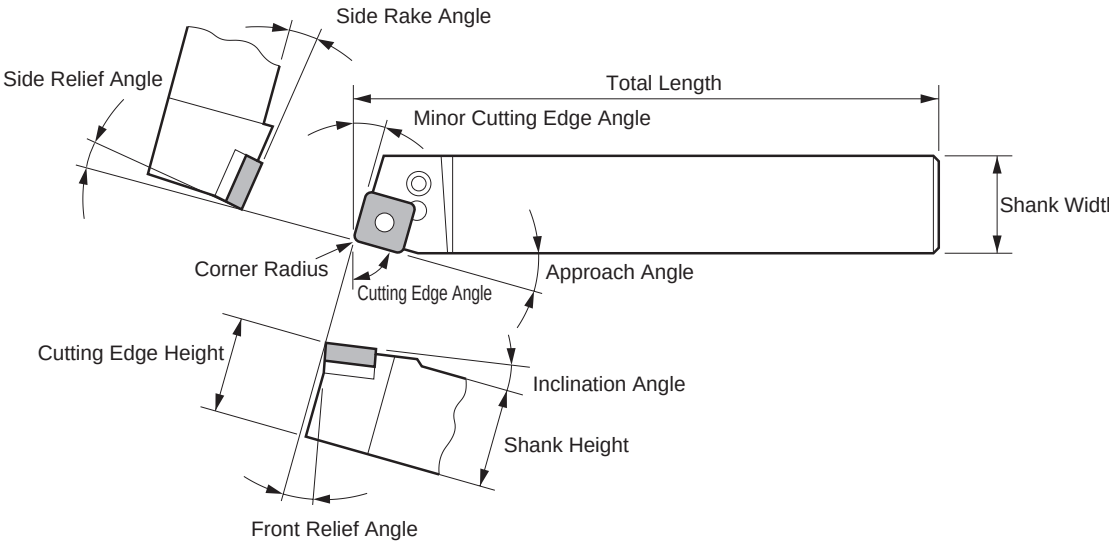
Turning

Trouble	Trouble Item	Measures	Insert Grade: Change to Harder Grade	Insert Grade: Change to Tougher Grade	Insert Grade: Change to More Thermal Shock Resistant Grade	Insert Grade: Change to More Welding Resistant Grade	Cutting Conditions: Vc (Higher (Larger) ↑ Lower (Smaller)↓)	Cutting Conditions: f (Higher (Larger) ↑ Lower (Smaller)↓)	Cutting Conditions: ap (Higher (Larger) ↑ Lower (Smaller)↓)	Cutting Conditions: Tool Path Review	Cutting Conditions: Coolant: Wet	Cutting Conditions: Coolant: Dry	Tool Geometry: Chipbreaker Review	Tool Geometry: Rake Angle (Larger ↑ Smaller ↓)	Tool Geometry: Corner-R (rε) (Larger ↑ Smaller ↓)	Tool Geometry: Approach Angle (Larger ↑ Smaller ↓)	Tool Geometry: Edge Strength / Honing (Larger ↑ Smaller ↓)	Tool Geometry: Change to Higher Tolerance (M→G)	Tool Geometry: Toolholder Rigidity	Setting: Workpiece / Tool Installation	Setting: Overhang Length	Machine: Power, Rigidity
Unstable Dimension	Unstable Workpiece Dimension	Unsuitable Insert Tolerance																●				
		Tool and Workpiece Evacuation											●	●↑	●↓	●↓			●	●	●	●
	Frequent Offset during Cutting	Flank Wear Increase	●												●↑							
		Unsuitable Cutting Conditions					●↓	●↑														
		Built-up Edge				●	●↑															
Surface Roughness	Poor Surface Roughness	Poor Cutting by Tool Wear	●			●	●↓				●		●	●↑	●↑		●↓	●				
		Chipping		●				●↓	●↓				●		●↑		●↑			●	●	●
		Welding, Built-up Edge				●	●↑				●		●	●↑			●↓	●				
		Unsuitable Cutting Conditions					●↑	●↓	●↓		●											
		Unsuitable Tool Geometry											●		●↑		●↓	●				
		Vibration, Chattering		●			●↓	●↓*1	●↓				●	●↑	●↓	●↓	●↓		●	●	●	●
Heat	Deterioration of Accuracy or Tool Life by Cutting Heat	Unsuitable Cutting Conditions					●↓	●↓	●↓		●											
		Unsuitable Tool Geometry	●										●	●↑			●↓					
Bur, Chipping	Burr	Unsuitable Cutting Conditions					●↓	●↑		●	●											
		Unsuitable Tool Geometry	●										●	●↑	●↓	●↓	●↓					
	Workpiece Chip Off	Unsuitable Cutting Conditions						●↓	●↓	●												
		Unsuitable Tool Geometry	●										●	●↑	●↑	●↑	●↓		●	●	●	●
	Scuffing	Unsuitable Cutting Conditions					●↑	●↓*2			●											
		Unsuitable Tool Geometry	●			●							●	●↑			●↓					
Edge Damage	Wear Increase at Relief Face, Rake Face	Flank Wear	●				●↓				●		●	●↑	●↑		●↓					
		Rake Face Wear	●				●↓	●↓	●↓		●		●	●↑		●↑						
	Notching	Notching				●	●↓				●											
	Chipping	Vibration, Chattering		●				●↓	●↓				●			●↑	●↑		●	●	●	●
	Crack	Unsuitable Tool Geometry		●	●			●↓	●↓				●		●↑	●↑	●↑		●	●	●	●
	Thermal Crack	Work Hardness, Unsuitable Cutting Conditions			●		●↓	●↓	●↓			●	●	●↑			●↓					
	Edge Nose Deformation	Edge Nose Deformation at Interrupted Cutting	●				●↓	●↓	●↓				●	●↓	●↑	●↑	●↑					
	Built-up Edge	Work Hardness, Unsuitable Cutting Conditions				●	●↑	●↑			●		●	●↑			●↓	●				
Chip Control	Long, Tangling Chips	Unsuitable Cutting Conditions					●↓*3	●↑	●↑	●		●										
		Unsuitable Tool Geometry											●		●↓	●↓						
	Chips scattering	Unsuitable Cutting Conditions						●↓	●↓			●										
		Unsuitable Tool Geometry											●		●↑	●↑						

*1) To prevent chattering, the higher f may be suitable.
*2) To prevent scuffing, the higher f may be suitable.
*3) When using X-chipbreaker insert for soft steel and low carbon steel, the higher Vc cuts chips short.

Terms and Angles of Toolholder

Terms and Angles of Turning Toolholders



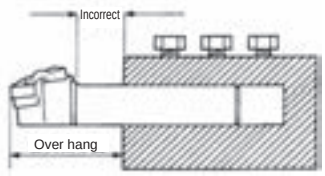
Function of Tool Angle

Tool Angle	Name	Function	Effect
Rake Angle	Side Rake Angle	• Affects cutting force, cutting heat, chip evacuation and tool life.	• If it is positive (+) angle, sharper cutting performance is obtained. (less cutting resistance, less edge strength) • Positive (+) angle is recommended for easy to machine workpieces or thin workpieces. • Smaller rake angle or negative (-) angle is recommended when a stronger edge is required like scale cutting or interrupted cutting.
	Inclination Angle		
Relief Angle	Front Relief Angle Side Relief Angle	• Prevents the tool's contact to the workpiece surface, except the cutting edge.	• When it is small, the cutting edge becomes strong, but the wear at relief faces may shorten the tool life.
Cuting Edge Angle	Cutting Edge Angle	• Affects chip control and the direction of cutting force.	• When it is large, chip thickness becomes thick and chip control improves.
	Approach Angle	• Affects chip control and the direction of cutting force.	• When it is large, chip thickness becomes thin and chip control worsens, but cutting force is dispersed and edge strength improves. • When it is small, chip control ability improves.
	Minor Cutting Edge Angle	• Prevents friction between cutting edge and work surface.	• When it is large, edge strength deteriorates.

Toolholder Rigidity

1. Flexure of Toolholder

$$\delta = \frac{4 \times F \times L^3}{E \times b \times h^3} = \frac{4 \times k \times d \times f \times L^3}{E \times b \times h^3}$$



Symbol	Name	Measure
δ (Delta)	Deflection	mm
b	Shank Width	mm
h	Shank Height	mm
E	Young ratio	N/mm²
d	ap	mm
f	Feed rate	mm/rev
k	Specific Cutting Resistance	N/mm²
L	Over hang	mm
F	Cutting force	N

(F=k x d x f)

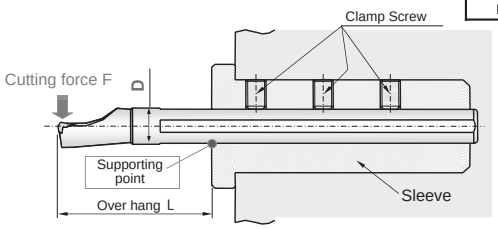
The flexure of toolholder will decrease by increasing of shank height by third root and will decrease of reducing over hang by third root. Minimizing toolholder shank over hang as much as possible is important as well as shank's sectional square measure.

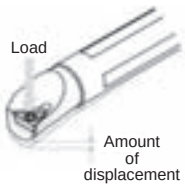
2. Flexure of Boring Bar

$$\delta = \frac{64 \times F \times L^3}{3 \times E \times \pi \times D^4} = \frac{64 \times k \times d \times f \times L^3}{3 \times E \times \pi \times D^4}$$

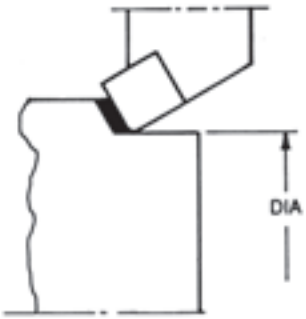
Symbol	Name	Measure
δ (Delta)	Deflection	mm
D	Shank Dia.	mm
E	Young ratio	N/mm²
d	ap	mm
f	Feed rate	mm/rev
k	Specific Cutting Resistance	N/mm²
L	Over hang	mm
F	Cutting force	N

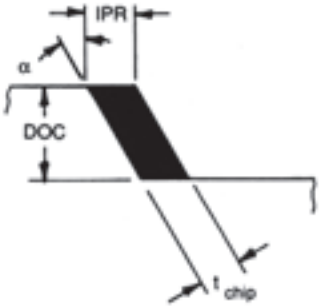
(F=k x d x f)





Turning





Surface Speed per Minute

$SFM = .262 \times DIA \times RPM$

Revolutions per Minute

$$RPM = \frac{3.82 \times SFM}{DIA}$$

Feedrate (inches/minute)

$IPM = IPR \times RPM$

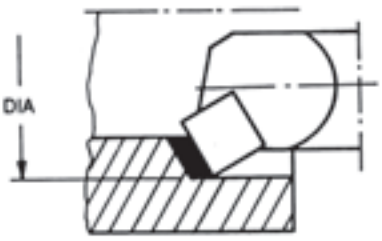
Chip Thinning for Non-Round Inserts (inches/revolution)

$$\text{Programmed IPR} = \frac{t_{chip\ Max}}{\cos\alpha}$$

Chip Thinning for Round Inserts (inches/revolution)

$$\text{Programmed IPR} = \frac{t_{chip\ Max}}{\sqrt{\frac{4ap}{ic} - \left(\frac{2ap}{ic}\right)^2}}$$

Boring



Metal Removal Rate

$Q = 12 \times DOC \times IPR \times SFM\ (in^3/minute)$

Horsepower Required at the Spindle

$HPS = Q \times UHP$

Horsepower Required at the Motor

$$HPM = \frac{HPS}{EFF}$$

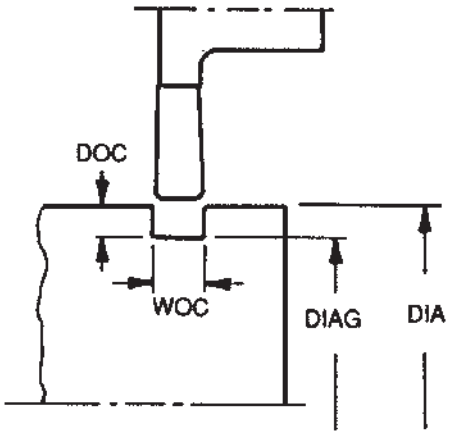
Time in Cut (seconds)

$$T = \frac{15.7 \times DIA \times LOC}{SFM \times IPR}$$

or

$$T = \frac{60 \times LOC}{IPM}$$

External Grooving



Surface Speed per Minute

$SFM = .262 \times DIA \times RPM$

Revolutions per Minute

$$RPM = \frac{3.82 \times SFM}{DIA}$$

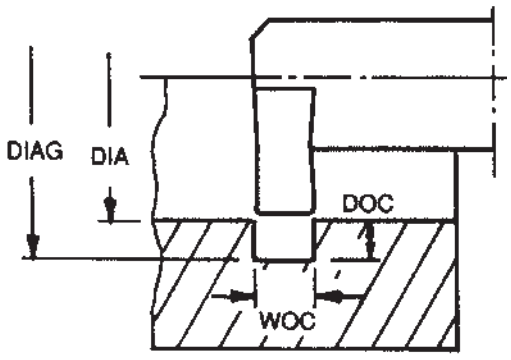
Feedrate (inches/minute)

$IPM = IPR \times RPM$

Feedrate (inches/revolution)

$IPR = t_{chip}$

Internal Grooving



Metal Removal Rate

$Q = 12 \times WOC \times IPR \times SFM\ (cu.\ in/minute)$

Horsepower Required at the Spindle

$HPS = Q \times UHP$

Horsepower Required at the Motor

$$HPM = \frac{HPS}{EFF}$$

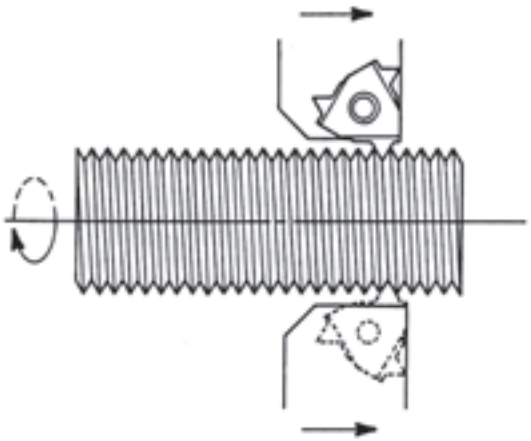
Time in Cut (seconds)

$$T = \frac{7.85 \times DOC \times (DIA + DIAG)}{SFM \times IPR}$$

or

$$T = \frac{60 \times LOC}{IPM}$$

External Threading



Surface Speed per Minute

$$SFM = .262 \times DIA \times RPM$$

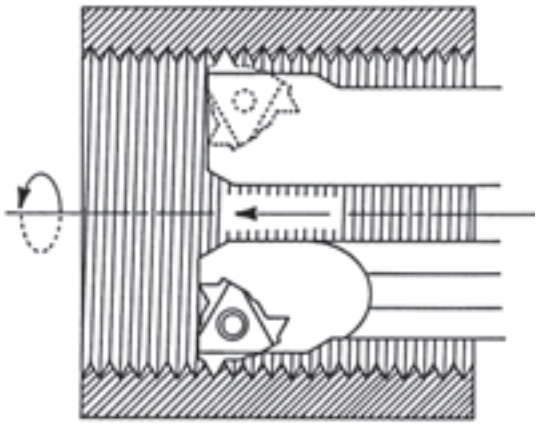
Revolutions per Minute

$$RPM = \frac{3.82 \times SFM}{DIA}$$

Feedrate (inches/minute)

$$IPM = IPR \times RPM$$

Internal Threading



Time in Cut (Seconds)

$$T = \frac{60 \times LOC \times NO.\ OF\ PASSES}{IPR \times RPM}$$

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)

$t_{chip\ Max}$ = Maximum Recommended Chip Thickness (Inches)

UHP = Unit Horsepower Factor

α = Lead Angle

Turning

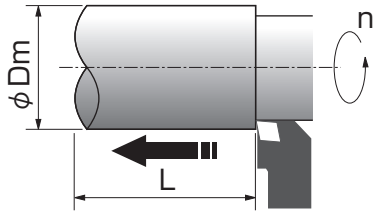
Cutting Speed

$$Vc = \frac{\pi \times Dm \times n}{1000}$$

Vc : Cutting Speed [m/min]

Dm : Workpiece Diameter [mm]

n : Spindle Revolution [min^{-1}]



Power Requirement

$$Pc = \frac{Ks \times Vc \times ap \times f}{6120 \times \eta}$$

$$P_{HP} = \frac{Ks \times Vc \times ap \times f}{4500 \times \eta}$$

Pc : Power Requirement [kW]

P_{HP} : Power Requirement (Horse Power) [HP]

Vc : Cutting Speed [m/min]

ap : Depth Of Cut [mm]

f : Feed Rate [mm/rev]

K_S : Specific Cutting Resistance [kgf/mm^2]

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

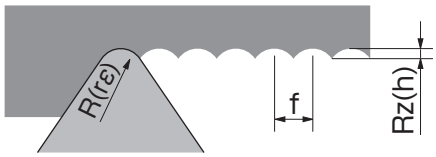
Surface Roughness

$$Rz = h = \frac{f^2}{8 \times R(r\varepsilon)} \times 1000$$

Rz=h : Theoretical Surface Roughness [μm]

f : Feed Rate [mm/rev]

R(rε) : Corner Radius of Insert [mm]



Chip Removal Volume

$$Q = Vc \times ap \times f$$

Q : Chip Removal Volume [cm^3/min]

Vc : Cutting Speed [m/min]

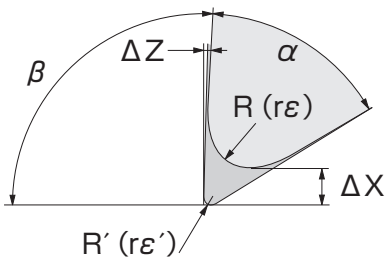
ap : Depth Of Cut [mm]

f : Feed Rate [mm/rev]

Edge position Compensation

$$\Delta X = (R - R') \times \left\{ \frac{\cos\left(\frac{\alpha}{2} + (\beta - 90^\circ)\right)}{\sin\frac{\alpha}{2}} - 1 \right\}$$

$$\Delta Z = (R - R') \times \left\{ \frac{\sin\left(\frac{\alpha}{2} + (\beta - 90^\circ)\right)}{\sin\frac{\alpha}{2}} - 1 \right\}$$



⊿X: X-axis Direction Edge Position Compensation [mm]

⊿Z: Z-axis Direction Edge Position Compensation [mm]

R : Corner-R before Change [mm]

R′: Corner-R after Change [mm]

α : Insert Corner Angle [°]

β : Toolholder's Cutting Edge Angle [°]

Toolholder Type	Insert Corner Angle α	Cutting Edge Angle β	⊿X	⊿Z
PCLN	80°	95°	0.100× (R-R')	0.100× (R-R')
PTGN	60°	91°	0.714× (R-R')	0.030× (R-R')
PDJN	55°	93°	0.866× (R-R')	0.099× (R-R')
PDHN	55°	107.5°	0.531× (R-R')	0.531× (R-R')
PVLN	35°	95°	2.072× (R-R')	0.273× (R-R')
PVPN	35°	117.5°	1.351× (R-R')	1.351× (R-R')
PSBN	90°	75°	0.225× (R-R')	-0.293× (R-R')

Example: Compensation when changing corner-R from 0.8 to 0.4, using PCLN type toolholder,

⊿X=0.100×(0.8-0.4)=0.04(mm)

⊿Z=0.100×(0.8-0.4)=0.04(mm)

Turning (Cutting Time)

Cutting Time (External Turning Case 1: 1 Pass machining)

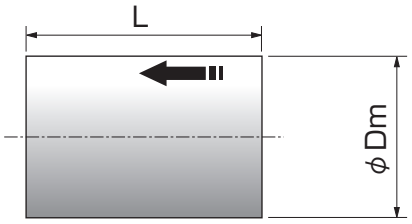
• At Constant Revoluation

$$T = \frac{60 \times L}{f \times n}$$

• At Constant Cutting Speed

$$T = \frac{60 \times \pi \times L \times Dm}{1000 \times f \times Vc}$$

T : Cutting Time [second]
L : Cutting Length [mm]
f : Feed Rate [mm/rev]
n : Spindle Revolution [min^{-1}]
Dm : Workpiece Diameter [mm]
Vc : Cutting Speed [m/min]



Cutting Time (External Turning Case 2: Multi-Pass machining)

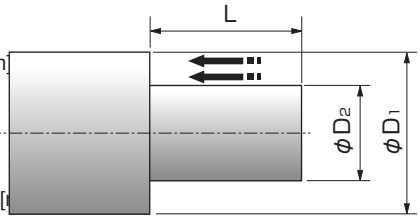
• At Constant Revoluation

$$T = \frac{60 \times L}{f \times n} \times N$$

• At Constant Cutting Speed

$$T = \frac{60 \times \pi \times L \times (D_1 + D_2)}{2 \times 1000 \times f \times Vc} \times N$$

T : Cutting Time [second]
L : Cutting Length per Pass [mm]
ap : Depth Of Cut per Pass [mm]
f : Feed Rate [mm/rev]
n : Spindle Revolution [min^{-1}]
D_1 : Max. Diameter of Workpiece [
D_2 : Min. Diameter of Workpiece [mm]
Vc : Cutting Speed [m/min]
N : Number of Passes = (D_1 - D_2)/ap/2 (if it is indivisible, obtain integer by rounding up one place of decimals.)



Cutting Time (Facing)

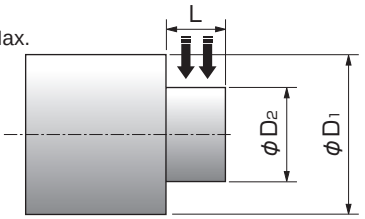
• At Constant Revoluation

$$T = \frac{60 \times (D_1 - D_2)}{2 \times f \times n} \times N$$

• At Constant Cutting Speed

$$T_1 = \frac{60 \times \pi \times (D_1 + D_2) \times (D_1 - D_2)}{4000 \times f \times Vc} \times N$$

T : Cutting Time [second]
T_1 : 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}]
D_1 : Max. Diameter of Workpiece [mm]
D_2 : Min. Diameter of Workpiece [mm]
Vc : Cutting Speed [m/min]
N : Number of Passes = L/ap (if it is indivisible, obtain integer by rounding up one place of decimals.)



Cutting Time (Grooving)

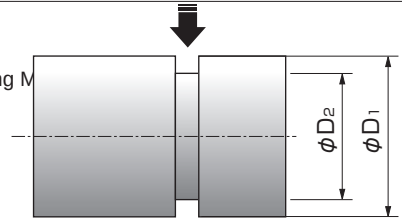
• At Constant Revoluation

$$T = \frac{60 \times (D_1 - D_2)}{2 \times f \times n}$$

• At Constant Cutting Speed

$$T_1 = \frac{60 \times \pi \times (D_1 + D_2) \times (D_1 - D_2)}{4000 \times f \times Vc}$$

T : Cutting Time [second]
T_1 : Machining Time before reaching M Spindle Revolution [second]
L : Cutting Length [mm]
f : Feed Rate [mm/rev]
n : Spindle Revolution [min^{-1}]
D_1 : Max. Diameter of Workpiece [mm]
D_2 : Min. Diameter of Workpiece [mm]
Vc : Cutting Speed [m/min]



Cutting Time (Cut-Off)

• At Constant Revoluation

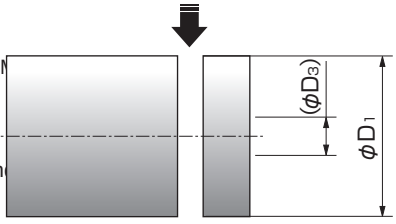
$$T = \frac{60 \times D_1}{2 \times f \times n}$$

• At Constant Cutting Speed

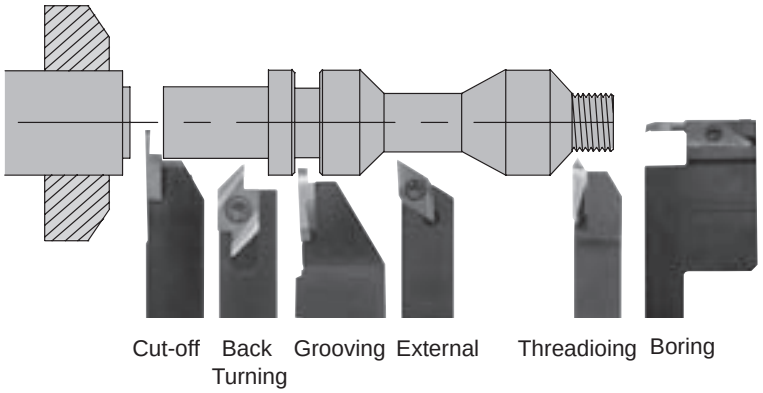
$$T_1 = \frac{60 \times \pi \times (D_1 + D_3) \times (D_1 - D_3)}{4000 \times f \times Vc}$$

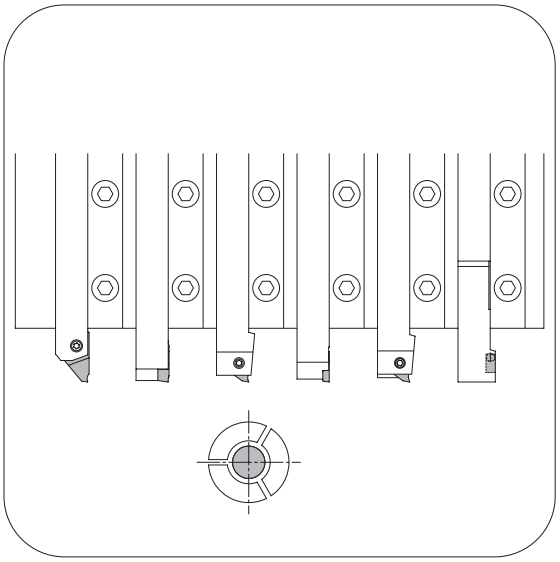
$$T_3 = T_1 + \frac{60 \times D_3}{2 \times f \times n_{max}}$$

T : Cutting Time [second]
T_1 : Machining Time before reaching M Spindle Revolution [second]
T_3 : Machining Time when reaching Max. Spindle Revolution [secon
f : Feed Rate [mm/rev]
n : Spindle Revolution [min^{-1}]
n_{max} : Max. Spindle Revolution [min^{-1}]
D_1 : Max. Diameter of Workpiece [mm]
D_3 : Diameter when reaching Max. Spindle Revolution [mm]
Vc : Cutting Speed [m/min]

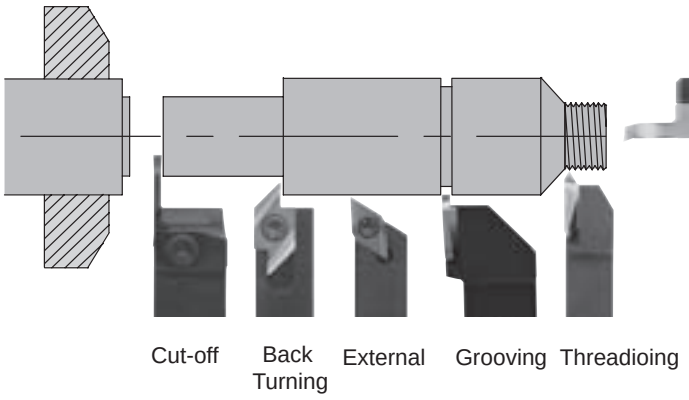


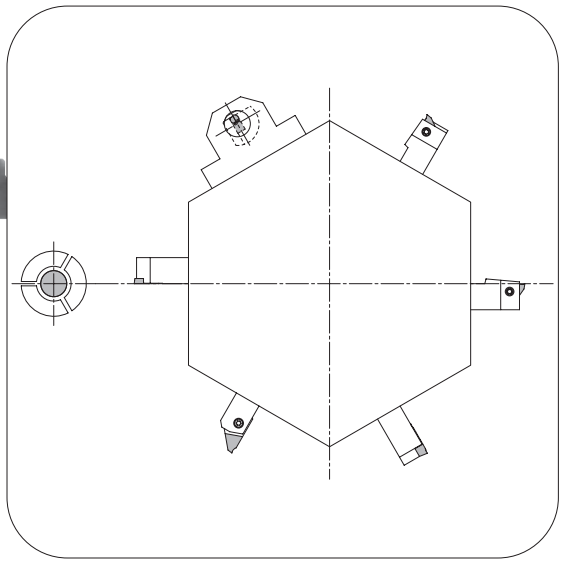
Tooling Example ① CNC Automatic Lathe (Gang Type)





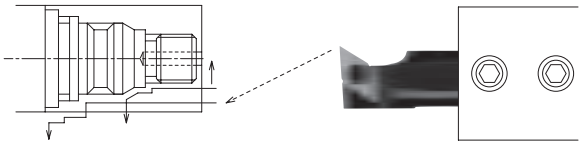
Tooling Example ② CNC Automatic Lathe (Turret Type)



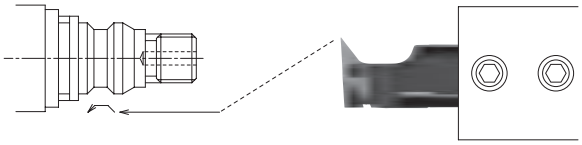


Tooling Example ③ CNC Automatic Lathe (Opposed Gang Type)

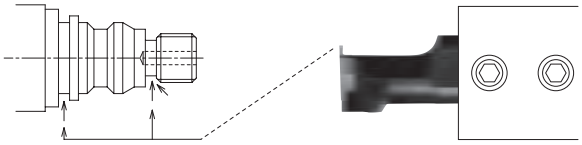
External / Facing



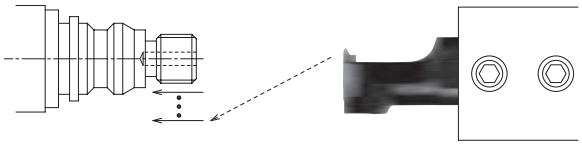
External / Copying



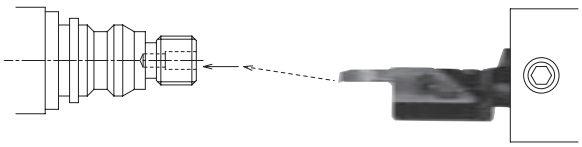
Grooving

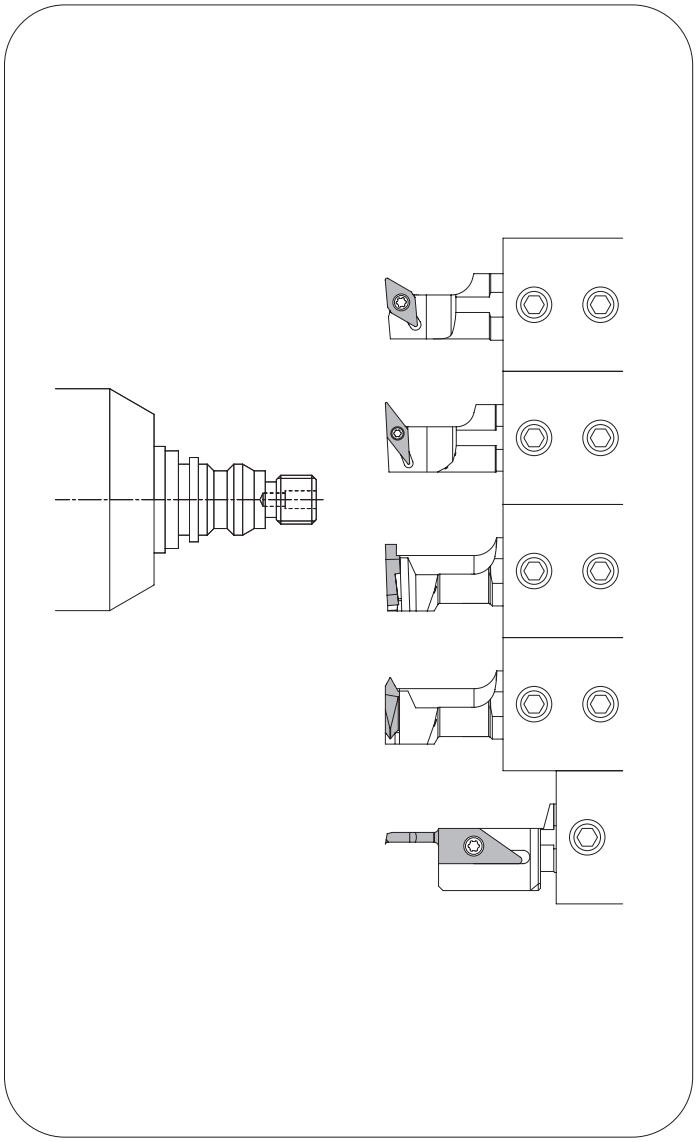


Threading



Boring





Citizen Machinery

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Dia.	Number of tools	Max. Cutting Dia.	Remarks
A12	10×10×100	5			ø19.05 / ø20		ø12	
A16	10×10×100	5			ø19.05 / ø20		ø16	
A20	12(13)×12(13)×120*1	7			ø25.4		ø20	
B12	10×10×100	5			ø19.05 / ø20		ø12	
B20	12(13)×12(13)×120	6			ø19.05 / ø20		ø20	
BL12	10×10×60~120	5			ø20(ø19.05)		ø12	
BL20	12(13)×12(13)×120	4~7			ø20(ø19.05)		ø20	
BL25	12(13)×12(13)×120	4~7			ø20(ø19.05)		ø25	
C12	10×10×120	6			ø19.05		ø12	
C16	10×10×120	6			ø19.05		ø16	
C32	16×16×130	5			ø25.4		ø32	
E16	10×10×60	20			ø19.05		ø16	
E20	16×16×90	20			ø25.4		ø20	
E25	16×16×90	20			ø25.4		ø25	
E32			16(19)×16(13)×90	20	ø25.4		ø32	
F10			10×10×60	10	ø19.05		ø10	
F12			10×10×60	10	ø19.05		ø12	
F16			10×10×60	10	ø19.05		ø16	
F20			16(19)×16(13)×90	10	ø25.4		ø20	
F25			16(19)×16(13)×90	10	ø25.4		ø25	
FL25			16×16×90	12	ø16		ø25	
FL42			16×16×90	12	ø16		ø42	
G32			16(19)×16(19)×90	10	-		ø32	
K12	12×12×100	6			ø19.05 / ø20		ø12	
K16	12×12×100	6			ø19.05 / ø20		ø16	
L10	8×8×100~130	5			ø15.875		ø10	
L16	12(10)×12(10)×130	5			ø19.05		ø16	
L20	12×12×130	5			ø19.05		ø20	
L25	16×16×130	5			ø25.4		ø25	
L32	16×16×130	5			ø25.4		ø32	
M212, M312	10×10×120	5	10×10×60	10	ø19.05		ø12	
M216, M316	10×10×120	5	10×10×60	10	ø19.05		ø16	
M220, M320	16×16×130	5	16×16×90	10	ø25.4		ø20	
M232, M332	16×16×130	5	16×16×90	10	ø25.4		ø32	
M20	13(12)×13(12)×130	5	10×10×60	10	ø19.05		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(ø20)		ø10	
RL02	16×16×90				ø20		ø20	
RL21	10(12)×10(12)×90				ø19.05		ø35	

Star Micronics

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Dia.	Number of tools	Max. Cutting Dia.	Remarks
ECAS-12	10×10×95~150	6	-	-	ø22		ø13	
ECAS-20	12×12×80~150	6	-	-	ø22		ø20	
	16×16×80~144		-	-				
ECAS-32T	16×16×80~120	4	16×16×60~78	St.10	ø22 / ø32		ø32	
			16×16×80~88	St.10				
JNC-10			8×8×80~120	5	ø22		ø10	
JNC-16			10×10×80~120	5	ø22		ø16	
JNC-25 / 32			10×10×78~120	1×St.10	ø22			
KJR-16B / 25B								
KNC-16 / 20								
KNC-25 II / 32 II								
RNC-10 / 16								
RNC-16 / 16B II								
SA-16R								
SB-16 TYPE-A / C / D	12×12×95~130	5	-	-	ø22 / (ø22)	4		
	12(10)×12(10)×95~130	6	-	-	ø22 / ø22	4/4		
SC20	12×12×95~130	5	-	-	ø22	4		
	12(10)×12(10)×95~130	6	-	-		4/4		
SE-12 / 12B•16 / 16B								
SH-7								
SH-12 / 16								
SI-12 / 12C								
SR-10J	8×8×67~110	6			ø16	4		
SR-16 / 20								
SR-20R II	12×12×100~135	6			ø22			
SR-20R III / 20J	12×12×95~135	6	2 (For opposed SP side, deep hole machining)	4/4			ø20, ø30 (ø24)	
SR-25J / 32J	16×16×95~155	6						
SR-32								
SV-12 / 20	12×12×95~135	5	12×12×70~78	St.8	ø22 / ø32			
	16×16×95~135	4	16×16×65~70					
SV-32	16×16×95~135	4	16×16×60~70 / 80~88	St.8	ø22 / ø32			
SV-32J / 32J II	16×16×95~135	4	16×16×65~70	St.8	ø22 / ø32			
SW-7								
VNC-12								
VNC-20								
VNC-32								

Tsugami

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Dia.	Number of tools	Max. Cutting Dia.	Remarks
B007-Ⅱ	7×7×85 (8)×(8)×(85) (10)×(10)×(85)	8			ø25		ø7	
B012-Ⅲ / Ⅴ	12×12×85	9			ø20		ø12	
B018-Ⅲ	12×12×85	9			ø20		ø18	
B020-Ⅴ	12×12×85	9			ø20		ø20	
BA20	12×12×85	6			ø25		ø20	
BA26	12(16)×12(16)×85	6			ø25		ø26	
BC18	12×12×85	10			ø25 / ø10		ø18	
BC25	12×12×85	10			ø10 / ø25		ø25	
BE12	12×12×85	9			ø20		ø12	
BE18	12×12×85	9			ø20		ø18	
BH20	12×12×85	4	12×12×90 16×16×90	St.12	ø25 / ø32		ø20	
BH38	16×16×100	7	20×20×125	St.12	ø25 / ø32		ø38.1	
BM07	8×8×85	9			ø20		ø7	
BM16	12×12×85	9			ø20		ø16	
BM16E	12×12×85	9			ø20		ø16	
BN12	12×12×85	7			ø20		ø12	
BN20	12(16)×12(16)×85	7			ø20		ø20	
BS12-Ⅲ	12×12×85	7 or 10			ø14 / ø25		ø12	
BS12-Ⅴ	12×12×85	8 or 12			ø20 / ø25		ø12	
BS18-Ⅲ	12×12×85	7 or 10			ø14 / ø25		ø18	
BS20-Ⅲ	16×16×100	7 or 10			ø16 / ø25		ø20	
BS20-Ⅴ	12×12×85	8 or 12			ø20 / ø25		ø20	
BS26-Ⅲ	16×16×100	7 or 10			ø16 / ø25		ø26	
BS32-Ⅲ	16×16×100	6			ø16 / ø25		ø32	
BU12	12×12×85	4	12×12×80	St.8	ø20		ø51	
BU20	12×12×85	4	12×12×80	St.8	ø20		ø20	
BU26	16×16×100	7	20×20×90	St.8	ø20 / ø32		ø26	
BU38	16×16×100	7	20×20×90	St.8	ø20 / ø32		ø38	
BW07	12×12×85	7			ø20		ø7	
BW12	12×12×85	7			ø20		ø12	
BW20	12(16)×12(16)×85	7			ø20		ø20	
C004-Ⅱ / Ⅲ	12×12×60~100	6~8			-		ø100	
C15	10×10×60~100	10~14			-		ø75	
C150	12×12×60~100	4~6			-		ø75	
C220	12×12×60~100	6~8			-		ø100	
C300	16×16×100~130	6~10			-		ø150	
M34J	-	-	20×20×125	St.12	ø20 / ø32		ø34	
M42J	-	-	20×20×125	St.12	ø25 / ø32		ø42	
M42SD	-	-	20×20×125	St.12	ø25 / ø32		ø42	
M50	-	-	20×20×100	St.12	ø32		ø51	
M50J	-	-	20×20×100	St.12	ø20 / ø32		ø51	
MB35	-	-	20×20×90	2×St.8	ø20 / ø32		ø35	
MB38	-	-	20×20×90	2×St.8	ø20 / ø32		ø38	
MB50	-	-	20×20×90	2×St.8	ø20 / ø32		ø50	
MU26	-	-	20×20×90	2×St.8	ø20 / ø32		ø26	
MU38	-	-	20×20×90	2×St.8	ø20 / ø32		ø38	
NU50	-	-	20×20×100	St.12	ø20 / ø32		ø51	
TMA8-Ⅱ	20×20×100~125	1			ø25 / ø32		ø65	
TMU1	20×20×100~125	1	20×20×125	St.16	ø25 / ø32		ø38	

・This table is approved by machine manufacturers.
・Manufacturers are in no particular order.

Nomura VTC

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Dia.	Number of tools	Max. Cutting Dia.	Remarks
NN-10C	10×10×130	6			ø17		ø10	
NN-10CS	10×10×130	5			ø17		ø10	
NN-10SB5	10×10×130	5			ø23		ø10	
NN-10S II	10×10×130	5			ø23		ø10	
NN-10T	10×10×130	7			ø23		ø10	
NN-16SB5	10×10×130	5			ø23		ø16	
NN-16H III	12×12×130	6			ø23		ø16	
NN-16UB5	12×12×130	5			ø23		ø16	
NN-16U III	12×12×130	5			ø23		ø16	
NN-16J	12×12×130	6			ø23		ø16	
NN-20H III	12×12×130	6			ø23		ø20	
NN-20UB5	12×12×130	5			ø23		ø20	
NN-20UB7	12×12×130	6			ø23		ø20	
NN-20U III	12×12×130	5			ø23		ø20	
NN-20YB	12×12×130	8			ø23		ø20	
NN-25YB / 32YB	16×16×130	8			ø23 / ø32		ø25	
NS-P1053A	9.5×9.5×130	5			-		ø10	
NN-20J	12×12×130	6			ø23		ø20	
NN-16SB6	12×12×130	5			ø22		ø16	

Miyano

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Dia.	Number of tools	Max. Cutting Dia.	Remarks
ABX-51TH3			20×20×125	St.36	ø25	72	ø51	
ABX-64TH3			20×20×125	St.36	ø25	72	ø64	
ABX-51SY			20×20×125	St.24	ø25	48	ø51	
ABX-64SY			20×20×125	St.24	ø25	48	ø64	
BNC-34C$_5$			20×20×125	St.8	ø25	16	ø34	
BNC-42C$_5$			20×20×125	St.8	ø25	16	ø42	
BND-34C$_5$			20×20×125	St.12	ø25	24	ø34	
BND-34S$_5$			20×20×125	St.12	ø25	24	ø34	
BND-42C$_5$			20×20×125	St.12	ø25	24	ø42	
BND-42S$_5$			20×20×125	St.12	ø25	24	ø42	
BND-51S$_2$			20×20×125	St.12	ø25	24	ø51	
BND-51SY2			20×20×125	St.12	ø25	24	ø51	
BNE-34S5			20×20×125	St.24	ø25	48	ø34	
BNE-34SY5			20×20×125	St.24	ø25	48	ø34	
BNE-51S5			20×20×125	St.24	ø25	48	ø51	
BNE-51SY5			20×20×125	St.24	ø25	48	ø51	
BNJ-34S			20×20×125	St.18	ø25	30	ø34	
BNJ-34SY			20×20×125	St.18	ø25	30	ø34	
BNJ-42S			20×20×125	St.18	ø25	30	ø42	
BNJ-42SY			20×20×125	St.18	ø25	30	ø42	
BNJ-51SY2			20×20×125	St.18	ø25	30	ø51	
BX-20S	16×16×120	9			ø20	8	ø20	
BX-26S	16×16×120	9			ø20	8	ø26	
B6-16	12×12×80	6	12×12×80 (Cross Slide)	St.6	ø38		ø16	Multi-Spindle Automatic Lathe
G6-26		6	13×13×120 (Cross Slide)	St.6	ø41.275		ø26	
F6-26		6	13×13×120 (Cross Slide)	St.6	ø41.275		ø26	
MZ-32		6	13×13×120 (Cross Slide)	St.6	ø41.275		ø32	
E6-C62		6	13×13×120 (Cross Slide)	St.6	ø41.275		ø62	

・This table is approved by machine manufacturers.
・Manufacturers are in no particular order.

Eguro

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Dia.	Number of tools	Max. Cutting Dia.	Remarks
SANAX-6	12×12	5 (Max.)		5	ø16		ø15	
SANAX-8	16×16	5 (Max.)		5	ø25 / ø30		ø20	
	12×12	7 (Max.)		5	ø25 / ø30		ø20	
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	
NUCLET-10EX	16×16	10 (Max.)			ø20		ø25.5	
NUCPAL-10EX	16×16	10 (Max.)			ø20		ø25.5	

Amada Wasino

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Dia.	Number of tools	Max. Cutting Dia.	Remarks
G05	16×16				ø20		ø50×40	
G06	16×16				ø20		ø60×60	
G07	16×16				ø20		ø100×100	
G07M	16×16				ø20		ø100×100	
G07F	20×20				ø20		ø120×120	
GG5	16×16				ø20		ø50×40	
GS04	16×16				ø20		ø30×20	
J1			20×20	8	ø25		ø120×120	
J3			25×25	8	ø32		ø170	
J5			25×25	8	ø32		ø240	
JJ1			20×20	8	ø25		ø50×50	
JJ3			25×25	8	ø32		ø100×100	
JJ3M			25×25	12	ø32		ø100×100	
Ai8			20×20	8	ø25		ø50×50	
A12				12	ø25		ø50×80	
A18S				18	ø25		ø50×80	
AD12				9	ø25		ø50×80	
AD18S				15	ø25		ø50×80	
AA1			20×20	8	ø25		ø50×50	

・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				
Manufacturer	Model (Automatic Lathe)	Toolholder Size	Total Length of Attached Toolholder (MAX)	Corresponding Toolholder No.
Citizen Machinery	A12,A16,B12,RL01,RL21	10×10	100	…1010F-··
	K16,K20	12×12		…1212F-··
	RL02	16×16		…1616H-··
	BL12,C12,C16,M212,M216 M312,MSL12	10×10	120	…1010JX-··
	A20,B20,BL20,BL25	12×12		…1212JX-··
	L16,L20,M20	12×12	130	…1212JX-··
	C32,L25,L32,M220,M232 M320,M332	16×16		…1616JX-··
Star Micronics	SB16A,SB16C,SB16D,SC20	12×12	130	…1212JX-··
	SR20R Ⅱ,SR20Ⅲ,SV12,SV20	12×12	135	…1212JX-··
	SV32,SV32J,SV32J Ⅱ	16×16		…1616JX-··
	ECAS12	10×10	150	…1010JX-··
	ECAS20	12×12		…1212JX-··
	SR25J,SR32J	16×16		…1616JX-··
Nomura VTC	NN-10C,NN-10CS,NN-10SB5,NN-10S Ⅱ NN-10T,NN-16SB5	10×10	130	…1010JX-··
	NN-16HⅢ,NN-16UB5,NN-16UⅢ,NN-16J NN-20HⅢ,NN-20UⅢ,NN-20UB5,NN-20YB	12×12		…1212JX-··
	NN-25YB	16×16		…1616JX-··
Tsugami	B007	10×10	85	…1010F-··
	B0,BA,BC,BM,BU12,BU20 BS12,BS18,BS20	12×12		…1212F-··
	C004	12×12	100	…1212F-··
	BH38,BS26,BS32,BU26,BU32	16×16		…1616H-··

・Manufacturers are in no particular order.

Parts Compatibility of Lever Lock Toolholders

1) For better usability of lever lock toolholders, some levers, lock screws and shims are modified.
2) Using only new parts is most recommended. They however are compatible with conventional parts and can be used together with them.
3) It is possible to use new parts only with a toolholder which has been in use.
4) When purchasing replacements, order them in new numbers.
5) Some of shims remain unmodified.

Category	Reference Page	Toolholder Description		Part					
				Lever		Lock Screw		Shim	
				New No.	Former No.	New No.	Former No.	New No.	Former No.
External Toolholder	D8	PCLN R/L	·····-09	LL-1N	LL-1	LS-1N	LS-1	LC-32N	LC-32
			·····-12	LL-2N	LL-2	LS-2N	LS-2	LC-42N	LC-42
			·····-16	LL-5N	LL-5	LS-4N	LS-4	LC-53N	LC-53
	D11	PDJN R/L	·····-11	LL-1DN	LL-1D	LS-1N	LS-1	LD-32N	LD-32
			·····-15	LL-3N	LL-3	LS-2N	LS-2	LD-42	
	D12	PSBN R/L	·····-09	LL-1N	LL-1	LS-1N	LS-1	LS-32	
			·····-12	LL-2N	LL-2	LS-2N	LS-2	LS-42	
		PSKN R/L	·····-09	LL-1N	LL-1	LS-1N	LS-1	LS-32	
			·····-12	LL-2N	LL-2	LS-2N	LS-2	LS-42	
	D13	PSSN R/L	·····-09	LL-1N	LL-1	LS-1N	LS-1	LS-32	
			·····-12	LL-2N	LL-2	LS-2N	LS-2	LS-42	
		PSDNN	·····-09	LL-1N	LL-1	LS-1N	LS-1	LS-32	
			·····-12	LL-2N	LL-2	LS-2N	LS-2	LS-42	
	D14	PTGN R/L	1212F-11	LL-03N	LL-03	LS-03N	LS-03	-	
			·····-11	LL-03TN	LL-03T	LS-03SN	LS-03S	-	
			·····-16	LL-1N	LL-1	LS-1N	LS-1	LT-32N	LT-32
			·····-22	LL-2N	LL-2	LS-2N	LS-2	LT-42N	LT-42
		PTFN R/L	1212F-11	LL-03N	LL-03	LS-03N	LS-03	-	
			·····-11	LL-03TN	LL-03T	LS-03SN	LS-03S	-	
			·····-16	LL-1N	LL-1	LS-1N	LS-1	LT-32N	LT-32
			·····-22	LL-2N	LL-2	LS-2N	LS-2	LT-42N	LT-42
	D19	PRGC R/L	·····-12	LL-1CN	LL-1C	LS-1N	LS-1	LR-12C	
		PRXC R/L	·····-12						
		PRGN R/L	·····-09	LL-1N	LL-1	LS-1N	LS-1	LR-80	
			·····-12	LL-2N	LL-2	LS-2N	LS-2	LR-81	
	D20	PWLN R/L	·····-06	LL-1N	LL-1	LS-1N	LS-1	LW-32N	LW-32
			·····-08	LL-2N	LL-2	LS-2N	LS-2	LW-42N	LW-42



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T1~T12

Index Descriptions of the products described in this book are listed in alphabetic order.

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16E℔	○○UN	**J8**	Insert (Threading)
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16E℔	○○○ISO	**J6**	Insert (Threading)
16E℔	○○○ISO-M02	**J6**	Insert (Threading)
16E℔	○○○ISO-TF	**J6**	Insert (Threading) / TF series
16E℔	○○○ISO-TS	**J6**	Insert (Threading)
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16I℔	○○BSPT	**J11**	Insert (Threading)
16I℔	○○BSPT-TF	**J11**	Insert (Threading) / TF series
16I℔	○○BSPT-TS	**J11**	Insert (Threading)
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16I℔	○○○ISO	**J7**	Insert (Threading)
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22I℔	○○○ISO	**J7**	Insert (Threading)
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C○○□-	SCLP℔○○-○○-○/○	**F33, F34**	Boring Bars
C○○□-	SDUC℔○○-○○	**F43**	Boring Bars
C○○□-	SJLC℔○○-○○○	**F45**	Boring Bars
C○○□-	SJZC℔○○-○○○	**F45**	Boring Bars
C○○□-	STLB℔○○-○○A	**F49**	Boring Bars (Dynamic Bar)
C○○□-	STUB℔○○-○○	**F52**	Boring Bars
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CCMW ○○T○○○T○○○○○SE	**C11**	Insert (Turning)
CCMW ○○T○○○ME	**C11**	Insert (Turning)
CCMW ○○T○○○ME-T	**C11**	Insert (Turning)
CCMW ○○T○○○SE	**C11**	Insert (Turning)
CCMW ○○T○○○SE-T	**C11**	Insert (Turning)
CCMW ○○T○○○S○○○○○MET	**C11**	Insert (Turning)
CCMW ○○T○○○S○○○○○SET	**C11**	Insert (Turning)
CCMW ○○○T○○○○○SE	**C11**	Insert (Turning)
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CGH-3 R/L	**P15**	Spare Parts (Clamp)
CGIA-3R	**P15**	Spare Parts (Clamp)
CGIA-4R	**P15**	Spare Parts (Clamp)
CGIA-5R	**P15**	Spare Parts (Clamp)
CIN R/L ○○○○S-○○	**J26**	Toolholder (Threading)
CNGA ○○○	**B18, B85, C5**	Insert (Turning)
CNGA ○○○ME	**C5**	Insert (Turning)
CNGA ○○○ME-T	**C5**	Insert (Turning)
CNGA ○○○MEW	**C5**	Insert (Turning)
CNGA ○○○SE	**C5**	Insert (Turning)
CNGA ○○○SE-T	**C5**	Insert (Turning)
CNGA ○○○S○○○○○	**B85, C5**	Insert (Turning)
CNGA ○○○S○○○○○ME	**C5**	Insert (Turning)
CNGA ○○○S○○○○○MET	**C5**	Insert (Turning)
CNGA ○○○S○○○○○MEW	**C5**	Insert (Turning)
CNGA ○○○S○○○○○SE	**C5**	Insert (Turning)
CNGA ○○○S○○○○○SET	**C5**	Insert (Turning)
CNGA ○○○T○○○○○	**B85, C5**	Insert (Turning)
CNGA ○○○T○○○○○ME	**C5**	Insert (Turning)
CNGA ○○○T○○○○○SE	**C5**	Insert (Turning)
CNGA ○○○-T○○	**B85**	Insert (Turning)
CNGG ○○○AH	**B18**	Insert (Turning)
CNGG ○○○DP	**B14**	Insert (Turning)
CNGG ○○○FP-TK	**B18, B44**	Insert (Turning)
CNGG ○○○HQ	**B14**	Insert (Turning)
CNGG ○○○R/L	**B18, B19**	Insert (Turning)
CNGG ○○○R/L-25R	**B18**	Insert (Turning)
CNGG ○○○R/L-A3	**B18**	Insert (Turning)
CNGG ○○○R/L-S	**B18, B19**	Insert (Turning)
CNGG ○○○TK	**B17**	Insert (Turning)
CNGG ○○○Z	**B18**	Insert (Turning)
CNGM ○○○BB○	**C5**	Insert (Turning)
CNGM ○○○S○○○○○BB○	**C5**	Insert (Turning)
CNGN ○○○	**B85**	Insert (Turning)
CNGN ○○○S○○○○○	**B85**	Insert (Turning)
CNGN ○○○T○○○○○	**B85**	Insert (Turning)
CNGU ○○○ME R/L-U	**B42**	Insert (Turning)
CNGU ○○○MF R/L-F	**B42**	Insert (Turning)
CNGU ○○○MF R/L-U	**B42**	Insert (Turning)
CNGU ○○○MF-SK	**B42**	Insert (Turning)
CNGU ○○○MFP-SK	**B42**	Insert (Turning)
CNGX ○○○T○○○○○	**B85**	Insert (Turning)
CNMA ○○○	**B18, B19, B85**	Insert (Turning)
CNMA ○○○S○○○○○	**B85**	Insert (Turning)
CNMA ○○○-T○○	**B85**	Insert (Turning)
CNMG ○○○	**B16, B19**	Insert (Turning)
CNMG ○○○AH	**B18**	Insert (Turning)
CNMG ○○○C	**B17, B19**	Insert (Turning)
CNMG ○○○CJ	**B14**	Insert (Turning)

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CNMG ○○○GC	**B18, B19**	Insert (Turning)
CNMG ○○○GP	**B14, B19**	Insert (Turning)
CNMG ○○○GS	**B15, B19**	Insert (Turning)
CNMG ○○○GT	**B15, B19**	Insert (Turning)
CNMG ○○○GU	**B17**	Insert (Turning)
CNMG ○○○HK	**B15**	Insert (Turning)
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CNMG ○○○HS	**B15, B19**	Insert (Turning)
CNMG ○○○HT	**B15, B19**	Insert (Turning)
CNMG ○○○HU	**B17**	Insert (Turning)
CNMG ○○○MQ	**B17**	Insert (Turning)
CNMG ○○○MS	**B17**	Insert (Turning)
CNMG ○○○MU	**B17**	Insert (Turning)
CNMG ○○○PH	**B16**	Insert (Turning)
CNMG ○○○PS	**B15**	Insert (Turning)
CNMG ○○○PT	**B15**	Insert (Turning)
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CNMG ○○○TN-V	**B15**	Insert (Turning)
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CNMG ○○○WQ	**B14, B19**	Insert (Turning)
CNMG ○○○XP	**B16, B19**	Insert (Turning)
CNMG ○○○XP-T	**B16, B19**	Insert (Turning)
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CNMM ○○○M-NE	**C18**	Insert (Turning)
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CNMM ○○○PX	**B16**	Insert (Turning)
CNMN ○○○	**B85, C11**	Insert (Turning)
CNMN ○○○S○○○○○	**C11**	Insert (Turning)
CNMN ○○○T○○○○○	**B85**	Insert (Turning)
CNMP ○○○TK	**B14, B19**	Insert (Turning)
CNMU ○○○E-GK	**B42**	Insert (Turning)
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CPGB ○○○SE-T	**C11**	Insert (Turning)
CPGB ○○○S○○○○○MET	**C11**	Insert (Turning)
CPGB ○○○S○○○○○SET	**C11**	Insert (Turning)
CPGB ○○○T○○○○○	**C11**	Insert (Turning)
CPGB ○○○T○○○○○ME	**C11**	Insert (Turning)
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CPMB ○○○	**B50**	Insert (Turning)
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CPMT ○○○XP	**B50, B51**	Insert (Turning)
CPMT ○○○XQ	**B50, B51**	Insert (Turning)
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CPS-2	**P14**	Spare Parts (Clamp Set)
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CPS-5F	**P14**	Spare Parts (Clamp Set)
CPS-5R	**P14**	Spare Parts (Clamp Set)
CPS-5S	**P14**	Spare Parts (Clamp Set)
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CRDNN ○○○○□-○○A	**D40**	Toolholder (Turning)
CRSNR ○○○○□-○○	**D29**	Toolholder (Turning)
CRSNR ○○○○□-○○A	**D33**	Toolholder (Turning)
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CSDNN ○○○○□-○○	**D30**	Toolholder (Turning)
CSDNN ○○○○□-○○A	**D41**	Toolholder (Turning)
CSDNN ○○○○□-○○GX	**D37**	Toolholder (Turning)
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CSKPR ○○○○□-○○N	**E36**	Toolholder (Turning)
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CTJNR ○○○○□-○○	**D34**	Toolholder (Turning)
CTJNR ○○○○□-○○A	**D43**	Toolholder (Turning)
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DC-44	**P8**	Spare Parts (Shim)
DCET ○○○(○) FR-JSF	**B57**	Insert (Turning)
DCET ○○○(○) FR-USF	**B56**	Insert (Turning)
DCET ○○○(○) MFR-JSF	**B57**	Insert (Turning)
DCET ○○○(○) MFR-USF	**B56**	Insert (Turning)
DCET ○○○(○) MR-FSF	**B55**	Insert (Turning)
DCET ○○○(○) R-FSF	**B55**	Insert (Turning)
DCGT ○○○	**B53, B58**	Insert (Turning)
DCGT ○○○AH	**B57**	Insert (Turning)
DCGT ○○○CF	**B52, B58**	Insert (Turning)
DCGT ○○○CK	**B52**	Insert (Turning)
DCGT ○○○EN-Z	**B58**	Insert (Turning)
DCGT ○○○(○) ER-J	**B57**	Insert (Turning)
DCGT ○○○ER-U	**B56, B58**	Insert (Turning)
DCGT ○○○FN-Z	**B54, B58**	Insert (Turning)
DCGT ○○○(○) FR-J	**B57**	Insert (Turning)
DCGT ○○○(○) FR-U	**B56, B58**	Insert (Turning)
DCGT ○○○(○) M	**B53**	Insert (Turning)
DCGT ○○○(○) MER-J	**B57**	Insert (Turning)
DCGT ○○○MER-U	**B56**	Insert (Turning)
DCGT ○○○(○) MF	**B53**	Insert (Turning)
DCGT ○○○MF-GF	**B52**	Insert (Turning)
DCGT ○○○MF-GQ	**B53**	Insert (Turning)
DCGT ○○○MFP-GF	**B52**	Insert (Turning)
DCGT ○○○MFP-GQ	**B53**	Insert (Turning)
DCGT ○○○(○) MFR-J	**B57**	Insert (Turning)
DCGT ○○○(○) MFR-U	**B56**	Insert (Turning)
DCGT ○○○(○) MR-F	**B55**	Insert (Turning)
DCGT ○○○M-CF	**B52**	Insert (Turning)
DCGT ○○○MP-CF	**B52**	Insert (Turning)

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DCGT	○○○MP-CK	**B52**	Insert (Turning)
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DCGT	○○○(○) R/L-F	**B55**	Insert (Turning)
DCGT	○○○R/L-FS	**B55**	Insert (Turning)
DCGW	○○○	**B57**	Insert (Turning)
DCLNR/L	○○○○□-○○	**D8**	Toolholder (Turning)
DCMT	○○○	**B53, B58, C20**	Insert (Turning)
DCMT	○○○GK	**B53, B58**	Insert (Turning)
DCMT	○○○GP	**B52, B58**	Insert (Turning)
DCMT	○○○HQ	**B53, B58**	Insert (Turning)
DCMT	○○○MQ	**B54**	Insert (Turning)
DCMT	○○○NE	**C20**	Insert (Turning)
DCMT	○○○R/L-NE	**C20**	Insert (Turning)
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DCMT	○○○XQ	**B54, B58**	Insert (Turning)
DCMW	○○○	**C12**	Insert (Turning)
DCMW	○○○ME	**C12**	Insert (Turning)
DCMW	○○○ME-T	**C12**	Insert (Turning)
DCMW	○○○SE	**C12**	Insert (Turning)
DCMW	○○○SE-T	**C12**	Insert (Turning)
DCMW	○○○S○○○○○MET	**C12**	Insert (Turning)
DCMW	○○○S○○○○○SET	**C12**	Insert (Turning)
DCMW	○○○T○○○○○	**C12**	Insert (Turning)
DCMW	○○○T○○○○○ME	**C12**	Insert (Turning)
DCMW	○○○T○○○○○SE	**C12**	Insert (Turning)
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DD-44		**P8**	Spare Parts (Shim)
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DDHNR/L	○○○○□-○○○○	**D10**	Toolholder (Turning)
DNGA	○○○	**B86, C7**	Insert (Turning)
DNGA	○○○ME	**C6**	Insert (Turning)
DNGA	○○○ME-T	**C6**	Insert (Turning)
DNGA	○○○SE	**C6**	Insert (Turning)
DNGA	○○○SE-T	**C7**	Insert (Turning)
DNGA	○○○S○○○○○	**B86, C6**	Insert (Turning)
DNGA	○○○S○○○○○ME	**C6**	Insert (Turning)
DNGA	○○○S○○○○○MET	**C6**	Insert (Turning)
DNGA	○○○S○○○○○SE	**C6**	Insert (Turning)
DNGA	○○○S○○○○○SET	**C6**	Insert (Turning)
DNGA	○○○T○○○○○	**B86, C6**	Insert (Turning)
DNGA	○○○T○○○○○ME	**C6**	Insert (Turning)
DNGA	○○○T○○○○○SE	**C6**	Insert (Turning)
DNGA	○○○-T○○	**B86**	Insert (Turning)
DNGG	○○○AH	**B23**	Insert (Turning)
DNGG	○○○DP	**B20**	Insert (Turning)
DNGG	○○○FP-TK	**B23, B44**	Insert (Turning)
DNGG	○○○R/L	**B23, B24**	Insert (Turning)
DNGG	○○○R/L-A3	**B23**	Insert (Turning)
DNGG	○○○R/L-S	**B23, B24**	Insert (Turning)
DNGG	○○○TK	**B22**	Insert (Turning)
DNGM	○○○BB○	**C7**	Insert (Turning)
DNGM	○○○S○○○○○BB○	**C7**	Insert (Turning)
DNGN	○○○	**B86**	Insert (Turning)
DNGN	○○○S○○○○○	**B86**	Insert (Turning)
DNGN	○○○T○○○○○	**B86**	Insert (Turning)
DNGU	○○○ME R/L-U	**B43**	Insert (Turning)
DNGU	○○○(○) MF R/L-F	**B43**	Insert (Turning)
DNGU	○○○MF R/L-U	**B43**	Insert (Turning)
DNGU	○○○MF-SK	**B43**	Insert (Turning)
DNGU	○○○MFP-SK	**B43**	Insert (Turning)
DNGX	○○○T○○○○○	**B86**	Insert (Turning)
DNMA	○○○	**B23, B24**	Insert (Turning)
DNMG	○○○	**B21, B24**	Insert (Turning)
DNMG	○○○AH	**B23**	Insert (Turning)
DNMG	○○○C	**B23, B24**	Insert (Turning)
DNMG	○○○CJ	**B20**	Insert (Turning)

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DNMG	○○○GC	**B23, B24**	Insert (Turning)
DNMG	○○○GP	**B20, B24**	Insert (Turning)
DNMG	○○○GS	**B21, B24**	Insert (Turning)
DNMG	○○○GT	**B21, B24**	Insert (Turning)
DNMG	○○○GU	**B22**	Insert (Turning)
DNMG	○○○HK	**B20**	Insert (Turning)
DNMG	○○○HQ	**B20, B24**	Insert (Turning)
DNMG	○○○HS	**B21, B24**	Insert (Turning)
DNMG	○○○HT	**B21, B24**	Insert (Turning)
DNMG	○○○HU	**B22**	Insert (Turning)
DNMG	○○○MQ	**B22**	Insert (Turning)
DNMG	○○○MS	**B22**	Insert (Turning)
DNMG	○○○MU	**B22**	Insert (Turning)
DNMG	○○○PH	**B21**	Insert (Turning)
DNMG	○○○PS	**B21**	Insert (Turning)
DNMG	○○○PT	**B21**	Insert (Turning)
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DNMG	○○○TK	**B22**	Insert (Turning)
DNMG	○○○TN-V	**B20**	Insert (Turning)
DNMG	○○○XP	**B22, B24**	Insert (Turning)
DNMG	○○○XP-T	**B22, B24**	Insert (Turning)
DNMG	○○○XQ	**B22, B24**	Insert (Turning)
DNMG	○○○XS	**B22, B24**	Insert (Turning)
DNMG	○○○ZS	**B23, B24**	Insert (Turning)
DNMM	○○○M	**C18**	Insert (Turning)
DNMM	○○○M-NE	**C18**	Insert (Turning)
DNMM	○○○M-SE	**C18**	Insert (Turning)
DNMM	○○○PX	**B21**	Insert (Turning)
DNMP	○○○TK	**B20, B24**	Insert (Turning)
DNMU	○○○E-GK	**B43**	Insert (Turning)
DPET	○○○(○) FR/L-USF	**B59**	Insert (Turning)
DPET	○○○(○) MR/L-FSF	**B59**	Insert (Turning)
DPET	○○○(○) MFR/L-USF	**B59**	Insert (Turning)
DPET	○○○(○) R/L-FSF	**B59**	Insert (Turning)
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DSBNR/L	○○○○□-○○	**D12**	Toolholder (Turning)
DT-7		**P17**	Spare Parts (Torx Wrench / Screwdriver type)
DT-32		**P8**	Spare Parts (Shim)
DTGNR/L	○○○○□-○○	**D14**	Toolholder (Turning)
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DVPNR/L	○○○○□-○○	**D20**	Toolholder (Turning)
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DVVNN	○○○○□-○○	**D20**	Toolholder (Turning)
E			
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ENGN	○○○S○○○○○	**B87**	Insert (Turning)
ENGN	○○○T○○○○○	**B87**	Insert (Turning)
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E○○□-	SCLCR/L○○-○○A	**F29**	Boring Bars (Dynamic Bar)
E○○□-	SCLCR/L○○-○○A-○/○	**F27**	Boring Bars (Dynamic Bar)
E○○□-	SCLPR/L○○-○○	**F33**	Boring Bars
E○○□-	SCLPR/L○○-○○A	**F31**	Boring Bars (Dynamic Bar)
E○○□-	SCLPR/L○○-○○A-○/○	**F31**	Boring Bars (Dynamic Bar)
E○○□-	SDQCR/L○○-○○A	**F40**	Boring Bars (Dynamic Bar)
E○○□-	SDQCR/L○○-○○A-○/○	**F40**	Boring Bars (Dynamic Bar)
E○○□-	SDUCR/L○○-○○A	**F38**	Boring Bars (Dynamic Bar)
E○○□-	SDUCR/L○○-○○A-○/○	**F38**	Boring Bars (Dynamic Bar)
E○○□-	SDZCR/L○○-○○A	**F41**	Boring Bars (Dynamic Bar)
E○○□-	STLPR/L○○-○○A	**F49**	Boring Bars (Dynamic Bar)
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E○○□-	SWUB型○○-○○A	F73	Boring Bars (Dynamic Bar)
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GBA	○○型○○○R	G14	Insert (Grooving)
GBA	○○型○○○-○○○N	G10	Insert (Grooving)
GBA	○○型○○○-○○○MY	G13	Insert (Grooving)
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GDFM	○○○○N-○○○GM	G30	Insert (Face Grooving)
GDFMS	○○○○N-○○○DM	G30	Insert (Face Grooving)
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MVN-32		**P10**	Spare Parts (Shim)
MVVNN	○○○○□-○○	**D22**	Toolholder (Turning)
P			
P-03		**P7**	Spare Parts (Shim Pin)
P-03S		**P7**	Spare Parts (Shim Pin)
PC-1		**P18**	Spare Parts (Punch)
PC-2		**P18**	Spare Parts (Punch)
PCLN℔	○○○○□-○○	**D9**	Toolholder (Turning)
PCLNR	○○○○□□-○○FF	**E18**	Toolholder (Double Sided Tooling)
PDHN℔	○○○○□-○○	**D11**	Toolholder (Turning)
PDJN℔	○○○○□-○○	**D11**	Toolholder (Turning)
PDJN℔	○○○○□-○○U	**D11**	Toolholder (Turning)
PH	○○○○-○○	**F91**	Sleeve (for Tip-Bar)
PRGC℔	○○○○□-○○	**D13**	Toolholder (Turning)
PRGC℔	○○○○□-○○BE	**D44**	Toolholder (Turning)
PRGC℔	○○○○□-○○BF	**D44**	Toolholder (Turning)
PRGN℔	○○○○□-○○	**D12**	Toolholder (Turning)
PRXC℔	○○○○□-○○	**D13**	Toolholder (Turning)
PSB℔	○○○○-○○NBS	**C17, C27, F26**	Tip-Bar (Boring)
PSB℔	○○○○-○○S	**F26**	Tip-Bar (Boring)
PSBN℔	○○○○□-○○	**D15**	Toolholder (Turning)
PSBT℔	○○○○-○○S	**F26**	Tip-Bar (Boring)
PSDNN	○○○○□-○○	**D15**	Toolholder (Turning)
PSH	○○○○(.○) -○○(○)	**F25, F90, G67**	Sleeve (for 2 edges Tip-Bar)
PSKN℔	○○○○□-○○	**D15**	Toolholder (Turning)
PSSN℔	○○○○□-○○	**D15**	Toolholder (Turning)
PTFN℔	○○○○□-○○	**D14**	Toolholder (Turning)
PTGN℔	○○○○□-○○	**D18**	Toolholder (Turning)
PTLNR	○○○○□□-○○FF	**E19**	Toolholder (Double Sided Tooling)
PVLN℔	○○○○□-○○Q	**D21**	Toolholder (Turning)
PVPN℔	○○○○□-○○Q	**D21**	Toolholder (Turning)
PVVNN	○○○○□-○○Q	**D21**	Toolholder (Turning)
PWLN℔	○○○○□-○○	**D24**	Toolholder (Turning)
R			
RBG	○○K○○○○○	**B93**	Insert (Turning)
RBG	○○W	**B93**	Insert (Turning)
RCGX	○○○○M0-AQ	**B60**	Insert (Turning)
RCGX	○○○K○○○○○	**B93**	Insert (Turning)
RCGX	○○○P○○○○○	**B93**	Insert (Turning)
RCGX	○○○S○○○○○	**B93**	Insert (Turning)
RCGX	○○○T○○○○○	**B93**	Insert (Turning)
RCMT	○○○○M0-BB	**B80, D37**	Insert (Turning)
RCMX	○○○○M0	**B60, B62**	Insert (Turning)
RNG	○○○	**B87**	Insert (Turning)
RNG	○○○P○○○○○	**B87**	Insert (Turning)
RNG	○○○S○○○○○	**B87**	Insert (Turning)
RNG	○○○T○○○○○	**B87**	Insert (Turning)
RNMG	○○○	**B25**	Insert (Turning)
RNM	○○○	**C10**	Insert (Turning)
RNM	○○○S○○○○○	**C10**	Insert (Turning)
RPMT	○○○○M0-BB	**B80**	Insert (Turning)
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S○○□-	CDUN℔○○-○○GX	**F87**	Boring Bar
S○○□-	CELN℔○○-○○	**F86**	Boring Bar
S○○□-	CSKN℔○○-○○	**F86**	Boring Bar
S○○□-	CSKN℔○○-○○A	**F88**	Boring Bar
S○○□-	CSKN℔○○-○○GX	**F87**	Boring Bar
S○○□-	CSKP℔○○-○○	**F76**	Boring Bar
S○○□-	CTUC℔○○-○○	**F86**	Boring Bar
S○○□-	CTUN℔○○-○○A	**F88**	Boring Bar
S○○□-	CTUP℔○○-○○	**F57**	Boring Bar
S○○(.○) □-	KTGFL16	**G50**	Sleeve Holder (Grooving)
S○○□-	KTTXL16	**J23**	Sleeve Holder (Threading)
S○○□-	PCLN℔○○-○○	**F82**	Boring Bar
S○○□-	PDUN℔○○-○○	**F83**	Boring Bar
S○○□-	PTUN℔○○-○○	**F84**	Boring Bar
S○○□-	PWLN℔○○-○○	**F85**	Boring Bar
S○○□-	SCLCL○○	**E33**	Sleeve Holder (Turning)
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S○○□-	SDQC℔○○-○○A	**F39**	Boring Bar (Dynamic Bar)
S○○□-	SDUCL○○	**E34**	Sleeve Holder (Turning)
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SP-523P		**P11**	Spare Parts (Shim)
SP-541		**P11**	Spare Parts (Shim)
SP-543		**P11**	Spare Parts (Shim)
SP-826		**P11**	Spare Parts (Shim)
SP-829		**P11**	Spare Parts (Shim)
SP-841		**P11**	Spare Parts (Shim)
SP-843		**P11**	Spare Parts (Shim)
SP-849		**P11**	Spare Parts (Shim)
SP-861		**P11**	Spare Parts (Shim)
SPGH	○○○R	**B61**	Insert (Turning)
SPG	○○○	**B61, B92, C24**	Insert (Turning / Milling)
SPG	○○○NE	**C24**	Insert (Turning)
SPG	○○○S○○○○○	**B92**	Insert (Turning)
SPG	○○○T○○○○○	**B92**	Insert (Turning)
SPGR	○○○R	**B61**	Insert (Turning)
SPM	○○○	**B61, B62**	Insert (Turning / Milling)
SPMR	○○○	**B61**	Insert (Turning)
SPMR	○○○G	**B61, B62**	Insert (Turning)
SP-RC		**P11**	Spare Parts (Shim)
SRCPR	○○○○B-○○-A○○	**F63**	Boring Bar (for Bearing Machining)
SS-4N		**P6**	Spare Parts (Shim Screw)
STGCR	○○○○□-○○	**E27**	Toolholder (Turning)
STGPR	○○○○□-○○	**E27**	Toolholder (Turning)
STLNR	○○○○□-○○FF	**E17**	Toolholder (for Small Double-Sided Tools)
STWR	○○○○□-15	**F15**	Toolholder (for Twin Bar)
STWSR	○○○○□(□)-15T	**F15**	Toolholder (for Twin Bar)
SVJBR	○○○○□-○○	**E28**	Toolholder (Turning)
SVJBR	○○○○□-○○F	**E42**	Toolholder (Turning)
SVJBR	○○○○□-○○N	**E28**	Toolholder (Turning)
SVJBR	○○○○□□-○○FF	**E28**	Toolholder (Turning)
SVJPR	○○○○□(□)-○○FF	**E30**	Toolholder (Turning)
SVLPR	○○○○□-○○F	**E42**	Toolholder (Turning)
SVLPR	○○○○□□-○○-F○○	**E15**	Toolholder (Goose-neck holder)
SVLPR	○○○○□(□)-○○FF	**E30, E42**	Toolholder (Turning)
SVNR	○○○○□-12	**F19**	Toolholder (for System Tip-Bar)
SVNR	○○○○□-12N	**F18**	Toolholder (for System Tip-Bar)
SVN-32		**P12**	Spare Parts (Shim)
SVN-32N		**P12**	Spare Parts (Shim)
SVNSR	○○○○□-12-○○	**F19**	Toolholder (for System Tip-Bar)
SVNSR	○○○○□-12-○○N	**F18**	Toolholder (for System Tip-Bar)
SVPBR	○○○○□(□)-○○	**E29, E42**	Toolholder (Turning)
SVPBR	○○○○□-○○N	**E29**	Toolholder (Turning)
SVPPR	○○○○□-○○	**E31, E42**	Toolholder (Turning)
SVPPR	○○○○□(□)-○○FF	**E31**	Toolholder (Turning)
SVVBN	○○○○□ (□) -○○	**E29, E42**	Toolholder (Turning)
SVVBN	○○○○□-○○N	**E29**	Toolholder (Turning)
SYXPR	○○○○□-○○F	**E32**	Toolholder (Turning)

T

TBG	○○○	**B92, C16,**	Insert (Turning)
TBG	○○○S○○○○○	**B92**	Insert (Turning)
TBG	○○○T○○○○○	**B91, C16**	Insert (Turning)
TBGT	○○○CF	**B63, B65**	Insert (Turning)
TBGT	○○○(○) MR	**B63**	Insert (Turning)
TBGT	○○○M-CF	**B63**	Insert (Turning)
TBGT	○○○MP-CF	**B63**	Insert (Turning)
TBGT	○○○(○) R	**B63, B65**	Insert (Turning)
TBGW	○○○	**B63, B65, C20**	Insert (Turning)
TBGW	○○○NE	**C20**	Insert (Turning)
TBMT	○○○	**C20**	Insert (Turning)
TBMT	○○○DP	**B63, B65**	Insert (Turning)
TBMT	○○○NE	**C20**	Insert (Turning)
TCET	○○○(○) FR-USF	**B64**	Insert (Turning)
TCET	○○○(○) MFR-USF	**B64**	Insert (Turning)
TCG	○○○	**B64, B92**	Insert (Turning)
TCG	○○○T○○○○○	**B92**	Insert (Turning)
TCGR	○○○R-F	**B64**	Insert (Turning)
TCGT	○○○ER-U	**B64, B65**	Insert (Turning)
TCGT	○○○(○) FR-U	**B63, B65**	Insert (Turning)
TCGT	○○○MER-U	**B64**	Insert (Turning)
TCGT	○○○(○) MFR-U	**B63**	Insert (Turning)
TCGT	○○○R	**B64**	Insert (Turning)
TCGT	○○○R-A3	**B64**	Insert (Turning)
TCGW	○○○	**B64, C20**	Insert (Turning)
TCGW	○○○NE	**C20**	Insert (Turning)
TCGW	○○○SE	**C20**	Insert (Turning)
TCMT	○○○	**C20, C20**	Insert (Turning)
TCMT	○○○HQ	**B63, B65**	Insert (Turning)
TCMT	○○○NE	**C20, C21**	Insert (Turning)
TCMT	○○○SE	**C20**	Insert (Turning)
TGF	○○R○○○	**C51**	Insert (Grooving)
TGF	○○R○○○-○○○	**C51**	Insert (Grooving)
TGF	○○RS○○○-S	**G51**	Insert (Grooving)
TGF	○○RS○○○-SRG	**G51**	Insert (Grooving)
TKN	○(.○)	**H23**	Insert (Cut-Off)
TKN	○(.○)-P	**H23**	Insert (Cut-Off)
TKR	○(.○)	**H23**	Insert (Cut-Off)
TKR	○(.○)-P	**H23**	Insert (Cut-Off)
TKF	○○R○○○-AS	**C26, H6**	Insert (Grooving / Cut-Off)
TKF	○○R○○○-NB (○.○)	**C26, H6, H7, H9**	Insert (Grooving / Cut-Off)
TKF	○○R○○○-NB-○○DR	**H6, H7**	Insert (Cut-Off)
TKF	○○R○○○-S	**H6, H7**	Insert (Cut-Off)
TKF	○○R○○○-S-○○DR	**H6, H7**	Insert (Cut-Off)
TKF	○○R○○○-T	**H6, H7**	Insert (Cut-Off)
TKF	○○R○○○-T-○○DR	**H6, H7**	Insert (Cut-Off)
TKFB	○○L○○○○○MR	**B81**	Insert (Back turning)
TKFB	○○R○○○○○M	**B81**	Insert (Back turning)
TKFS	○○R○○○-S	**H10**	Insert (Cut-Off)
TKFT	12R□○○○○(○)	**J21**	Insert (Threading)
TN-32		**P12**	Spare Parts (Shim)
TN-43		**P12**	Spare Parts (Shim)
TNEG	○○○R-SSF	**B34, B35**	Insert (Turning)
TNGA	○○○	**B33, B90, C8**	Insert (Turning)
TNGA	○○○ME	**C8**	Insert (Turning)
TNGA	○○○ME-T	**C8**	Insert (Turning)
TNGA	○○○SE	**C8**	Insert (Turning)
TNGA	○○○SE-T	**C8**	Insert (Turning)
TNGA	○○○S○○○○○	**B90, C8**	Insert (Turning)
TNGA	○○○S○○○○○ME	**C8**	Insert (Turning)

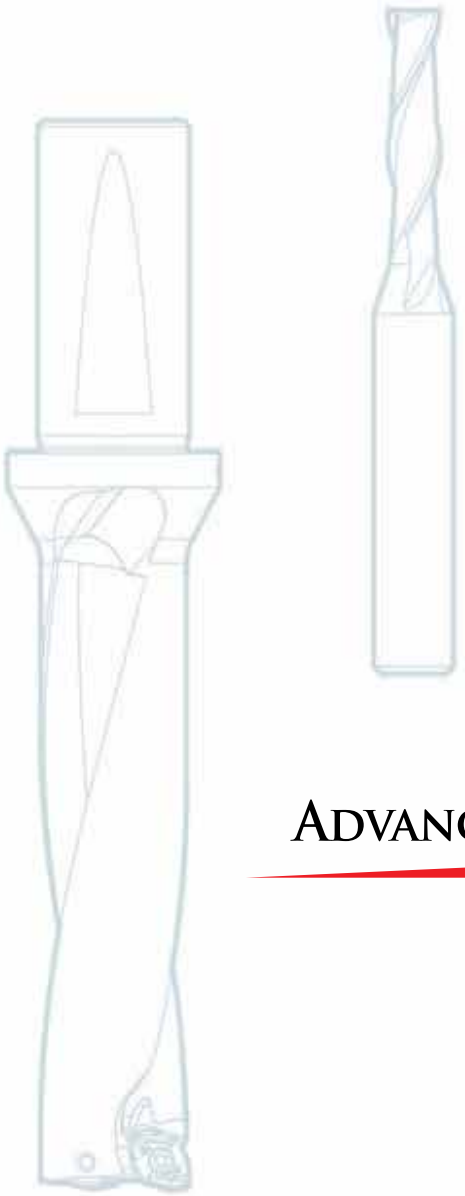
Description		Page	Category
TNGA	○○○S○○○○○MET	**C8**	Insert (Turning)
TNGA	○○○S○○○○○SE	**C8**	Insert (Turning)
TNGA	○○○S○○○○○SET	**C8**	Insert (Turning)
TNGA	○○○-T○○	**B90**	Insert (Turning)
TNGA	○○○T○○○○○	**B90, C8**	Insert (Turning)
TNGA	○○○T○○○○○ME	**C8**	Insert (Turning)
TNGA	○○○T○○○○○SE	**C8**	Insert (Turning)
TNGG	○○○AH	**B33**	Insert (Turning)
TNGG	○○○DP	**B30, B35**	Insert (Turning)
TNGG	○○○FP-TK	**B34, B44**	Insert (Turning)
TNGG	○○○TK	**B32**	Insert (Turning)
TNGG	○○○℞	**B34, B35**	Insert (Turning)
TNGG	○○○℞-25R	**B34, B35**	Insert (Turning)
TNGG	○○○℞-A3	**B33**	Insert (Turning)
TNGG	○○○℞-B/C/D	**B34, B35**	Insert (Turning)
TNGG	○○○℞-S	**B34, B35**	Insert (Turning)
TNGG	○○○℞-Y	**B35**	Insert (Turning)
TNGM	○○○S○○○○○BB○	**C7**	Insert (Turning)
TNG	○○○S○○○○○	**B90, B91**	Insert (Turning)
TNG	○○○T○○○○○	**B90, B91**	Insert (Turning)
TNGU	○○○ME℞-U	**B44**	Insert (Turning)
TNGU	○○○(○) MF℞-F	**B44**	Insert (Turning)
TNGU	○○○(○) MF℞-U	**B44**	Insert (Turning)
TNMA	○○○	**B33, B35**	Insert (Turning)
TNMG	○○○	**B31, B35**	Insert (Turning)
TNMG	○○○AH	**B33**	Insert (Turning)
TNMG	○○○C	**B33, B35**	Insert (Turning)
TNMG	○○○CQ	**B30, B35**	Insert (Turning)
TNMG	○○○CS	**B30, B35**	Insert (Turning)
TNMG	○○○DP	**B30, B35**	Insert (Turning)
TNMG	○○○GC	**B33, B35**	Insert (Turning)
TNMG	○○○GP	**B30, B35**	Insert (Turning)
TNMG	○○○GS	**B30, B35**	Insert (Turning)
TNMG	○○○GT	**B31, B35**	Insert (Turning)
TNMG	○○○GU	**B32**	Insert (Turning)
TNMG	○○○HK	**B30**	Insert (Turning)
TNMG	○○○HQ	**B30, B35**	Insert (Turning)
TNMG	○○○HS	**B30, B35**	Insert (Turning)
TNMG	○○○HT	**B31, B35**	Insert (Turning)
TNMG	○○○HU	**B32**	Insert (Turning)
TNMG	○○○MQ	**B32**	Insert (Turning)
TNMG	○○○MS	**B32**	Insert (Turning)
TNMG	○○○MU	**B32**	Insert (Turning)
TNMG	○○○PH	**B31**	Insert (Turning)
TNMG	○○○PS	**B30**	Insert (Turning)
TNMG	○○○PT	**B31**	Insert (Turning)
TNMG	○○○℞-C	**B34, B35**	Insert (Turning)
TNMG	○○○℞-ST	**B32**	Insert (Turning)
TNMG	○○○TK	**B32**	Insert (Turning)
TNMG	○○○XP	**B31, B35**	Insert (Turning)
TNMG	○○○XP-T	**B31, B35**	Insert (Turning)
TNMG	○○○XQ	**B31, B35**	Insert (Turning)
TNMG	○○○XS	**B31, B35**	Insert (Turning)
TNMG	○○○ZS	**B33, B35**	Insert (Turning)
TNMM	○○○M	**C18**	Insert (Turning)
TNMM	○○○M-NE	**C18**	Insert (Turning)
TNMM	○○○M-SE	**C18**	Insert (Turning)
TNMM	○○○PX	**B31**	Insert (Turning)
TNMN	○○○	**B34, C10**	Insert (Turning)
TNMN	○○○S○○○○○	**C10**	Insert (Turning)
TNMP	○○○TK	**B30, B35**	Insert (Turning)
TNW-32		**P12**	Spare Parts (Shim)
TPET	○○○(○) F℞-USF	**B68**	Insert (Turning)
TPET	○○○(○) MF℞-USF	**B68**	Insert (Turning)
TPET	○○○(○) M℞-FSF	**B68**	Insert (Turning)
TPET	○○○(○) ℞-FSF	**B68**	Insert (Turning)
TPGB	○○○(○)	**B68, B69, C13, C21, J28**	Insert (Turning / Threading)
TPGB	○○○ME	**C13**	Insert (Turning)
TPGB	○○○ME-T	**C13**	Insert (Turning)
TPGB	○○○NE	**C20**	Insert (Turning)
TPGB	○○○SE	**C13, C21**	Insert (Turning)
TPGB	○○○SE-T	**C13**	Insert (Turning)
TPGB	○○○S○○○○○MET	**C13**	Insert (Turning)
TPGB	○○○S○○○○○SET	**C13**	Insert (Turning)
TPGB	○○○T○○○○○	**C13**	Insert (Turning)
TPGB	○○○T○○○○○ME	**C13**	Insert (Turning)
TPGB	○○○T○○○○○SE	**C13**	Insert (Turning)
TPGH	○○○M℞	**B67**	Insert (Turning)
TPGH	○○○M℞-H	**B67**	Insert (Turning)
TPGH	○○○℞	**B67, B69**	Insert (Turning)
TPGH	○○○℞-H	**B67, B69**	Insert (Turning)
TPG	○○○	**B70, B71, B92, C16, C24**	Insert (Turning / Milling)
TPG	○○○ME	**C16**	Insert (Turning)
TPG	○○○NE	**C24**	Insert (Turning / Milling)
TPG	○○○SE	**C16, C24**	Insert (Turning)
TPG	○○○SE-T	**C16**	Insert (Turning)
TPG	○○○S○○○○○	**B92**	Insert (Turning)
TPG	○○○S○○○○○SET	**C16**	Insert (Turning)
TPG	○○○T○○○○○	**B92, C16**	Insert (Turning / Milling)
TPG	○○○T○○○○○ME	**C16**	Insert (Turning)
TPG	○○○T○○○○○SE	**C16**	Insert (Turning)
TPGR	○○○℞-A/B/C	**B70, B71**	Insert (Turning)
TPGR	○○○℞-F	**B70**	Insert (Turning)
TPGT	○○○CF	**B66, B69**	Insert (Turning)
TPGT	○○○M-CF	**B66**	Insert (Turning)
TPGT	○○○MP-CF	**B66**	Insert (Turning)
TPGW	○○○S○○○○○MET	**C14**	Insert (Turning)
TPGW	○○○S○○○○○SET	**C14**	Insert (Turning)
TPGW	○○○T○○○○○ME	**C14**	Insert (Turning)
TPGW	○○○T○○○○○SE	**C14**	Insert (Turning)
TPMH	○○○	**C22**	Insert (Turning)
TPMH	○○○NE	**C22**	Insert (Turning)
TPMH	○○○℞-NE	**C22**	Insert (Turning)
TPMH	○○○SE	**C22**	Insert (Turning)
TPMN	○○○	**B70, B71**	Insert (Turning / Milling)
TPMR	○○○	**B70, B71**	Insert (Turning)
TPMR	○○○DP	**B70, B71**	Insert (Turning)
TPMR	○○○G	**B70, B71**	Insert (Turning)
TPMR	○○○GP	**B70, B71**	Insert (Turning)
TPMR	○○○HQ	**B70, B71**	Insert (Turning)
TPMT	○○○GP	**B66, B69**	Insert (Turning)
TPMT	○○○HQ	**B66, B69**	Insert (Turning)
TPMT	○○○XP	**B66, B69**	Insert (Turning)
TPMT	○○○XQ	**B66, B69**	Insert (Turning)
TS-3S		**P7**	Spare Parts (Lock Pin)
TT	43E℞○○○M	**J17**	Insert (Threading)
TT	○○℞○○○○	**J17, J18**	Insert (Threading)
TTX	32R○○○○(○)	**J17**	Insert (Threading)
TTX	32R○○○○(○)S	**J17**	Insert (Threading)
TWBR	○○○○○-○○○	**F14**	Twin Bar (Threading)
TWBTR	○○○○○-○○○	**F14**	Twin Bar (Threading)
V			
VBET	○○○(○) M℞-FSF	**B72**	Insert (Turning)
VBET	○○○(○) ℞-FSF	**B72**	Insert (Turning)
VBGT	○○○FN-Z	**B72**	Insert (Turning)
VBGT	○○○(○) M℞-F	**B72**	Insert (Turning)
VBGT	○○○(○) M℞-Y	**B73**	Insert (Turning)
VBGT	○○○(○) ℞-F	**B72, B74**	Insert (Turning)
VBGT	○○○(○) ℞-Y	**B73, B74**	Insert (Turning)
VBGW	○○○S○○○○○MET	**C15**	Insert (Turning)
VBGW	○○○S○○○○○SET	**C15**	Insert (Turning)
VBGW	○○○T○○○○○ME	**C15**	Insert (Turning)
VBGW	○○○T○○○○○SE	**C15**	Insert (Turning)

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Description		Page	Category
VBMT	○○○	**C23**	Insert (Turning)
VBMT	○○○GP	**B72, B74**	Insert (Turning)
VBMT	○○○HQ	**B72, B74**	Insert (Turning)
VBMT	○○○NE	**C23**	Insert (Turning)
VBMT	○○○SE	**C23**	Insert (Turning)
VBMT	○○○VF	**B72, B74**	Insert (Turning)
VCGT	○○○	**B73**	Insert (Turning)
VCGT	○○○AH	**B73**	Insert (Turning)
VCGT	○○○FN-Z	**B73**	Insert (Turning)
VCGT	○○○R-A3	**B73**	Insert (Turning)
VCGW	○○○S○○○○○MET	**C15**	Insert (Turning)
VCGW	○○○S○○○○○SET	**C15**	Insert (Turning)
VCGW	○○○T○○○○○ME	**C15**	Insert (Turning)
VCGW	○○○T○○○○○SE	**C15**	Insert (Turning)
VCMT	○○○	**C23**	Insert (Turning)
VCMT	○○○HQ	**B73, B74**	Insert (Turning)
VCMT	○○○NE	**C23**	Insert (Turning)
VCMT	○○○VF	**B73, B74**	Insert (Turning)
VNBR	○○○○-○○(○)	**F16**	System Tip-bar (Boring)
VNBR	○○○○-○○(○)NB	**C27, F17**	System Tip-bar (Boring)
VNBR	○○○○-○○(○)S	**F16**	System Tip-bar (Boring)
VNBTR	○○○○-○○(○)	**F17**	System Tip-bar (Boring)
VNBXR	○○○○-○○(○)S	**F22**	System Tip-bar (Boring)
VNFGR	○○○○-○○	**G86**	System Tip-bar (Grooving)
VNFGR	○○○○-○○NB	**C26, G64**	System Tip-bar (Grooving)
VNGR	○○○○-○○	**G43**	System Tip-bar (Grooving)
VNGR	○○○○-○○NB	**C27, G86**	System Tip-bar (Grooving)
VNGA	○○○	**B36, B91, C9**	Insert (Turning)
VNGA	○○○S○○○○○	**B91, C9**	Insert (Turning)
VNGA	○○○S○○○○○ME	**C9**	Insert (Turning)
VNGA	○○○S○○○○○MET	**C9**	Insert (Turning)
VNGA	○○○S○○○○○SE	**C9**	Insert (Turning)
VNGA	○○○S○○○○○SET	**C9**	Insert (Turning)
VNGA	○○○T○○○○○	**B91, C9**	Insert (Turning)
VNGA	○○○T○○○○○ME	**C9**	Insert (Turning)
VNGA	○○○T○○○○○SE	**C9**	Insert (Turning)
VNGG	○○○R	**B36, B37**	Insert (Turning)
VNMA	○○○	**B91**	Insert (Turning)
VNMA	○○○S○○○○○	**B91**	Insert (Turning)
VNMG	○○○	**B36, B37**	Insert (Turning)
VNMG	○○○DP	**B36**	Insert (Turning)
VNMG	○○○GP	**B36, B37**	Insert (Turning)
VNMG	○○○GU	**B36**	Insert (Turning)
VNMG	○○○HQ	**B36, B37**	Insert (Turning)
VNMG	○○○MQ	**B36**	Insert (Turning)
VNMG	○○○MS	**B36**	Insert (Turning)
VNMG	○○○MU	**B36**	Insert (Turning)
VNMG	○○○TN-V	**B36**	Insert (Turning)
VNMG	○○○VF	**B36, B37**	Insert (Turning)
VNMG	○○○XP	**B36, B37**	Insert (Turning)
VNMM	○○○M	**C18**	Insert (Turning)
VNMM	○○○M-NE	**C18**	Insert (Turning)
VNMM	○○○M-SE	**C18**	Insert (Turning)
VNTR	○○○-○○	**J28**	System Tip-bar (Threading)
VPET	○○○(○) FR-USF	**B76**	Insert (Turning)
VPET	○○○(○) MR-FSF	**B76**	Insert (Turning)
VPET	○○○(○) MFR-USF	**B76**	Insert (Turning)
VPET	○○○(○) R-FSF	**B76**	Insert (Turning)
VPGT	○○○CF	**B75, B76**	Insert (Turning)
VPGT	○○○CK	**B75**	Insert (Turning)
VPGT	○○○FR-U	**B76**	Insert (Turning)
VPGT	○○○M-CF	**B75**	Insert (Turning)
VPGT	○○○M-CK	**B75**	Insert (Turning)
VPGT	○○○MF-GF	**B75**	Insert (Turning)
VPGT	○○○MFP-GF	**B75**	Insert (Turning)
VPGT	○○○MP-CF	**B75**	Insert (Turning)
VPGT	○○○MP-CK	**B75**	Insert (Turning)

Description		Page	Category
W			
W-6		**P18**	Spare Parts (Washer)
W-8		**P18**	Spare Parts (Washer)
W6-14		**P18**	Spare Parts (Washer)
WB-5		**P18**	Spare Parts (Washer)
WB-6		**P18**	Spare Parts (Washer)
WB-8		**P18**	Spare Parts (Washer)
WBGT	○○○MR-CF	**B77**	Insert (Turning)
WBGT	○○○MPR-CF	**B77**	Insert (Turning)
WBGT	○○○(○) MR-F	**B77**	Insert (Turning)
WBGT	○○○(○) R-F	**B77, B78**	Insert (Turning)
WBGW	○○○R	**B77**	Insert (Turning)
WBGW	○○○S○○○○○R-SET	**C16**	Insert (Turning)
WBGW	○○○T○○○○○R-SE	**C16**	Insert (Turning)
WBMT	○○○L	**C23**	Insert (Turning)
WBMT	○○○L-NE	**C23**	Insert (Turning)
WBMT	○○○R-DP	**B77, B78**	Insert (Turning)
WCGT	○○○R-F	**B77**	Insert (Turning)
WCS-1N		**P14**	Spare Parts (Clamp Set)
WCS-8		**P14**	Spare Parts (Clamp Set)
WN-1		**P18**	Spare Parts (Shim Nut)
WNGA	○○○S○○○○○	**B91**	Insert (Turning)
WNGA	○○○S○○○○○ME	**C9**	Insert (Turning)
WNGA	○○○S○○○○○MET	**C9**	Insert (Turning)
WNGA	○○○S○○○○○SE	**C9**	Insert (Turning)
WNGA	○○○S○○○○○SET	**C9**	Insert (Turning)
WNGA	○○○T○○○○○	**B91**	Insert (Turning)
WNGA	○○○T○○○○○ME	**C9**	Insert (Turning)
WNGG	○○○AH	**B40**	Insert (Turning)
WNGG	○○○TK	**B40**	Insert (Turning)
WNGG	○○○R	**B40, B41**	Insert (Turning)
WNGG	○○○R-S	**B40, B41**	Insert (Turning)
WNMA	○○○	**B40, B41**	Insert (Turning)
WNMG	○○○	**B39, B41**	Insert (Turning)
WNMG	○○○C	**B40, B41**	Insert (Turning)
WNMG	○○○CJ	**B38**	Insert (Turning)
WNMG	○○○CQ	**B38, B41**	Insert (Turning)
WNMG	○○○CS	**B38, B41**	Insert (Turning)
WNMG	○○○GC	**B40, B41**	Insert (Turning)
WNMG	○○○GP	**B38, B41**	Insert (Turning)
WNMG	○○○GS	**B38, B41**	Insert (Turning)
WNMG	○○○GT	**B39, B41**	Insert (Turning)
WNMG	○○○GU	**B39**	Insert (Turning)
WNMG	○○○HQ	**B38, B41**	Insert (Turning)
WNMG	○○○HS	**B39, B41**	Insert (Turning)
WNMG	○○○HT	**B39, B41**	Insert (Turning)
WNMG	○○○HU	**B39**	Insert (Turning)
WNMG	○○○MQ	**B39**	Insert (Turning)
WNMG	○○○MS	**B40**	Insert (Turning)
WNMG	○○○MU	**B40**	Insert (Turning)
WNMG	○○○PS	**B38**	Insert (Turning)
WNMG	○○○PT	**B39**	Insert (Turning)
WNMG	○○○TK	**B40**	Insert (Turning)
WNMG	○○○WP	**B38, B41**	Insert (Turning)
WNMG	○○○WQ	**B38, B41**	Insert (Turning)
WNMG	○○○XP	**B39, B41**	Insert (Turning)
WNMG	○○○XQ	**B39, B41**	Insert (Turning)
WNMG	○○○XS	**B39, B41**	Insert (Turning)
WNMG	○○○ZS	**B40, B41**	Insert (Turning)
WNMM	○○○M	**C18**	Insert (Turning)
WNMM	○○○M-NE	**C18**	Insert (Turning)
WNMM	○○○M-SE	**C18**	Insert (Turning)
WNMP	○○○TK	**B38, B41**	Insert (Turning)
WP-1S		**P7**	Spare Parts (Shim Pin)
WP5X11		**P7**	Spare Parts (Shim Pin)
WP5X15		**P7**	Spare Parts (Shim Pin)
WPGT	○○○MR-Y	**B79**	Insert (Turning)
WPGT	○○○R-Y	**B79**	Insert (Turning)

Description	Page	Category
WPGW ○○○	**B79**	Insert (Turning)
WPMT ○○○	**C23**	Insert (Turning)
WPMT ○○○GP	**B79**	Insert (Turning)
WPMT ○○○HQ	**B79**	Insert (Turning)
WPMT ○○○NE	**C23**	Insert (Turning)
WSP-1	**P18**	Spare Parts (Spacer)
WTENN ○○○○□-○○N	**D19**	Toolholder (Turning)
WTJNR/L ○○○○□-○○N	**D19**	Toolholder (Turning)
WTKNR/L ○○○○□-○○N	**D19**	Toolholder (Turning)
WTN-33	**P12**	Spare Parts (Shim)
WTN-33-20	**P12**	Spare Parts (Shim)
WWLNR/L ○○○○□-○○	**D24**	Toolholder (Turning)
WWN-42	**P12**	Spare Parts (Shim)
WWP-42	**P12**	Spare Parts (Shim)
WWP-42-16	**P12**	Spare Parts (Shim)
Y		
YPGT ○○○FR/L-U	**B80**	Insert (Turning)
YPGT ○○○R/L-F	**B80**	Insert (Turning)



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