

# Cutting Tools



2025

**TURNING**

2026

TURNING / ROTATING / SOLID

**2025-2026**  
**KORLOY TURNING TOOLS**



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**Technical Information**

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# SAFETY GUIDE OF CARBIDE PRODUCTS

**KORLOY Inc. is continuously trying to develop safer and higher quality products**

**Please be aware of the safety guidelines below prior to using KORLOY Inc. products**

- \* It is generally accepted that the proper handling of cemented carbide tools requires awareness of safety as noted above. For more information, please contact us.
- \* KORLOY does not accept any responsibility for any accident caused by inappropriate use, abuse of tools, or changes to the products.

## 1 PL (Product Liability)

In accordance with the PL (Product Liability) law, we have attached a WARNING label on the case of KORLOY products. There is no warning on the surface of the tools. Please read this safety guidelines before using carbide tools and provide safety education to all users.

## 2 Basic characteristics of CEMENTED CARBIDE tools

Cemented carbide tools are made of carbides, nitrides, carbonitrides, oxides of Tungsten (W), Titanium (Ti), Aluminium (Al), Silicon (Si), Tantalum (Ta), Boron (B) etc. and metal component like Cobalt (Co), Nickel (Ni), Chromium (Cr), Molybdenum (Mo) as binder. Cemented carbides tools have high hardness and specific gravity. Generally there's no smell but according to usage and treatment, appearance and color could be changed

## 3 Precaution for CEMENTED CARBIDE tools

- 1) Cemented carbides are extremely hard and brittle at the same time. Impact shock or excessive clamping power could cause fracture or breaking of the tool.
- 2) Cemented carbides have large specific gravity, thus they require special attention as a heavy material when you handle big sizes or large quantities.
- 3) Cemented carbides have different thermal expansion coefficient with steel and ferrous materials. Shrink fit or swell fit products may cause trouble if they are used at undesirable conditions like extremely high or low temperatures.
- 4) There are several cemented carbide products having sharp cutting edges. Be careful not to handle the tools with bare hands which may cause cuts or injury, especially when removing the tools from the case, do not touch the cutting edge and be careful not to drop it.
- 5) Storing carbide tools in a corrosive atmosphere may cause erosion which can reduce toughness.
- 6) Please refer to the catalog safety guidance prior to handling the tools.
- 7) Do not abuse tools under inappropriate conditions.

## 4 Precaution for machining (grinding, welding, EDM) of CEMENTED CARBIDE tools

- 1) Surface condition can affect the toughness of the tool, so it is recommended to use a diamond grinding wheel.
- 2) Grinding of cemented carbide creates mist and dust. It contains harmful compositions like Cobalt (Co), thus it is recommended to use a mask, mist collection, and other protective facilities. If the dust gets in your skin or eye, rinse immediately with continuously running water.
- 3) In case of grinding with coolant, coolant contains harmful metal components which cause environmental problems. Handle the coolant according to the manufacturer's recommendations.
- 4) Check for cracks after re-grinding carbide tool and reuse.
- 5) Marking with laser or electric pen may cause cracks on the carbide tool. The crack can shorten tool life.
- 6) EDM of carbide may cause residual cracks on the carbide tool, so if necessary, remove the crack with a grinding process.
- 7) Brazing of carbide tools at extremely high or low temperatures compare with the melting point of brazing materials may cause loosening or breakage.
- 8) Overheating an oil base coolant may cause a fire or flames, thus be prepared for fire prevention.

## 5 METALCUTTING SAFETY

	<b>DANGEROUS FACTOR</b>
<b>Cutting tools</b>	• Sharp cutting edge of cutting tools may cut your bare-hand
	• Inappropriate conditions or usage may cause fragmentation and expel parts of tools which may cause injury
	• Severe load on tool and premature wear of cutting edge may bring excessive cutting force on tool, causing fracture of the tool and may cause injury
	• Chips evacuated during cutting are hot and sharp and may cause burns and cuts
	• Touching the workpiece immediately after cutting may cause burns
	• Be aware of sparks, fire, or explosion of hot chips generated during the cutting operation
	• In case of high RPM machining, vibration and chattering may occur due to the improper balance of the machine
	• Touching a burr remaining on the workpiece with a bare-hand may cause a cut
	• Loose clamping of the workpiece may cause the fracture to tool and result in damage to the cutter body and possible injury
	• Tools are operated to right-Handed direction normally      • Left-Handed direction operation can cause fracture of tool and body damage
<b>Indexable tools</b>	• Loose clamping of inserts and parts may result in ejection of the tool during cutting and may cause serious injury
	• Over loaded clamping of inserts by a lever (such as a pipe) may cause dangerous fracturing of parts and inserts
	• In case of high speed machining, parts and inserts can be forced out by centrifugal force
<b>Rotating tools</b>	• Since cutter has sharp cutting edges touching with a bare-hand may cause a cut
	• It is dangerous to use glove with rotating machine      • Contact with body or clothes is dangerous with rotating parts
	• Vibration generated by balancing trouble may cause a fracture and ejection of the tool which may cause serious injury
	• In case of drilling, the uncut bottom core can fly out of the part with high speed and cause serious injury
	• The edges of small diameter drill are sharp and easy to break
<b>Brazed tools</b>	• Fragmentation and ejection of brazed carbide tip may cause injury
<b>ETC</b>	• There is a possibility that the carbide tip may break after multiple brazing operations
	• Abusing may cause fragmentation of tool and is very dangerous

	<b>SAFETY COUNTERPLAN</b>
<b>Cutting tools</b>	• Use gloves when pulling out the insert from the case or mounting it on the machine
	• Use glasses or safety cover for your safety
	• Use the tools within the recommended range
	• Please refer to catalog and safety guidelines first
	• Use glasses or safety cover for your safety
	• Change the tool as required before excessive wear or fracture
	• Use glasses or safety cover for your safety
	• Stop machining and put safety glove on and use a hook tool to remove chips
	• Use gloves or safety cover for your safety
	• Do not use at the place where having explosive materials
	• Prepare for fire extinguishments
	• Use glasses or safety cover for your safety
	• Check first if there's any chattering, vibration or strange noises prior to your main cutting operation
	• Do not touch the burr with bare-hand · Use gloves or safety cover for your safety
• Clamp the workpiece tightly	
• Do not use left-hand direction without notice	
• Check the package of product to check the availability of left-hand operation	
<b>Indexable tools</b>	• Check the clamping of inserts and parts prior to machining, and use original parts only
	• Do not use lever inappropriately
	• Use within recommended condition · Use glasses or safety cover for your safety
<b>Rotating tools</b>	• Use gloves or safety cover for your safety
	• Do not wear gloves when you work with rotating machine
	• Keep your body and clothes away from rotating machine
	• RPM should be controlled within recommended condition
	• Check the balance of rotating part periodically
	• Use gloves or safety cover for your safety
• Concentrate on safety regulation in using tools.	
• Use glove or safety cover for your safety.	
<b>Brazed tools</b>	• Check the brazed tip before using
	• Do not use at high temperature cutting condition
<b>ETC</b>	• Do not use brazing a tip that has been brazed several times
	• Stick to safety regulations and guidelines

# INTRODUCTION OF HOMEPAGE

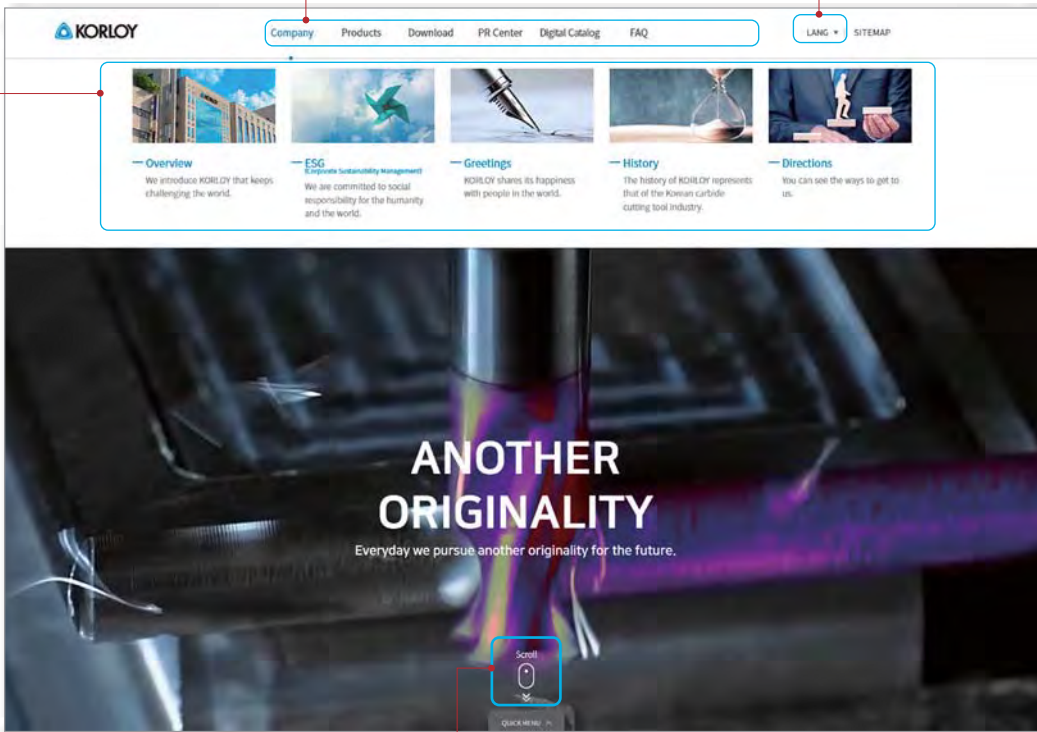
- 1) Get on the homepage through the internet  
» <https://www.korloy.com/en> (KORLOY Homepage)
- 2) Choose a category and click that

## ➤ Main screen guide

**Browse all types of items by category**  
You can search desired items here

**Selection by each language**  
Moving on to the site in each language

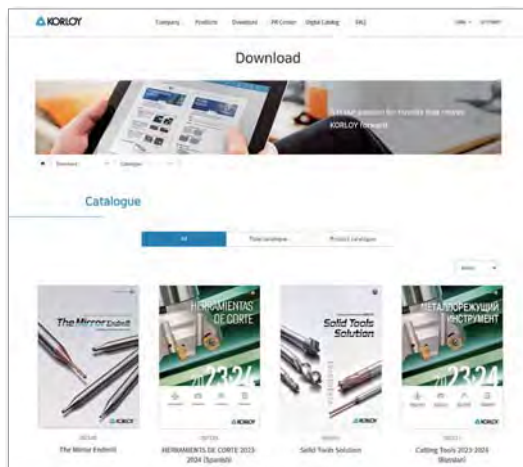
**Detailed screen**  
Selecting detailed screen by each category



**Quick menu**  
Checkable product information and KORLOY news quickly by scrolling the mouse

## Search the necessary materials in the detailed search screen.

### » Downloading technical materials



#### Downloading technical materials:

Downloading and searching by sections of various technical materials are available

### » Shortcut to KOMS



### » Shortcut to genuine product certification







# INTRODUCTION OF ONLINE EXHIBITION

1) Get on the online exhibition hall on the PC or mobile.

» [https://www.korloy.com/ko/prcenter/media\\_list.do#online](https://www.korloy.com/ko/prcenter/media_list.do#online)

2) Main screen guide



- ① **Mini map** | Move the wanted hall
- ② **Information desk** | Introduction in Korean/English
- ③ **Side menu** | Searchable wanted sections
- ④ **Product names /Explanation** | In Korean/English
- ⑤ **Video** | Item promotion video
- ⑥ **Tech news** | Checking tech news
- ⑦ **Detailed information of product** | Checking the information of product and promotion video
- ⑧ **3D modeling** | Checking 3D modeling view

\* **Connectable on mobile**

## Detailed screen

» **New product hall**



» **Industry hall**



» **Tooling guide**



» **History hall**



» **Smart factory**



» **Poster**



# TOOL KEEPER C/L(COIL/LOCKER) TYPE SYSTEM

The smart tool storage control system which is a 24-hour running unmanned system that can simultaneously store and manage tools and tool holders in real time. It is designed to improve the efficiency and security of tool management in operation sites and other industrial settings.

Efficient and transparent hybrid tool management control system + customer-customized S/W applied

C/L Type



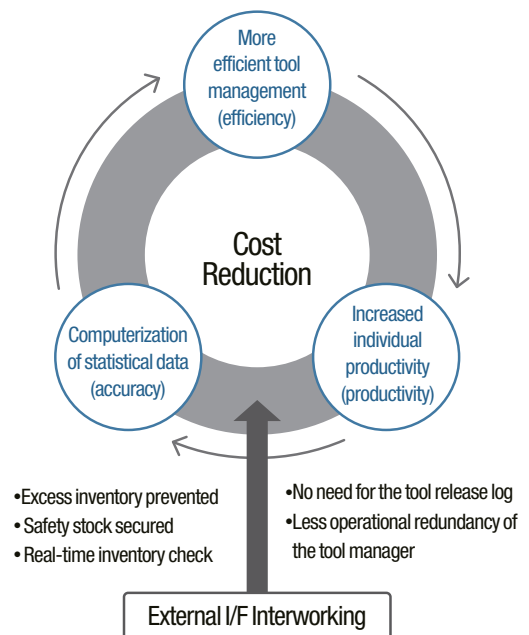
- Storage CAPA: Coils (81 types) + Lockers (21 types)
- Transparent Shipping (Packaging Units)
- Easy Tool Selection/Shipping with Touch Monitor

[Option] L Type



- Storage CAPA: 59 types
- Maximum Length: Up to 380mm
- Can Add Up to: 10 units

- Monthly performance data search (quantity / sum)
- Warehousing history and status search
- Computerization of statistical data (application history, etc.)

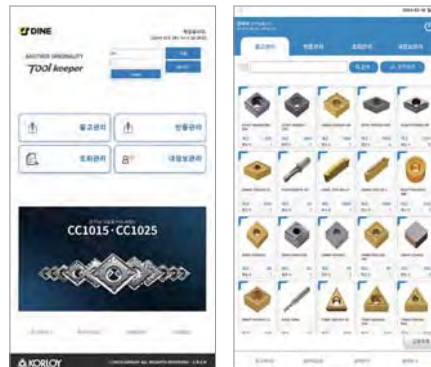


## Software Configuration: Administrator Program + User Program

### » Administrator Program



### » User Program



#### Key features

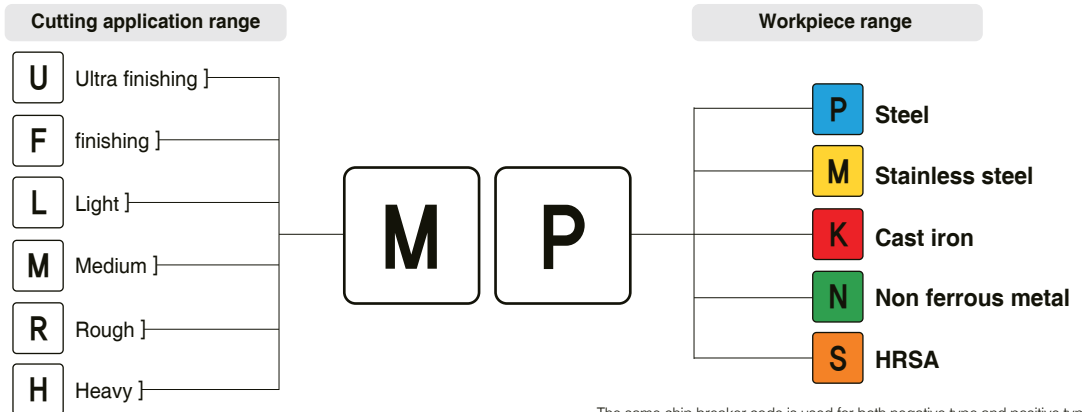
1. Safety Stock Alert Management (Automatic Email/SMS Notifications)
2. Multilingual Language Settings/Remote Diagnosis/SW
3. Automatic Updates Monthly Tool Usage(Average)/Expenditure/Inbound Quantity Management

# INTRODUCTION OF ONLINE EXHIBITION

## 1 Grade name for coated carbide



## 2 Chip breaker



The same chip breaker code is used for both negative type and positive type.

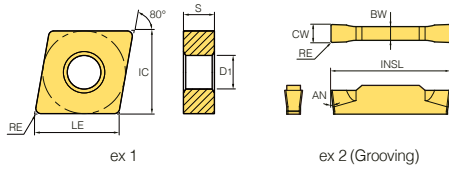
## 3 Terminology of tool formula

TERM	CODE	UNIT
Tool diameter	D	mm
Cutting speed	vc	m/min
Revolution per minute	n	min <sup>-1</sup>
Feed per minute	vf	mm/min
Feed per revolution	fn	mm/rev
Feed per tooth	fz	mm/t
Tooth	z	-
Axial depth of cut	ap	mm
Radial depth of cut	ae	mm
Peak feed	pf	mm

TERM	CODE	UNIT
Horse power requirement	Pc	kW
Specific cutting resistance	kc	MPa
Torque	Mc	N.m
Thrust	Tc	N
Cycle time	tc	min
Tool life	T	min
Flank wear	V <sub>B</sub>	mm
Crater wear	Kt	mm
Nose radius	r	mm

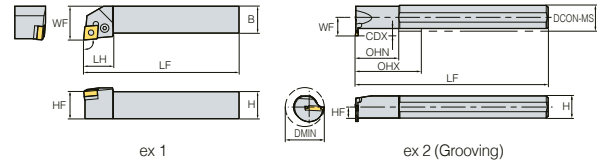
# ISO13399 GLOSSARY

## Insert



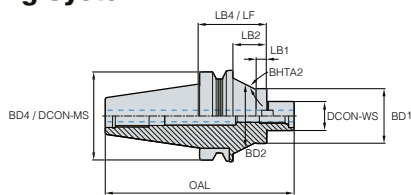
ISO13399 Property Symbols	Property Name
AN	Clearance Angle Major
APMX	Depth of Cut Maximum
BW	Insert Body Width
CBMD	Chip Breaker Manufacturers Designation
CDX	Cutting Depth Maximum
CEDC	Cutting Edge Count
CUTDIA	Work Piece Parting Diameter Maximum
CW	Cutting Width
D1	Fixing Hole Diameter
DCON-MS	Connection Diameter - Machine Side
DMIN	Minimum Bore Diameter
HAND	Cutting Direction, Hand
IC	Inscribed Circle Diameter
INSL	Insert length
KRINS	Cutting Edge Angle Major
LE	Cutting Edge Effective length
LF	Functional length
PDX	Profile Distance ex
PDY	Profile Distance ey
PSIRL	Cutting Edge Angle Major Left Handed
PSIRR	Cutting Edge Angle Major Right Handed
RE	Corner Radius
S	Insert Thickness
SSC	Insert Seat Size Code
WF	Functional Width
WT	Weight of Item

## Holder



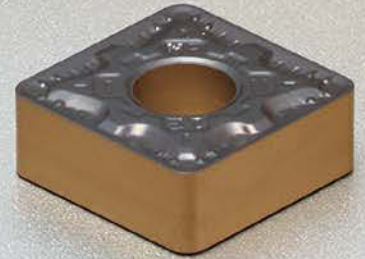
ISO13399 Property Symbols	Property Name
B	Shank Width
BD	Body Diameter
CDX	Cutting Depth Maximum
CUTDIA	Work Piece Parting Diameter Maximum
DAXIN	Axial Groove InSide Diameter Minimum
DAXX	Axial Groove OutSide Diameter Minimum
DC	Cutting Diameter
DCON-MS	Connection Diameter - Machine Side
DCON-WS	Connection Diameter - Work Side
DMIN	Minimum Bore Diameter
H	Shank Height
HAND	Cutting Direction, Hand
HBH	Head Bottom Offset Height
HF	Functional Height
HTPRM	Prism Height
KAPR	Tool Cutting Edge Angle
LB	Body Length
LF	Functional Length
LH	Head Length
LPR	Protruding Length
LS	Shank Length
LSCWS	Clamping Length WorkPiece Side
LU	Usable Length (Max. Recommended)
NOF	Flute Count
OAH	Overall Height
OAL	Overall Length
OAW	Overall Width
OHN	Overhang - Minimum
ULDR	Usable Length Diameter Ratio
WB	Body Width
WF	Functional Width
WTHPRM	Prism Width

## Tooling System



ISO13399 Property Symbols	Property Name
ADJ	Adjust Screw
BD	Body Diameter
CCKZ	Cutter Connector Key Size
CRKS	Connection Retention Knob Thread Size
DC	Cutting Diameter
DCON-WS	Connection Diameter Workpiece Side
DCX	Cutting Diameter Maximum
H	Shank Height
HF	Functional Height
LB	Body Length
LF	Functional Length
MBCB	Mount Bolt, Clamp Bolt
SSL	Set Screw Length
SSZ	Set Screw Size
WF	Functional Width





# GRADES

KORLOY's new grades are designed with optimal substrate for each application and are PVD coated for high temperature, high hardness and oxidation resistance, or CVD coated for high temperature and wear resistance. Additionally, the improved post-coating treatment provides superior surface finishes to ensure the highest levels of quality and productivity



## Technical information for GRADES

### Grades

- A2** KORLOY Grade Index
- A3** Grade System

### Turning Grade selections

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### Chip Breakers Guide

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### Turning Chip Breakers

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## KORLOY Grade Index

### Grade index

Workpiece	Coated	Grade	ISO						Turning	Multi functional tools	Thread (Turning)
			P	M	K	S	N	H			
			Steel	Stainless steel	Cast iron	HRSA	Non-ferrous	Hardened			
Coated carbide	CVD	NC3205	P05-P15							•	
		NC3215	P10-P20							•	
		NC3225	P20-P25							•	•
		NC3120	P30-P40	M30-M40						•	•
		NC3030	P20-P25							•	•
		NC3235	P25-P35	M25-M35						•	
		NC5320	P15-P25		K15-K25					•	
		NC5330	P30-P35	M20-M30	K30-K35	S15-S25				•	•
		NC515H	P10-P20							•	
		NC520H	P15-P20							•	
		NC525H	P20-P25							•	
		NC6310	P05-P10		K01-K10					•	
		NC6315			K10-K20					•	•
		NC9115	P15-P20	M10-M20						•	
	NC9125		M20-M30		S15-S25				•		
	NC9135		M30-M40		S25-S35				•		
	PVD	PC3035	P30-P40							•	
		PC5300	P30-P40	M20-M30	K20-K25	S15-S25			•	•	•
		PC5400	P35-P45	M30-M40	K30-K35	S25-S35			•		
		PC8105		M05-M15		S01-S10		H01-H05	•		
		PC8110		M10-M20	K10-K20	S05-S15		H05-H10	•	•	
		PC8115		M15-M25		S10-S20		H10-H15	•		
		PC9030		M25-M35					•	•	
		PC9035		M25-M35		S20-S30			•		
		PC3030T	P25-P35	M25-M35							•
	PC9070T		M25-M35							•	
	Non-coated	ST30A	P25-P35							•	
		H01			K01-K05	S01-S10	N10-N20	H05-H10	•	•	
		H05			K05-K15	S05-S15	N15-N25		•	•	
		G10			K15-K25		N20-N30		•	•	
Cermet	PVD	CC1015	P10-P20		K05-K15				•		
		CC1025	P15-P25		K10-K20				•		
	Non-coated	CN1500	P10-P20		K05-K15				•		
		CN2500	P15-P25		K10-K20				•	•	
cBN	PVD	DNC100					H01-H10	•			
		DNC250					H10-H20	•			
		DNC300					H15-H20	•			
		DNC350					H20-H30	•			
	Non-coated	DBNX20						H15-H20	•		
		DBN250						H01-H10	•		
		DBN350						H20-H30	•		
		DB1000						H01-H10	•		
							H10-H15	•			
			K01-K20	S01-S10				•			
Dia coated	CVD	ND3000				N01-N05		•			
DLC coated	PVD	PD1005				N05-N10		•			
		PD1010				N10-N15		•			
PCD	Non-coated	DP90				N01-N20		•			
		DP150				N05-N25		•			
		DP200				N10-N30		•			

## Grade System

### ➤ Cutting tool

Uncoated carbide	P	Steel	ST30A			
	K	Cast iron	H01	H05	G10	
	S	HRSA	H01	H05		
	N	Aluminum alloy/Copper alloy	H01	H05	G10	
	H	Hardened	H01			
Cermert	P	Steel	CN1500	CN2500		
	K	Cast iron	CN1500	CN2500		
Cermert coated	P	Steel	CC1015	CC1025		
	K	Cast iron	CC1015	CC1025		
Dia coated	N	Non-ferrous	ND3000			
DLC coated	N	Non-ferrous	PD1005	PD1010		
PCD	N	Non-ferrous	DP90	DP150	DP200	
cBN	K	Cast iron	DBN700A			
	S	HRSA	DBN700A			
	H	Hardened	DBN250	DB1000	DB2000	DBNX20
cBN coated	H	Hardened	DNC100	DNC250	DNC300	DNC350

### ➤ Applications

Turning coated	P	Steel	NC3205	NC3215	NC3225	NC3235	NC3120	NC3030	NC6310	NC9115	NC5320	NC5330	PC5300	PC5400	
		Steel (Heavy)	NC515H	NC520H	NC525H										
	M	Stainless steel	NC9115	NC9125	NC9135	PC9030	PC9035	PC8105	PC8110	PC8115	NC3030	NC3235	NC5330	PC5300	PC5400
	K	Cast iron	NC6310	NC6315	NC5320	NC5330	PC8110	PC5300	PC5400						
	S	HRSA	PC8105	PC8110	PC8115	PC9035	NC9125	NC9135	NC5330	PC5300	PC5400				
	N	Non-ferrous	ND3000	PD1005	PD1010										
	H	Hardened	PC8105	PC8110	PC8115										
Multi-functional	P	Steel	PC3035	PC5300	NC3225	NC3120	NC3030	NC5330							
	M	Stainless steel	PC5300	PC9030	NC3030	NC5330	PC8110								
	K	Cast iron	PC5300	NC5330	NC6315	PC8110									
	S	HRSA	PC5300	PC9030	NC5330	PC8110									
	H	Hardened	PC8110												
Thread coated	P	Steel	PC3030T	PC5300											
	M	Stainless steel	PC9070T	PC3030T	PC5300										
	K	Cast iron	PC5300												
	N	Non-ferrous	PC5300												

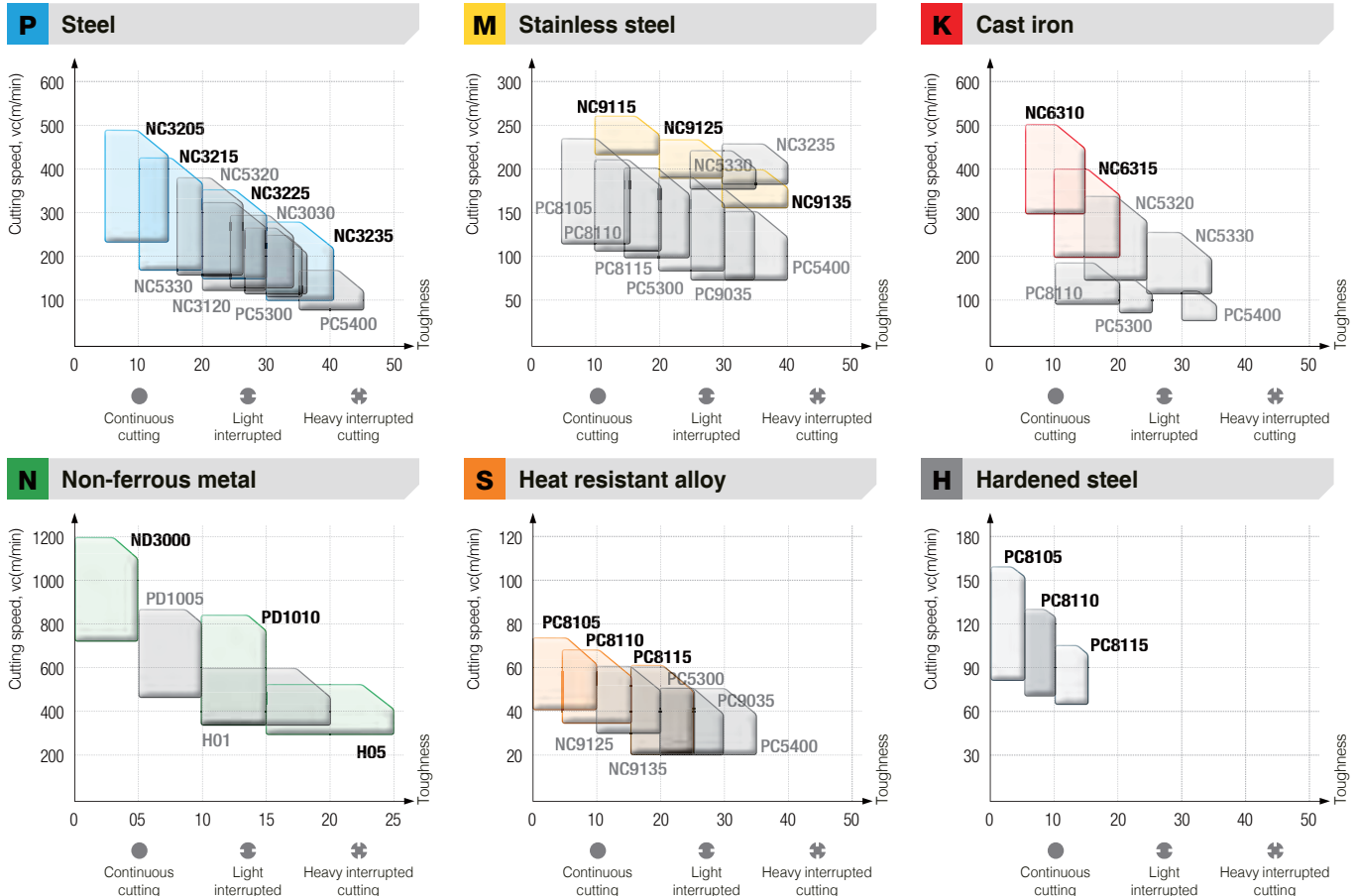


## Turning Grade selections

### Selection system

Workpiece	Steel					Stainless steel				Cast iron				HRSA				Non-ferrous				Hardened					
	P01	P10	P20	P30	P40	P50	M01	M10	M20	M30	M40	K01	K10	K20	K30	S01	S10	S20	S30	N01	N10	N20	N30	H01	H10	H20	H30
Coated carbide		NC3205						PC8105					NC6310			PC8105				ND3000						PC8105	
		NC3215						PC8110					NC6315			PC8110				PD1005						PC8110	
		NC3225						PC8115					NC5320			PC8115				PD1010						PC8115	
		NC3120						NC9115					NC5330														
		NC3030						NC9125																			
		NC3235						NC5330																			
		NC5320						NC9135						PC8110													
		NC5330						NC3235						PC5300													
		PC5300						PC5300						PC5300													
		PC5400						PC9030						PC5400													
								PC9035																			
								PC5400																			
	Cermets		CC1015											CC1015													
		CC1025											CC1025														
		CN1500											CN1500														
		CN2500											CN2500														
cBN / PCD													DBN700A			DBN700A				DP90					DNC100		
																				DP150					DNC250		
																				DP200					DNC300		
Uncoated carbide													H01			H01				H01					H01		
													H05			H05				H05							
													G10							G10							

### Application range of turning grades



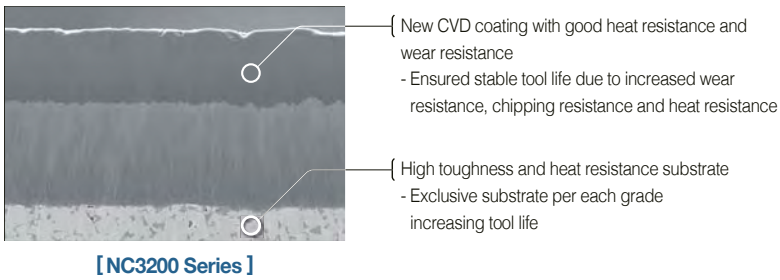
## CVD Coated Grades

### CVD insert series for Steel Turning

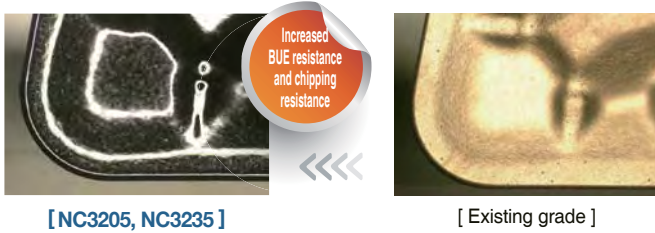
# NC3205 / NC3215 / NC3225 / NC3235

- Optimal grade for high productivity on Steel cutting
- Exclusive substrate application per each grade
- Enhanced lubrication and chipping resistance

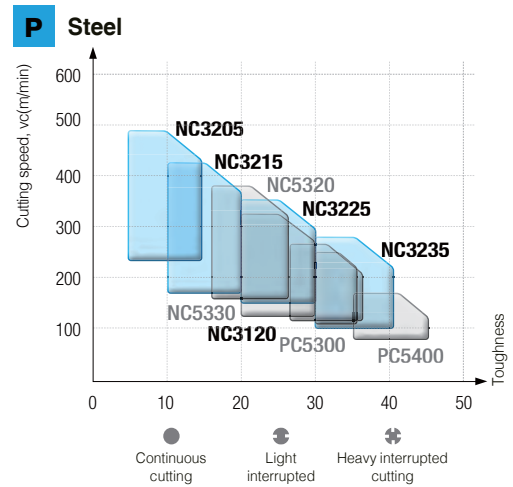
### Features

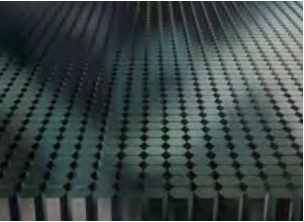
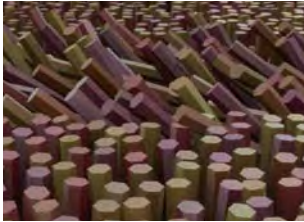
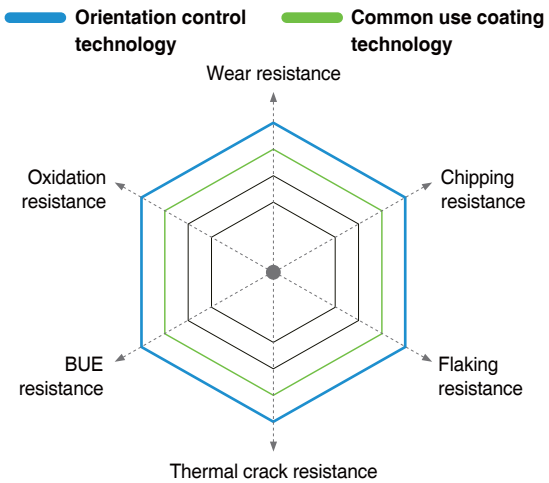


### Highly lubricative coating with fine surface finish application



### Application range



Orientation control technology	Existing and common use coating technology	Comparison of coating technology
		 <p> <b>Orientation control technology</b>      <b>Common use coating technology</b> </p> <p>       Wear resistance        Chipping resistance        Flaking resistance        Thermal crack resistance        BUE resistance        Oxidation resistance     </p>
<ul style="list-style-type: none"> <li>• Increased crystal orientation, tool life and stability of wear due to the New CVD coating technology</li> </ul>	<ul style="list-style-type: none"> <li>• Randomly generated crystal orientation</li> <li>• Limitation of wear resistance and cutting stability</li> </ul>	

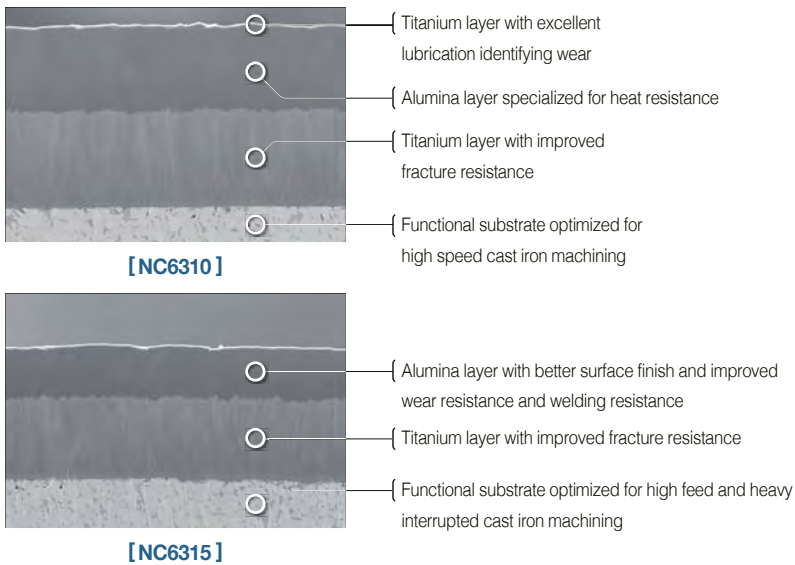
## CVD Coated Grades

CVD coated grade for high efficiency and quality turning of cast iron

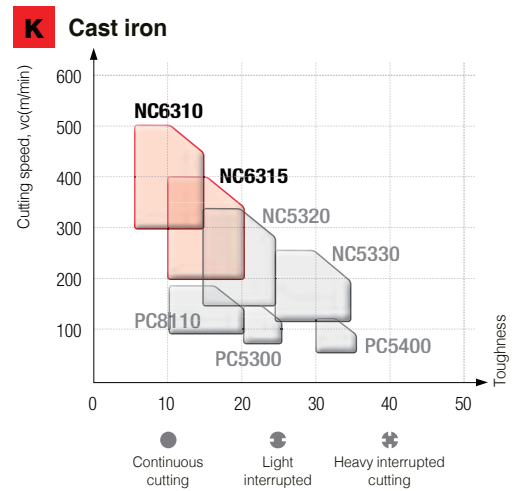
# NC6310 / NC6315

- CVD coating with improved wear resistance and chipping resistance.
- Solutions for the most common issues in cast iron machining: Preventing excessive wear on rake and flank surfaces of insert, chipping and burr

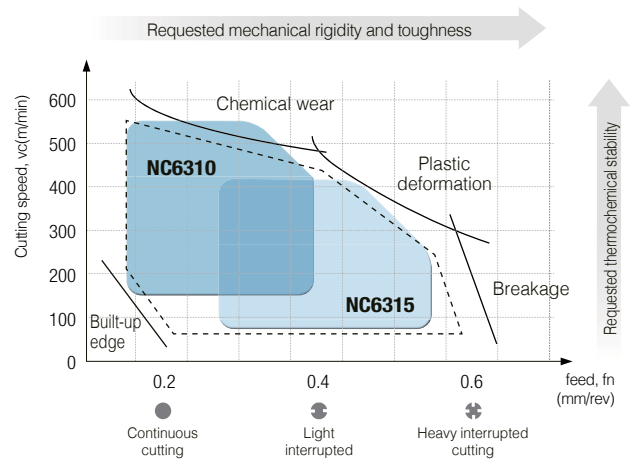
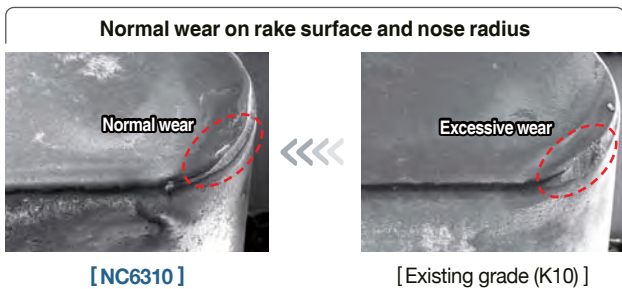
### Features



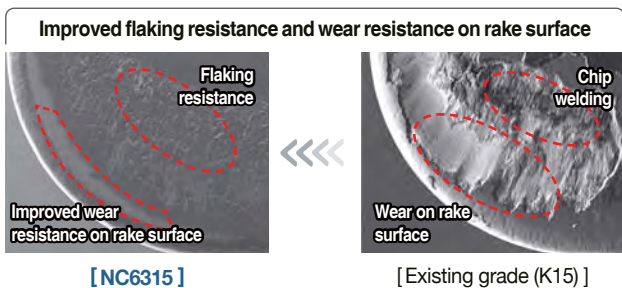
### Application range



### Features of NC6310



### Features of NC6315



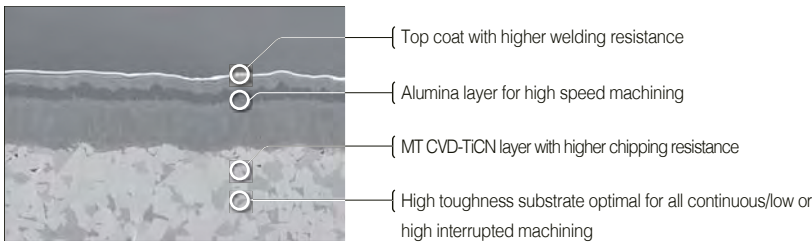
**CVD Coated Grades**

**CVD insert series for Stainless Turning**

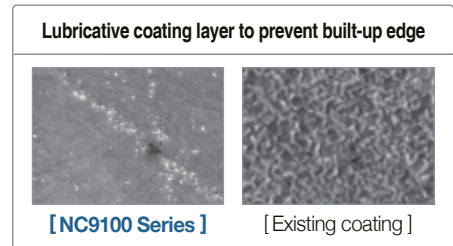
**NC9115 / NC9125 / NC9135**

- Solutions for Most Common Issues in Stainless Steel Machining → Prevents built-up edge, notch wear, plastic deformation, and burr creation
- Machining of various workpieces such as austenitic, martensitic and ferritic stainless steel
- Stable tool life at high speeds, feeds, and depths of cut

**Features**



[NC9100 Series]

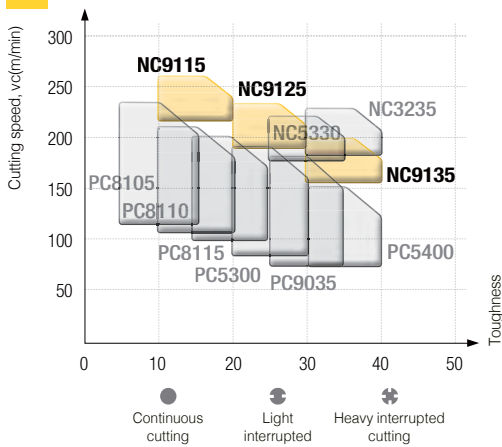


[NC9100 Series]

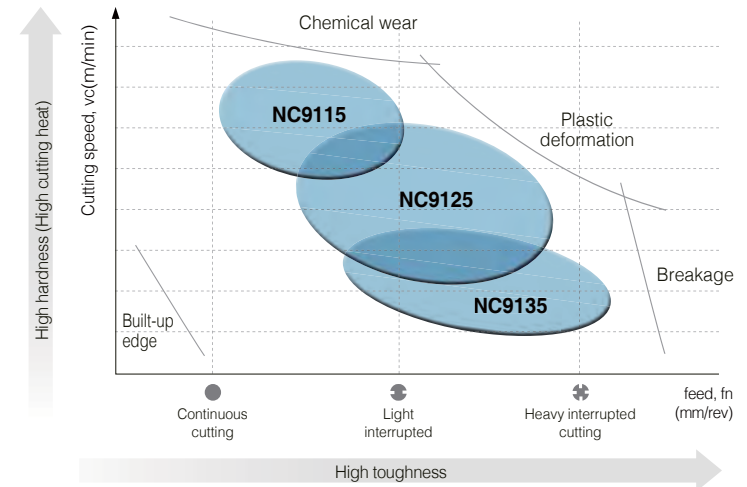
[Existing coating]

**Application range**

**M Stainless steel**



**Grades line-up**



**Recommended grade and chip breaker per stainless steel type**

[ Austenitic stainless steel ]

Grade	Cutting speed (m/min)				
	50	100	150	200	250
NC9115				160 - 220	
NC9125			150 - 200		
NC9135		100 - 150			

[ Duplex stainless steel ]

Grade	Cutting speed (m/min)				
	50	100	150	200	250
NC9115			120 - 160		
NC9125		100 - 140			
NC9135	60 - 100				

[ Ferritic / Martensitic stainless steel ]

Grade	Cutting speed (m/min)				
	50	100	150	200	250
NC9115			150 - 250		
NC9125		120 - 220			
NC9135		100 - 150			

[ Precipitation hardened (PH) stainless steel ]

Grade	Cutting speed (m/min)				
	50	100	150	200	250
NC9115	50 - 110				
NC9125	40 - 110				
NC9135	30 - 100				

## Selection system of CVD coated grade

ISO	Machining types	Recommended grade	Recommended cutting speed (m/min)	ISO	Application range		
P	Continuous cutting	NC3205	300 (210~390)	P			
		NC3215	260 (180~340)				
		NC5320	240 (170~310)				
	General cutting	NC3225	230 (160~300)				
		NC3120	230 (160~300)				
		NC3030	190 (130~250)				
Interrupted cutting	NC3235	180 (125~235)					
	NC5330	175 (120~230)					
	M	Continuous cutting	NC9115			180 (160~200)	M
NC9125			175 (155~195)				
General cutting		NC5330	175 (155~195)				
		NC3235	170 (155~185)				
Interrupted cutting		NC9135	160 (145~175)				
		K	Continuous cutting	NC6310	340 (255~425)	K	
NC6315	280 (210~350)						
NC5320	220 (165~275)						
General cutting	NC5330		150 (110~190)				
	Interrupted cutting		S				
					Continuous cutting		NC9125
NC9135		35 (25~45)					

## The features of CVD coated

CVD Coated grades	ISO	Features
NC3205	P05 ~ P15	<ul style="list-style-type: none"> <li>For high hardness general steel, forged steel and for high speed, continuous and medium finishing</li> <li>Applying high plastic deformation resistance materials and high heat resistance and wear resistance Alumina (Al<sub>2</sub>O<sub>3</sub>) increase surface finish and lubrication • MT-TiCN + Al<sub>2</sub>O<sub>3</sub> + TiN</li> </ul>
NC3215	P10 ~ P20	<ul style="list-style-type: none"> <li>Continuous machining of general steel and forged steel at high speed</li> <li>Substrate with excellent thermal crack/plastic deformation resistance, coating with improved chipping resistance for continuous machining • MT-TiCN + Al<sub>2</sub>O<sub>3</sub> + TiN</li> </ul>
NC3225	P20 ~ P25	<ul style="list-style-type: none"> <li>Universal grade for general steel and forged steel</li> <li>1<sup>st</sup> recommended grade for general machining with the use of high toughness substrate and coating layer with improved welding/chipping resistance • MT-TiCN + Al<sub>2</sub>O<sub>3</sub> + TiN</li> </ul>
NC3235	P30 ~ P40 M30 ~ M40	<ul style="list-style-type: none"> <li>For general steel, forged steel, and stainless steel and for medium low speed cutting, high interruption cutting, roughing</li> <li>Applying high chipping resistance and fracture resistance materials and heat resistance, wear resistance alumina(Al<sub>2</sub>O<sub>3</sub>) coating increase surface finish and lubrication • MT-TiCN + Al<sub>2</sub>O<sub>3</sub> + TiN</li> </ul>
NC3120	P20 ~ P25	<ul style="list-style-type: none"> <li>Medium to roughing for steel</li> <li>Combining excellent fracture resistance substrate with chipping resistance and heat resistance Al<sub>2</sub>O<sub>3</sub> increased stability</li> <li>MT-TiCN + TiC + Al<sub>2</sub>O<sub>3</sub></li> </ul>
NC3030	P25 ~ P35 M25 ~ M35	<ul style="list-style-type: none"> <li>Medium to low speed machining of steel and interrupted roughing</li> <li>Harmony between substrate with excellent wear/fracture resistance and Al<sub>2</sub>O<sub>3</sub> film with excellent thermal/chipping resistance</li> <li>Increased stability in wide ranges of cutting conditions • MT-TiCN + TiC + Al<sub>2</sub>O<sub>3</sub> + TiN</li> </ul>
NC5320	P15 ~ P20 K15 ~ K25	<ul style="list-style-type: none"> <li>For medium hardness general steel, bearing steel, cast iron, medium to high speed cutting, medium interruption cutting, general cutting and medium cutting</li> <li>Applying fracture resistance, chipping resistance and wear resistance Alumina(Al<sub>2</sub>O<sub>3</sub>) coating and materials increase tool life in hub bearing cutting • MT-TiCN + Al<sub>2</sub>O<sub>3</sub> + TiN</li> </ul>
NC5330	P30 ~ P35 M20 ~ M30 K30 ~ K35 S15 ~ S25	<ul style="list-style-type: none"> <li>Stainless Steel - General cutting for mild steel &amp; forging steel</li> <li>Excellent cutting performance in hard to cut materials which are vulnerable to built up edge, due to the high tough substrate with improved fracture resistance and the coated layers • MT-TiCN + Al<sub>2</sub>O<sub>3</sub> + TiN</li> </ul>
NC6310	K01 ~ K10 P05 ~ P10	<ul style="list-style-type: none"> <li>High speed and continuous cutting of grey cast iron</li> <li>Increased tool life due to coating layer with high wear resistance</li> <li>MT-TiCN + Al<sub>2</sub>O<sub>3</sub> + TiN</li> </ul>
NC6315	K10 ~ K20	<ul style="list-style-type: none"> <li>Universal grade for ductile and gray cast Iron</li> <li>Excellent performance thanks to the alumina (Al<sub>2</sub>O<sub>3</sub>) coating's improved grip on the tough substrate</li> <li>MT-TiCN + Al<sub>2</sub>O<sub>3</sub></li> </ul>
NC9115	M10 ~ M20 P15 ~ P20	<ul style="list-style-type: none"> <li>For ferrite, martensitic stainless steel, high speed cutting, continuous cutting and medium finishing</li> <li>Applying high plastic deformation resistance materials and high heat resistance Alumina(Al<sub>2</sub>O<sub>3</sub>) increases surface finish and lubrication • MT-TiCN + Al<sub>2</sub>O<sub>3</sub> + TiN</li> </ul>
NC9125	M20 ~ M30 S15 ~ S25	<ul style="list-style-type: none"> <li>For stainless steel and heat resistance alloy cutting, heat resisting alloy cutting, medium high speed cutting, continuous cutting and medium roughing</li> <li>Applying high chipping resistance materials and high heat resistance Alumina(Al<sub>2</sub>O<sub>3</sub>) increases surface finish and lubrication</li> <li>MT-TiCN + Al<sub>2</sub>O<sub>3</sub> + TiN</li> </ul>
NC9135	M30 ~ M40 S25 ~ S35	<ul style="list-style-type: none"> <li>For stainless steel and heat resistance alloy cutting, heat resisting alloy cutting, medium low speed cutting, interruption cutting and roughing</li> <li>Applying high fracture resistance materials and high heat resistance Alumina(Al<sub>2</sub>O<sub>3</sub>) increases surface finish and lubrication</li> <li>MT-TiCN + Al<sub>2</sub>O<sub>3</sub> + TiN</li> </ul>



**PVD Coated Grades**

Turning grade for heat resistant alloy and stainless steel

# PC8105

- Micro grain carbide minimizes chipping of cutting edge due to enhanced edge strength
- Latest PVD coating technology with high hardness and high temperature oxidation resistance
- Excellent tool life when finishing heat resistant alloys and stainless steels at high speeds

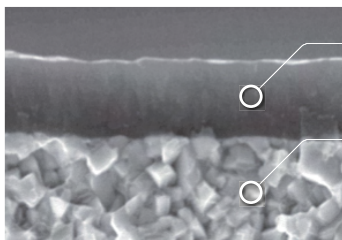
# PC8110

- Substrate with superior wear resistance and plastic deformation resistance at high temperature
- PVD coating technology with high hardness and oxidation resistance at high temperature
- Long tool life when machining heat resistant alloy and stainless steel at high speed

# PC8115

- Ultra fine matrix technology increases wear resistance and chipping resistance
- PVD coating technology with high hardness and oxidation resistance at high temperature
- Strong cutting edge and excellent chipping resistance guarantees stable machining
- Longer tool life when machining heat resistant alloy and stainless steel at medium to low speed and medium cutting to roughing

**Features**

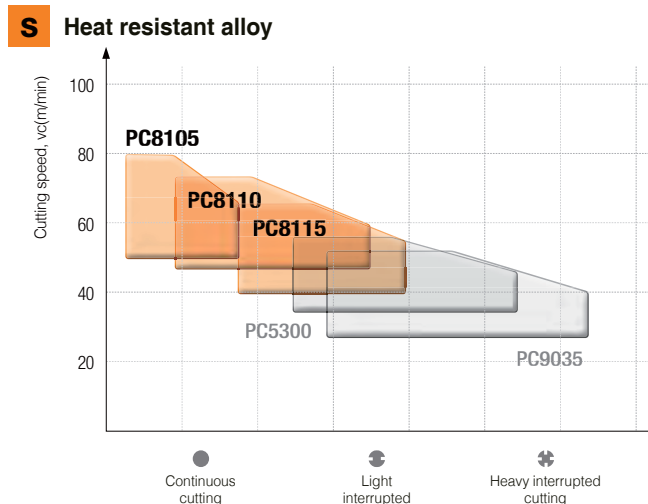


[PC8100 series]

It prevents wear at a high temperature to apply excellent surface roughness and coating with oxidation resistance and high hardness

It improves wear resistance to equalize submicron matrix, secure stability between corners and improve chipping and wear resistance

**Application range**





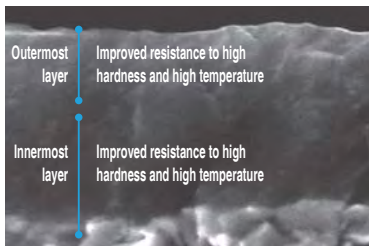
## PVD Coated Grades

Universal PVD grade

# PC5300

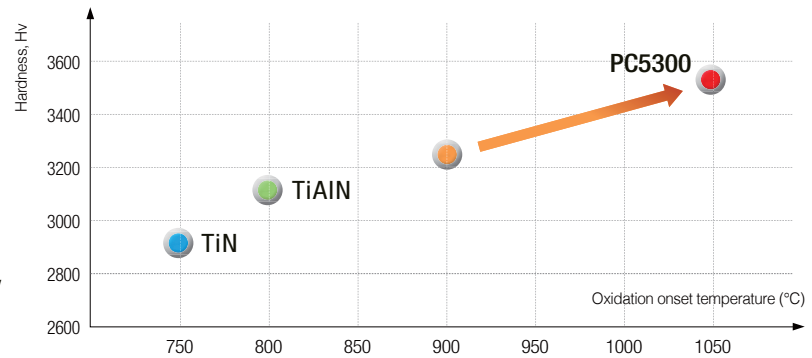
- Advanced PVD coating with high hardness and high temperature stability
- High tough substrate and coating films produce excellent surface finish
- Universal tooling capability covering P, M, K, S with this single grade, PC5300
- Stable machining resulting from excellent edge hardness and chipping resistance

### Features



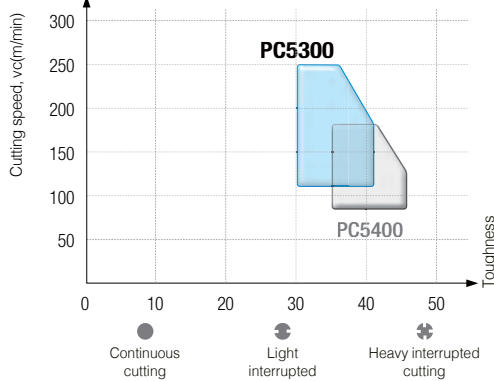
- Latest PVD coating technology developed by KORLOY
- New concept of coating equipped with high temperature oxidation resistance and high hardness

### High temp properties

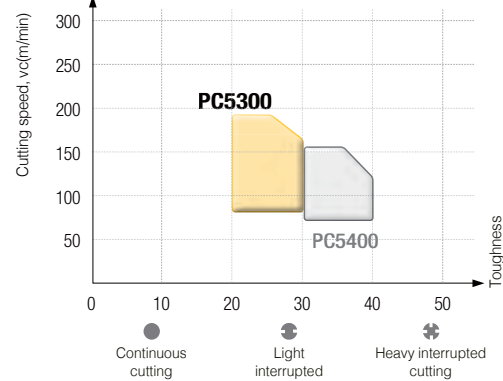


### Application range

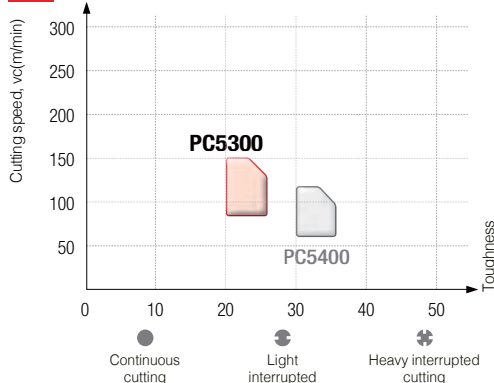
#### P Steel



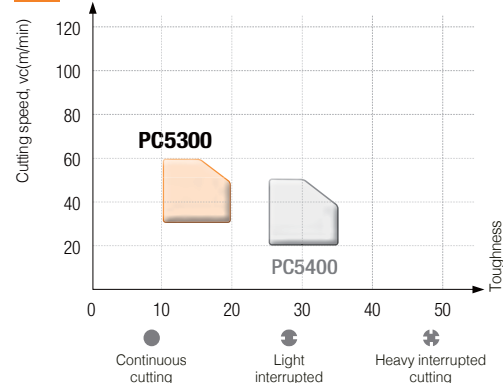
#### M Stainless steel



#### K Cast iron



#### S Heat resistant alloy



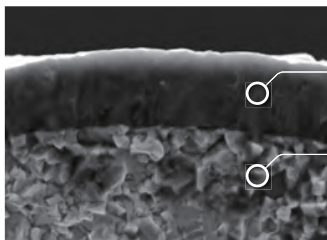
## PVD Coated Grades

### PVD grade for Stainless steel turning

# PC9030

- The optimal PVD grade for stainless steel turning and continuous cutting
- Applied high welding resistance coating layer technology
- Applied high wear resistance materials

### Features

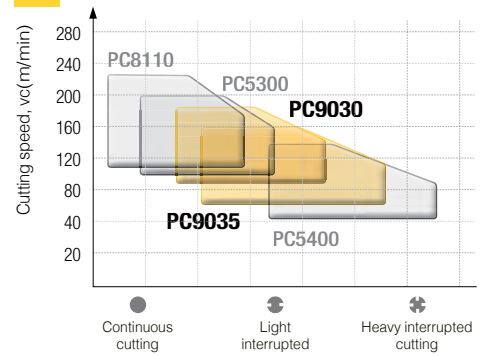


Applying high welding resistance coating layer

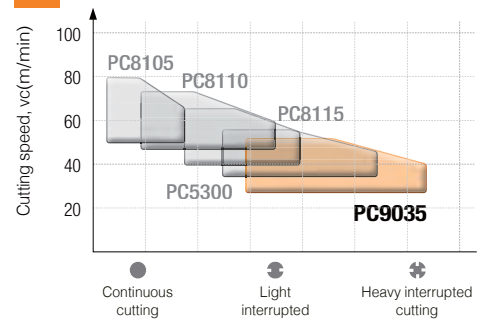
Applying high wear resistance materials

### Application range

#### M Stainless steel



#### S Heat resistant alloy

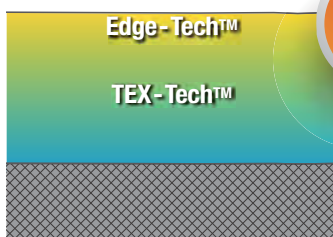


### Stainless steel Turning insert

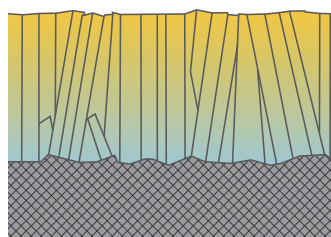
# PC9035

- Optimally designed PVD grade for medium to finish cutting and interrupted cutting of Stainless steel turning
- High stability of cutting due to applying high toughness PVD coating layer technology with chipping resistance and fracture resistance
- Good chipping resistance and welding resistance in the beginning of cutting through the Edge-Tech™ technology

### Features



[ PC9035 ]



[ Existing grade ]

## Selection system of PVD coated grade

ISO	Machining types	Recommended grade	Recommended cutting speed (m/min)	ISO	Application range	
P	Steel	Continuous cutting	PC5300	140 (105~175)	P30	PC5300
		Interrupted cutting	PC5400	125 (90~160)	P40	PC5400
M	Stainless steel	Continuous cutting	PC8105	175 (130~220)	M01	
			PC8110	160 (120~200)	M10	PC8105, PC8110, PC8115, PC5300, PC9030, PC9035, PC5400
			PC8115	145 (110~180)	M20	
		Interrupted cutting	PC5300	130 (95~165)	M30	
			PC9030	120 (90~150)	M40	
			PC9035	120 (90~150)	K10	
K	Cast iron	Continuous cutting	PC8110	135 (100~170)	K15	PC8110
		Interrupted cutting	PC5300	105 (80~130)	K20	PC5300
		PC5400	85 (65~105)	K25		
S	HRSA	Continuous cutting	PC8105	55 (40~70)	K30	PC5400
			PC8110	50 (35~65)	K35	
			PC8115	45 (35~55)	S01	PC8105, PC8110, PC8115, PC5300, PC9035, PC5400
		Interrupted cutting	PC5300	40 (30~50)	S10	
			PC9035	38 (25~50)	S20	
			PC5400	35 (25~45)	S30	
H	Hardened	Interrupted cutting	PC8105	110 (80~140)	H01	PC8105
		PC8110	100 (75~125)	H05	PC8110	
		PC8115	90 (65~115)	H10		
					H15	PC8115

## The features of PVD coated grades

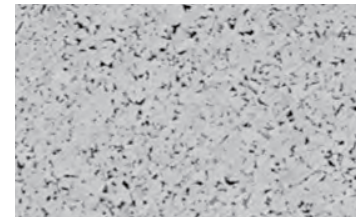
PVD Coated grades	ISO	Features
PC5300	P30 ~ P40 M20 ~ M30 K20 ~ K25 S15 ~ S25	<ul style="list-style-type: none"> <li>• Universal grade for stainless, HRSA, steel and interrupted cast iron machining</li> <li>• High chipping and welding resistance for longer tool life</li> <li>• New TiAlN coating and ultra fine grain substrate adopted</li> </ul>
PC5400	P35 ~ P45 M30 ~ M40 K30 ~ K35 S25 ~ S35	<ul style="list-style-type: none"> <li>• For medium cutting for hard-to-cut materials, stainless steel, steel, and cast iron at medium or low speed</li> <li>• Stable machinability with chipping resistance, fracture resistance and welding resistance</li> <li>• Ultra fine substrate with high toughness and new AlCrN layer</li> </ul>
PC8105	S01 ~ S10 M05 ~ M15 H01 ~ H05	<ul style="list-style-type: none"> <li>• For high speed and continuous finishing of hard-to-cut materials and STS</li> <li>• Excellent cutting performance with high wear resistance and oxidation resistance</li> <li>• Ultra fine substrate and the new TiAlN coating layer</li> </ul>
PC8110	S05 ~ S15 M10 ~ M20 H05 ~ H10 K10 ~ K20	<ul style="list-style-type: none"> <li>• For high speed and continuous medium cutting of hard-to-cut materials and STS</li> <li>• Excellent tool life with high wear/plastic deformation resistance at high temperature</li> <li>• New TiAlN coating layer and substrate with excellent thermal resistance</li> </ul>
PC8115	S10 ~ S20 M15 ~ M25 H10 ~ H15	<ul style="list-style-type: none"> <li>• For medium to low speed and medium to rough cutting of hard-to-cut materials and STS</li> <li>• Excellent tool life with high wear resistance and chipping resistance</li> <li>• Ultra fine substrate and the new TiAlN coating layer</li> </ul>
PC9030	M25 ~ M35 S20 ~ S30	<ul style="list-style-type: none"> <li>• Medium, roughing and heavy interrupted cutting for stainless steel</li> <li>• TiAlN coating and ultra fine grain substrate adopted</li> <li>• High chipping and welding resistance for stable machining</li> </ul>
PC9035	M25~M35 S20~S30	<ul style="list-style-type: none"> <li>• Optimally designed PVD grade for medium to finish cutting and interrupted cutting of Stainless steel turning</li> <li>• High stability of cutting due to applying high toughness PVD coating layer technology with chipping resistance and fracture resistance</li> <li>• Good chipping resistance and welding resistance in the beginning of cutting through the Edge-Tech™ technology</li> </ul>

## Uncoated Carbide Grades

### Uncoated carbide grades for turning application of titanium

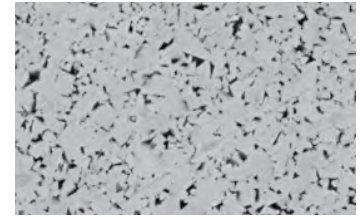
# H01

- Increased wear resistance and chipping resistance with the use of ultra fine substrate
- Improved welding resistance and chipping resistance with the use of special surface treatment and sharp cutting edge of VP chip breaker
- Excellent tool life when finishing titanium alloy at high speed

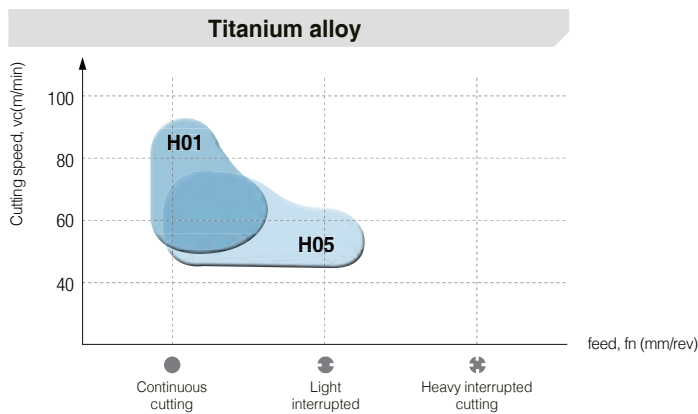


# H05

- The 1st recommended grade for machining titanium alloy in a variety of cutting conditions
- Improved welding resistance and chipping resistance with the use of special surface treatment and sharp cutting edge of VP chip breaker
- Ideal for medium cutting of titanium alloy



### Grades line-up



### Selection system

Workpiece	Recommended grade	Recommended cutting speed (m/min)	ISO	Application range
<b>P</b> Steel	ST30A	80(60 ~ 100)	P30	ST30A
<b>K</b> Cast iron	H01	120(90 ~ 150)	K01	H01
	H05	105(80 ~ 130)	K10	H05
	G10	90(65 ~ 115)	K20	
<b>N</b> Aluminum alloy	H01	440(220 ~ 660)	N10	H01
	H05	395(195 ~ 595)	N20	H05
<b>N</b> Copper alloys	G10	350(170 ~ 530)	N30	G10
<b>S</b> Titanium alloy	H01	35(25 ~ 45)	S01	H01
	H05	33(25 ~ 41)	S10	H05
<b>H</b> High hardness steel	H01	80(55 ~ 105)	H10	H01

### Main composition and application range

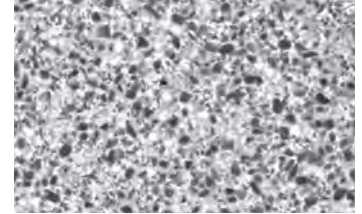
Workpiece	Composition	Composition	Workpiece
<b>P</b>	WC-TiC-TaC-Co	Heat resistance, excellent plastic deformation resistance	Carbon steel, Alloy steel, Stainless steel
<b>M</b>	WC-TiC-TaC-Co	General tools stable heat resistance with strength	Carbon steel, Alloy steel, Stainless steel
<b>K</b>	WC-Co	High strength and superior wear resistance	Cast iron, Non-ferrous metal, Plastic, etc.
<b>S</b>	WC-Co	Excellent wear resistance and chipping resistance	Titanium alloy

## Cermet Grades

### Solution for turning application of steel

# CN1500

- For continuous machining of cold/hot forged steel and sintered ferrous alloy at high speed and low depth of cut
- Excellent wear resistance and crater resistance
- Improved surface roughness acquired by optimized cutting edges



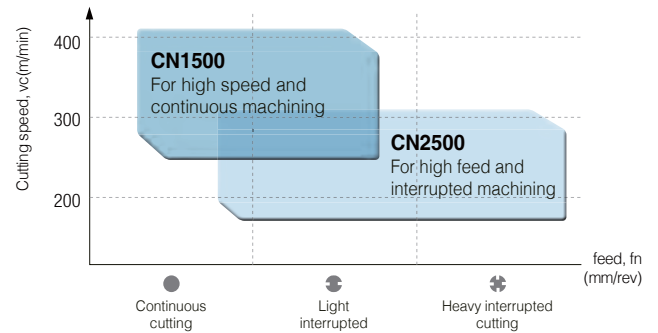
# CN2500

- For high interrupted machining of cold/hot forged steel and sintered ferrous alloy at high feed and high depth of cut
- Excellent resistance against chipping, fracture and thermal crack
- Improved surface roughness acquired by optimized cutting edges

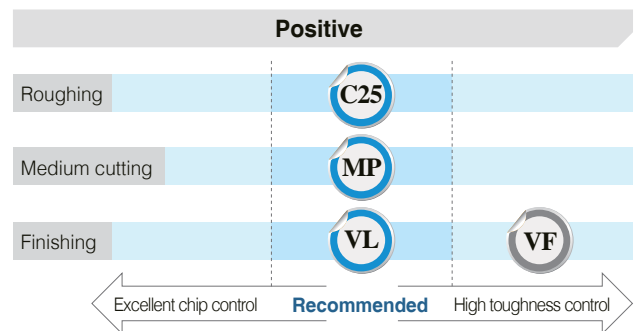
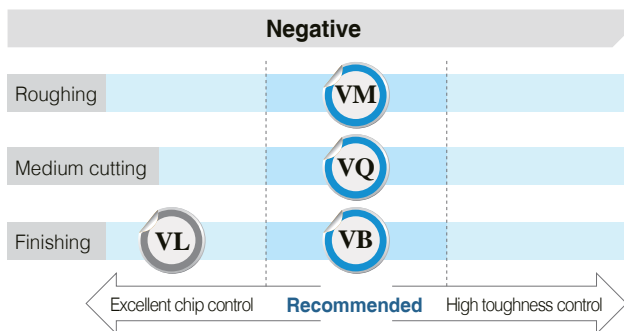
### Recommended cutting conditions

Division	Workpiece	Grade	Recommended cutting speed (m/min)		
			Minimum	Recommended	Maximum
Turning	SM10C, SS440	CN1500	150	270	400
		CN2500	130	240	350
	SM45C	CN1500	150	250	350
		CN2500	130	220	300
	SCM440 Sintered ferrous alloy	CN1500	120	220	300
		CN2500	100	200	250

### Grades line-up



### Chip breakers line-up



### Selection system

Workpiece	Machining types	Recommended grade	Recommended cutting speed (m/min)	ISO	Application range
P Steel	Continuous cutting	CN1500	250 (150 ~ 350)	P10	← CN1500 →
	Interrupted cutting	CN2500	220 (130 ~ 300)	P20	
				P30	
K Cast iron	Continuous cutting	CN1500	200(100 ~ 300)	K10	← CN1500 →
	Interrupted cutting	CN2500	165(80 ~ 250)	K20	



## Coated Cermet Grades

Coated cermet for machining carbon steel, alloy steel and sintered ferrous components

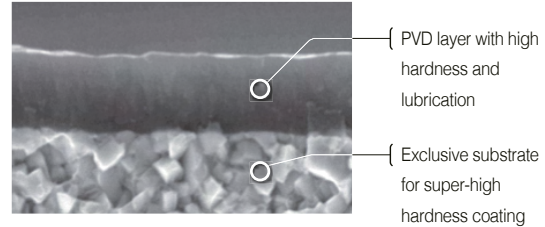
### CC1015

- Maximized resistance to built-up edge and oxidation in continuous cutting at high speeds and low depth of cuts
- Excellence in wear resistance, compared to the existing tools

### CC1025

- Maximized resistance to built-up edge and oxidation in interrupted cutting at high feeds and high depth of cuts
- Excellence in breakage prevention, compared to the existing tools

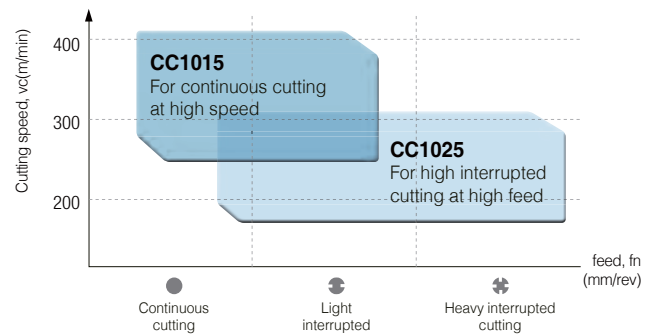
#### Features



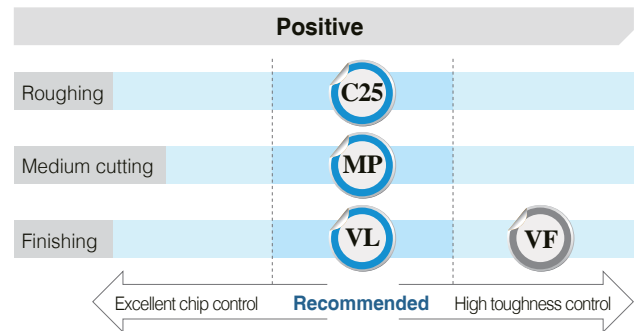
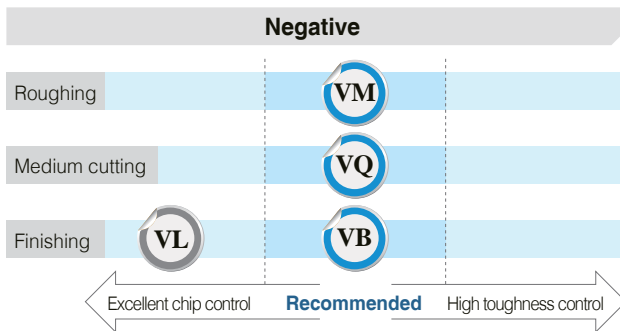
#### Recommended cutting conditions

Division	Workpiece	Grade	Recommended cutting speed (m/min)		
			Minimum	Recommended	Maximum
Turning	SM10C, SS440	CC1015	200	<b>350</b>	450
		CC1025	180	<b>290</b>	400
	SM45C	CC1015	200	<b>300</b>	400
		CC1025	180	<b>270</b>	350
	SCM440 Sintered ferrous alloy	CC1015	180	<b>270</b>	350
		CC1025	150	<b>250</b>	300

#### Grades line-up



#### Chip breakers line-up



#### Selection system

Workpiece	Machining types	Recommended grade	Recommended cutting speed (m/min)	ISO	Application range
P	Steel	Continuous cutting	325 (200 ~ 450)	P10	<span style="border: 1px solid #00a0e3; padding: 2px;">CC1015</span> <span style="margin-left: 20px; border: 1px solid #00a0e3; padding: 2px;">CC1025</span>
		Interrupted cutting	265 (180 ~ 350)	P20 P30	
K	Cast iron	Continuous cutting	270 (180 ~ 350)	K10	<span style="border: 1px solid #e31a1c; padding: 2px;">CC1015</span> <span style="margin-left: 20px; border: 1px solid #e31a1c; padding: 2px;">CC1025</span>
		Interrupted cutting	250 (150 ~ 300)	K20	

#### The features of coated cermet grade

Coated cermet	ISO	Features
CC1015	P10 ~ P20 / K05 ~ K15	<ul style="list-style-type: none"> <li>• High quality of surface finish</li> <li>• Applicable for non-coated Cermet range</li> </ul>
CC1025	P15 ~ P25 / K10 ~ K20	<ul style="list-style-type: none"> <li>• Optimal for finishing of various workpiece cutting</li> </ul>

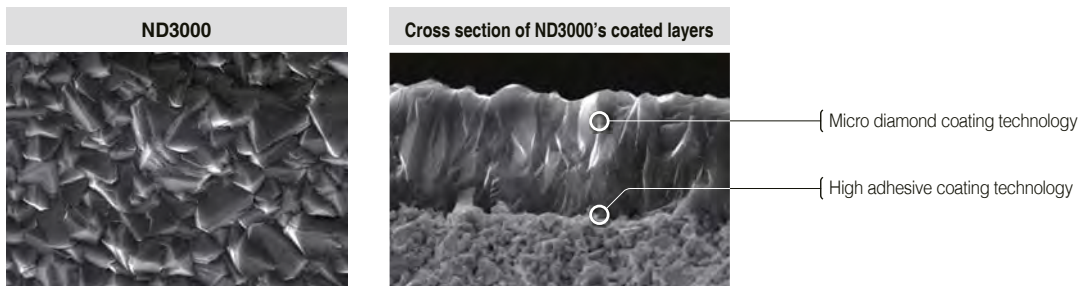
## Diamond Coated Grades

Diamond coating grade for Non-ferrous metals

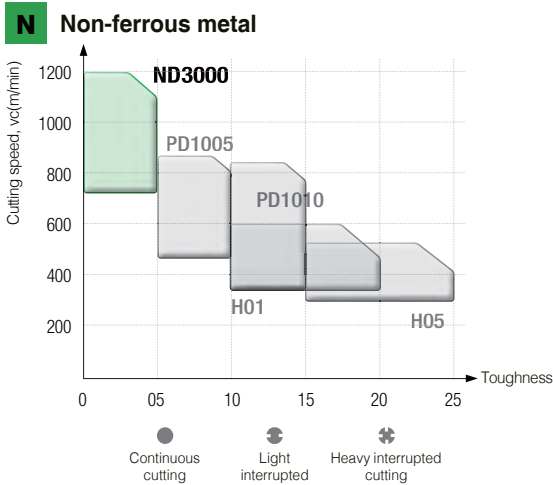
### ND3000

- SP3-crystalline diamond coatings of high purity and high hardness
- Improved adhesion between coated layers and the substrate that is specialized for diamond coatings
- Excellent tool life when machining graphite and ceramic

#### Features



#### Application range



#### Selection system

Workpiece	Grade	ISO	Application range
N Non-ferrous	Graphite/ Ceramic	ND3000	ND3000
	Al alloy	ND3000	

#### The features of diamond coated grades

Grade	ISO	Features
ND3000	N01 ~ N05	<ul style="list-style-type: none"> <li>• For continuous roughing of graphite, ceramic, and Al alloy at high speeds</li> <li>• Exceptional cutting performance due to high resistance to wear and flaking</li> <li>• High hardness diamond coatings of high purity SP3-crystalline structure</li> </ul>

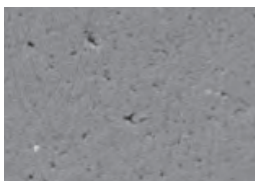
**DLC Coated Grades**

**DLC-Coated Inserts for Non-Ferrous Metals**

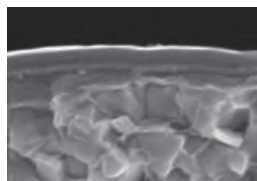
**PD1005 / PD1010**

- High hardness and low friction DLC coating technology
- Lubrication and maximized wear resistance increase machinability and machining quality.
- Optimal substrate for each workpiece ensures stable and long tool life
- For non-ferrous metals such as aluminum, Al-Si alloy, copper and etc. machining

**Features**



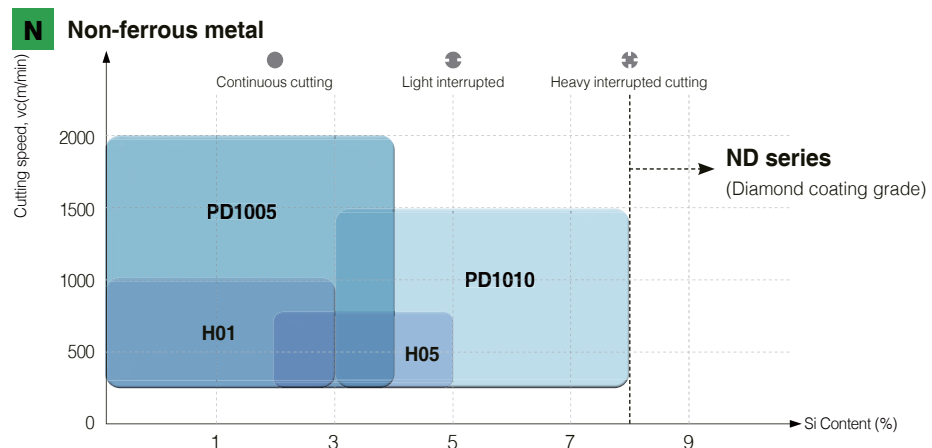
Smooth coating surface



Hard DLC coating

Grade	Wear resistance and Welding resistance	Surface finish	Chip curl
Carbide non coated			
DLC (PD1010)			

**Application range**



**Selection system**

Workpiece		Grade	ISO	Application range
N Non-ferrous	Aluminum and copper (Soft non-ferrous metals)	PD1005	N05	
	Aluminum alloy	PD1005 PD1010	N10	
	Al-Si alloy (Hardened non-ferrous metals)	PD1010	N15	

**The features of DLC coating grades**



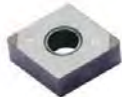
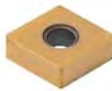


Grade	ISO	Features
PD1005	N05-N10	<ul style="list-style-type: none"> <li>• For high speed and continuous machining of Aluminum and copper</li> <li>• High wear and welding resistance realize good machinability</li> <li>• High performance of DLC coating with high hardness and low friction</li> </ul>
PD1010	N10-N15	<ul style="list-style-type: none"> <li>• For medium to high and interrupted machining of aluminum alloy and Al-Si alloy</li> <li>• Stable tool life due to substrate with chipping resistance</li> <li>• High performance DLC coating with high hardness and low friction</li> </ul>

## cBN Insert Grades

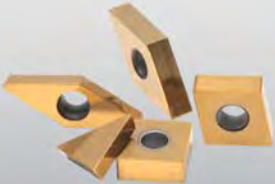
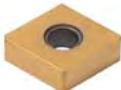

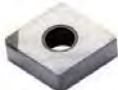
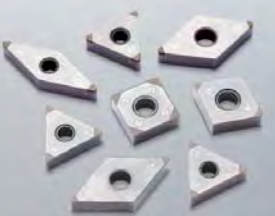
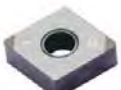


### Features

- Excellent hardness and thermal resistance by adding a special ceramic binder at high pressure and high temperature in sintering process
- Excellent hardness and wear resistance for higher productivity in machining cast iron and heat-treated alloy at high speed

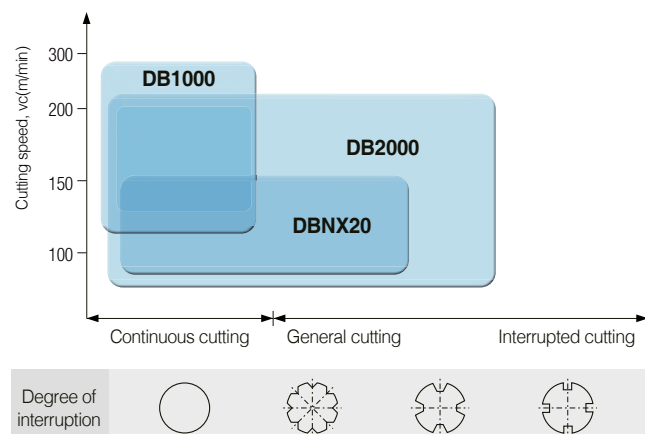
#### Insert type

High resistance		Wear resistance		Productivity	
					
For regrinding type	One use type	Multi-corner type	Multi-corner type (coated)	Solid type	Grooving type

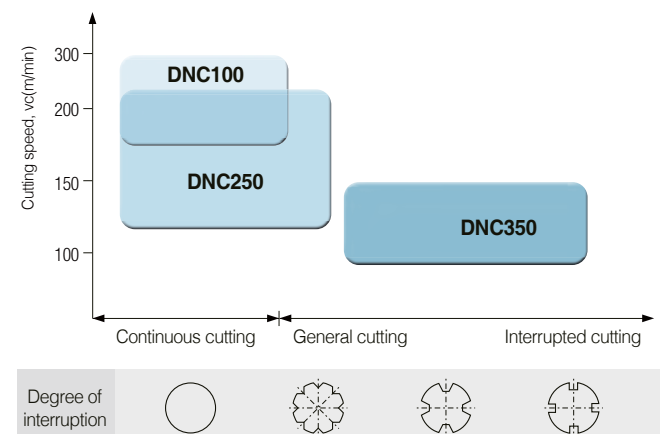
### cBN inserts

Multi edge coated type		One use type	
	 <b>2NU-CNGA120408</b>		 <b>NU-CNGA120408</b>
<ul style="list-style-type: none"> <li>• Easy handling of corners</li> <li>• Strong Brazing</li> <li>• Excellent tool life compared to non-coated inserts</li> </ul>		<ul style="list-style-type: none"> <li>• Economic price</li> <li>• Easy handling of tools</li> <li>• A wide variety of series</li> <li>• Smaller than expensive cBN and dramatic cost down</li> <li>• Strong weld face and stable cutting performance</li> </ul>	
Multi edge type		Regrinding type	
	 <b>2NU-CNGA120408</b>		 <b>CNMA120408</b>
<ul style="list-style-type: none"> <li>• Price per edge is more reasonable compare to normal single cornered, one-used type</li> <li>• Insert with several brazed cBN</li> <li>• Wide application of continuous to interrupted machining</li> </ul>		<ul style="list-style-type: none"> <li>• Long tool life</li> <li>• Excellent wear resistance, High hardness</li> <li>• Saved tool cost due to the regrinding insert 3~4 time</li> </ul>	






















### cBN application range



### Coated cBN application range



## ➤ Cutting conditions of cBN grades

ISO	Grades	Insert color	Application	Cutting speed, vc (m/min)	Feed, fn (mm/rev)	Depth of cut, ap (mm)	
<b>H</b>	High hardness steel	Coated	<b>DNC100</b> 	Continuous cutting at high speed	180  300	0.03 ~ 0.3	0.03 ~ 0.3
			<b>DNC250</b> 	Continuous and low interrupted cutting at high speed	120  220	0.05 ~ 0.3	0.05 ~ 0.3
			<b>DNC300</b> 	Medium and low interrupted cutting	90  250	0.05 ~ 0.2	0.05 ~ 0.2
			<b>DNC350</b> 	Medium and high interrupted cutting	90  150	0.05 ~ 0.3	0.05 ~ 0.3
	Non coated	<b>DB1000</b> 	Continuous cutting at high speed	130  250	0.03 ~ 0.15	0.03 ~ 0.2	
		<b>DB2000</b> 	Medium and high interrupted cutting	80  200	0.03 ~ 0.2	0.03 ~ 0.3	
		<b>DBNX20</b> 	Highly efficient cutting	120  150	0.03 ~ 0.3	0.03 ~ 0.5	
		<b>DBN250</b> 	Medium and high interrupted cutting	80  120	0.03 ~ 0.2	0.03 ~ 0.3	
		<b>DBN350</b> 	Highly efficient cutting	120  220	0.03 ~ 0.2	0.03 ~ 0.3	
		<b>DB7000</b> 	Continuous cutting at high speed	100  300	0.05 ~ 0.2	0.1 ~ 1.0	
<b>S</b>	<b>HRSA</b>						
<b>K</b>	<b>Cast iron</b>			500  2000	0.10 ~ 0.4	0.1 ~ 0.4	

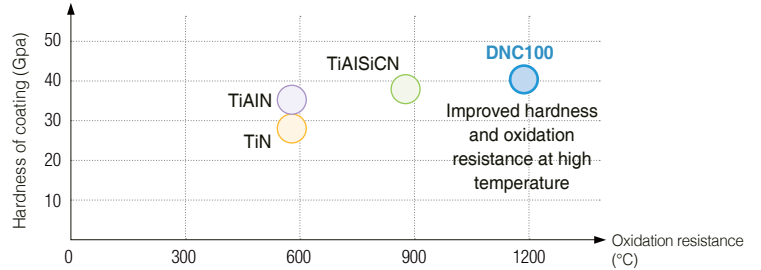


# A Turning Grades

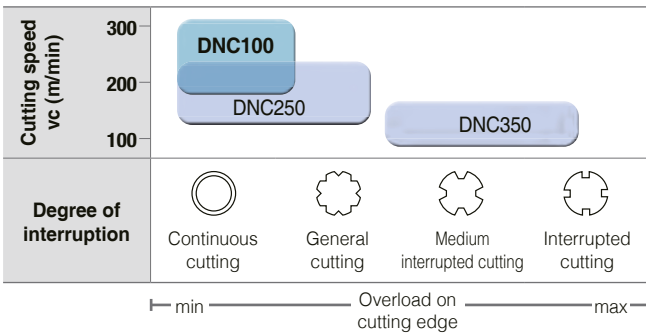
Coated cBN

## DNC100

- Excellent thermal resistance
- Coating layer with high hardness, oxidation resistance and chipping resistance



### Application range



### Recommended cutting conditions

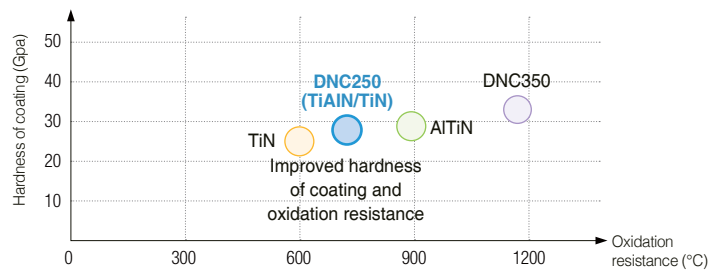
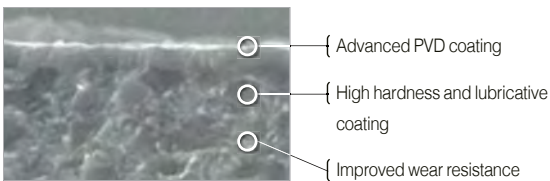
Cutting speed $v_c$ (m/min)	180 ————— 300
Feed $f_n$ (mm/rev)	0.03 ————— 0.3
Depth of cut $a_p$ (mm)	0.03 ————— 0.3

- Increased oxidation resistance and wear resistance due to high hardness coating layer
- Dramatically improved fracture resistance and chipping resistance

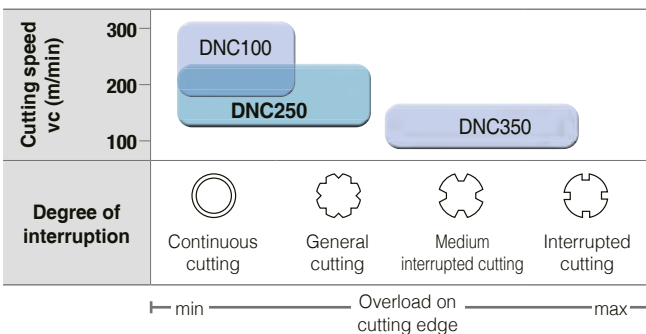
Multi-corner coated cBN for high efficient cutting of heat-treated alloy

## DNC250

- Stable and long tool life
- Cost effective by multi-cornered one-use insert



### Application range



### Recommended cutting conditions

Cutting speed $v_c$ (m/min)	120 ————— 220
Feed $f_n$ (mm/rev)	0.05 ————— 0.3
Depth of cut $a_p$ (mm)	0.05 ————— 0.3

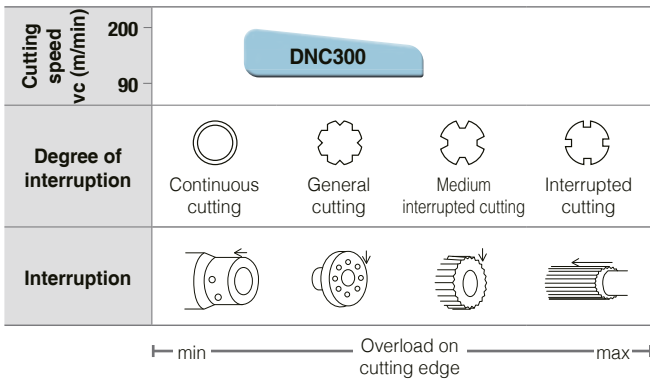
## Coated cBN

# DNC300

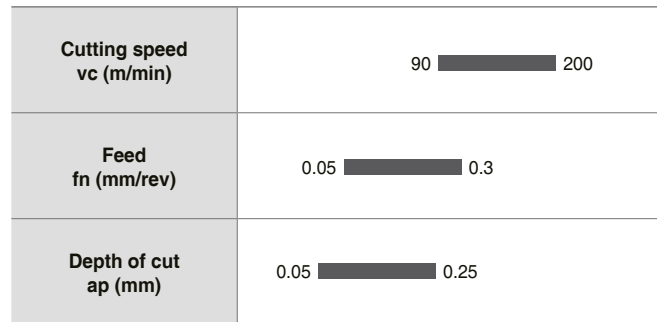
- 1st recommended grade for low to medium interrupted cutting
- Enhanced chipping resistance and wear resistance comparing to competitor's grade
- Minimized flaking of coating by stable coating



### Application range



### Recommended cutting conditions



- Enhanced oxidation resistance and wear resistance due to high hardness layer
- Highly increased chipping resistance, fracture resistance and wear resistance

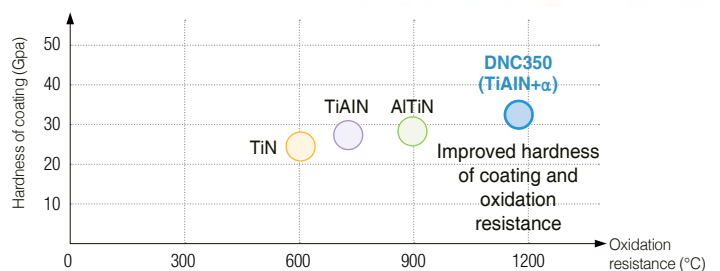
## Coated cBN for high interrupted cutting

# DNC350

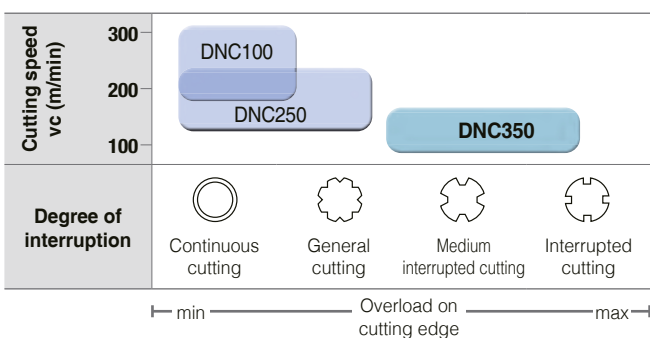
- Excellent tool life and productivity in interrupted cutting
- New PVD coating applied with high hardness and oxidation resistance



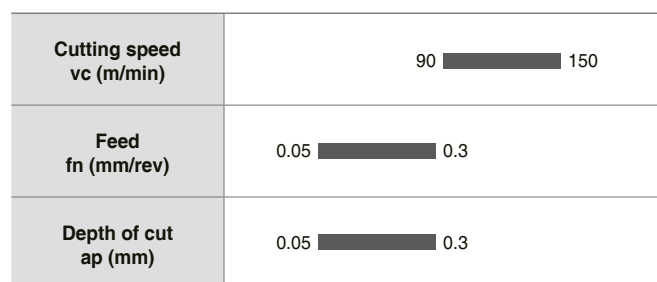
- High hardness and oxidation-resistant coating
- High tough coating
- Fine CBN + High tough substrate



### Application range



### Recommended cutting conditions



# A Turning Grades

## Non-coated cBN

### DB1000

- Non-coated cBN with the highest wear resistance at high speed
- Excellent tool life in continuous to light interrupted cutting
- Improved fracture resistance along with high wear resistance
  - Higher thermal resistance and hardness due to pure TiCN ceramic binder



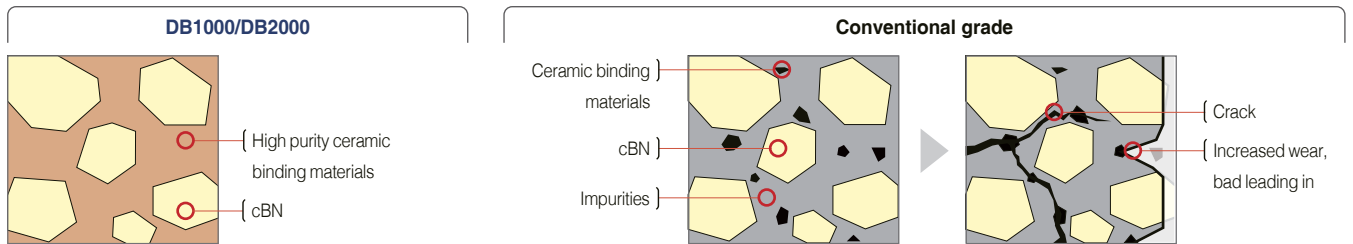
## Non-coated cBN

### DB2000

- Universal grade for overall machining of heat-treated
  - Stable tool life in continuous to low/medium interrupted cutting
- Both fracture resistance and wear resistance acquired with the use of pure ceramic binder
- Stable surface roughness



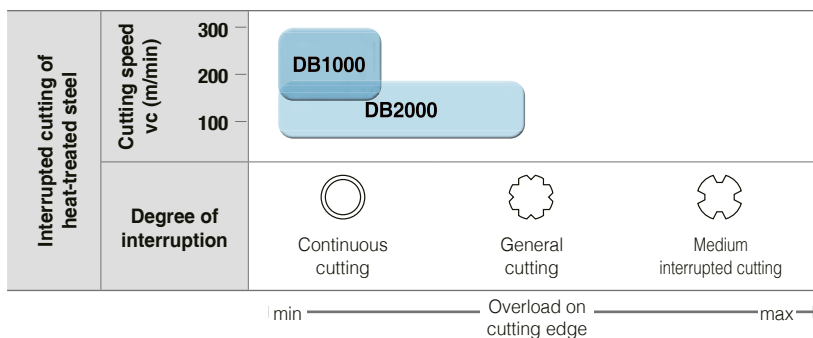
## ➤ New technology of high purity ceramic binding materials



DB2000 dramatically minimizes impurities with the use of high purity ceramic binding materials and enhances thermal resistance and toughness.

Impurities included in conventional grade's ceramic binder caused inferior thermal resistance and hardness of sintered compounds, which led to crack (fracture) and wear

## ➤ Application range



## ➤ Recommended cutting conditions (DB1000)

Cutting speed $v_c$ (m/min)	130  250
Feed $f_n$ (mm/rev)	0.03  0.15
Depth of cut $a_p$ (mm)	0.03  0.2

## ➤ Recommended cutting conditions (DB2000)

Cutting speed $v_c$ (m/min)	80  200
Feed $f_n$ (mm/rev)	0.03  0.2
Depth of cut $a_p$ (mm)	0.03  0.3

## PCD Insert Grades

- Excellent tool life for aluminum alloy and copper alloy
- Excellent tool life for ceramic, high-silicon aluminum and rock or stone
- Excellent tool life for rubber, carbon, graphite and wood

### Features

KORLOY PCD products are manufactured by using high quality PCD tips under ultra high temperatures and pressure. The PCD tip is welded on the qualified KORLOY carbide insert

KORLOY high quality PCD products meet a wide range of application needs in turning, milling, and endmills.

### PCD grade

Grade	Features	Application	Grain size (μm)	Force of resistance(Gpa)
DP90	Coarse diamond grain has been used to get excellent wear resistance enough to machine cemented-carbide, high Si aluminum alloy	Cemented carbide Ceramic roughing High Si aluminum alloy Rock, Stone	25 ~ 30	≒1.10
DP150	By use of fine diamond grain having good bonding property, it is suitable for machining of Non-ferrous metal, graphite	High Si aluminum alloy Copper, Bronze alloy Rubber, Wood, Carbon	5 ~ 10	≒1.95
DP200	By use of ultra fine diamond grain, it is possible to make sharp cutting edge. Thus it is appropriate grade to machine Non-ferrous material	Plastic Wood Precise finishing of aluminum	~ 2	≒2.45

### Recommended cutting conditions

Workpiece	Cutting speed (m/min)	Feed Turning(mm/rev) Milling(mm/t)	Depth of cut (mm)	Recommended grade	
				1st	2nd
Aluminum alloy (4%~8%Si)	1000 ~ 3000	0.1 ~ 0.6	~ 3	DP150	DP200
Aluminum alloy (9%~14%Si)	600 ~ 2500	0.1 ~ 0.5	~ 3	DP150	DP200
Aluminum alloy (15%~18%Si)	300 ~ 700	0.1 ~ 0.4	~ 3	DP150	DP200
Copper, Bronze alloy	~ 1000	0.05 ~ 0.2	~ 3	DP150	DP200
Reinforced plastic	~ 1000	0.1 ~ 0.3	~ 2	DP150	DP200
Wood	~ 4000	0.1 ~ 0.4	-	DP150	DP200
Cemented carbide	10 ~ 30	~ 0.2	~ 0.5	DP90	DP150

## Chip Breakers for Turning

Picture	Cutting edge	Application range											Features											
		feed rate $f_n$ (mm/rev)																						
		0.04	0.063	0.10	0.16	0.25	0.4	0.63	1.0	1.6	2.5	4.0		6.3										
depth of cut $a_p$ (mm)																								
											0.1	0.16	0.25	0.4	0.63	1.0	1.6	2.5	4.0	6.3	10.0	11.6	13	
V series	VL																							<b>For Finishing</b> <ul style="list-style-type: none"> <li>Stable chip control in high toughness material; low carbon steel, pipe steel &amp; steel plates</li> <li>Improved chip control for facing, copy machining and better surface finish</li> </ul>
	VB																							<b>For Finishing</b> <ul style="list-style-type: none"> <li>Improved chip control for smaller depth of cuts</li> <li>Excellent chip control in copying, corner R machining</li> </ul>
	VF																							<b>For Finishing</b> <ul style="list-style-type: none"> <li>Good chip control quality on varied depth of cut</li> <li>Excellent cutting edge strength has been acquired due to the special chip-breaker</li> </ul>
	VC																							<b>For Medium to finish cutting</b> <ul style="list-style-type: none"> <li>Stable chip control in copying and internal machining with various depths of cut</li> </ul>
	VQ																							<b>For Medium to finish cutting</b> <ul style="list-style-type: none"> <li>Medium to finishing cutting edges offer improved edge hardness</li> <li>Increased chip control in low depth of cut cutting range</li> <li>For cermet</li> </ul>
	VM																							<b>For Medium cutting</b> <ul style="list-style-type: none"> <li>Wide available chip control range from medium-finishing to medium-roughing</li> <li>Suitable chip breaker for CNC machining</li> </ul>
	VH																							<b>For Heavy duty cutting</b> <ul style="list-style-type: none"> <li>Designed specifically for heavy machining</li> <li>Specialized chip breaker for the heavy industries like Ship building, Power plant industry</li> </ul>
	VT																							<b>For Heavy duty cutting</b> <ul style="list-style-type: none"> <li>Designed specifically for heavy machining</li> <li>Specialized chip breaker for the heavy industries like Ship building, Power plant industry</li> </ul>

Notice: Application ranges are based on main cutting material

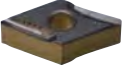
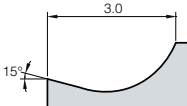

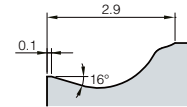

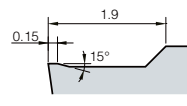
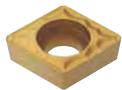
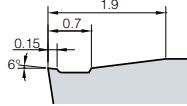

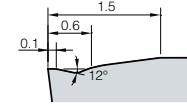

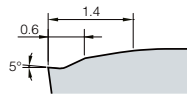
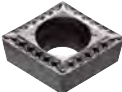
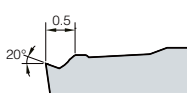

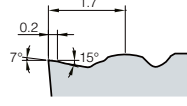







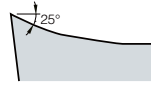
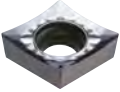
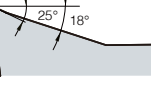
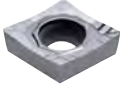
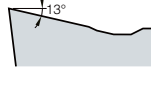
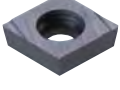

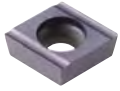
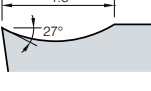
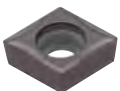
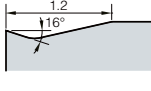
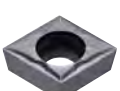
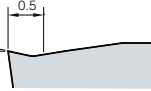




## Chip Breakers for Turning

Picture	Cutting edge	Application range												Features
		feed rate $f_n$ (mm/rev)												
		0.04	0.063	0.10	0.16	0.25	0.4	0.63	1.0	1.6	2.5	4.0	6.3	
depth of cut ap (mm)														
0.1	0.16	0.25	0.4	0.63	1.0	1.6	2.5	4.0	6.3	10.0	11.6	13		
<b>SR</b> 		0.12~0.45				1.0~4.5								<b>For Medium to finish cutting</b> <ul style="list-style-type: none"> <li>Shallow depth of cut with sharp edge</li> <li>Longer tool life at high speed cutting due to low cutting force</li> <li>Good surface finish</li> </ul>
		<b>SH</b> 		0.15~0.50				1.5~5.0						
<b>C25</b> 				0.10~0.35				1.0~3.0						
		<b>HMP</b> 		0.08~0.40				0.5~3.5						
<b>VF</b> 				0.05~0.25				0.1~1.5						
		<b>VL</b> 		0.05~0.20				0.1~1.0						
<b>FP</b> 				0.01~0.20				0.1~1.0						
		<b>MP</b> 		0.05~0.30				0.3~3.0						

Notice: Application ranges are based on main cutting material

## Chip Breakers for Turning

Picture	Cutting edge	Application range												Features										
		feed rate $f_n$ (mm/rev)																						
		0.04	0.063	0.10	0.16	0.25	0.4	0.63	1.0	1.6	2.5	4.0	6.3											
depth of cut $a_p$ (mm)																								
												0.1	0.16	0.25	0.4	0.63	1.0	1.6	2.5	4.0	6.3	10.0	11.6	13
AL series	AK			0.03-0.40	0.1-4.0																		<p><b>For Medium to finish cutting</b></p> <ul style="list-style-type: none"> <li>Exclusive chip breaker for aluminum and aluminum alloy cutting</li> </ul>	
	AM			0.03-0.45	0.3-4.0																		<p><b>For Medium to finish cutting</b></p> <ul style="list-style-type: none"> <li>Exclusive chip breaker for aluminum and aluminum alloy cutting</li> <li>Balanced surface finish and toughness from 2 step side rake angle</li> </ul>	
	AR			0.05-0.50	0.5-4.0																		<p><b>For Medium to finish cutting</b></p> <ul style="list-style-type: none"> <li>High stability of cutting edge secures great performance in high speed and interrupted machining</li> <li>High speed of medium and interrupted operation</li> </ul>	
Auto tool series	KF			0.01-0.12	0.01-1.0																	<p><b>For Finishing</b></p> <ul style="list-style-type: none"> <li>Suitable for shallow depth of cut machining with sharp edge</li> <li>Longer tool life at high speed cutting due to low cutting force</li> <li>Good surface finish</li> </ul>		
	KM			0.04-0.15	0.05-1.5																	<p><b>For Medium to finish cutting</b></p> <ul style="list-style-type: none"> <li>Improved chip control makes tool life long and better machining</li> </ul>		
	VP1			0.05-0.3	0.5-4.0																	<p><b>For Medium cutting</b></p> <ul style="list-style-type: none"> <li>For medium cutting with strong cutting edge</li> <li>For wide range of cutting by optimal width of chip breaker for each cutting depth</li> </ul>		
	MS			0.03-0.25	0.3-3.0																	<p><b>For medium cutting (for surface roughness)</b></p> <ul style="list-style-type: none"> <li>Reduced welding and cutting heat by sharp cutting edge</li> <li>Enhanced chip evacuation in low to high feed cutting</li> </ul>		
	FS			0.01-0.20	0.1-2.0																	<p><b>For Finishing</b></p> <ul style="list-style-type: none"> <li>For various workpiece (P, M, S) cutting</li> <li>Good surface finish and low cutting load due to sharp cutting edge</li> </ul>		

Notice: Application ranges are based on main cutting material

## Application Range of KORLOY Main Chip Breakers

### ➤ Negative inserts

**Workpiece P**  
Steel

Heavy	HL	HG	HV
Roughing	GR		
Medium cutting	VM	MP	HM
Medium to finishing	VC	LP	CP
For Finishing	VL	VB	VF

[Recommended]

**Workpiece K**  
Cast iron

Roughing	VR	RK	MA
Medium cutting		MK	
Medium to finishing		MP	B25
For Finishing			

[Recommended]

**Workpiece M**  
Stainless steel

Roughing		RM	
Medium cutting	MP	MM	
Medium to finishing		VP2	
For Finishing			

[Recommended]

**Workpiece N**  
Aluminum alloy

Roughing			
Medium cutting			
Medium to finishing		HA	
For Finishing			

[Recommended]

**Workpiece S**  
Heat resistant alloy

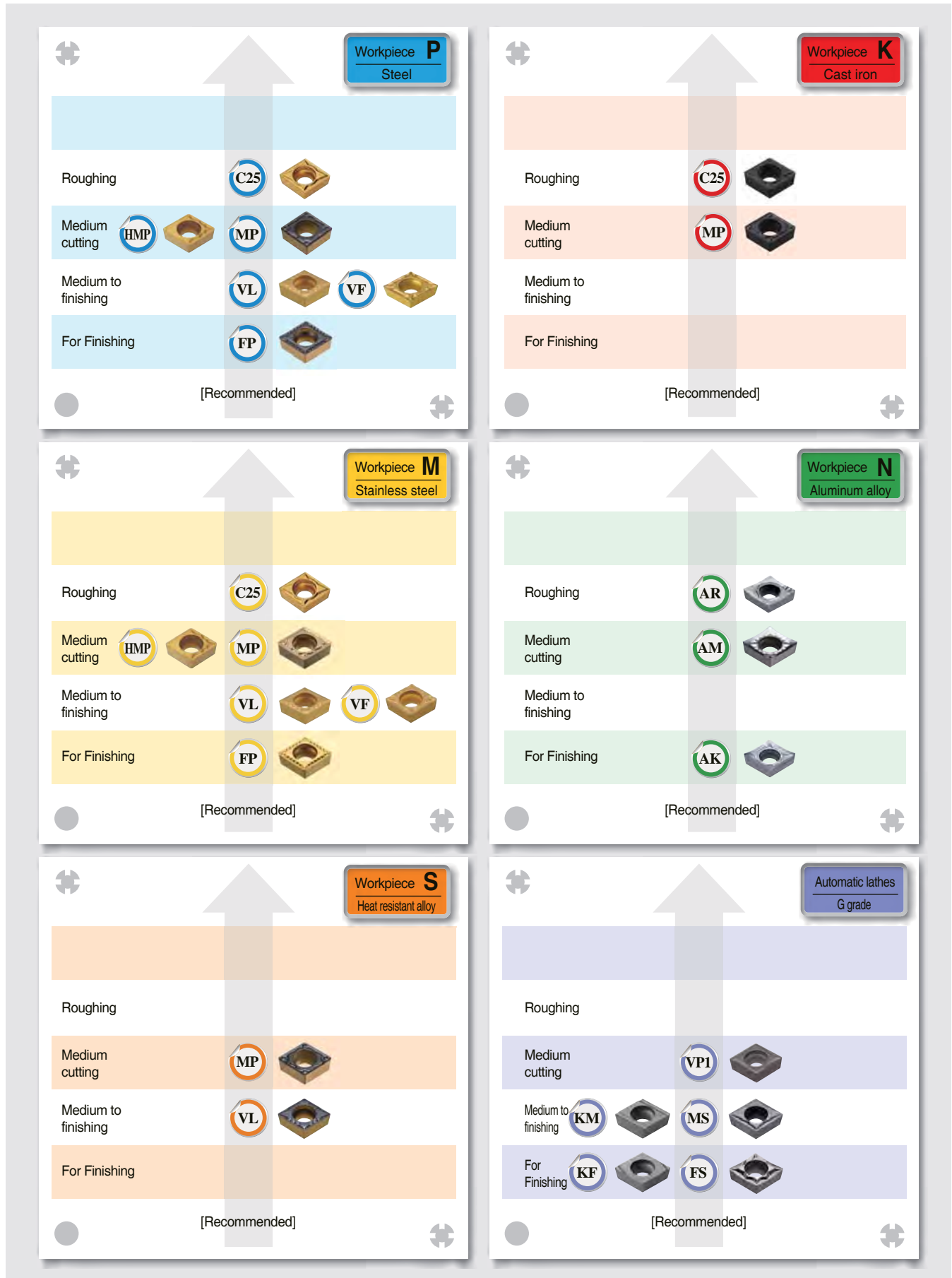
Roughing		VP4	
Medium cutting		VP3	
Medium to finishing		VP2	
For Finishing		VP1	

[Recommended]



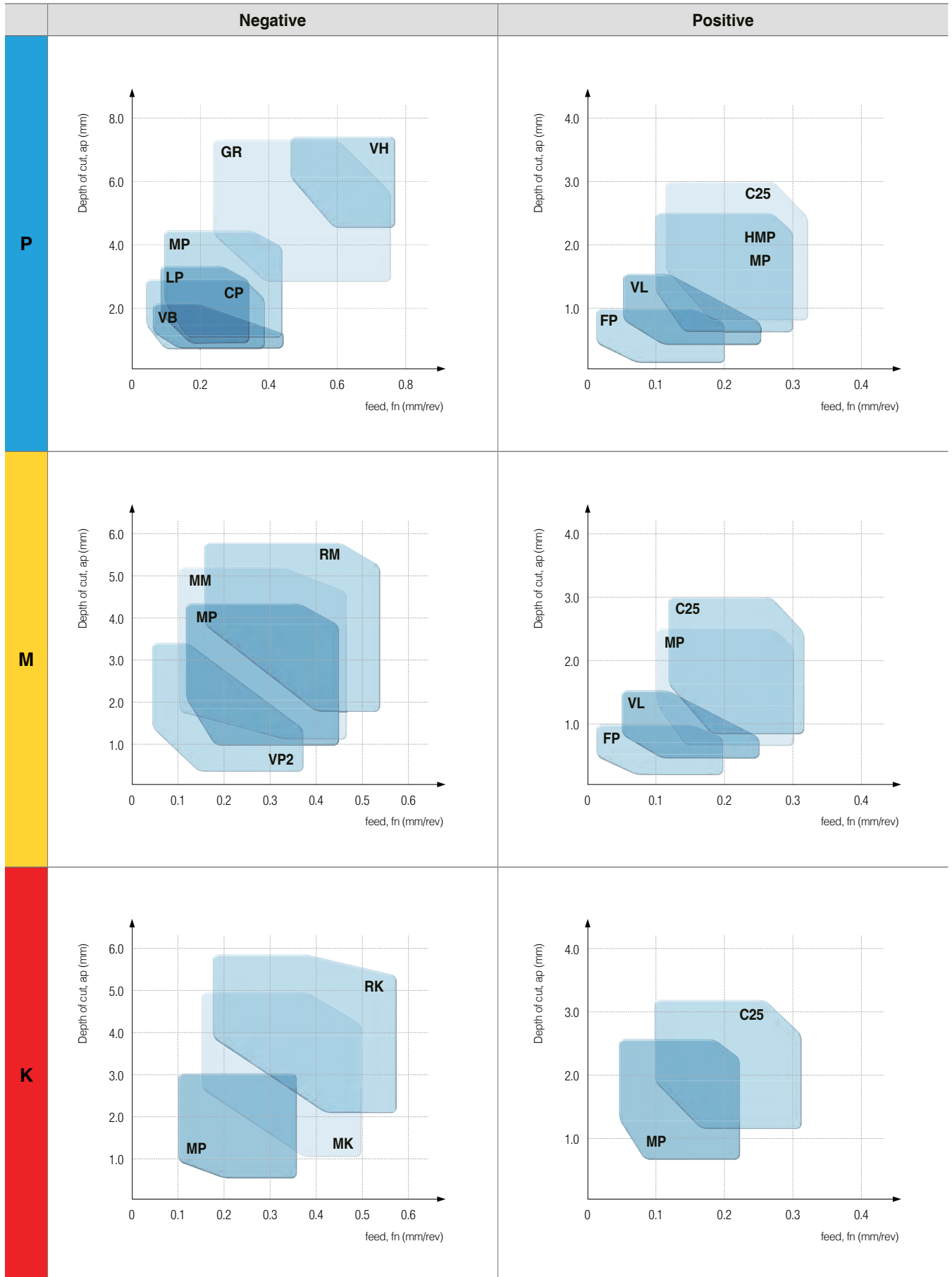
## Application Range of KORLOY Main Chip Breakers

### Positive inserts



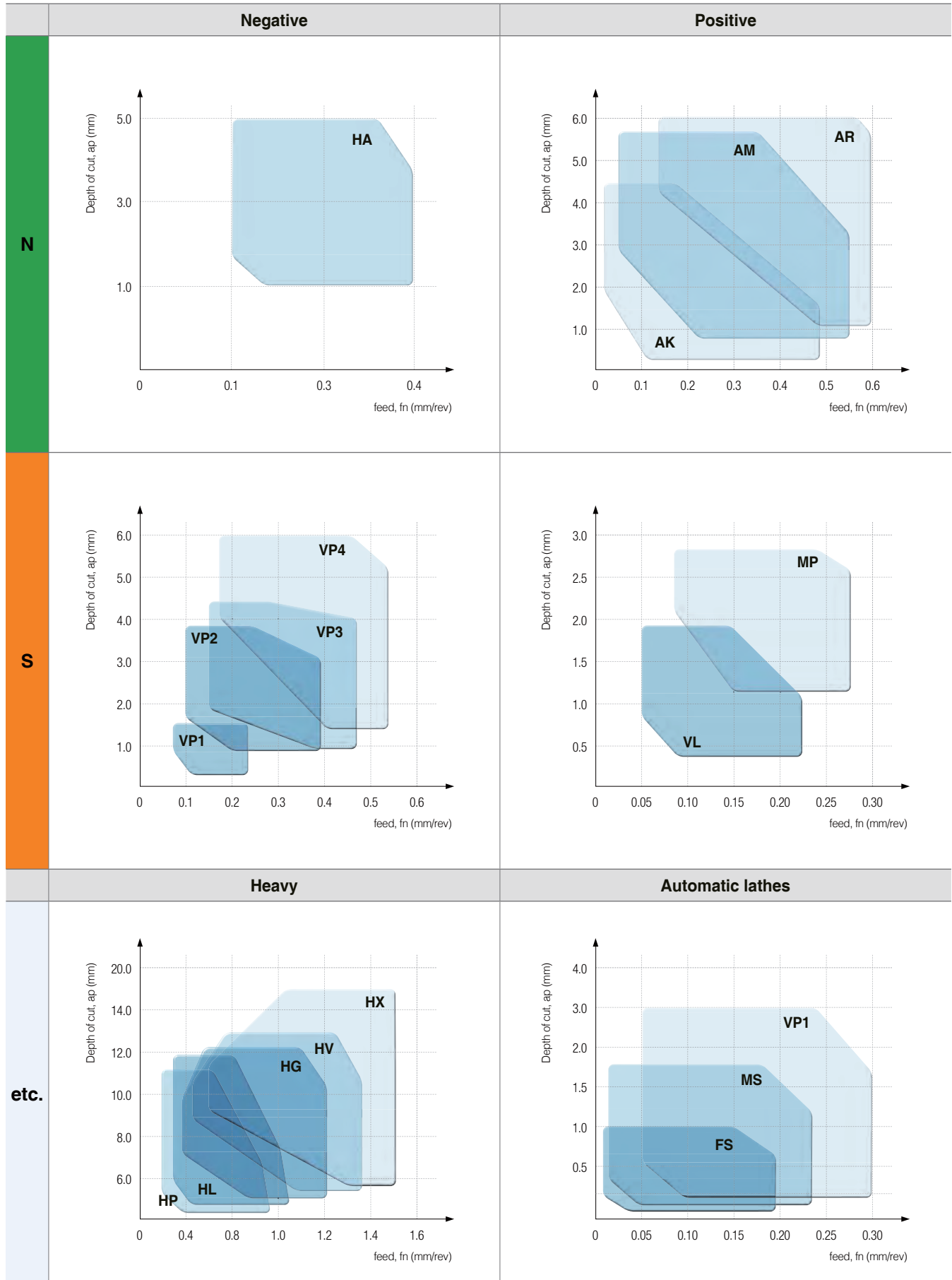
## Application Range of KORLOY Main Chip Breakers

### Application range



**Application Range of KORLOY Main Chip Breakers**

**Application range**



## Negative insert

### VL Chip Breaker [For Finishing]

- Improved chip control for machining material that have high toughness such as low carbon steel, pipe, steel plate etc.
- Improved chip control and decreased cutting load on external, facing, and copying applications
- Improved strength of the cutting edge for measurable efficiency in automated production



#### Features

- **2 steps designed chip-breaker**
  - Suitable Mild steel
  - Stable chip control on the low feed and cutting depth
- **Designed with special dots**
  - Stable chip breaking on the low cutting depth
- **Applied side rake angle**
  - Improved chip control on facing, copying applications
  - Decreased cutting load and better surface finish

#### Chip control

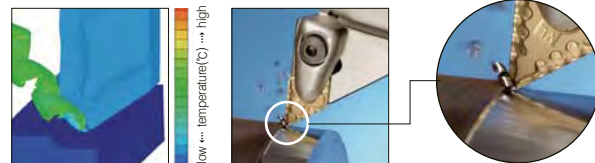
Workpiece	SM20C
Cutting conditions	vc = 250m/min, fn = 0.2mm/rev(Side), ap = 0.5mm, dry
Tools	DNMG150408-VL



[ VL Chip Breakers ] [ Competitor A ] [ Competitor B ] [ Competitor C ]

#### FEM Cutting simulation analysis in the design

- For design of geometry, chip shapes and chip flow are predictable
- Optimal chip breaker design for various cutting conditions and workpieces



### VB Chip Breaker [For Finishing]

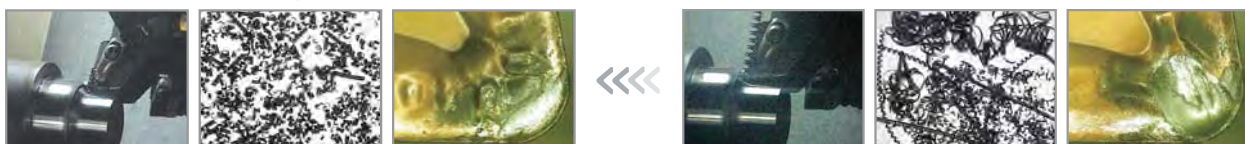
- Excellent chip evacuation in continuous and high speed machining of various workpieces
- 3-dimensional chip breaker achieves lower cutting resistance, high rigidity of the cutting edge, and longer tool life
- Stable chip control in copying and internal machining



#### Features

- **6 bumps on the insert corner**
  - Superior chip control and chip cutting in copying with various depths of cut
- **Side rake angle**
  - Superb chip cutting in facing and copying. Superior tool life due to improved surface roughness and lower cutting resistance
- **Cutting edge on 100° part for medium machining (For CNMG)**
  - Excellent chip evacuation and toughness in machining with high depth of cut

Better machining    Better Chip control    Longer tool life



[ VB Chip Breakers ]

[ Conventional chip breaker ]

**Negative insert**

# VC Chip Breaker [For medium to finishing]



- Superior chip evacuation in high speed and continuous machining of various workpieces (carbon steel, alloy steel etc.)
- KORLOY 3 dimensional chip breaker ensures longer tool life due to low cutting load and improved cutting edge strength
- Stable chip control in copying and internal machining

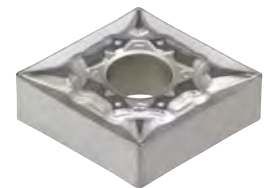
## Features of VC chip breaker

- **4 bumps on the insert corner**
  - Excellent chip control in various depths of cut and superb chip cutting in external, internal, copy machining and facing

## Evaluation of chip control (Copying)



# VQ Chip Breaker [ For medium to finishing\_For cermet ]



- Excellent cutting performance and reinforced cutting edges
- Improved chip control at low depth of cuts

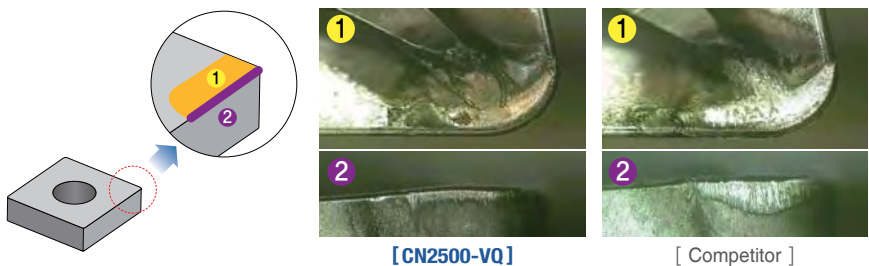
## Features of VQ chip breaker

- **Three dimensional rake angle**
  - Improved surface finish thanks to sharp cutting performance
  - Less cutting heat and longer tool life thanks to low cutting resistance
- **Three dimensional rake angle**
  - Improved surface finish thanks to sharp cutting performance
  - Less cutting heat and longer tool life thanks to low cutting resistance

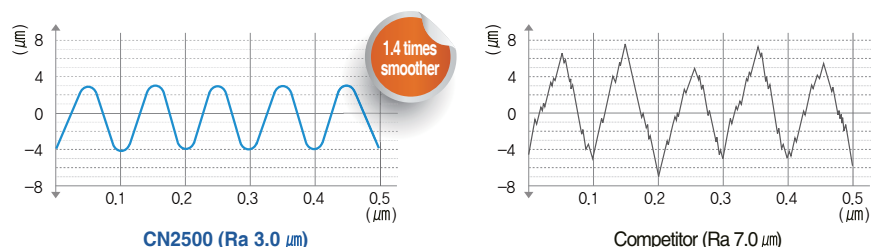
## Performance evaluation

<b>Workpiece</b>	SCM440(Alloy steel), Ø100, External diameter turning
<b>Cutting conditions</b>	vc = 280m/min, ap = 1.5mm, fn = 0.25mm/rev
<b>Tools</b>	CNMG120408-VQ(CN2500)

### Wear comparison



### Surface roughness comparison



# A Turning Chip Breakers

## Negative insert

### LP Chip Breaker [For medium to finishing]

- Chip breaker for forged steel of automobile parts and normal steel
- Quad dots improve productivity through efficient chip control at high feed
- Angle land minimizes cutting force

#### Features of LP chip breaker

##### Front dot

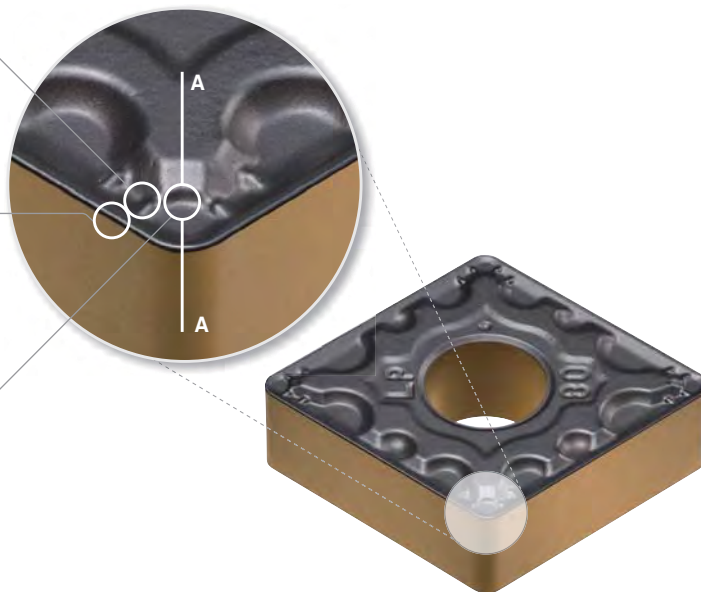
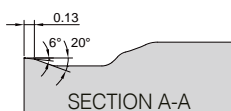
- Higher stability of chip curls at high feed
- Excellent chip control when copying
- Lower cutting force at low depth of cut and high feed

##### Variable land

- Less crater wear
- Prevents chipping on minor cutting edge

##### Flat zone

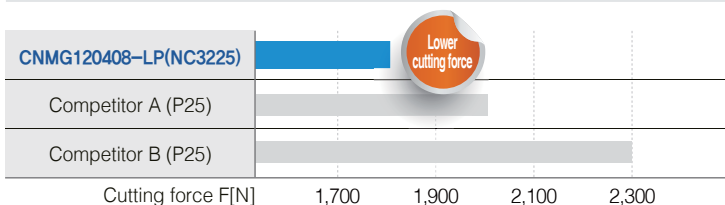
- Larger chip pocket for better chip evacuation at high feed
- Reduced cutting force with larger contact surface of chips



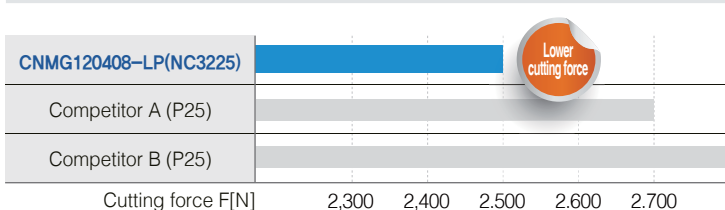
#### Performance evaluation

<b>Workpiece</b>	SM45C, Ø100, External machining
<b>Cutting conditions</b>	vc(m/min) = 250, ap(mm) = 1.0, fn(mm/rev) = 0.25 / 0.40, wet
<b>Tools</b>	CNMG120408 - MP

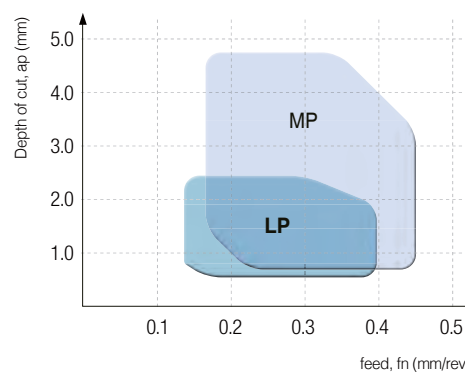
##### Medium feed (0.25 mm/rev)



##### High feed (0.40 mm/rev)



#### Application range





## Negative insert

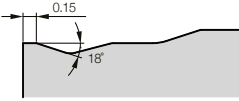
### CP Chip Breaker [For medium to finishing]

- Chip breaker with strong cutting edge for heavy interruption in the range of medium to finishing
- Effective chip control in the range from low depth of cut to high depth of cut due to 2-stepped back angle
- Stable chip evacuation and breaking long chip in deep cutting by side rake angle and continuous bumps

#### Features of CP chip breaker

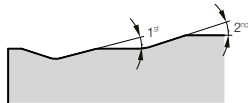
##### Flat land

- Strong cutting edge in interrupted roughing
- Kept the balance between continuous cutting and interrupted cutting
- Expanded versatility



##### 2-stepped back side

- Better chip control in low depth of cut machining
- Improved chip evacuation in high feed machining
- Expanded versatility by 2-stepped rake angle



##### Side rake angle + continuous bumps

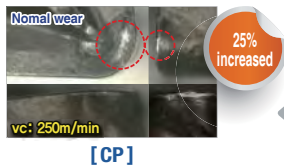
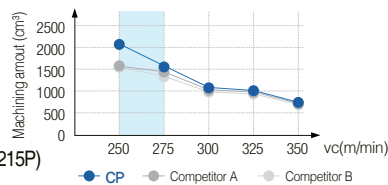
- Enhanced surface finish
- Improved chip evacuation
- Breaking long chips



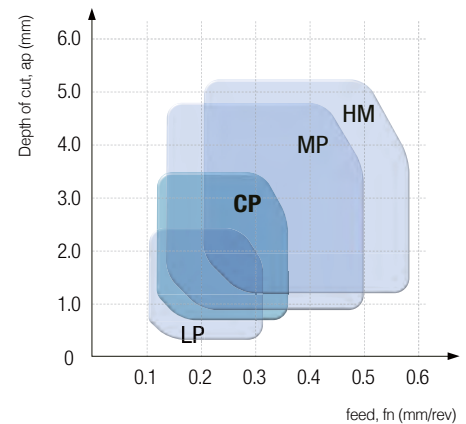
#### Performance evaluation

##### V-T (Vc-Tool life)

<b>Workpiece</b>	Alloy steel(SCM440), External machining
<b>Cutting conditions</b>	vc(m/min) = 250, 300, 350 fn(mm/rev) = 0.3, ap(mm) = 0.5, wet
<b>Tools</b>	Insert : CNMG120408-CP(NC3215P) Holder : PCLNL2525-M12

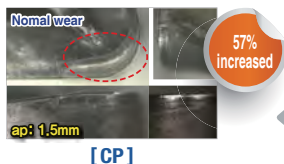
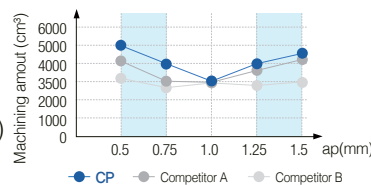


#### Application range



##### D-T (Depth of cut-Tool life)

<b>Workpiece</b>	Alloy steel(SCM440), External machining
<b>Cutting conditions</b>	c(m/min) = 250, fn(mm/rev) = 0.2 ap(mm) = 0.5, 0.75, 1.0, 1.25, 1.5, wet
<b>Tools</b>	Insert : CNMG120408-CP (NC3215P) Holder : PCLNL2525-M12



## Negative insert

# MP Chip Breaker [For medium cutting]

- Chip breaker for forged steel of automobile parts and all other steels
- Quad dots improve productivity through efficient chip control at high feed
- Angle land minimizes cutting force

### Features of MP chip breaker

#### Front two step dot

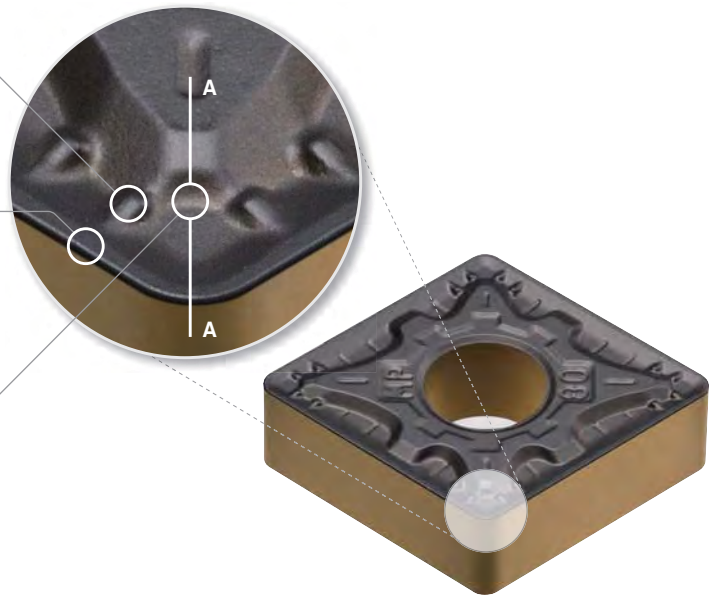
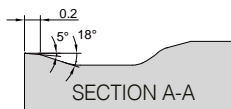
- Higher stability of chip curls at high feed
- Excellent chip control when copying
- Lower cutting force at high depth of cut

#### Variable land

- Less crater wear
- Prevents chipping on minor cutting edge
- Higher toughness at high depth of cut and interrupted cutting

#### Flat zone

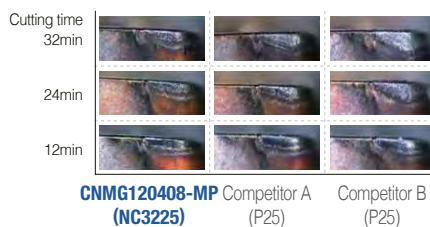
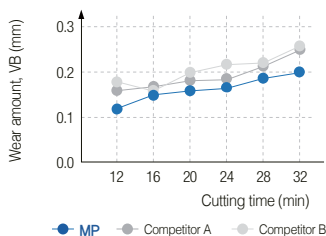
- Larger chip pocket for better chip evacuation at high feed
- Reduced cutting force with larger contact surface of chips



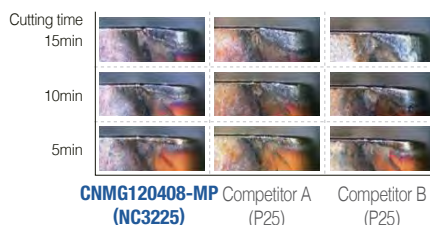
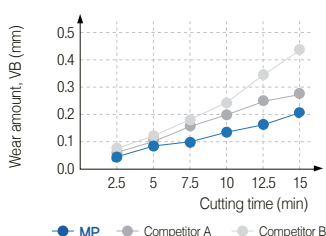
### Performance evaluation

<b>Workpiece</b>	Alloy steel (SCM440), Ø100, External machining
<b>Cutting conditions</b>	vc (m/min) = 280, ap (mm) = 1.5, fn (mm/rev) = 0.25/0.40, wet
<b>Tools</b>	CNMG120408 - MP

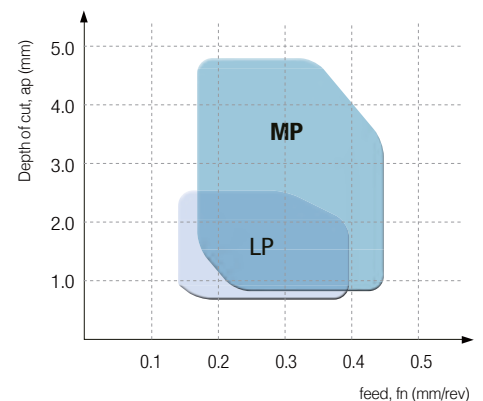
#### Medium feed (0.25 mm/rev)



#### High feed (0.40 mm/rev)



### Application range



## Negative insert

### MM Chip Breaker [For medium cutting]

- The 1<sup>st</sup> recommended chip breaker for stainless steel machining
- Change to: A dual land achieves sharp cutting performance and insert toughness
- Wide chip pockets for stable chip evacuation at high feeds/depths of cut

#### Features of MM chip breaker

##### Depth of cut land

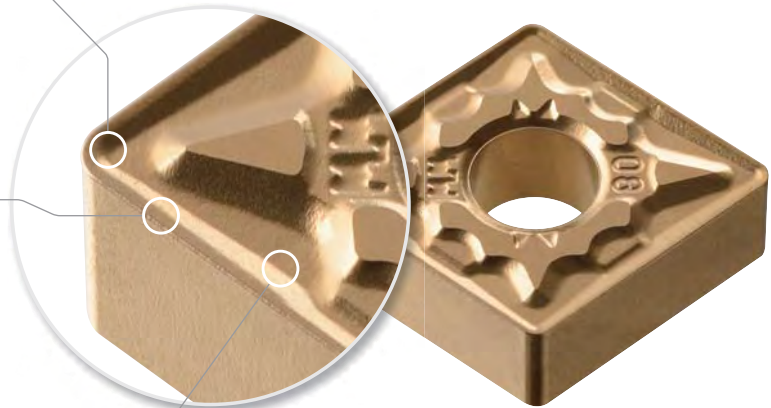
- Excellent chip control and sharp cutting at low depths of cut
- Delays crater wear
- Prevents plastic deformation

##### Dual land

- Balance between requirements of sharp and tough cutting edges
- Sharp cutting edge for high speed chining
- Prevents chipping in interrupted machining

##### Wide chip pocket

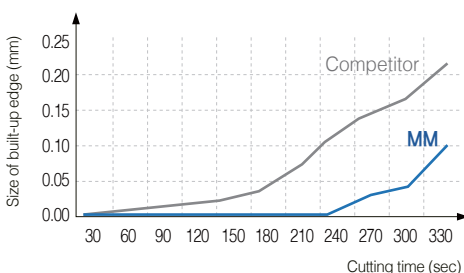
- Stable chip evacuation at high speeds/feeds
- Improved surface finishes by reduced workpiece scratches caused by work-hardened chips at high depths of cut
- Prevents built-up edge



#### Performance evaluation

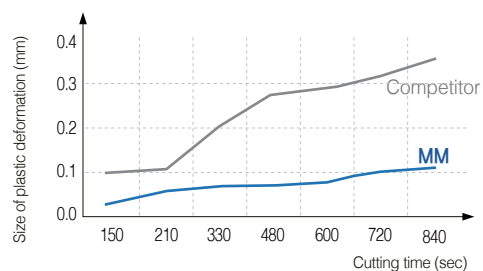
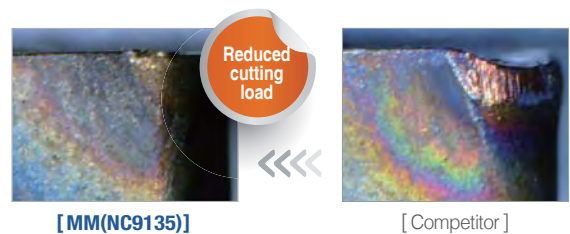
##### Built-up edge

Workpiece	STS405 (Ferrite)
Cutting conditions	vc (m/min) = 180, fn (mm/rev) = 0.3, ap (mm) = 3.0, wet
Tools	Insert : CNMG120408-MM (NC9125) Holder : PCLNL2525-M12



##### Plastic deformation

Workpiece	STS316 (Austenite)
Cutting conditions	vc (m/min) = 200, fn (mm/rev) = 0.35, ap (mm) = 2.0, dry
Tools	Insert : CNMG120408-MM (NC9135) Holder : PCLNL2525-M12



## Negative insert

### RM Chip Breaker [For roughing]

- The 1<sup>st</sup> recommended chip breaker for rough and interrupted machining of stainless steel
- Prevents notch wear and burrs at high feeds and depths of cut
- Reduced cutting force extends tool life in high feed machining

#### Features of RM chip breaker

##### Depth of cut land

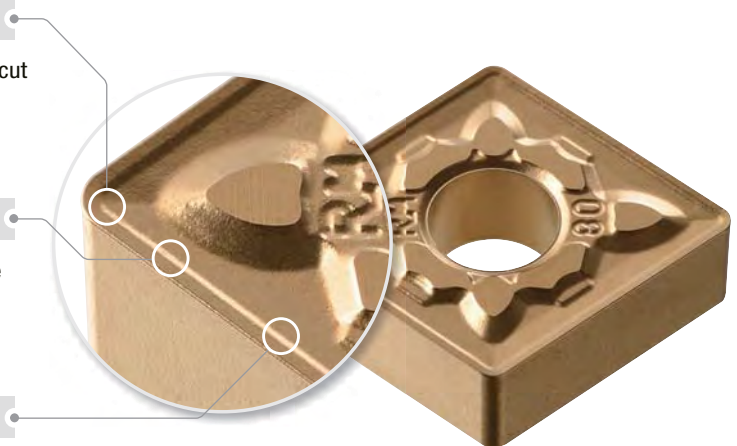
- Excellent chip control and sharp cutting at low depths of cut
- Delays crater wear
- Prevents plastic deformation

##### Wide land & Front angle

- Sharp cutting edges and a wide land reduce cutting force
- Reduced burrs
- Dispersed cutting load enables higher toughness

##### Step

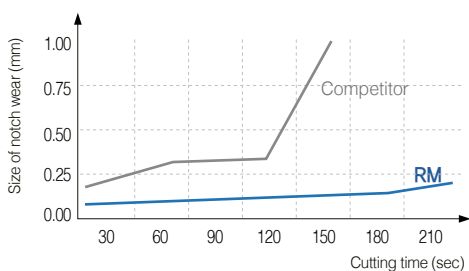
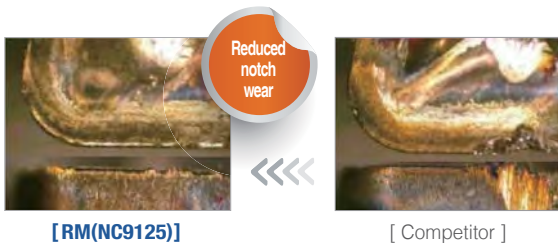
- Stepped design makes chip evacuation easier
- Smooth chip evacuation prevents plastic deformation



#### Performance evaluation

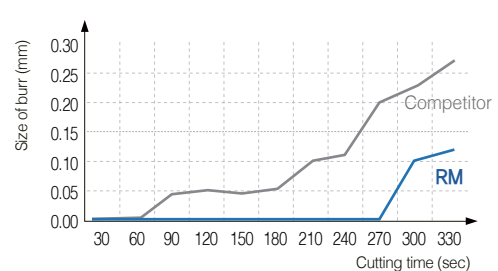
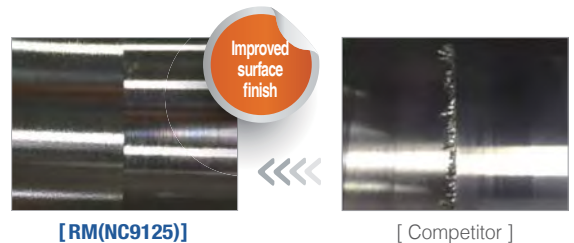
##### Notch wear

Workpiece	STS410 (Martensite)
Cutting conditions	vc (m/min) = 150, fn (mm/rev) = 0.25, ap (mm) = 3.0, wet
Tools	Insert : CNMG120408-RM (NC9125) Holder : PCLNL2525-M12



##### Burr

Workpiece	Duplex
Cutting conditions	vc (m/min) = 120, fn (mm/rev) = 0.2, ap (mm) = 2.0, dry
Tools	Insert : CNMG120408-RM (NC9125) Holder : PCLNL2525-M12





## Negative insert

### MK Chip Breaker [For medium cutting]

- Ideally suited for continuous cutting of ductile cast iron and gray cast iron
- Angle lands provide upgraded surface finish

#### Features of MK chip breaker

##### Angle land

- Angle lands provide sharper cutting performance
- Maximized wear resistance in continuous cutting
- High quality results in surface finish



##### Wide supporting area

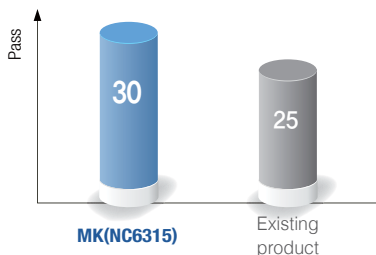
- Higher clamping stability
- Prevents chipping at vibrations during operation



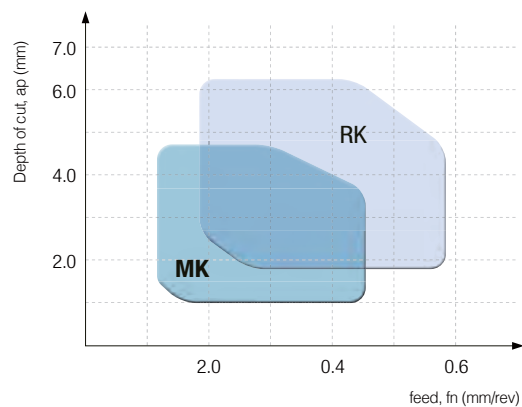
#### Performance evaluation

##### Wear resistance

Workpiece	GCD500(KS), Ø90 (Spherical tube) → Ø30 machining
Cutting conditions	vc (m/min) = 400, fn (mm/rev) = 0.35, ap (mm) = 2.5, wet
Cutting time	30 passes with results of normal wear on rake/flank surface
Tools	Insert : CNMG120408-MK (NC6315) Holder : DCLNR2525-M12



#### Application range



## Negative insert

### RK Chip Breaker [For roughing]

- Ideally suited for high speed / high feed cutting of ductile cast iron and gray cast iron
- Flat lands provide upgraded toughness and chipping resistance

#### Features of RK chip breaker

##### Flat land

- Flat lands provide upgraded toughness and chipping resistance
- Stable machining availability under high cutting loads at high depth of cuts or interrupted cutting
- Optimized land width for high feed machining



##### Wide supporting area

- Higher clamping stability
- Minimizes vibration and chipping.



#### Performance evaluation

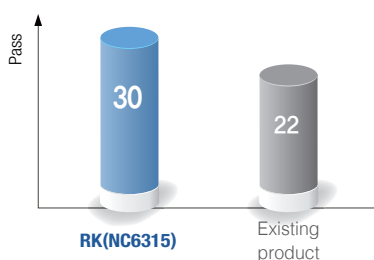
##### Impact resistance

- Workpiece** : GCD500 (KS), Ø90 (Triangular tube) → Ø30 machining
- Cutting conditions** :  $vc$  (m/min) = 380,  $fn$  (mm/rev) = 0.35,  $ap$  (mm) = 2, wet
- Cutting time** : 15 passes with results of normal rake surface wear and good chipping resistance
- Tools** : **Insert** : CNMG120408-RK (NC6315)  
**Holder** : DCLNR2525-M12

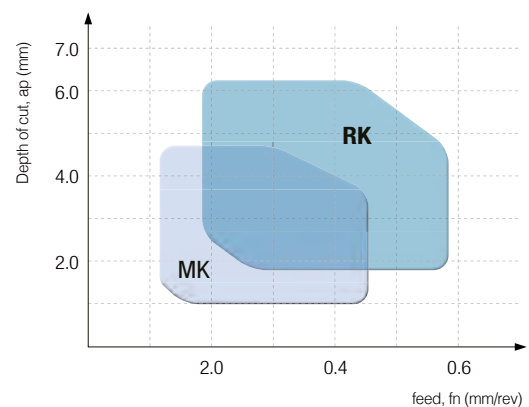


[RK(NC6315)]

[ Existing product ]



#### Application range





**Negative insert****VP1 Chip Breaker** [For Finishing]

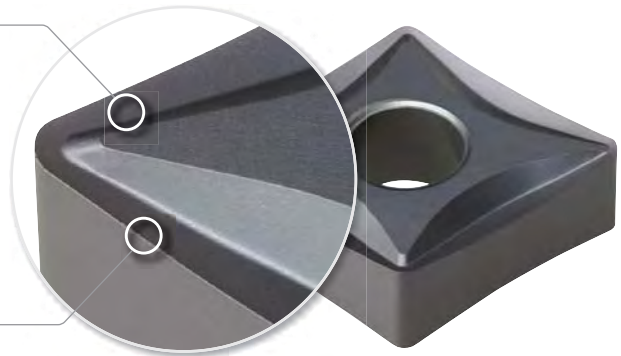
- Cutting edges designed in high-positive
  - Reduced contact area between rake surface and chip minimizes cutting heat and improved tool life
- **Recommended cutting conditions:**  $f_n(\text{mm/rev}) = 0.05\sim 0.2$ ,  $a_p(\text{mm}) = 0.1\sim 1.5$

**Features of VP1 chip breaker****Optimized design for finishing**

- Obtains excellent cutting performance and quality surface finish at low depth of cut and high speed

**High-positive blade design**

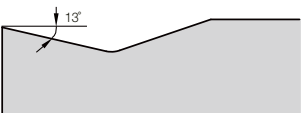
- Minimizes cutting heat by reducing the contact area between flank surface and chips
- Prevents built-up edge and extends tool life

**VP2 Chip Breaker** [For medium to finishing]

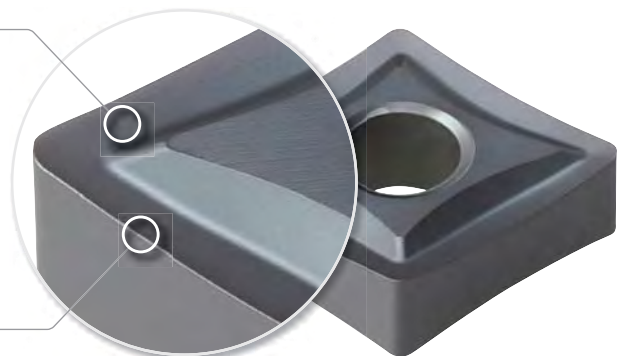
- High-positive cutting edge design/Side rake angle applied
  - Stable chip control improves machinability when ball machining at variable depths of cut
- **Recommended cutting conditions:**  $f_n(\text{mm/rev}) = 0.1\sim 0.4$ ,  $a_p(\text{mm}) = 0.5\sim 4.5$

**Features of VP2 chip breaker****Sharp blades and wide chip pockets**

- Increase productivity
- Ideal for medium to finish cutting

**High-positive blade design**

- Improves cutting performance with its stable chip control at varying depth of cuts



## Negative insert

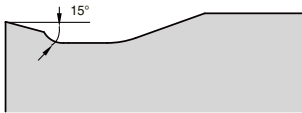
### VP3 Chip Breaker [For medium cutting]

- High-positive cutting edge design/Wide land applied
  - Improved stability at interrupted cutting when toughness is required. Stable chip control and machinability at high depth of cut
- **Recommended cutting conditions:**  $f_n(\text{mm/rev}) = 0.1 \sim 0.45$ ,  $a_p(\text{mm}) = 0.5 \sim 5.0$

#### Features of VP3 chip breaker

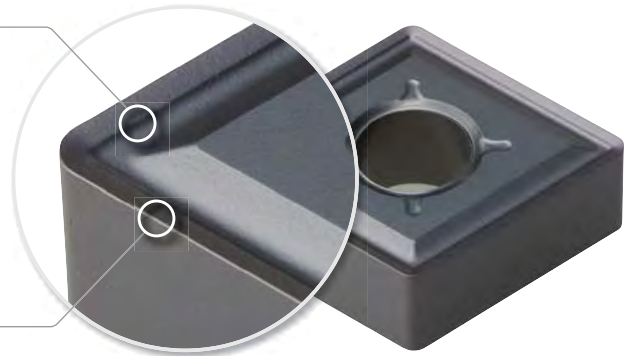
##### Chip pocket design leading to a R-shaped cutting edge

- Creates a stepped space between edge and land to make smooth chip flow at low and high depth of cuts



##### High-positive blade design / Wide land

- Minimize heat concentration at high depth of cut
- Improves stability in interrupted machining of a tough workpiece



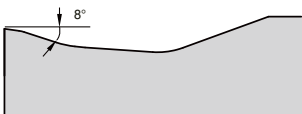
### VP4 Chip Breaker [For roughing]

- The 1<sup>st</sup> recommended chip breaker for machining Inconel with high strength and high heat resistance at high temperatures.
- Rough machining stability resulting from reinforced cutting edges and wide chip pockets

#### Features of VP4 chip breaker

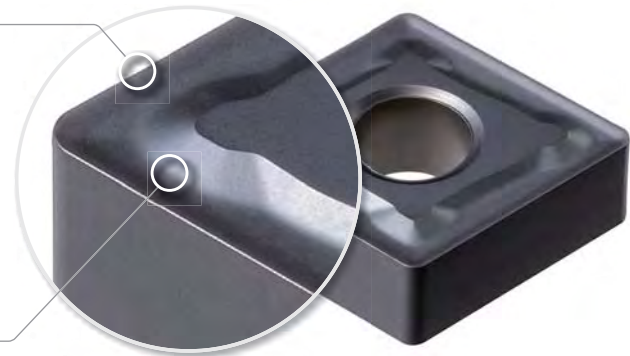
##### Rake angle design resistant to high hardness cutting

- Reinforces cutting edges and prevents notch wear in rough surface machining
- Prevents chipping in interrupted cutting



##### Wide chip pockets

- Reduce cutting loads and improve stability even at high depth of cut in roughing



## Positive insert

### FP Chip Breaker [For chip control in finishing]

- Chip breaker applied on one side of insert controls chip in mild steel machining with low depth of cut
- Chip control in poor machining (with lower depth of cut than nose R, in machining minor cutting edge and in back cutting)
- Decreased cutting load and excellent surface finish due to 3-dimensional cutting edge and side rake angle

#### Features of FP chip breaker

##### Semicircle-shaped bump

- Enhanced chip control in low depth of cut machining
- Advanced chip control in machining of minor cutting edge
- Improved chip control in machining with lower depth of cut than nose R

##### Concave form of semicircle-shaped bump

- Better chip curling in mild steel machining
- Enhanced chip control in low depth of cut and low feed machining

##### 3-dimensional side rake angle

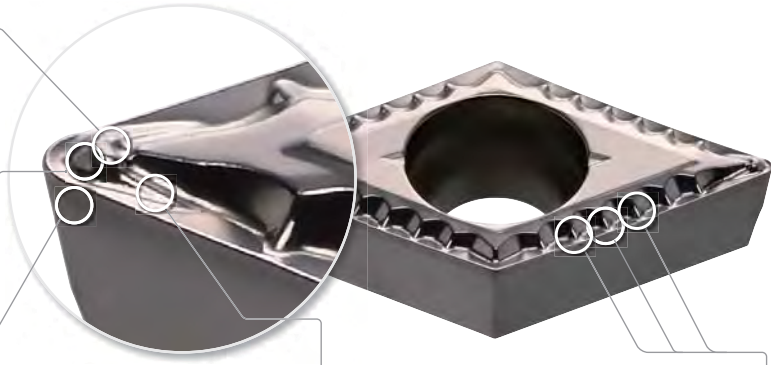
- Ensuring surface finish and guiding chip to right direction

##### Assistant bump on flank surface

- Better chip curling in high depth of cut and low feed machining
- Preventing chip twist

##### Continuous bump on flank surface

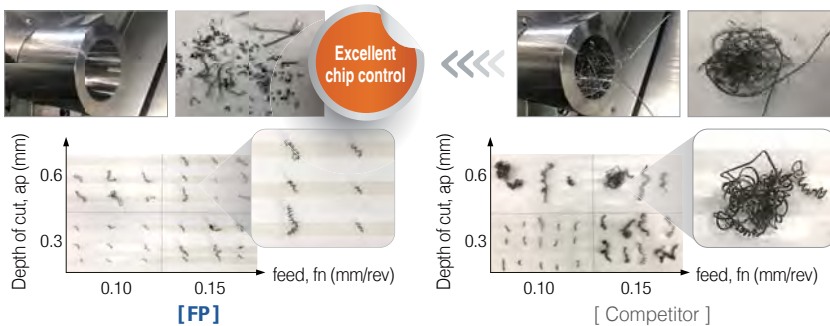
- Cutting long chip



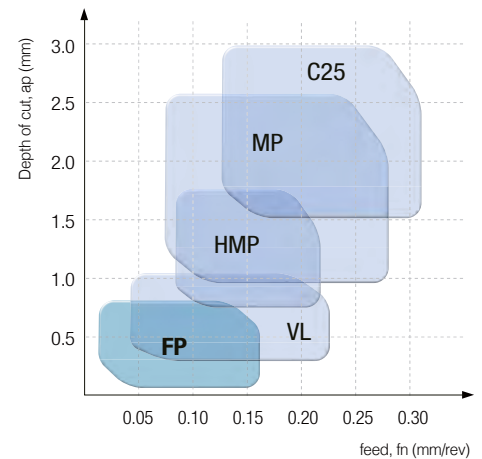
#### Performance evaluation

##### Chip control

<b>Workpiece</b>	Mild steel (SM20C), Ø40 Internal machining
<b>Cutting conditions</b>	vc (m/min) = 200, n (rpm) = 1,600, fn (mm/rev) = 0.1~0.15, ap (mm) = 0.5, wet
<b>Tools</b>	<b>Insert</b> : CCMT09T304-FP (NC3215) <b>Holder</b> : S16M-SCLCR-M09

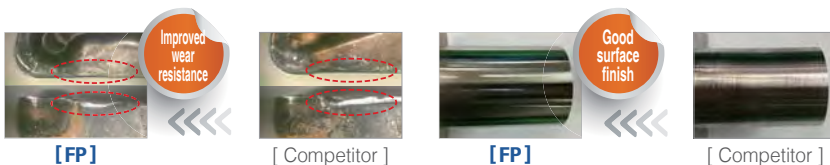


#### Application range



##### Surface finish

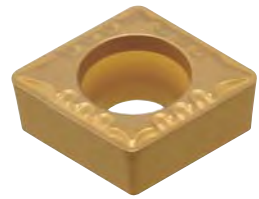
<b>Workpiece</b>	Mild steel (SM20C), Ø30 External machining
<b>Cutting conditions</b>	vc (m/min) = 200, n (rpm) = 2,000, fn (mm/rev) = 0.08, ap (mm) = 0.8, wet
<b>Tools</b>	<b>Insert</b> : CCMT09T304-FP (NC3215) <b>Holder</b> : SCLCR1616-M09



## Positive insert

### VL Chip Breaker [For finishing]

- The sharp flank surface and the chip breaker design significantly improve chip control when machining tough materials such as low carbon steel, pipe steel, and iron plates
- Sharp cutting edges reduce cutting resistance and provide excellent chip control at low depth of cuts, leading to stable machining on automated production lines

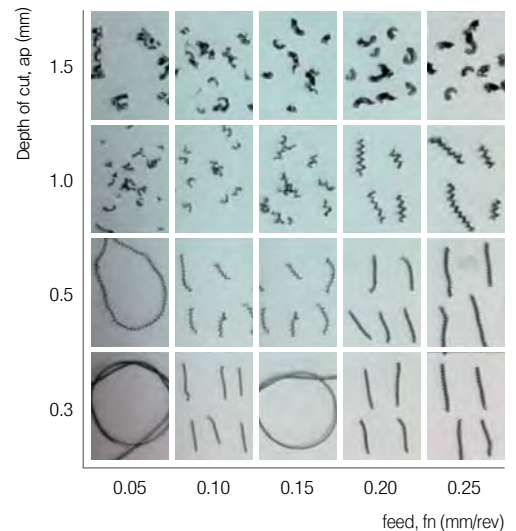


#### Features of VL chip breaker

- **Sharp cutting edges**
  - High rake cutting edges provide improved surface finishes
  - Low cutting resistance reduces cutting heat
- **Step rear rake angle**
  - Stable chip control regardless of varying feed rates
  - Excellent machinability even when machining mild workpieces

#### Chip control test

<b>Workpiece</b>	SCM440(Alloy steel), Ø50, Internal diameter turning
<b>Cutting conditions</b>	vc = 250 m/min, ap = 0.3~1.5 mm, fn = 0.05~0.25 mm/rev
<b>Tools</b>	CCMT09T304-VL



### MP Chip Breaker [For medium to finishing]

- For continuous cutting of forged steel at high feed
- Turning insert for internal Turning insert for machining internal components of automobile

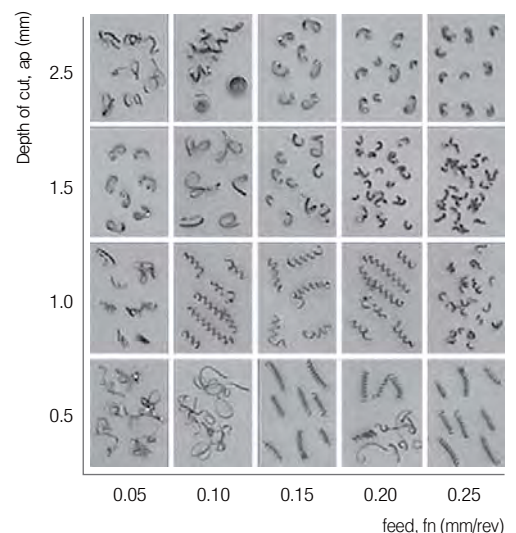


#### Features of MP chip breaker

- **Three-dimensional 2 step chip breaker**
  - Stable chip control in unstable internal machining
  - Prevents chip blocking at internal diameter at varying depth of cut and feed
- **Stronger cutting edge and wide chip pocket**
  - Increased chipping resistance in unstable internal machining

#### Chip control test

<b>Workpiece</b>	SCM440
<b>Cutting conditions</b>	vc = 200 m/min, ap = 0.5~2.5 mm, fn = 0.05~0.25 mm/rev
<b>Tools</b>	CCMT09T304-MP



## Positive insert

### FS Chip Breaker [For finishing]

- Chip breaker for ultra-precision automatic Swiss lathe machining (for lower depth of cut and lower feed cutting range than VP1 and MS)
- Available for various workpieces, P, M and S
- Reduced cutting load and good surface finish due to sharp cutting edge

#### Features of FS chip breaker

##### Variable elevated triangular pyramid shape

- Applicable for various cutting range due to optimally designed chip breaker
- Enhanced chip evacuation function per variation of cutting depth
- Enhanced chip control with low depth of cut
- Lowered cutting load in high feed machining

##### Side grinding

- Periphery grinding G class
- High precision grinding

##### Side high rake angle

- Enhanced chip evacuation in deep grooving and undercut machining
- Reduced cutting load

##### Sharp edge

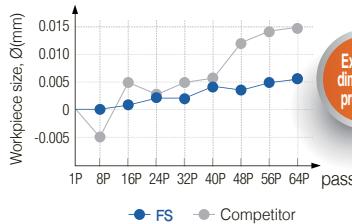
- Reduced cutting resistance
- Improved chip control



#### Performance evaluation

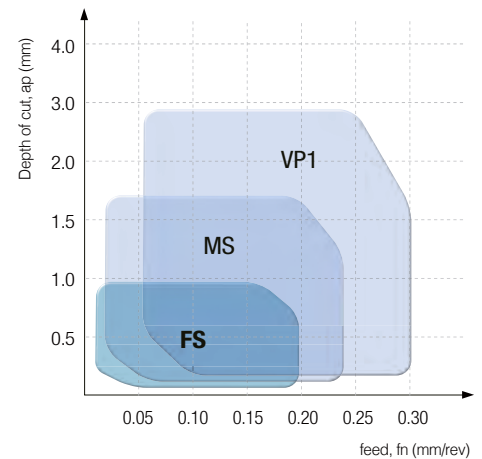
##### Workpiece size and surface finish

<b>Workpiece</b>	Stainless steel (STS406)
<b>Cutting conditions</b>	vc (m/min) = 80, n (rpm) = 1,000, fn (mm/rev) = 0.05, ap (mm) = 0.1, wet
<b>Tools</b>	<b>Insert</b> : VCGT110301-FS (PC8110) <b>Holder</b> : SVJCR1212-X11A



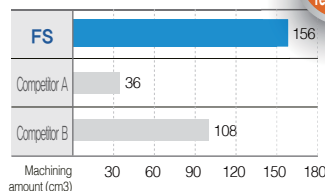
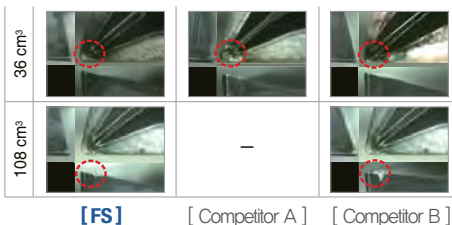
Excellent dimension precision

#### Application range



##### Wear resistance

<b>Workpiece</b>	Alloy steel (SCM440)
<b>Cutting conditions</b>	vc (m/min) = 100, n (rpm) = 1,000, fn (mm/rev) = 0.05, ap (mm) = 0.5, wet
<b>Tools</b>	<b>Insert</b> : CCGT09T304-FS (PC8110) <b>Holder</b> : SCLCR1212-X09A



Improved wear resistance



# A Turning Chip Breakers

## Positive insert

### MS Chip Breaker [For medium to finishing]

- Sharp cutting edge with welding resistance reducing the cutting heat is necessary for machining hard-to-cut materials
- Chip evacuation is increased in low to high feed cutting conditions

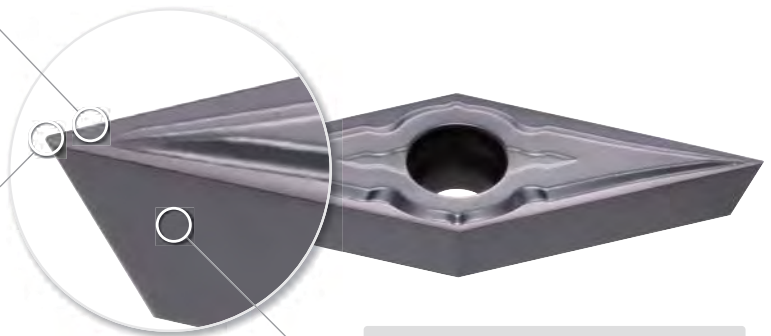
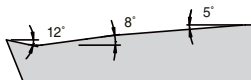
#### Features of MS chip breaker

##### Sharp cutting edge

- Decreased cutting heat
- Minimized welding

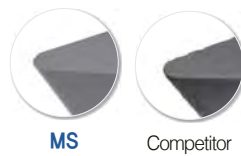
##### 2-level angle back area

- Improved chip curl and chip control in low feed cutting range
- Better chip evacuation in high feed cutting range
- Reduced cutting resistance
- Protected cutting edge without chip blockage



##### Flank surface grinding

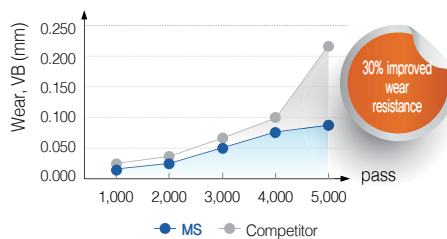
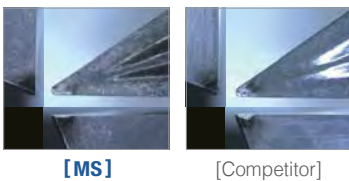
- G grade of periphery grinding
- Precise grinding



#### Performance evaluation

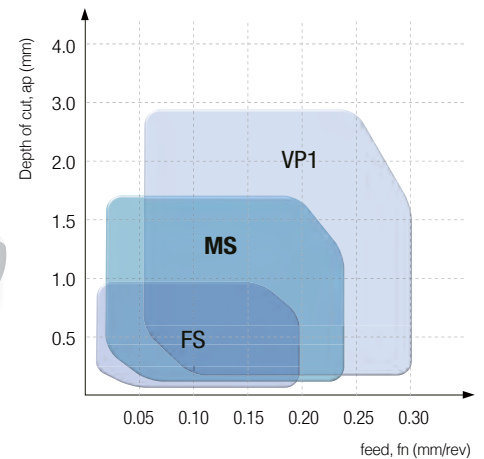
##### Wear resistance

**Workpiece** Pure titanium (Grade4)  
**Cutting conditions** vc (m/min) = 100, n (rpm) = 3,500, fn (mm/rev) = 0.03, ap (mm) = 0.5, wet  
**Tools** Insert : VCGT1203008FN-MS (PC8110) Holder : SVJCR1212-X12A

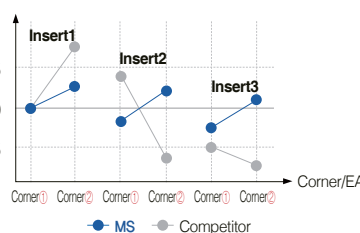
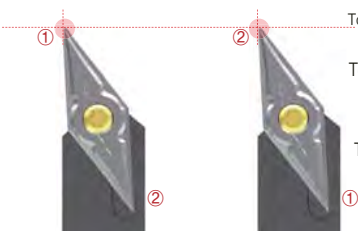


▶ Ultra-fine substrate and high hardness coating ensure stable tool life.

#### Application range



##### Dimension precision



▶ Changing tool offset in switching insert corners and items is not necessary using MS chip breaker due to tight dimension deviation management.



## Positive insert

# AM Chip Breaker [For medium Aluminum cutting]

- Preventing welding and chip jam with internal bridge structure enhancing smooth chip flow
- Balanced surface finish and toughness from nose R and 2 step side rake angle
- Preventing minor cutting edge fracture with divided bridge structure on the top surface bottom part blocks chips over minor cutting edge

### Features of AM chip breaker

#### Nose R and 2 step rake angle

- Balanced surface finish and toughness
- Smooth chip evacuation

#### Side 2 step rake angle

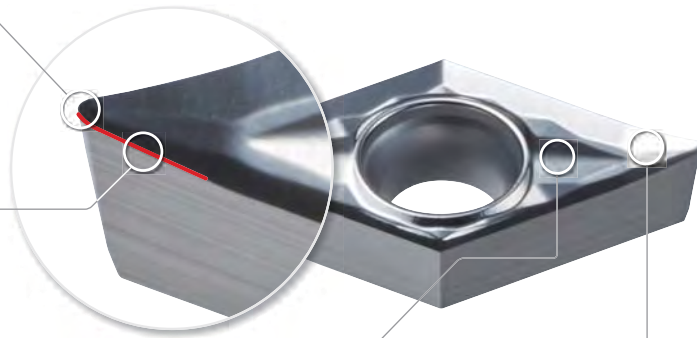
- Longer effective cutting edge
- Minimized cutting resistance
- Good surface finish

#### Trigonal knobs on the back

- Effective chip breaking in medium cutting
- Less cutting resistance due to smooth chip flow
- Directing flow of long chip for stable chip evacuation
- Protecting cutting edge with a structure preventing chip jam

#### Internal bridge

- Preventing welding and chip jam
- Smooth chip flow and chip control



### Performance evaluation

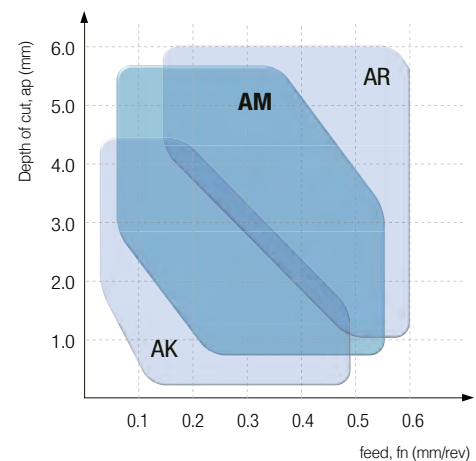
#### Welding and wear resistance

<b>Workpiece</b>	Aluminum (AlZn5.5MgCu)
<b>Cutting conditions</b>	vc (m/min) = 500, fn (mm/rev) = 0.25, ap (mm) = 0.5, wet
<b>Tools</b>	Insert : CCGT09T304-AM (H05) Holder : SCLCR2525-M09



- Sharp cutting edge obtained good surface finish without any welding and chipping on the cutting edge
- Preventing overflowing chips with divided bridge structure

### Application range



# A Turning Chip Breakers

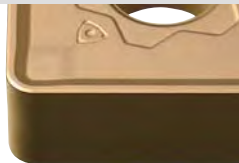
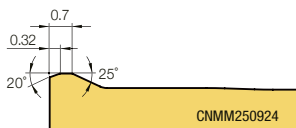
## Heavy insert

### Heavy Chip Breaker [For heavy duty machining]

- Chip breaker: HP, HL, HG, HV, HX / Grade : NC515H, NC520H, NC525H
- For various heavy turning as wind power, railway, power generation and shipbuilding industries, etc.
- Long tool life and good chip evacuation due to special designed chip breaker and optimal grade

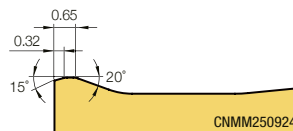
#### Features of Heavy chip breaker

**HX**



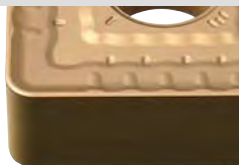
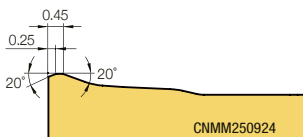
- Suitable for high interrupted machining due to strong cutting edge
- Increased tool life by smooth chip evacuation in high cutting condition

**HV**



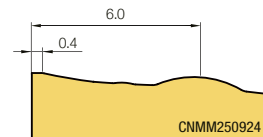
- 1<sup>st</sup> recommended chip breaker in vertical lathe machining
- Longer tool life in high feed cutting from improved chip flow reducing wear on the minor cutting edge

**HG**



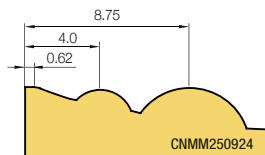
- Suitable for general horizontal lathe machining due to nicked cutting edge and low cutting resistance
- Good chip evacuation from chip flow in high feed condition

**HL**

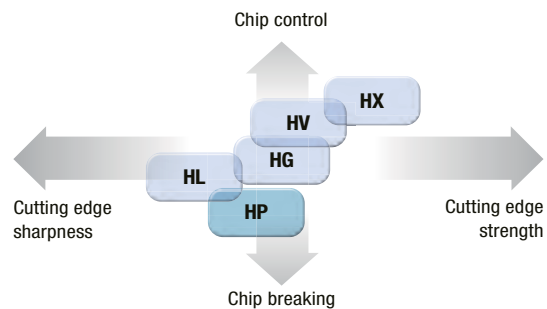


- For Stainless steel and low carbon steel machining with low cutting resistance and cutting edge
- Lower cutting resistance and good chip control in various cutting conditions

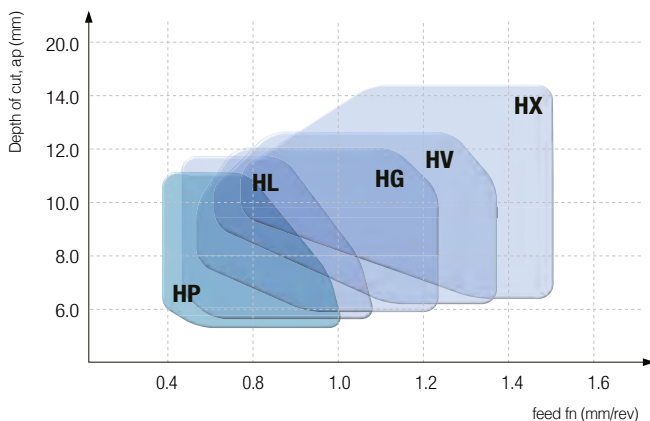
**HP**



- Suitable for Stainless steel and low carbon steel machining due to sharp cutting edge
- Recommended chip breaker for excellent chip control cutting by main rounded point bump and assisting bumps



#### Application range



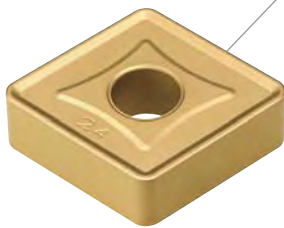
Application range	Chip breaker	ap(mm)	fn(mm/rev)
High interrupted roughing	HX	4.5 ~ 18.0	0.6 ~ 1.5
Vertical lathe flange roughing	HV	4.0 ~ 13.0	0.5 ~ 1.4
Horizontal lathe shaft roughing	HG	3.0 ~ 13.0	0.4 ~ 1.2
Medium cutting for surface finish	HL	2.5 ~ 12.0	0.4 ~ 1.1
Good chip evacuation medium cutting and roughing	HP	2.5 ~ 11.0	0.4 ~ 1.0

Heavy insert

# VH / VT Chip Breaker [For heavy duty machining]

- Heavy duty chip breaker suitable for Heavy machining in the shipbuilding and power plant industries
- Suitable for large vertical machines when machining shafts, rollers, rotors and optimal for the big flange machining

## Features of VH chip breaker

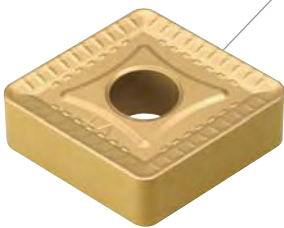


[General]

**For good chip control in heavy machining (comprehensive type)**

- Designed from the study of heavy cutting mechanism
- Smooth chip control from the high rake angle
- Wider cutting edge land provides stronger cutting
- Unique cutting edge treatment provides smooth cutting
- Optimized chip pocket design provides smooth chip flow

## Features of VT chip breaker

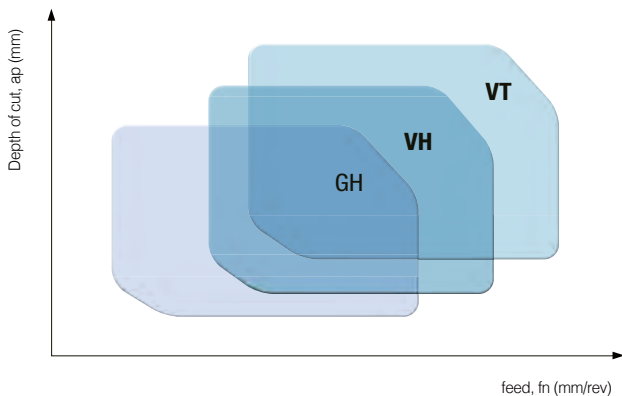


[Big depth, High feed]

**For long tool life and stable cutting (higher feeds, big depth) in heavy machining**

- Designed from the study of heavy cutting mechanism
- Strong edge design provides long and stable cutting (2 step rake angle of cutting edge)
- Varied cutting edge land strengthens the cutting edge
- The positioning of the chip breaking convex dot deflect the machining heat, optimizes inserts wear & absorb shock

## Applications range of chip breakers



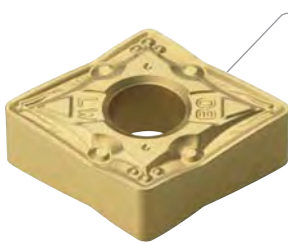
# A Turning Chip Breakers

## Wiper insert

### LW/VW Chip Breaker [For high feed cutting]

- Improved productivity with higher feed rates and surface finishes
- Improved wear resistance and toughness

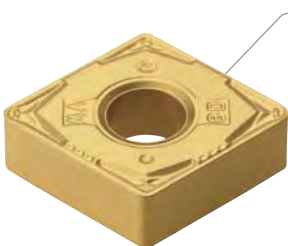
#### Features of LW chip breaker



[For medium cutting]

- Curvilinear cutting edge - Reduces cutting force
- Cutting edge design able to handle deeper depth of cuts - lower cutting load & reduces heat
- Greater chip control at shallow depth of cut - Chip pocket design improves smooth chip flow
- For shallow depth cutting and low speed machining - 3D design at the corner

#### Features of VW chip breaker

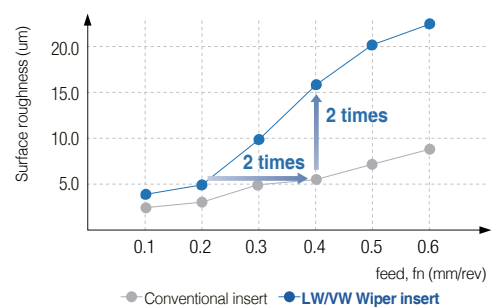
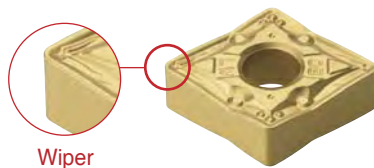


[Medium to finishing]

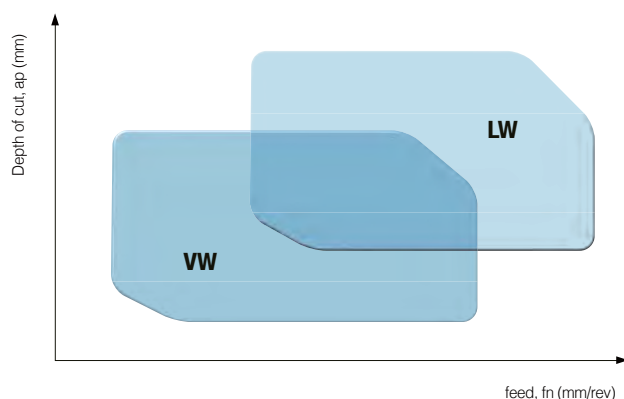
- Excellent Finishing applications - Excellent chip control
- Insert design great for stable clamping - Chip breaker designed close to the cutting edge
- Similar cutting edge to C/B for medium - strong cutting edge
- 3 Dimensional dot design on cutting corner - reduces cutting force and good chip control at shallow depth of cut

#### Wiper Insert

- High productivity
- Improved surface roughness
- High feed-reducing machining time
- Improved tool life due to reduce cutting force



#### Applications range

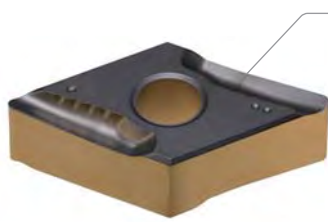


## Surface insert

### SR/SH Chip Breaker [For machining a shaft]

- Specialized for machining slender bars and thin walls
- High rake helix angle to reduce cutting resistance
- For machining steel and stainless steel

#### Features of SR chip breaker



[For finishing]

- The first recommended chip breaker for machining a shaft
- For continuous finishing
- Improved chip and heat evacuation due to high rake cutting edge and 3-dimensional shape
- Good surface finish
- Preventing fracture due to chamfering on the cutting edge

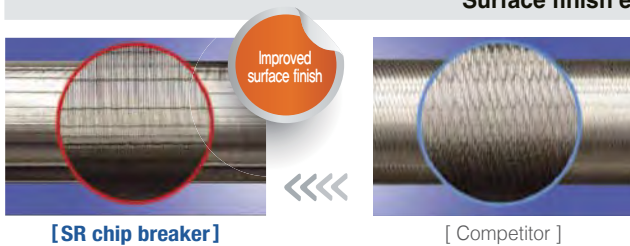
#### Features of SH chip breaker



[For medium cutting]

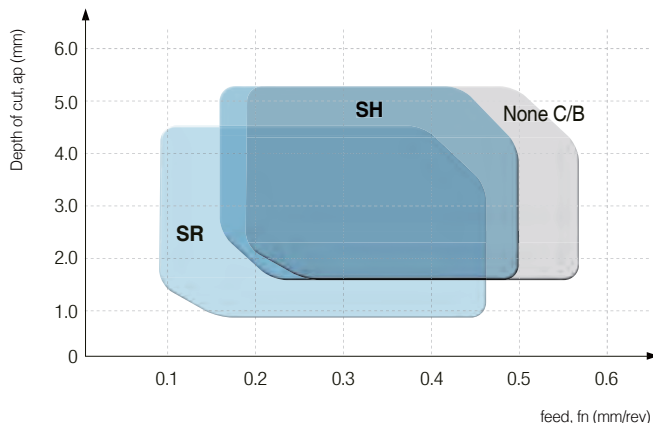
- Specialized for interrupted and medium cutting
- Efficient heat evacuation due to concave shaped back side of insert

#### Surface finish evaluation



Machining	C/B	ap(mm)	fn(mm/rev)
Medium to rough cutting	None	1.5 ~ 5.0	0.20 ~ 0.55
Medium cutting	SH	1.5 ~ 5.0	0.15 ~ 0.50
<b>Finish cutting</b>	<b>SR</b>	<b>1.0 ~ 4.5</b>	<b>0.12 ~ 0.45</b>

#### Applications range

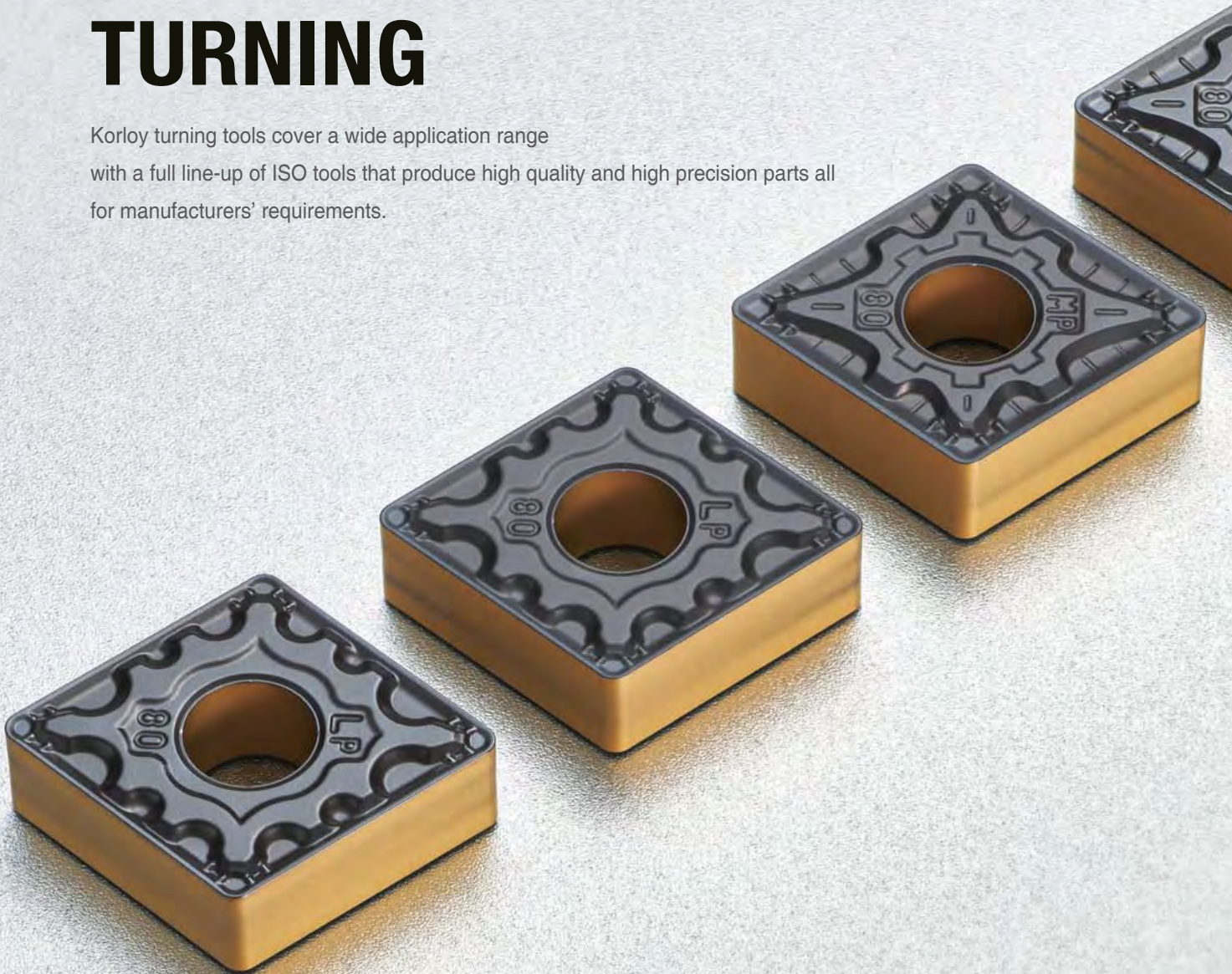






# TURNING

Korloy turning tools cover a wide application range with a full line-up of ISO tools that produce high quality and high precision parts all for manufacturers' requirements.





## Technical information for TURNING



### Insert

- B3** Turning Insert Code System
- B5** Turning Inserts (Negative)
- B44** Turning Inserts (Positive)
- B73** Aluminum Insert
- B82** cBN Inserts
- B85** PCD Inserts

### External Tool Holder

- B86** External Tool Holder Code System (ISO)
- B87** Index for External Holders
- B90** Instruction of External Holders
- B91** Double Clamp System
- B96** Lever Lock System
- B103** Wedge Clamp System
- B105** Clamp on System
- B107** Multi Lock System
- B114** Screw on System

### Boring Bar

- B121** Boring Bar Code System (ISO)
- B122** Index for Boring Bars
- B124** Instructions of Boring Bar Assembly
- B125** Double Clamp System
- B127** Lever Lock System
- B129** Clamp on System
- B130** Multi Lock System
- B132** Screw on System
- B142** Compact Mini
- B144** Sleeve

### KHP Coolant

- B145** Technical Information for KHP Coolant
- B148** KHP Coolant
- B150** Technical information for Auto Tools (KHP)
- B152** Auto Tools (KHP)

### Save Turn

- B153** Technical Information for Save Turn
- B154** Save Turn Inserts
- B155** Save Turn Holders
- B158** Save Turn Boring Bars

### Auto Tools

- B160** Auto Tools (ISO)
- B172** Auto Tools (KHP)
- B175** Auto Tools (Blade)
- B178** Auto Tools (Multi Utility)
- B181** Auto Tools (KGT/MGT)
- B185** Auto Tools (MSB Plus)
- B203** Auto Tools (MSB Tool)

### Bearing Solutions

- B210** Bearing Solutions
- B216** Special Order Form for Bearing Inserts

### HSK/KM Tooling System

- B218** Index for HSK/KM Tooling System
- B219** HSK Tooling System
- B225** KM Tooling System

### Cartridge

- B230** Cartridge Code System (ISO)
- B231** Index for Cartridges
- B232** Clamp on System
- B234** Screw on System

# B Turning Insert Code System



### 1 Insert Shape

C N M G 12 04 08 - MP

C D E K L  
R S T V W

### 2 Relief Angle

C N M G 12 04 08 - MP

B C D E  
F N P O

### 3 Tolerance

C N M G 12 04 08 - MP

IC: Inscribed circle  
S: Thickness  
M: Refer to figure

Class	IC	M	S
A	±0.025	±0.005	±0.025
C	±0.025	±0.013	±0.025
H	±0.013	±0.013	±0.025
E	±0.025	±0.025	±0.025
G	±0.025	±0.025	±0.13
J*	±0.05 ~ ±0.15	±0.005	±0.025
K*	±0.05 ~ ±0.15	±0.013	±0.025
L*	±0.05 ~ ±0.15	±0.025	±0.025
M*	±0.05 ~ ±0.15	±0.08 ~ ±0.20	±0.13
N*	±0.05 ~ ±0.15	±0.08 ~ ±0.18	±0.025
U*	±0.08 ~ ±0.25	±0.13 ~ ±0.38	±0.13

(mm)

\* Sides are based on underground insert

#### Tolerance on C, H, R, T, W Insert Shape (Exceptional case)

IC	Tolerance on IC		Tolerance on M	
	J, K, L, M, N	U	M, N	U
6.35	±0.05	±0.08	±0.08	±0.13
9.525	±0.05	±0.08	±0.08	±0.13
12.7	±0.08	±0.13	±0.13	±0.20
15.875	±0.10	±0.18	±0.15	±0.27
19.05	±0.10	±0.18	±0.15	±0.27
25.4	±0.13	±0.25	±0.18	±0.38

#### Tolerance on D Insert Shape (Exceptional case)

IC	Tolerance on IC	Tolerance on M
6.35	±0.05	±0.11
9.525	±0.05	±0.11
12.7	±0.08	±0.15
15.875	±0.10	±0.18
19.05	±0.10	±0.18

### 4 Cross Section Type

C N M G 12 04 08 - MP

A B C  
F G H  
J M N  
Q R T  
U W X

04

08

-

MP

6

7

8

Height of Cutting Edge

Nose "r"

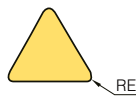
Chip Breaker for Turning

**5** Cutting Edge Length, Diameter of Incribed Circle  
C N M G 12 04 08 - MP

Symbol							Inch	IC
C	d	S	T	R	V	W		
03	04	03	06	03	-	02	1.2(5)	3.97
04	05	04	08	04	08	S3	1.5(6)	4.76
05	06	05	09	05	09	03	1.8(7)	5.56
-	-	-	-	06	-	-	-	6.00
06	07	06	11	06	11	04	2	6.35
08	09	07	13	07	13	05	2.5	7.94
-	-	-	-	08	-	-	-	8.00
09	11	09	16	09	16	06	3	9.525
-	-	-	-	10	-	-	-	10.00
11	13	11	19	11	19	07	3.5	11.11
-	-	-	-	12	-	-	-	12.00
12	15	12	22	12	22	08	4	12.70
14	17	14	24	14	24	09	4.5	14.29
16	19	15	27	15	27	10	5	15.875
-	-	-	-	16	-	-	-	16.00
17	21	17	30	17	30	11	5.5	17.46
19	23	19	33	19	33	13	6	19.05
-	-	-	-	20	-	-	-	20.00
22	27	22	38	22	38	15	7	22.225
-	-	-	-	25	-	-	-	25.00
25	31	25	44	25	44	17	8	25.40
32	38	31	54	31	54	21	10	31.75
-	-	-	-	32	-	-	-	32.00

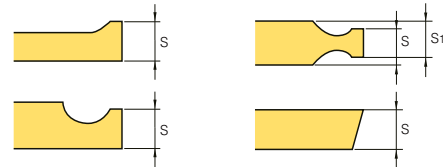
( ) Symbol for small size insert

**7** Nose "r"  
C N M G 12 04 08 - MP



Symbol		Nose "r"	
Metric	Inch	Metric	Inch
003	0.1	0.03	0.0012
005	0.13	0.05	0.002
01	0.2	0.1	0.004
02	0.5	0.2	0.008
04	1	0.4	1/64
08	2	0.8	1/32
12	3	1.2	3/64
16	4	1.6	1/16
20	5	2.0	5/64
24	6	2.4	3/32
28	7	2.8	7/64
32	8	3.2	1/8
00	-	Round insert (Inch)	
M0	-	Round insert (Metric)	

**6** Height of Cutting Edge  
C N M G 12 04 08 - MP

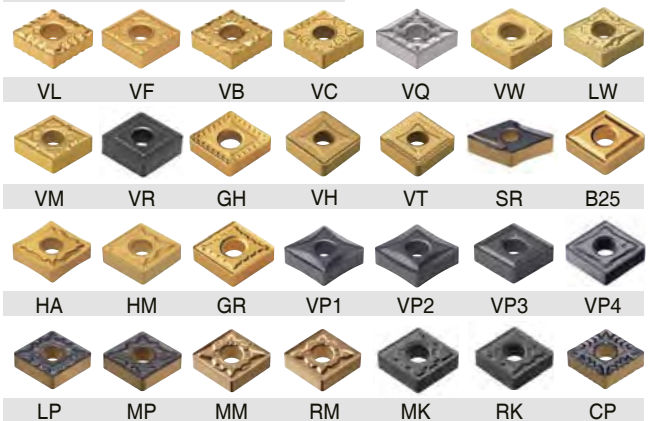


Symbol		Height of Cutting Edge (S)	
Metric	Inch	mm	Inch
01	1(2)	1.59	1/16
T0	1.125	1.79	9/128
T1	1.2	1.98	5/64
02	1.5(3)	2.38	3/32
T2	1.75	2.78	7/64
03	2	3.18	1/8
T3	2.5	3.97	5/32
04	3	4.76	3/16
05	3.5	5.56	7/32
06	4	6.35	1/4
07	5	7.94	5/16
09	6	9.52	3/8
11	7	11.11	7/16
12	8	12.70	1/2

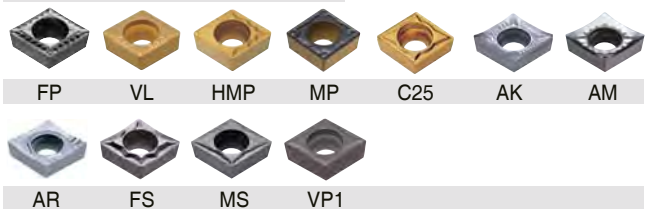
( ) Symbol for small size insert

**8** Chip Breaker for Turning  
C N M G 12 04 08 - MP

Negative Insert Chip Breaker



Positive Insert Chip Breaker

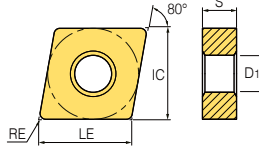






# CN

## Rhombic 80° Negative



Dimensions (mm)					
Size	IC	RE	S	LE	D <sub>1</sub>
09	9.525	0.4~1.2	3.18	9.672	3.81
12	12.7	0.4~1.6	4.76	12.896	5.16
16	15.875	0.8~1.6	6.35	16.120	6.35
19	19.05	0.8~1.6	6.35	19.344	7.93

Workpiece	Machining types															
	P	M	K	N	S	H	●	●	●	●	●	●	●	●	●	●
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermets		Coated													Uncoated		Cutting Condition										
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	f <sub>n</sub> (mm/rev)	a <sub>p</sub> (mm)
Medium cutting		CNMG 090304-HM																										0.12~0.40	0.50~3.80	
		CNMG 090308-HM																											0.15~0.40	0.80~3.80
		CNMG 120404-HM							●	●	●													●					0.05~0.30	0.90~5.00
		CNMG 120408-HM							●	●	●									●					●				0.10~0.50	1.00~5.00
		CNMG 120412-HM							●																●				0.18~0.50	1.00~5.00
		CNMG 190612-HM									●																		0.13~0.60	1.30~7.00
Medium cutting		CNMG 090304-MP						●	●																			0.10~0.40	0.40~3.80	
		CNMG 090308-MP							●	●																			0.15~0.40	0.50~4.00
		CNMG 090312-MP																											0.15~0.50	0.80~4.20
		CNMG 090404-MP																											0.10~0.40	0.40~3.80
		CNMG 090408-MP																											0.15~0.40	0.50~4.00
		CNMG 090412-MP																											0.15~0.50	0.80~4.20
		CNMG 120404-MP							●	●	●		●		●	●		●	●	●				●	●				0.10~0.40	0.40~4.00
		CNMG 120408-MP							●	●	●		●	●	●	●		●	●	●				●	●	●			0.15~0.45	0.50~4.50
		CNMG 120412-MP							●	●	●		●	●	●	●		●	●	●				●	●				0.15~0.50	0.80~5.00
		CNMG 120416-MP							●	●	●		●																0.28~0.55	1.00~5.00
		CNMG 160608-MP								●	●																		0.15~0.50	0.50~7.00
		CNMG 160612-MP								●	●																		0.18~0.60	0.80~7.00
		CNMG 160616-MP								●	●																		0.15~0.60	1.00~7.00
		CNMG 190608-MP									●																		0.15~0.60	0.50~8.50
CNMG 190612-MP									●																		0.18~0.60	0.80~8.50		
CNMG 190616-MP										●																	0.20~0.60	1.00~8.50		
Medium cutting		CNMG 090304-VM								●	●																	0.05~0.30	0.90~3.50	
		CNMG 090308-VM									●	●																	0.10~0.45	1.00~3.50
		CNMG 120404-VM	●	●								●	●											●	●				0.05~0.30	0.90~5.00
		CNMG 120408-VM	●	●								●	●											●	●				0.10~0.50	1.00~5.00
		CNMG 120412-VM										●	●											●	●				0.13~0.60	1.30~5.00
		CNMG 120416-VM																											0.20~0.60	1.50~5.50
		CNMG 160608-VM																											0.10~0.50	1.00~6.70
		CNMG 160612-VM																											0.13~0.60	1.30~6.70
		CNMG 190608-VM																											0.13~0.65	1.30~7.00
		CNMG 190612-VM																											0.15~0.70	1.50~7.00
CNMG 190616-VM																											0.18~0.75	1.80~7.00		

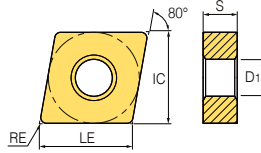
● : Stock item

High Pressure Coolant						KHP Coolant		Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page	TH	Page	Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DCBNR/L	B91	PCBNR/L	B96	MCKNR/L	B107	PCLNR/L	B148	DCLNR/L	B125	PCLNR/L	B127	MCLNR/L	B130
DCKNR/L	B91	PCKNR/L	B96	MCLNR/L	B107								
DCLNR/L	B91	PCLNR/L	B97	MCMNN	B107								
				MCRNR/L	B108								

# B Turning Inserts (Negative)

CN○○○

Rhombic **80° Negative**



Size	Dimensions (mm)				
	IC	RE	S	LE	D1
09	9.525	0.4~1.2	3.18	9.672	3.81
12	12.7	0.4~1.2	4.76	12.896	5.16
16	15.875	0.8~1.2	6.35	16.120	6.35
19	19.05	0.4~2.4	6.35	19.344	7.93
25	25.4	2.4	9.52	25.792	9.12

Workpiece	Material	Grade	Machining types															
			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel		P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Stainless steel		M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Cast iron		K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Non-ferrous metal		N																
Heat resistant alloy, Titanium alloy		S																
Hardened steel		H																

Application	Picture	Designation	Cermet		Coated		Coated													Uncoated		Cutting Condition									
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3080	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)	
Medium to roughing		CNMG 120404-B25	●																									0.17-0.45	1.00-5.00		
		CNMG 120408-B25	●	●																●				●					0.23-0.60	1.50-5.00	
		CNMG 120412-B25																												0.25-0.60	2.00-5.00
		CNMG 160608-B25																												0.25-0.60	2.00-6.50
		CNMG 160612-B25																												0.27-0.60	2.00-6.50
		CNMG 160616-B25																												0.27-0.60	2.00-6.50
		CNMG 190604-B25																												0.20-0.45	3.00-8.00
		CNMG 190608-B25																												0.25-0.60	3.00-8.00
		CNMG 190612-B25																				●	●			●				0.30-0.60	3.00-8.00
Roughing		CNMG 120408-GR																											0.20-0.50	1.00-7.00	
		CNMG 120412-GR																												0.25-0.50	1.30-7.00
		CNMG 120416-GR																												0.25-0.60	1.80-6.00
		CNMG 160608-GR																												0.20-0.70	1.00-8.00
		CNMG 160612-GR																												0.25-0.70	1.30-8.00
		CNMG 160616-GR																												0.25-0.75	1.80-8.00
		CNMG 190608-GR																												0.20-0.70	1.70-10.00
		CNMG 190612-GR																												0.30-0.75	1.70-10.00
		CNMG 190616-GR																												0.30-0.80	1.80-10.00
		CNMG 190624-GR																													0.35-0.85
Medium to finishing		CNMG 090304-VQ																											0.05-0.30	0.50-3.50	
		CNMG 090308-VQ																												0.08-0.30	0.80-4.00
		CNMG 090408-VQ																												0.05-0.30	0.50-3.50
		CNMG 090412-VQ																												0.08-0.30	0.80-4.00
		CNMG 120404-VQ	●	●	●	●																								0.05-0.30	0.80-4.00
		CNMG 120408-VQ	●	●	●	●																								0.08-0.40	0.80-4.00
Medium cutting		CNMG 120404-MK																											0.05-0.30	0.90-4.00	
		CNMG 120408-MK																												0.10-0.50	1.00-5.00
		CNMG 120412-MK																												0.13-0.60	1.30-5.00
		CNMG 120416-MK																												0.15-0.60	1.30-5.00
		CNMG 160608-MK																												0.28-0.70	1.80-7.00
		CNMG 160612-MK																												0.28-0.72	2.00-8.00
		CNMG 160616-MK																												0.28-0.74	2.00-8.00
		CNMG 190608-MK																												0.33-0.78	2.50-9.00
		CNMG 190612-MK																												0.35-0.78	2.60-9.50
CNMG 190616-MK																												0.35-0.80	2.60-10.00		

●: Stock item

High Pressure Coolant					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DCBNR/L	B91	PCBNR/L	B96	MCKNR/L	B107
DCKNR/L	B91	PCKNR/L	B96	MCLNR/L	B107
DCLNR/L	B91	PCLNR/L	B97	MCMNN	B107
				MCRNR/L	B108

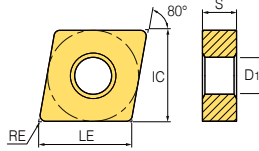
KHP Coolant	
TH	Page
PCLNR/L	B148

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DCLNR/L	B125	PCLNR/L	B127	MCLNR/L	B130



# CN

## Rhombic 80° Negative



Dimensions (mm)					
Size	IC	RE	S	LE	D <sub>1</sub>
09	9.525	0.8	3.18	9.672	3.81
12	12.7	0.4~1.6	4.76	12.896	5.16
16	15.875	0.8~1.6	6.35	16.120	6.35
19	19.05	0.8~1.6	6.35	19.344	7.93

Workpiece	Material Compatibility													Machining types				
	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Titanium alloy	Hardened steel	P	M	K	N	S	H	●	●	●	●	●	●
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermet		Coated		Coated													Uncoated		Cutting Condition										
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	f <sub>n</sub> (mm/rev)	a <sub>p</sub> (mm)		
Roughing		CNMA 090308																										0.10~0.30	0.50~3.00			
		120404																										●	0.15~0.60	1.00~5.00		
		120408																										●	0.15~0.60	1.00~6.00		
		120412																												0.15~0.70	1.50~6.00	
		120416																												0.20~0.80	2.00~6.00	
		160608																												0.15~0.70	2.00~6.00	
		160612																												0.15~0.70	2.00~6.00	
		160616																												0.15~0.70	2.00~6.00	
		190608																													0.15~0.70	2.00~10.00
		190612																													0.15~0.70	2.00~10.00
190616																													0.20~1.00	3.00~10.00		
Roughing		CNMG 120404-RK																											0.20~0.47	1.30~6.00		
		120408-RK																												0.20~0.50	1.50~6.00	
		120412-RK																												0.28~0.53	1.80~6.00	
		120416-RK																												0.28~0.63	2.00~6.00	
		160608-RK																												0.28~0.70	1.80~7.00	
		160612-RK																												0.28~0.72	2.00~8.00	
		160616-RK																												0.28~0.74	2.00~8.00	
		190612-RK																												0.35~0.78	2.60~9.50	
		190616-RK																												0.35~0.80	2.60~10.00	
		Roughing		CNMG 120404-VR																											0.20~0.50	1.00~6.50
120408-VR																														0.25~0.55	1.20~7.00	
120412-VR																														0.30~0.60	1.50~7.00	
120416-VR																														0.35~0.65	1.70~7.00	
120508-VR																														0.25~0.55	1.20~7.00	
120512-VR																														0.30~0.60	1.50~7.00	
160612-VR																														0.35~0.70	2.00~8.00	
160616-VR																														0.35~0.75	2.20~8.00	
190612-VR																														0.35~0.70	2.00~10.00	
190616-VR																														0.35~0.75	2.20~10.00	

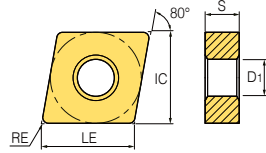
● : Stock item

High Pressure Coolant						KHP Coolant		Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page	TH	Page	Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DCBNR/L	B91	PCBNR/L	B96	MCKNR/L	B107	PCLNR/L	B148	DCLNR/L	B125	PCLNR/L	B127	MCLNR/L	B130
DCKNR/L	B91	PCKNR/L	B96	MCLNR/L	B107								
DCLNR/L	B91	PCLNR/L	B97	MCMNN	B107								
				MCRNR/L	B108								

# B Turning Inserts (Negative)



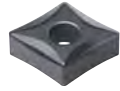

CN○○○

 Rhombic **80° Negative**



Size	Dimensions (mm)				
	IC	RE	S	LE	D1
09	9.525	0.4~1.2	3.18	9.672	3.81
12	12.7	0.4~1.6	4.76	12.896	5.16
16	15.875	0.8~1.6	6.35	16.120	6.35
19	19.05	0.8~2.4	6.35	19.344	7.93
25	25.4	2.4	9.52	25.792	9.12

Workpiece	Material	Grade	Machining types															
			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel		P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Stainless steel		M	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
Cast iron		K	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
Non-ferrous metal		N	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
Heat resistant alloy, Titanium alloy		S	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
Hardened steel		H	●	●	●	●	●	●	●	●	●	●	●	●	●	●		

Application	Picture	Designation	Cermet		Coated		Coated													Uncoated		Cutting Condition										
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3080	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)		
Medium cutting		CNMG 090304-MM																										0.08-0.35	0.50-5.00			
		CNMG 090308-MM														●	●							●					0.10-0.40	0.50-5.00		
		CNMG 090312-MM																											0.12-0.45	0.50-5.00		
		CNMG 090404-MM																											0.08-0.35	0.50-5.00		
		CNMG 090408-MM																											0.10-0.40	0.50-5.00		
		CNMG 090412-MM																											0.12-0.45	0.50-5.00		
		CNMG 120404-MM															●	●	●				●	●	●				0.10-0.40	0.50-5.50		
		CNMG 120408-MM															●	●	●	●			●	●	●				0.12-0.45	0.50-5.50		
		CNMG 120412-MM															●	●	●	●			●	●	●				0.15-0.60	0.50-5.50		
		CNMG 120416-MM																						●						0.20-0.65	0.50-5.50	
		CNMG 160608-MM															●	●	●					●						0.12-0.45	0.50-7.00	
		CNMG 160612-MM															●	●	●					●						0.15-0.60	0.50-7.00	
		CNMG 160616-MM															●	●	●					●	●					0.18-0.65	0.50-7.00	
		Roughing		CNMG 120404-RM														●	●	●				●	●					0.10-0.50	2.00-6.00	
				CNMG 120408-RM														●	●	●	●			●	●	●					0.15-0.55	2.00-6.00
CNMG 120412-RM																●	●	●	●			●	●						0.20-0.60	2.00-6.00		
CNMG 120416-RM																	●	●	●											0.25-0.70	2.00-6.00	
CNMG 160608-RM																●	●	●					●							0.15-0.55	2.00-8.00	
CNMG 160612-RM																●	●	●					●							0.20-0.60	2.00-8.00	
CNMG 160616-RM																	●						●							0.25-0.70	2.00-8.00	
CNMG 190608-RM																	●	●	●					●							0.15-0.55	2.00-10.00
CNMG 190612-RM																	●	●	●					●							0.20-0.60	2.00-10.00
CNMG 190616-RM																	●	●	●					●							0.25-0.70	2.00-10.00
CNMG 250924-RM																													0.40-1.20	4.00-14.00		
Finishing		CNMG 120404-VP1																				●	●					0.05-0.15	0.10-1.50			
		CNMG 120408-VP1																					●	●					0.07-0.20	0.10-1.50		
Finishing		CNMG 120402-VP1																											0.01-0.10	0.10-1.00		
		CNMG 120404-VP1																						●						0.05-0.15	0.10-1.50	
		CNMG 120408-VP1																												0.07-0.20	0.10-1.50	

●: Stock item

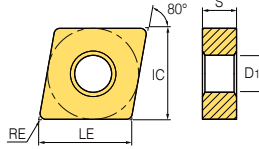
High Pressure Coolant					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DCBNR/L	B91	PCBNR/L	B96	MCKNR/L	B107
DCKNR/L	B91	PCKNR/L	B96	MCLNR/L	B107
DCLNR/L	B91	PCLNR/L	B97	MCMNN	B107
				MCRNR/L	B108

KHP Coolant	
TH	Page
PCLNR/L	B148

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DCLNR/L	B125	PCLNR/L	B127	MCLNR/L	B130

# CN

## Rhombic 80° Negative



Dimensions (mm)					
Size	IC	RE	S	LE	D <sub>1</sub>
12	12.7	0.4~1.6	4.76	12.896	5.16
16	15.875	0.8~1.6	6.35	16.120	6.35
19	19.05	0.8~1.6	6.35	19.344	7.93

Workpiece	Material										Machining types			
	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Titanium alloy	Hardened steel	P	M	K	N	S	H	●	⊙
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermet		Coated										Uncoated		Cutting Condition														
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	f <sub>n</sub> (mm/rev)	a <sub>p</sub> (mm)	
Medium to finishing		CNMG 120404-VP2						●												●	●							0.05-0.30	0.10-3.00		
		CNMG 120408-VP2																			●	●							0.10-0.40	0.50-4.50	
		CNMG 160608-VP2																											0.12-0.45	0.80-5.00	
		CNMG 190608-VP2																											0.12-0.50	1.00-5.20	
		CNMG 190612-VP2																											0.15-0.50	1.20-5.50	
		CNMG 190616-VP2																											0.18-0.50	1.50-5.50	
Medium cutting		CNMG 120404-VP3																			●	●	●	●	●	●			0.05-0.30	0.10-3.00	
		CNMG 120408-VP3																				●	●	●	●	●	●	●		0.10-0.40	0.50-4.50
		CNMG 120412-VP3																					●	●	●	●	●	●		0.12-0.50	0.50-5.00
		CNMG 120416-VP3																											0.25-0.45	1.00-4.00	
		CNMG 160608-VP3																											0.15-0.35	0.80-6.00	
		CNMG 160612-VP3																											0.20-0.40	1.00-6.00	
		CNMG 160616-VP3																											0.20-0.40	1.00-6.00	
		CNMG 190608-VP3																											0.20-0.50	1.00-7.00	
		CNMG 190612-VP3																												0.25-0.55	1.00-8.00
CNMG 190616-VP3																												0.30-0.60	1.00-8.00		
Medium cutting		CNMG 120404-VP3																				●	●					0.05-0.30	0.10-3.00		
		CNMG 120408-VP3																					●	●					0.10-0.40	0.50-4.50	
		CNMG 120412-VP3																						●	●					0.12-0.50	0.50-5.00
Roughing		CNMG 120404-VP4																											0.15-0.35	1.00-4.00	
		CNMG 120408-VP4																											0.15-0.35	1.00-4.00	
		CNMG 120412-VP4																											0.20-0.40	1.00-4.00	
		CNMG 160608-VP4																											0.20-0.45	1.00-6.50	
		CNMG 160612-VP4																											0.25-0.50	1.50-6.50	
		CNMG 190608-VP4																											0.15-0.45	1.00-8.00	
CNMG 190612-VP4																											0.20-0.50	1.20-8.50			
Medium to finishing		CNMG 120404-HA																				●	●	●	●			0.05-0.20	0.80-3.50		
		CNMG 120408-HA																					●	●	●	●			0.10-0.40	0.80-3.50	
		CNMG 120412-HA																											0.13-0.55	0.80-3.50	
Finishing		CNMG 120404-VW																										0.10-0.30	0.50-3.00		
		CNMG 120408-VW																											0.15-0.50	0.50-4.00	
		CNMG 120412-VW																											0.20-0.55	1.00-4.50	

● : Stock item

High Pressure Coolant					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DCBNR/L	B91	PCBNR/L	B96	MCKNR/L	B107
DCKNR/L	B91	PCKNR/L	B96	MCLNR/L	B107
DCLNR/L	B91	PCLNR/L	B97	MCMNN	B107
				MCRNR/L	B108

KHP Coolant	
TH	Page
PCLNR/L	B148

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DCLNR/L	B125	PCLNR/L	B127	MCLNR/L	B130

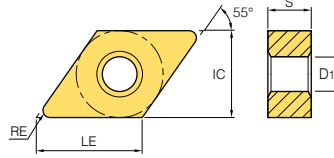








# DN



Dimensions (mm)					
Size	IC	RE	S	LE	D <sub>1</sub>
11	9.525	0.4~1.2	4.76~5.56	11.628	3.81
15	12.7	0.4~1.6	4.76~6.35	15.504	5.16

## Rhombic 55° Negative

Workpiece	Machining types															
	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermet		Coated													Uncoated		Cutting Condition											
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3215P	NC3225	NC3225P	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)	
Medium to finishing		DNMG 110404-CP																										0.08-0.30	0.40-3.00		
		110408-CP																											0.10-0.30	0.40-3.00	
		110504-CP																											0.08-0.30	0.40-3.00	
		110508-CP																											0.10-0.30	0.40-3.00	
		150404-CP							●	●																			0.10-0.35	0.50-3.50	
		150408-CP							●	●				●															0.12-0.35	0.50-3.50	
		150412-CP							●	●				●															0.13-0.35	0.80-3.50	
		150604-CP							●	●				●															0.10-0.35	0.50-3.50	
		150608-CP							●	●				●															0.12-0.35	0.50-3.50	
150612-CP							●	●				●															0.13-0.35	0.80-3.50			
Medium to finishing		DNMG 150404-VC							●																			0.10-0.35	0.30-2.00		
		150408-VC							●	●				●															0.15-0.40	0.50-3.00	
		150412-VC							●	●				●															0.15-0.45	0.50-3.00	
		150604-VC							●	●				●															0.10-0.35	0.30-2.00	
		150608-VC							●	●				●	●														0.15-0.40	0.50-3.00	
		150612-VC							●	●				●															0.15-0.45	0.50-3.00	
Medium cutting		DNMG 110404-HM											●															0.05-0.50	0.80-4.00		
		110408-HM																											0.10-0.50	1.00-4.00	
		150404-HM											●																0.05-0.30	0.90-5.00	
		150408-HM												●															0.10-0.50	1.00-5.00	
		150604-HM												●	●				●										0.05-0.30	0.90-5.00	
		150608-HM												●	●	●													0.10-0.50	1.00-5.00	
150612-HM													●														0.18-0.50	1.00-5.00			
Medium cutting		DNMG 110404-MP											●	●					●	●								0.10-0.40	0.40-3.80		
		110408-MP												●	●					●									0.15-0.40	0.50-4.00	
		110412-MP																											0.15-0.50	0.80-4.20	
		110504-MP																											0.10-0.40	0.40-3.80	
		110508-MP																											0.15-0.40	0.50-4.00	
		110512-MP																											0.15-0.50	0.80-4.20	
		150404-MP												●	●					●	●		●						0.10-0.40	0.40-4.00	
		150408-MP												●	●	●				●	●		●						0.15-0.45	0.50-4.50	
		150412-MP												●	●	●														0.15-0.50	0.80-5.00
		150416-MP																												0.15-0.50	0.85-5.00
		150604-MP												●	●	●				●	●	●	●							0.10-0.40	0.40-4.00
		150608-MP												●	●	●				●	●	●	●							0.15-0.45	0.50-4.50
		150612-MP												●	●	●				●		●								0.15-0.50	0.80-5.00
		150616-MP																		●										0.15-0.55	0.85-5.00

● : Stock item

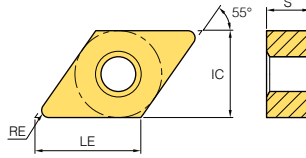
High Pressure Coolant					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DDJNR/L	B92	PDJNR/L	B97	MDJNR/L	B108
		PDNNR/L	B98	MDNNN	B108
				MDQNR/L	B109

KHP Coolant	
TH	Page
PDJNR/L	B148

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DDUNR/L	B125	PDSNR/L	B127	MDUNR/L	B130
		PDUNR/L	B127		

# B Turning Inserts (Negative)

DN ○ ○



Dimensions (mm)					
Size	IC	RE	S	LE	D1
11	9.525	0.4~1.2	4.76~5.56	11.628	3.81
15	12.7	0.4~1.6	4.76~6.35	15.504	5.16

## Rhombic 55° Negative

Workpiece	Material		Machining types																	
	Symbol	Code	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Steel	P		●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Stainless steel	M																			
Cast iron	K		●	✱	●	✱														
Non-ferrous metal	N																			
Heat resistant alloy, Titanium alloy	S																			
Hardened steel	H																			

● Continuous cutting  
 ✱ General cutting  
 ✱ Interrupted cutting

Application	Picture	Designation	Cermet		Coated		Coated																Uncoated		Cutting Condition							
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3080	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)		
Medium cutting		DNMG 110404-VM																											0.05-0.30	0.90-4.00		
		110408-VM								●				●																0.10-0.50	1.00-4.00	
		110412-VM																												0.13-0.50	1.30-4.00	
		150404-VM																		●	●									0.05-0.30	0.90-5.00	
		150408-VM																		●	●									0.10-0.50	1.00-5.00	
		150412-VM																												0.13-0.60	1.30-5.00	
		150604-VM																		●	●					●				0.05-0.30	0.90-5.00	
		150608-VM																		●	●					●				0.10-0.50	1.00-5.00	
		150612-VM																		●										0.13-0.60	1.30-5.00	
Medium to roughing		DNMG 150404-B25																											0.17-0.45	1.00-4.00		
		150408-B25																												0.17-0.55	1.50-4.00	
		150412-B25																												0.25-0.55	1.50-4.00	
		150604-B25																												0.17-0.55	1.50-4.00	
		150608-B25																												0.17-0.55	1.50-4.00	
		150612-B25																												0.25-0.55	1.50-4.00	
Roughing		DNMG 150408-GR																											0.20-0.50	1.00-7.00		
		150412-GR																												0.25-0.90	1.30-7.00	
		150416-GR																												0.30-0.75	1.80-7.00	
		150608-GR																												0.20-0.50	1.00-7.00	
		150612-GR																												0.25-0.70	1.30-7.00	
		150616-GR																												0.20-0.75	1.80-7.00	
Medium to finishing	 [Cermet]	DNMG 110404-VQ																											0.05-0.30	0.50-3.50		
		110408-VQ																												0.08-0.40	0.80-4.00	
		110412-VQ																												0.10-0.40	1.00-4.00	
		110508-VQ																												0.08-0.40	0.80-4.00	
		110512-VQ																												0.10-0.40	1.00-4.00	
		150404-VQ																												0.05-0.30	0.80-3.50	
		150408-VQ																												0.08-0.40	0.80-4.00	
		150412-VQ																													0.10-0.40	0.50-4.20
		150604-VQ																													0.05-0.30	0.80-4.00
		150608-VQ																													0.08-0.40	0.80-4.00
		150612-VQ																													0.10-0.40	0.50-4.20

● : Stock item

High Pressure Coolant					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DDJNR/L	B92	PDJNR/L	B97	MDJNR/L	B108
		PDNNR/L	B98	MDNNN	B108
				MDQNR/L	B109

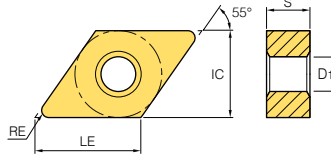
KHP Coolant	
TH	Page
PDJNR/L	B148

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DDUNR/L	B125	PDSNR/L	B127	MDUNR/L	B130
		PDUNR/L	B127		



# B Turning Inserts (Negative)

DN ○ ○



Dimensions (mm)					
Size	IC	RE	S	LE	D1
15	12.7	0.4~1.6	4.76~6.35	15.504	5.16

## Rhombic 55° Negative

Workpiece	Material		Machining types																	
	Symbol	Code	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Steel	P	M	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Stainless steel	M																			
Cast iron	K		●	✱	●	✱														
Non-ferrous metal	N																			
Heat resistant alloy, Titanium alloy	S																			
Hardened steel	H																			

Application	Picture	Designation	Cemented Carbide		Coated																Uncoated		Cutting Condition									
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3080	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)		
Roughing		DNMG	150404-RM																										0.10-0.50	2.00-6.00		
			150408-RM															●	●		●				●					0.15-0.55	2.00-6.00	
			150412-RM																												0.20-0.60	2.00-6.00
			150416-RM																												0.25-0.70	2.00-6.00
			150604-RM																												0.10-0.50	2.00-6.00
			150608-RM																●	●	●					●					0.15-0.55	2.00-6.00
			150612-RM																												0.20-0.60	2.00-6.00
150616-RM																												0.25-0.70	2.00-6.00			
Finishing		DNMG	150404-VP1																								●	0.05-0.15	0.10-1.50			
			150408-VP1																											0.07-0.20	0.10-1.50	
			150604-VP1																											0.05-0.15	0.10-1.50	
			150608-VP1																											0.07-0.20	0.10-1.50	
Finishing		DNGG	150404-VP1																										0.05-0.15	0.10-1.50		
			150408-VP1																											0.07-0.20	0.10-1.50	
			150604-VP1																											0.05-0.15	0.10-1.50	
			150608-VP1																											0.07-0.20	0.10-1.50	
Medium to finishing		DNMG	150404-VP2																										0.05-0.30	0.10-3.00		
			150408-VP2																											0.10-0.40	0.50-4.50	
			150604-VP2																								●		0.05-0.30	0.10-3.00		
			150608-VP2																											0.10-0.40	0.50-4.50	
Medium to finishing		DNMG	150404-VP3																										0.05-0.30	0.10-3.00		
			150408-VP3																											0.10-0.45	0.50-5.00	
			150412-VP3																											0.12-0.50	0.50-5.00	
			150604-VP3																											0.05-0.30	0.10-3.00	
			150608-VP3																									●	●	0.10-0.45	0.50-5.00	
			150612-VP3																											0.12-0.50	0.50-5.00	
Medium cutting		DNGG	150404-VP3																										0.05-0.30	0.10-3.00		
			150408-VP3																											0.10-0.45	0.50-5.00	
			150412-VP3																											0.12-0.50	0.50-5.00	
			150604-VP3																											0.05-0.30	0.10-3.00	
			150608-VP3																												0.10-0.45	0.50-5.00
			150612-VP3																												0.12-0.50	0.50-5.00

●: Stock item

High Pressure Coolant					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DDJNR/L	B92	PDJNR/L	B97	MDJNR/L	B108
		PDNNR/L	B98	MDNNN	B108
				MDQNR/L	B109

KHP Coolant	
TH	Page
PDJNR/L	B148

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DDUNR/L	B125	PDSNR/L	B127	MDUNR/L	B130
		PDUNR/L	B127		





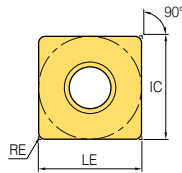




# B Turning Inserts (Negative)

## SN ○○

○ Square **90° Negative**



Size	Dimensions (mm)				
	IC	RE	S	LE	D1
09	9.525	0.4~1.2	3.18~4.76	9.525	3.81
12	12.7	0.4~1.6	4.76	12.7	5.16
15	15.875	0.8~1.2	6.35	15.875	6.35
19	19.05	0.8~1.6	6.35	19.05	7.93

Workpiece	Material	Grade	Machining types															
			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel		P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Stainless steel		M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Cast iron		K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Non-ferrous metal		N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Heat resistant alloy, Titanium alloy		S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Hardened steel		H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

Application	Picture	Designation	Cermets		Coated		Coated													Uncoated		Cutting Condition									
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3080	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)	
Medium cutting	HM	SNMG 120404-HM																										0.15-0.42	0.60-4.20		
		120408-HM							●		●					●													0.10-0.50	1.00-5.00	
		120412-HM							●																					0.18-0.50	1.00-5.00
Medium cutting	MP	SNMG 090304-MP							●	●																			0.10-0.40	0.40-3.80	
		090308-MP							●	●																				0.15-0.40	0.50-4.00
		090312-MP																												0.15-0.50	0.80-4.20
		090404-MP																												0.10-0.40	0.40-3.80
		090408-MP																												0.15-0.40	0.50-4.00
		090412-MP																												0.15-0.50	0.80-4.20
		120404-MP								●	●																			0.10-0.40	0.40-4.00
		120408-MP								●	●	●					●	●												0.15-0.45	0.50-4.50
		120412-MP								●	●	●					●	●												0.15-0.50	0.80-5.00
		120416-MP								●	●																			0.18-0.60	0.80-7.00
		150608-MP																												0.15-0.50	0.50-7.00
		150612-MP																												0.18-0.60	0.80-8.50
190608-MP																												0.15-0.50	0.50-8.50		
190612-MP																												0.18-0.60	0.80-8.50		
Medium cutting	VM	SNMG 090304-VM																											0.05-0.30	0.90-3.50	
		090308-VM																												0.10-0.50	1.00-3.50
		120404-VM																												0.05-0.30	0.90-5.00
		120408-VM	●								●	●					●	●												0.10-0.50	1.00-5.00
		120412-VM																												0.13-0.60	1.30-5.00
		190612-VM																												0.25-0.60	2.50-7.50
190616-VM																												0.25-0.60	2.50-7.50		

●: Stock item

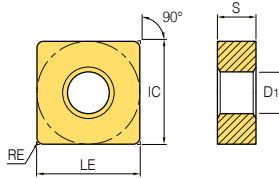
High Pressure Coolant					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DSBNN/L	B92	PSBNN/L	B99	MSBNN/L	B109
DSDNN	B93	PSDNN	B100	MSDNN	B109
DSKNR/L	B93	PSKNR/L	B100	MSKNR/L	B110
DSSNR/L	B93	PSSNR/L	B101	MSRNR/L	B110
				MSSNR/L	B111

KHP Coolant	
TH	Page
PSSNR/L	B148

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DSKNR/L	B125	PSKNR/L	B128	MSKNR/L	B130

# SN

## ○ Square 90° Negative



Dimensions (mm)					
Size	IC	RE	S	LE	D1
09	9.525	0.4~1.2	3.18~4.76	9.525	3.81
12	12.7	0.4~1.2	4.76	12.7	5.16
15	15.875	0.8~1.6	6.35	15.875	6.35
19	19.05	0.8~2.4	6.35	19.05	7.93
25	25.4	1.6~2.4	7.94~9.52	25.4	9.12

Workpiece	Machining types															
	P	M	K	N	S	H										
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● Continuous cutting  
● General cutting  
● Interrupted cutting

Application	Picture	Designation	Cermet		Coated														Uncoated		Cutting Condition											
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)		
Medium to roughing		SNMG 090308-B25																										0.17~0.45	0.80~3.50			
		120404-B25	●						●	●	●		●							●	●			●					0.17~0.45	1.00~3.50		
		120408-B25	●	●					●	●	●	●	●							●	●									0.23~0.60	1.50~5.00	
		120412-B25		●					●	●	●	●	●																	0.25~0.60	2.00~5.00	
		120416-B25							●	●	●	●	●																	0.35~0.70	2.50~5.00	
		150608-B25										●	●																	0.25~0.60	1.50~6.00	
		150612-B25																												0.25~0.60	2.00~6.00	
		150616-B25										●																			0.35~0.70	2.00~6.00
		190608-B25								●	●		●																		0.25~0.60	3.00~8.00
		190612-B25								●	●		●			●															0.30~0.60	3.00~8.00
		190616-B25								●	●		●											●							0.35~0.70	3.00~8.00
		250716-B25																													0.35~0.70	4.00~12.00
250724-B25								●					●																0.50~1.00	5.00~12.00		
250924-B25																													0.50~1.00	5.00~12.00		
Roughing		SNMG 120404-GR																											0.15~0.45	0.08~6.00		
		120408-GR									●	●	●	●	●	●														0.20~0.50	1.00~7.00	
		120412-GR									●	●	●																	0.20~0.50	1.00~7.00	
		150608-GR										●	●																	0.25~0.60	1.00~7.00	
		150612-GR									●	●	●	●	●															0.29~0.75	1.40~7.00	
		190608-GR											●																	0.30~0.80	1.70~9.00	
		190612-GR										●	●	●	●	●	●													0.30~0.80	1.70~9.00	
		190616-GR										●	●	●	●	●	●	●												0.31~0.82	1.90~12.30	
		190624-GR																													0.35~0.82	2.00~12.50
250724-GR																													0.45~1.20	2.60~14.00		
250924-GR																													0.50~1.20	2.60~14.00		
Medium to finishing		SNMG 090304-VQ																											0.05~0.30	0.50~3.50		
		090408-VQ																												0.08~0.30	0.80~4.00	
		090412-VQ																												0.10~0.30	1.00~4.00	
		120404-VQ	●	●																										0.05~0.30	0.80~4.00	
		120408-VQ	●																											0.08~0.40	0.80~4.00	

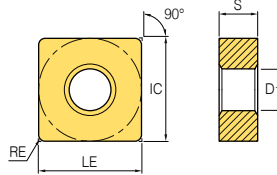
● : Stock item

High Pressure Coolant						KHP Coolant		Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page	TH	Page	Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DSBNR/L	B92	PSBNN/L	B99	MSBNN/L	B109	PSSNR/L	B148	DSKNN/L	B125	PSKNN/L	B128	MSKNN/L	B130
DSDNN	B93	PSDNN	B100	MSDNN	B109								
DSKNN/L	B93	PSKNN/L	B100	MSKNN/L	B110								
DSSNR/L	B93	PSSNR/L	B101	MSRNN/L	B110								
				MSSNR/L	B111								

# B Turning Inserts (Negative)

## SN ○○

○ Square **90° Negative**



Size	Dimensions (mm)				
	IC	RE	S	LE	D1
09	9.525	0.4~1.2	3.18	9.525	3.81
12	12.7	0.4~2.0	4.76	12.7	5.16
15	15.875	0.8~1.6	6.35	15.875	6.35
19	19.05	0.8~2.4	6.35	19.05	7.93
25	25.4	2.4	7.94~9.52	25.4	9.12

Workpiece	Material	Grade	Machining types																
			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel		P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Stainless steel		M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Cast iron		K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Non-ferrous metal		N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Heat resistant alloy, Titanium alloy		S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Hardened steel		H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

Application	Picture	Designation	Cermets		Coated		Coated													Uncoated		Cutting Condition									
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3080	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)	
Medium cutting		SNMG 090304R																										0.12-0.35	1.00-3.00		
		090308R																											0.15-0.35	1.00-3.00	
		120404R	●	●																									0.15-0.35	1.00-4.00	
		120408R																											0.15-0.35	1.00-4.00	
		120412R																											0.15-0.35	1.00-4.00	
		090304L																											0.12-0.35	1.00-3.00	
		090308L																											0.15-0.35	1.00-3.00	
		120404L																											0.15-0.35	1.00-4.00	
		120408L																												0.15-0.35	1.00-4.00
		120412L																												0.15-0.35	1.00-4.00
Medium cutting		SNMG 090308-MK																										0.17-0.45	0.80-3.50		
		120404-MK																										0.08-0.45	0.80-4.00		
		120408-MK													●		●											0.10-0.50	1.00-5.00		
		120412-MK													●		●											0.13-0.60	1.30-5.00		
		120416-MK																										0.15-0.63	1.50-6.00		
		150608-MK																										0.25-0.60	1.80-6.00		
		150612-MK																										0.20-0.70	1.80-7.00		
		150616-MK																										0.23-0.70	2.00-7.50		
		190608-MK																										0.31-0.75	2.30-9.50		
		190612-MK															●											0.33-0.78	2.50-10.00		
190616-MK																										0.35-0.78	2.70-10.00				
Roughing		SNMA 090304																									0.10-0.45	0.50-4.50			
		090308																										0.15-0.50	0.50-4.50		
		090312																										0.20-0.50	0.50-4.50		
		120402																										0.10-0.50	1.00-4.50		
		120404																										0.15-0.60	1.00-5.00		
		120408														●												0.15-0.70	1.00-6.00		
		120412														●												0.20-0.80	1.50-6.00		
		120416																										0.30-1.00	2.00-6.00		
		120420																										0.30-0.70	2.50-5.00		
		150612																										0.20-0.80	2.00-8.00		
		150616															●											0.25-0.85	2.50-10.00		
		190608																										0.20-0.80	2.00-10.00		
		190612															●											0.20-0.80	2.00-10.00		
		190616														●	●											0.25-0.85	2.50-10.00		
		190624																										0.35-0.90	3.00-10.00		
250724																										0.40-1.00	3.00-13.00				
250924																										0.40-1.00	3.00-13.00				

●: Stock item

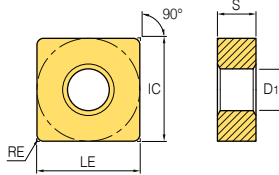
High Pressure Coolant					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DSBNN/L	B92	PSBNN/L	B99	MSBNN/L	B109
DSDNN	B93	PSDNN	B100	MSDNN	B109
DSKNR/L	B93	PSKNR/L	B100	MSKNR/L	B110
DSSNR/L	B93	PSSNR/L	B101	MSRNR/L	B110
				MSSNR/L	B111

KHP Coolant	
TH	Page
PSSNR/L	B148

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DSKNR/L	B125	PSKNR/L	B128	MSKNR/L	B130

# SN

## Square 90° Negative



Dimensions (mm)					
Size	IC	RE	S	LE	D1
09	9.525	0.4~1.2	3.18~4.76	9.525	3.81
12	12.7	0.4~1.6	4.76	12.7	5.16
15	15.875	0.8~1.6	6.35	15.875	6.35
19	19.05	0.8~1.6	6.35	19.05	7.93
25	25.4	2.4	9.52	25.4	9.12

Workpiece	Machining types															
	P	M	K	N	S	H	●	●	●	●	●	●	●	●	●	●
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermet		Coated		Coated													Uncoated		Cutting Condition								
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Roughing		SNGA 090304																										0.17~0.50	0.50~4.50	
		090308																											0.17~0.50	0.50~4.50
		120404																											0.15~0.60	1.50~8.00
		120408																											0.15~0.60	1.50~8.00
		120412																											0.20~0.80	1.50~8.00
		150608																											0.20~0.80	2.00~10.00
		150616																											0.20~0.90	2.00~10.00
		190608																											0.15~0.60	3.00~12.00
190612																											0.20~0.80	3.00~12.00		
Roughing		SNMG 120404-RK																										0.15~0.50	1.20~6.00	
		120408-RK																										0.23~0.53	1.50~6.00	
		120412-RK																										0.28~0.53	1.80~6.00	
		120416-RK																										0.28~0.53	2.00~6.00	
		150612-RK																											0.20~0.70	1.80~7.00
		150616-RK																											0.23~0.70	2.00~7.50
		190612-RK																											0.33~0.78	2.50~10.00
190616-RK																											0.35~0.78	2.70~10.00		
Roughing		SNMG 120408-VR																										0.25~0.55	1.20~7.00	
		120412-VR																										0.30~0.60	1.50~7.00	
		120416-VR																										0.35~0.60	2.00~7.00	
		190612-VR																										0.35~0.70	2.00~10.00	
		190616-VR																											0.35~0.75	2.20~10.00
Medium cutting		SNMG 090304-MM																										0.08~0.35	0.50~5.00	
		090308-MM																										0.10~0.40	0.50~5.00	
		090312-MM																										0.12~0.45	0.50~5.00	
		090404-MM																										0.08~0.35	0.50~5.00	
		090408-MM																										0.10~0.40	0.50~5.00	
		120404-MM																										0.10~0.40	0.50~6.40	
		120408-MM																										0.12~0.45	0.50~6.40	
		120412-MM																										0.15~0.60	0.50~6.40	
		120416-MM																											0.18~0.65	0.50~6.40
		150608-MM																											0.12~0.45	0.50~8.00
		150612-MM																											0.15~0.60	0.50~8.00
		150616-MM																											0.18~0.65	0.50~8.00
		190608-MM																											0.12~0.45	0.50~9.50
		190612-MM																											0.15~0.60	0.50~9.50
		190616-MM																											0.18~0.65	0.50~9.50
250924-MM																											0.20~0.80	1.00~10.00		

● : Stock item

High Pressure Coolant					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DSBNR/L	B92	PSBNR/L	B99	MSBNR/L	B109
DSDNN	B93	PSDNN	B100	MSDNN	B109
DSKNR/L	B93	PSKNR/L	B100	MSKNR/L	B110
DSSNR/L	B93	PSSNR/L	B101	MSRNR/L	B110
				MSSNR/L	B111

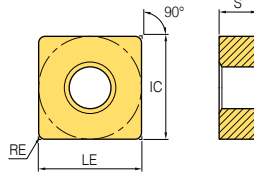
KHP Coolant	
TH	Page
PSSNR/L	B148

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DSKNR/L	B125	PSKNR/L	B128	MSKNR/L	B130



# B Turning Inserts (Negative)

## SN



Size	Dimensions (mm)				
	IC	RE	S	LE	D1
12	12.7	0.4~1.6	4.76	12.7	5.16
15	15.875	0.8~1.6	6.35	15.875	6.35
19	19.05	0.8~2.4	6.35	19.05	7.93
25	25.4	2.4	9.52	25.4	9.12

**○ Square 90° Negative**

Workpiece	Machining types															
	P	M	K	N	S	H	●	●	●	●	●	●	●	●	●	●
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermets		Coated		Coated										Uncoated		Cutting Condition												
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3080	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)	
Roughing		SNMG	120404-RM																									0.10-0.50	2.00-6.00		
			120408-RM														●	●	●					●	●				0.15-0.55	2.00-6.00	
			120412-RM														●	●	●						●				0.20-0.60	2.00-6.00	
			120416-RM																											0.25-0.70	2.00-6.00
			150608-RM																											0.20-0.60	0.20-6.00
			150612-RM																			●				●				0.20-0.60	2.00-8.00
			150616-RM																											0.25-0.70	2.00-8.00
			190608-RM																											0.20-0.60	2.00-10.00
			190612-RM															●	●	●						●				0.20-0.60	2.00-10.00
			190616-RM															●	●											0.27-0.70	2.00-10.00
			190624-RM																											0.30-0.75	3.00-10.00
250924-RM																											0.40-1.20	4.00-14.00			
Medium to finishing		SNMG	120404-VP2																									0.05-0.35	0.10-3.00		
			120408-VP2																								●	0.10-0.45	0.50-4.50		
			120412-VP2																										0.10-0.50	0.50-5.00	
Medium cutting		SNMG	120404-VP3																									0.05-0.30	0.10-3.00		
			120408-VP3																									●	0.10-0.45	1.00-5.00	
			120412-VP3																										0.12-0.50	1.00-5.00	
			120416-VP3																										0.25-0.45	0.50-4.00	
			160608-VP3																										0.15-0.35	0.80-6.00	
			160612-VP3																										0.20-0.40	1.00-6.00	
			160616-VP3																										0.20-0.40	1.00-6.00	
			190608-VP3																										0.15-0.35	0.80-7.00	
			190612-VP3																											0.20-0.40	1.00-7.00
190616-VP3																											0.25-0.45	1.00-7.00			
Medium cutting		SNGG	120404-VP3																									0.05-0.30	0.10-3.00		
			120408-VP3																									0.10-0.45	1.00-5.00		
			120412-VP3																										0.12-0.50	1.00-5.00	
Roughing		SNMG	120408-VP4																									0.15-0.35	1.00-4.00		
			120412-VP4																										0.20-0.40	1.00-4.00	
			150612-VP4																										0.20-0.45	1.00-5.00	
			190608-VP4																										0.20-0.50	1.00-9.00	
			190612-VP4																										●	0.23-0.55	1.00-9.00
190616-VP4																											0.27-0.60	1.00-9.00			

●: Stock item

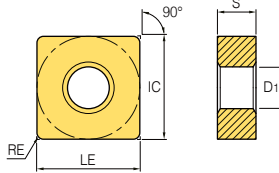
High Pressure Coolant					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DSBNN/L	B92	PSBNN/L	B99	MSBNN/L	B109
DSDNN	B93	PSDNN	B100	MSDNN	B109
DSKNN/L	B93	PSKNN/L	B100	MSKNN/L	B110
DSSNN/L	B93	PSSNN/L	B101	MSRNN/L	B110
				MSSNN/L	B111

KHP Coolant	
TH	Page
PSSNR/L	B148

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DSKNN/L	B125	PSKNN/L	B128	MSKNN/L	B130

# SN

○ Square **90° Negative**



Dimensions (mm)					
Size	IC	RE	S	LE	D <sub>1</sub>
09	9.525	0.2~0.8	3.18	9.525	3.81
12	12.7	0.4~2.4	4.76	12.7	5.16
15	15.875	0.2~1.6	4.76	15.875	6.35
19	19.05	0.2~1.6	4.76	19.05	7.93
25	25.4	0.4~2.4	6.35~7.94	25.4	9.12

Workpiece	Machining types															
	P	M	K	N	S	H	●	●	●	●	●	●	●	●	●	●
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermets		Coated													Uncoated		Cutting Condition											
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	f <sub>n</sub> (mm/rev)	a <sub>p</sub> (mm)	
Medium to finishing		SNMG 120404-HA																										0.10~0.35	0.80~3.50		
		SNMG 120408-HA																											0.10~0.40	0.80~3.50	
		SNMG 120412-HA																											0.13~0.55	0.80~3.50	
Roughing		SNGN 090302																										0.05~0.30	0.50~4.00		
		SNGN 090304																											0.10~0.35	0.50~4.00	
		SNGN 090308																											0.10~0.40	1.00~4.00	
		SNGN 120304																											0.13~0.50	1.30~5.00	
		SNGN 120308																											0.15~0.60	1.50~6.00	
		SNGN 120312																											0.17~0.60	1.70~6.00	
		SNGN 120402																											0.10~0.45	1.00~5.00	
		SNGN 120404																											0.13~0.50	1.30~5.00	
		SNGN 120408																												0.15~0.60	1.50~6.00
		SNGN 120412																												0.17~0.60	1.70~6.00
		SNGN 120424																												0.20~0.65	2.00~6.00
		SNGN 150402																												0.10~0.50	0.50~6.00
		SNGN 150408																												0.15~0.60	1.50~8.00
		SNGN 150412																												0.17~0.60	2.00~8.00
		SNGN 150416																												0.20~0.65	2.50~8.50
		SNGN 190402																												0.10~0.60	2.00~8.50
SNGN 190412																												0.17~0.70	2.50~10.00		
SNGN 190416																												0.20~0.75	2.50~10.00		
SNGN 250604																												0.30~0.80	3.00~12.00		
SNGN 250616																												0.35~1.00	4.00~12.00		
Medium to roughing		SNUN 120408																										0.23~0.60	1.50~5.00		
		SNUN 120412																										0.25~0.60	2.00~5.00		
		SNUN 190412																										0.30~1.00	3.00~10.00		
		SNUN 120412TN																											0.25~0.60	2.00~5.00	
		SNUN 250724TN																											0.30~1.20	3.00~12.00	
Medium cutting		SNMX 120408R																										0.15~0.35	1.00~4.00		

● : Stock item

High Pressure Coolant					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DSBNR/L	B92	PSBNR/L	B99	MSBNR/L	B109
DSDNN	B93	PSDNN	B100	MSDNN	B109
DSKNR/L	B93	PSKNR/L	B100	MSKNR/L	B110
DSSNR/L	B93	PSSNR/L	B101	MSRNR/L	B110
				MSSNR/L	B111

KHP Coolant	
TH	Page
PSSNR/L	B148

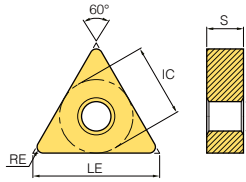
Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DSKNR/L	B125	PSKNR/L	B128	MSKNR/L	B130





# B Turning Inserts (Negative)

## TN



Dimensions (mm)					
Size	IC	RE	S	LE	D1
11	6.35	0.4~0.8	3.18	10.999	2.4
16	9.525	0.4~1.2	4.76	16.498	3.81
22	12.7	0.8~1.2	4.76	21.997	5.16

Triangular **60° Negative**

Workpiece	Machining types															
	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermets		Coated		Coated													Uncoated		Cutting Condition								
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3215P	NC3225	NC3225P	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Finishing		TNMG 160404-VB	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.35	0.30-1.50	
		TNMG 160408-VB	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.15-0.45	0.50-7.00
		TNMG 160412-VB	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.18-0.45	0.80-3.00
		TNMG 220408-VB	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.15-0.45	0.50-2.50
		TNMG 220412-VB	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.20-0.50	0.70-2.50
Finishing		TNMG 160404-VL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.05-0.25	0.10-1.00	
		TNMG 160408-VL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.35	0.20-1.50	
		TNMG 160412-VL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.15-0.40	0.20-1.50	
		TNMG 220408-VL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.35	0.20-1.50	
		TNMG 220412-VL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.35	0.50-2.00	
Finishing		TNMG 110304-VF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.05-0.20	0.20-1.00	
		TNMG 160404-VF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.07-0.30	0.50-1.50	
		TNMG 160408-VF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.40	0.50-1.50	
		TNMG 160412-VF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.15-0.50	0.50-1.50	
		TNMG 220404-VF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.40	0.50-1.50	
		TNMG 220408-VF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.40	0.50-1.50	
Medium to finishing		TNMG 110304-LP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.07-0.30	0.30-1.50	
		TNMG 110308-LP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.30	0.30-1.50	
		TNMG 160404-LP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.35	0.30-2.00	
		TNMG 160408-LP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.40	0.50-2.50	
		TNMG 160412-LP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.13-0.45	0.80-3.00	
Medium to finishing		TNMG 110304-CP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.08-0.26	0.40-2.50	
		TNMG 110308-CP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.26	0.40-2.50	
		TNMG 160404-CP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.30	0.50-3.00	
		TNMG 160408-CP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.12-0.30	0.50-3.00	
		TNMG 160412-CP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.13-0.30	0.80-3.00	
		TNMG 220408-CP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.15-0.35	0.80-4.00	
		TNMG 220412-CP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.18-0.35	1.00-4.00	

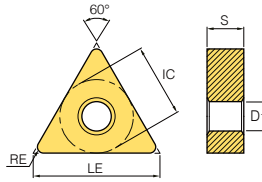
● : Stock item

High Pressure Coolant							
Double Clamp	Page	Lever Lock	Page	Wedge Clamp	Page	Multi Lock	Page
DTFNR/L	B94	PTFNR/L	B101	WTENN	B103	MTENN	B111
DTGNR/L	B94	PTGNR/L	B102	WTJNR/L	B103	MTFNR/L	B111
		PTTNR/L	B102	WTXNR/L	B103	MTGNR/L	B112
						MTJNR/L	B112

Boring Bar				
Double Clamp	Page	Lever Lock	Page	Multi Lock
DTFNR/L	B126	PTFNR/L	B128	MTFNR/L

# TN ○ ○

## Triangular 60° Negative



Dimensions (mm)					
Size	IC	RE	S	LE	D1
11	6.35	0.8	3.18	10.999	2.4
16	9.525	0.4~1.6	4.76	16.498	3.81
22	12.7	0.4~1.6	4.76	21.997	5.16
27	15.875	1.2	6.35	27.496	6.35

Workpiece	Machining types											
	P	M	K	N	S	H	●	●	●	●	●	●
Steel	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermets		Coated		Coated													Uncoated		Cutting Condition								
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Medium to finishing		TNMG 160404-VC					●	●					●															0.10-0.35	0.30-2.00	
		TNMG 160408-VC					●	●	●				●																0.15-4.00	0.50-3.00
		TNMG 160412-VC					●	●					●																0.15-4.50	0.50-3.00
		TNMG 220408-VC					●	●																					0.15-0.40	0.50-3.00
		TNMG 220412-VC					●	●																					0.15-0.45	0.50-3.00
Medium cutting		TNMG 110308-HM									●																	0.17-0.40	1.50-3.00	
		TNMG 160404-HM		●					●	●	●								●									0.05-0.30	0.90-4.00	
		TNMG 160408-HM					●	●	●	●																			0.10-0.50	1.00-4.00
		TNMG 160412-HM					●	●	●	●														●					0.13-0.60	1.30-4.00
		TNMG 220404-HM								●																			0.15-0.45	0.60-5.00
TNMG 220408-HM								●	●	●																	0.18-0.48	0.80-5.80		
Medium cutting		TNMG 110308-MP								●																		0.15-0.42	0.50-3.50	
		TNMG 160404-MP					●	●	●				●	●	●		●	●	●		●	●						0.10-0.40	0.40-3.50	
		TNMG 160408-MP					●	●	●				●	●			●	●			●	●							0.15-0.45	0.50-4.00
		TNMG 160412-MP					●	●	●				●	●			●	●				●	●						0.15-0.50	0.80-4.50
		TNMG 160416-MP																											0.18-0.50	1.00-4.50
		TNMG 220404-MP					●	●					●			●	●												0.10-0.35	0.40-5.00
		TNMG 220408-MP					●	●					●																0.15-0.45	0.50-5.50
		TNMG 220412-MP					●	●								●	●												0.15-0.50	0.80-6.00
TNMG 220416-MP					●	●					●																0.20-0.55	1.00-6.00		
TNMG 270612-MP																											0.28-0.60	1.20-8.00		
Medium cutting		TNMG 110308-VM																										0.05-0.30	0.80-4.00	
		TNMG 160404-VM	●	●					●	●		●							●	●								0.05-0.30	0.90-5.00	
		TNMG 160408-VM	●	●			●	●	●	●		●							●	●			●					0.10-0.50	1.00-5.00	
		TNMG 160412-VM					●	●												●									0.13-0.60	1.30-5.00
		TNMG 220404-VM																		●	●								0.05-0.30	0.90-6.60
		TNMG 220408-VM								●			●							●				●					0.10-0.50	1.00-6.60
TNMG 220412-VM																											0.13-0.60	1.30-6.60		

● : Stock item

High Pressure Coolant							
Double Clamp	Page	Lever Lock	Page	Wedge Clamp	Page	Multi Lock	Page
DTFNR/L	B94	PTFNR/L	B101	WTENN	B103	MTENN	B111
DTGNR/L	B94	PTGNR/L	B102	WTJNR/L	B103	MTFNR/L	B111
		PTTNR/L	B102	WTXNR/L	B103	MTGNR/L	B112
						MTJNR/L	B112

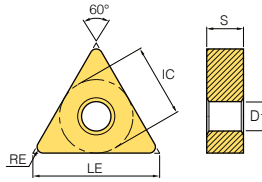
Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DTFNR/L	B126	PTFNR/L	B128	MTFNR/L	B131



# B Turning Inserts (Negative)

## TN ○ ○

Triangular **60° Negative**



Dimensions (mm)					
Size	IC	RE	S	LE	D1
11	6.35	0.8	3.18	10.999	2.4
16	9.525	0.2~1.6	4.76	16.498	3.81
22	12.7	0.4~1.6	4.76	21.997	5.16
27	15.875	0.8~1.6	6.35	27.496	6.35
33	19.05	1.6~2.4	9.52	32.996	7.93

Workpiece	Material		Machining types																	
	Symbol	Code	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Steel		P	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Stainless steel		M																		
Cast iron		K	●	✱	●	✱														
Non-ferrous metal		N																		
Heat resistant alloy, Titanium alloy		S																		
Hardened steel		H																		

Application	Picture	Designation	Cermets		Coated		Coated																Uncoated		Cutting Condition					
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3080	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Medium to roughing		TNMG 110308-B25																										0.17-0.40	1.50-3.00	
		160404-B25		●				●	●		●																		0.17-0.45	2.00-3.50
		160408-B25		●				●	●		●	●		●										●					0.17-0.55	2.00-3.50
		160412-B25								●																			0.25-0.55	2.00-3.50
		160416-B25																											0.30-0.60	2.50-3.00
		220404-B25							●	●		●			●														0.17-0.45	1.50-5.00
		220408-B25							●	●		●			●														0.17-0.55	2.00-5.00
		220412-B25							●	●		●	●		●														0.25-0.55	2.00-5.00
		220416-B25									●				●														0.30-0.60	2.00-5.00
		270608-B25											●																0.17-0.55	2.00-5.00
		270612-B25										●		●		●													0.25-0.55	3.00-7.00
		270616-B25											●		●		●												0.30-0.60	3.00-7.00
		330716-B25									●	●																	0.35-0.70	3.00-9.00
330924-B25																											0.40-0.80	3.00-9.00		
Roughing		TNMG 160408-GR																										0.20-0.50	1.00-7.00	
		160412-GR								●				●															0.23-0.54	1.20-8.00
		220408-GR								●	●		●	●	●	●													0.22-0.61	1.10-7.80
		220412-GR								●	●	●	●	●	●														0.28-0.78	1.20-7.80
		220416-GR											●		●														0.31-0.75	1.50-7.80
		270608-GR												●															0.31-0.75	1.50-7.80
		270612-GR											●	●	●	●													0.31-0.75	1.50-7.80
		270616-GR													●														0.36-1.00	1.60-7.80
		330924-GR														●													0.40-1.00	2.00-9.00
Finishing		TNGG 160402R-SC		●	●																							0.03-0.20	0.10-1.50	
		160404R-SC		●	●																							0.05-0.25	0.30-2.00	
		160402L-SC																										0.03-0.20	0.10-1.50	
		160404L-SC																										0.05-0.25	0.30-2.00	
Medium to finishing		TNMG 110304-VQ																										0.05-0.30	0.50-3.00	
		160404-VQ		●	●	●	●																					0.05-0.30	0.80-3.50	
		160408-VQ		●	●	●	●																					0.08-0.40	0.80-3.50	
		160412-VQ																										0.10-0.40	0.80-3.50	
		220404-VQ																										0.05-0.35	0.80-4.00	

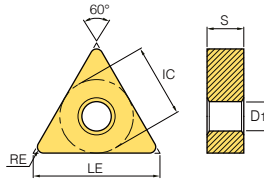
●: Stock item

High Pressure Coolant							
Double Clamp	Page	Lever Lock	Page	Wedge Clamp	Page	Multi Lock	Page
DTFNR/L	B94	PTFNR/L	B101	WTENN	B103	MTENN	B111
DTGNR/L	B94	PTGNR/L	B102	WTJNR/L	B103	MTFNR/L	B111
		PTTNR/L	B102	WTXNR/L	B103	MTGNR/L	B112
						MTJNR/L	B112

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DTFNR/L	B126	PTFNR/L	B128	MTFNR/L	B131

# TN ○ ○

## Triangular 60° Negative



Dimensions (mm)					
Size	IC	RE	S	LE	D <sub>1</sub>
11	6.35	0.4~0.8	3.18	10.999	2.4
16	9.525	0.2~1.6	4.76	16.498	3.81
22	12.7	0.4~1.6	4.76	21.997	5.16
27	15.875	0.8~1.6	6.35	27.496	6.35
33	19.05	2.4	9.52	32.996	7.93

Workpiece	Machining types									
	P	M	K	N	S	H	●	⊙	⊛	⊞
Steel	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermets		Coated													Uncoated		Cutting Condition												
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	HO1	HO5	f <sub>n</sub> (mm/rev)	a <sub>p</sub> (mm)		
Medium cutting		TNGG 110304R																										0.05-0.30	0.50-2.50			
		160402R	●	●																									0.08-0.30	0.50-3.50		
		160404R	●	●																										0.12-0.30	1.00-3.50	
		160408R	●	●																										0.15-0.35	1.30-3.50	
		220404R	●	●																										0.12-0.30	1.00-5.00	
		220408R	●	●																										0.15-0.35	1.30-5.00	
		220412R																												0.17-0.40	1.50-5.00	
		110304L																												0.05-0.30	0.50-2.50	
		160402L																													0.08-0.30	0.50-3.50
		160404L	●	●																											0.12-0.30	1.00-3.50
		160408L	●	●																											0.15-0.35	1.30-3.50
		220404L																													0.12-0.30	1.00-5.00
		220408L																													0.15-0.35	1.30-5.00
220412L																													0.17-0.40	1.50-5.00		
Medium cutting		TNMG 160404-MK																											0.05-0.30	0.90-3.50		
		160408-MK																												0.10-0.50	1.00-4.00	
		160412-MK																												0.12-0.60	1.20-4.50	
		160416-MK																												0.13-0.60	1.20-4.50	
		220404-MK																												0.17-0.45	1.50-5.00	
		220408-MK																												0.21-0.50	1.30-5.50	
		220412-MK																												0.23-0.52	1.40-5.50	
		220416-MK																												0.25-0.53	1.60-6.00	
270612-MK																													0.25-0.55	3.00-7.00		
Roughing		TNMA 110308																											0.05-0.30	0.50-3.00		
		160404																												0.10-0.30	1.00-4.00	
		160408																												0.10-0.40	1.00-4.00	
		160412																												0.10-0.50	1.50-4.50	
		160416																												0.15-0.55	1.50-4.50	
		220404																												0.10-0.35	1.00-4.00	
		220408																												0.15-0.40	1.50-5.00	
		220412																												0.20-0.50	1.50-5.00	
		220416																													0.25-0.55	1.50-5.00
		270608																													0.20-0.45	2.00-7.00
		270612																													0.25-0.55	3.00-7.00
		270616																													0.30-0.65	3.00-7.00
		330924																													0.35-0.75	3.00-9.00

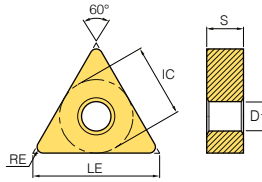
● : Stock item

High Pressure Coolant							
Double Clamp	Page	Lever Lock	Page	Wedge Clamp	Page	Multi Lock	Page
DTFNR/L	B94	PTFNR/L	B101	WTENN	B103	MTENN	B111
DTGNR/L	B94	PTGNR/L	B102	WTJNR/L	B103	MTFNR/L	B111
		PTTNR/L	B102	WTXNR/L	B103	MTGNR/L	B112
						MTJNR/L	B112

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DTFNR/L	B126	PTFNR/L	B128	MTFNR/L	B131

# B Turning Inserts (Negative)

## TN ○ ○



Dimensions (mm)					
Size	IC	RE	S	LE	D1
11	6.35	0.2~0.4	3.18	10.999	2.4
16	9.525	0.4~1.6	4.76	16.498	3.81
22	12.7	0.4~1.6	4.76	21.997	5.16
27	15.875	1.2~2.4	6.35	27.496	6.35

Triangular **60° Negative**

Workpiece	Material		Machining types																	
	Symbol	Color	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Steel	P	Blue	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Stainless steel	M	Yellow	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Cast iron	K	Red	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Non-ferrous metal	N	Green	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Heat resistant alloy, Titanium alloy	S	Orange	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Hardened steel	H	Grey	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱

● Continuous cutting  
 ✱ General cutting  
 ✱ Interrupted cutting

Application	Picture	Designation	Cermet		Coated		Coated													Uncoated		Cutting Condition									
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3080	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)	
Roughing		TNGA 110302																										0.05-0.30	0.20-3.00		
		110304																											0.05-0.30	0.40-3.00	
		160304																											0.10-0.35	0.40-4.00	
		160402																											0.10-0.30	0.20-4.00	
		160404																											0.10-0.35	0.40-5.00	
		160408																											0.12-0.40	0.50-5.00	
		220304																											0.10-0.35	0.50-5.00	
		220402																												0.05-0.30	0.20-3.00
		220404																												0.10-0.35	0.40-5.00
		220408																												0.10-0.40	0.50-5.00
		220412																												0.12-0.45	1.00-5.50
		270612																												0.12-0.45	1.00-7.00
		270624																												0.20-0.55	2.00-7.00
Roughing		TNMG 160408-RK																										0.23-0.53	1.50-5.00		
		160412-RK																											0.28-0.53	1.80-5.00	
		160416-RK																											0.28-0.53	1.80-5.00	
		220408-RK																											0.23-0.53	1.50-6.00	
		220412-RK																												0.28-0.53	1.80-6.00
		220416-RK																												0.28-0.63	2.00-6.00
Roughing		TNMG 160404-VR																										0.20-0.50	0.80-7.00		
		160408-VR																											0.25-0.55	1.20-7.00	
		160412-VR																											0.35-0.65	1.70-7.00	
		160416-VR																											0.35-0.70	2.00-10.0	
		220408-VR																											0.35-0.70	2.00-10.0	
		220412-VR																											0.35-0.70	2.00-10.0	
		220416-VR																											0.35-0.75	2.20-10.0	
Medium cutting		TNMG 160404-MM																										0.10-0.40	0.50-4.80		
		160408-MM																											0.12-0.45	0.50-4.80	
		160412-MM																											0.18-0.65	0.50-4.80	
		160416-MM																											0.18-0.65	0.50-4.80	
		220404-MM																											0.10-0.40	0.50-6.50	
		220408-MM																											0.12-0.45	0.50-6.50	
		220412-MM																											0.15-0.60	0.50-6.50	
		220416-MM																											0.18-0.65	0.50-6.50	

● : Stock item

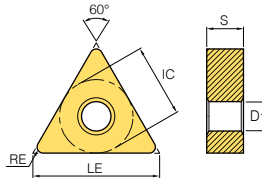
High Pressure Coolant							
Double Clamp	Page	Lever Lock	Page	Wedge Clamp	Page	Multi Lock	Page
DTFNR/L	B94	PTFNR/L	B101	WTENN	B103	MTENN	B111
DTGNR/L	B94	PTGNR/L	B102	WTJNR/L	B103	MTFNR/L	B111
		PTTNR/L	B102	WTXNR/L	B103	MTGNR/L	B112
						MTJNR/L	B112

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DTFNR/L	B126	PTFNR/L	B128	MTFNR/L	B131



# B Turning Inserts (Negative)

## TN ○ ○



Dimensions (mm)					
Size	IC	RE	S	LE	D1
11	6.35	0.2-0.8	3.18	10.999	2.4
16	9.525	0.4-1.2	3.18-4.76	16.498	3.81
22	12.7	0.4-1.6	4.76	21.997	5.16
27	15.875	3.0	6.35	27.496	6.35

### Triangular 60° Negative

Workpiece	Machining types															
	P	M	K	N	S	H	●	●	●	●	●	●	●	●	●	●
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermet		Coated		Coated													Uncoated		Cutting Condition											
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3080	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)			
Finishing		TNMG 160404-VW 160408-VW																										0.10-0.35	0.30-3.00				
																														0.10-0.40	0.30-3.00		
Medium cutting		TNMG 160408-LW 160412-LW																											0.15-0.50	0.70-4.50			
																														0.20-0.60	1.00-5.00		
Medium cutting		TNGN 110302 110304 110308 160302 160304 160308 160404 160408 160412 220404 220408 220412 220416 220424 270630																											0.05-0.25	0.20-2.50			
																															0.10-0.30	0.20-2.50	
																															0.10-0.30	0.80-2.50	
																																0.05-0.30	0.20-3.00
																																0.10-0.30	0.50-4.00
																																0.10-0.40	0.80-4.00
																																0.10-0.40	0.50-4.00
																																0.10-0.40	1.00-4.00
																																0.10-0.50	1.50-4.50
																																0.10-0.35	1.00-4.00
																																0.15-0.40	1.50-5.00
																																0.20-0.50	1.50-5.00
Medium to finishing		TNMX 160404R-SR 160408R-SR 160404L-SR 160408L-SR																											0.10-0.35	0.70-3.50			
																														0.12-0.40	1.00-3.50		
																															0.10-0.35	0.70-3.50	
																															0.12-0.40	1.00-3.50	
Medium cutting		TNMX 160404R-SH 160408R-SH 160404L-SH 160408L-SH		●			●	●	●	●		●						●											0.15-0.30	0.50-4.00			
																															0.15-0.45	1.00-4.00	
																																0.15-0.30	0.50-4.00
																																0.15-0.45	1.00-4.00

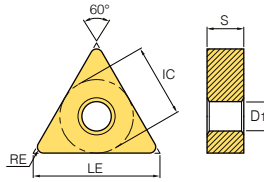
● : Stock item

High Pressure Coolant							
Double Clamp	Page	Lever Lock	Page	Wedge Clamp	Page	Multi Lock	Page
DTFNR/L	B94	PTFNR/L	B101	WTENN	B103	MTENN	B111
DTGNR/L	B94	PTGNR/L	B102	WTJNR/L	B103	MTFNR/L	B111
		PTTNR/L	B102	WTXNR/L	B103	MTGNR/L	B112
						MTJNR/L	B112

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DTFNR/L	B126	PTFNR/L	B128	MTFNR/L	B131

# TN

## Triangular 60° Negative



Dimensions (mm)					
Size	IC	RE	S	LE	D <sub>1</sub>
16	9.525	0.2~0.8	4.76	16.498	3.81
22	12.7	0.4~1.6	4.76	21.997	5.16
27	15.875	1.6~2.4	6.35	27.496	6.35
33	19.05	2.4	9.52	32.996	7.93

Workpiece	Machining types														
	P	M	K	N	S	H	●	●	●	●	●	●	●	●	●
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermets		Coated														Uncoated		Cutting Condition									
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	f <sub>n</sub> (mm/rev)	a <sub>p</sub> (mm)
Medium to roughing		TNMX 160402R	●																									0.10~0.30	0.50~3.00	
		160404R	●				●	●	●	●			●							●									0.12~0.30	1.00~3.50
		160408R					●	●	●	●										●									0.15~0.35	1.30~3.40
		220404R																											0.12~0.30	1.00~5.00
		220408R																											0.15~0.35	1.30~5.00
		160404L					●	●	●	●																			0.12~0.30	1.00~3.50
		160408L					●	●	●	●																			0.15~0.35	1.30~3.40
Roughing		TNMM 220408-GR																										0.22~0.61	1.10~7.80	
		220412-GR																											0.28~0.78	1.20~7.80
		220416-GR																											0.31~0.75	1.50~7.80
Heavy		TNMM 160408-GH																										0.20~0.50	1.00~7.00	
		220408-GH																											0.25~0.60	1.30~7.00
		220412-GH								●																			0.20~0.50	1.00~8.00
		220416-GH																											0.25~0.60	1.30~8.00
		270616-GH																											0.32~0.70	1.80~8.00
		270624-GH																											0.35~0.50	1.80~13.00
330924-GH																											0.35~0.70	2.30~13.00		

● : Stock item

High Pressure Coolant							
Double Clamp	Page	Lever Lock	Page	Wedge Clamp	Page	Multi Lock	Page
DTFNR/L	B94	PTFNR/L	B101	WTENN	B103	MTENN	B111
DTGNR/L	B94	PTGNR/L	B102	WTJNR/L	B103	MTFNR/L	B111
		PTTNR/L	B102	WTXNR/L	B103	MTGNR/L	B112
						MTJNR/L	B112

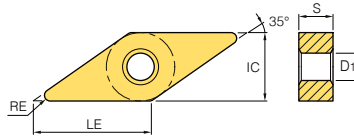
Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DTFNR/L	B126	PTFNR/L	B128	MTFNR/L	B131



# B Turning Inserts (Negative)

## VN○○○

### Rhombic 35° Negative



Size	Dimensions (mm)				
	IC	RE	S	LE	D1
16	9.525	0.4~1.6	4.76	16.606	3.81

Workpiece	Material		Machining types																	
	Symbol	Color	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Steel	P	Blue	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Stainless steel	M	Yellow	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Cast iron	K	Red	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Non-ferrous metal	N	Green	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Heat resistant alloy, Titanium alloy	S	Orange	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Hardened steel	H	Grey	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱

Application	Picture	Designation	Cermets		Coated		Coated													Uncoated		Cutting Condition							
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3215P	NC3225	NC3225P	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC8105	PC8110	PC8115	PC9030	H01	H05	fn (mm/rev)
Finishing	VB	VNMG 160404-VB	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.35	0.30-1.50
		VNMG 160408-VB	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.15-0.45	0.50-2.00
		VNMG 160412-VB	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.20-0.45	0.80-2.50
Finishing	VF	VNMG 160402-VF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.06-0.20	0.30-1.00
		VNMG 160404-VF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.08-0.30	0.50-1.50
		VNMG 160408-VF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.40	0.50-1.50
		VNMG 160412-VF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.15-0.50	0.50-1.50
Finishing	VL	VNMG 160404-VL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.05-0.20	0.10-1.00
		VNMG 160408-VL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.25	0.20-1.50
		VNMG 160412-VL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.15-0.30	0.50-2.00
Medium to finishing	LP	VNMG 160404-LP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.35	0.30-1.50
		VNMG 160408-LP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.40	0.50-2.00
		VNMG 160412-LP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.45	0.80-2.50
Medium to finishing	CP	VNMG 160404-CP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.35	0.50-3.00
		VNMG 160408-CP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.12-0.30	0.50-3.00
		VNMG 160412-CP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.13-0.30	0.80-3.00
Medium to finishing	VC	VNMG 160404-VC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.35	0.30-2.00
		VNMG 160408-VC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.15-4.00	0.50-3.00
		VNMG 160412-VC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.15-0.40	0.80-3.00
Medium cutting	HM	VNMG 160404-HM	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.13-0.40	0.80-3.80
		VNMG 160408-HM	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.20-0.45	0.80-4.50
		VNMG 160412-HM	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.60	1.00-4.00
Medium cutting	MP	VNMG 160404-MP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.40	0.40-3.50
		VNMG 160408-MP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.15-0.45	0.50-4.00
		VNMG 160412-MP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.15-0.50	0.80-4.50
		VNMG 160416-MP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.18-0.50	1.00-4.50

●: Stock item

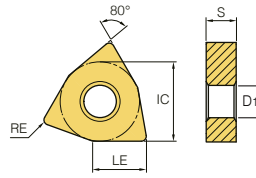
High Pressure Coolant			
Double Clamp	Page	Multi Lock	Page
DVJNR/L	B94	MVJNR/L	B112
DVVNN	B95	MVQNR/L	B113
		MVVNN	B113

Boring Bar	
Multi Lock	Page
MVUNR/L	B131



# B Turning Inserts (Negative)

WN○○○



Size	Dimensions (mm)				
	IC	RE	S	LE	D1
06	9.525	0.4~0.8	3.97~4.76	6.515	3.81
08	12.7	0.4~1.6	4.76	8.687	5.16

## Trigon 80° Negative

Workpiece	Material	Grade	Machining types															
			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel		P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Stainless steel		M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Cast iron		K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Non-ferrous metal		N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Heat resistant alloy, Titanium alloy		S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Hardened steel		H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

Application	Picture	Designation	Cermets		Coated		Coated																Uncoated		Cutting Condition					
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Finishing	VB	WNMG 080404-VB					●	●																				0.10-0.35	0.30-1.50	
		080408-VB					●	●					●	●															0.15-0.45	0.50-2.00
		080412-VB					●	●					●	●															0.18-0.45	0.80-2.50
Finishing	VF	WNMG 060404-VF		●										●														0.07-0.30	0.50-1.50	
		060408-VF		●																								0.10-0.40	0.50-1.50	
		080404-VF								●					●													0.07-0.30	0.50-1.50	
		080408-VF													●													0.10-0.40	0.50-1.50	
		080412-VF																										0.20-0.50	0.50-1.50	
Finishing	VL	WNMG 060404-VL																										0.05-0.25	0.20-1.50	
		080404-VL																										0.05-0.25	0.10-1.00	
		080408-VL									●																	0.10-0.35	0.20-1.50	
Medium to finishing	LP	WNMG 060404-LP																										0.07-0.30	0.30-1.50	
		060408-LP								●	●																	0.10-0.30	0.30-1.50	
		080404-LP								●	●				●													0.10-0.35	0.30-2.00	
		080408-LP								●	●				●													0.10-0.40	0.50-2.50	
		080412-LP								●	●																	0.13-0.45	0.80-3.00	
Medium to finishing	CP	WNMG 060404-CP																										0.08-0.30	0.40-3.00	
		060408-CP																										0.10-0.30	0.40-3.00	
		080404-CP							●	●																		0.10-0.35	0.50-3.50	
		080408-CP							●	●				●														0.12-0.35	0.50-3.50	
		080412-CP							●	●				●														0.13-0.35	0.80-3.50	
		080416-CP							●	●				●														0.14-0.35	0.80-3.50	
Medium to finishing	VC	WNMG 080404-VC								●																		0.15-0.40	0.15-4.00	
		080408-VC							●	●	●				●													0.15-0.45	0.15-4.50	
		080412-VC							●	●					●													0.15-0.45	0.15-4.50	

●: Stock item

High Pressure Coolant					
Double Clamp	Page	Lever Lock	Page	Wedge Clamp	Page
DWLNRL	B95	PWLNRL	B102	WWLNRL	B104
				MWLNRL	B113

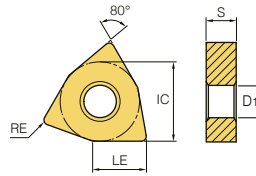
KHP Coolant	
TH	Page
PWLNRL	B149

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DWLNRL	B126	PWLNRL	B128	MWLNRL	B131



# B Turning Inserts (Negative)

WN○○○



Size	Dimensions (mm)				
	IC	RE	S	LE	D1
06	9.525	0.4~1.2	4.76	6.515	3.81
08	12.7	0.4~1.6	4.76	8.687	5.16

## Trigon 80° Negative

Workpiece	Material	Grade	Machining types															
			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel		P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Stainless steel		M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Cast iron		K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Non-ferrous metal		N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Heat resistant alloy, Titanium alloy		S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Hardened steel		H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

Application	Picture	Designation	Cermet		Coated		Coated													Uncoated		Cutting Condition								
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Medium to finishing		WNMG 060404-VQ																										0.05-0.30	0.50-4.00	
		060408-VQ		●																									0.08-0.30	0.80-4.00
		060412-VQ																											0.10-0.30	1.00-4.00
		080404-VQ		●	●																								0.05-0.30	0.50-4.00
		080408-VQ		●	●	●																							0.08-0.40	0.80-4.00
		080412-VQ																											0.10-0.35	0.80-3.50
Medium cutting		WNMG 060408-MK																										0.08-0.30	0.80-2.50	
		080404-MK																										0.10-0.45	1.00-3.00	
		080408-MK																										0.10-0.50	1.00-3.50	
		080412-MK																										0.10-0.50	1.00-4.00	
		080416-MK																											0.13-0.50	1.20-4.20
Roughing		WNMA 060404																										0.10-0.30	0.50-3.00	
		060408																										0.10-0.30	0.50-3.00	
		060412																										0.10-0.40	1.00-3.00	
		080404																										0.15-0.60	1.00-5.00	
		080408																										0.15-0.60	1.00-6.00	
		080412																										0.15-0.70	1.50-6.00	
Roughing		WNMG 060408-RK																										0.10-0.40	1.00-3.50	
		060412-RK																										0.23-0.40	1.50-5.00	
		080404-RK																										0.23-0.50	1.50-6.00	
		080408-RK																										0.23-0.53	1.50-6.00	
		080412-RK																										0.28-0.53	1.80-6.00	
Roughing		WNMG 060408-VR																										0.20-0.40	1.00-6.00	
		080404-VR																										0.20-0.50	0.80-7.00	
		080408-VR																										0.25-0.55	1.20-7.00	
		080412-VR																										0.30-0.60	1.50-7.00	
		080416-VR																										0.40-0.60	1.50-4.00	

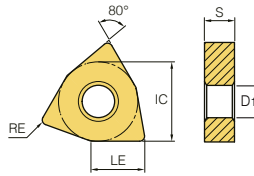
●: Stock item

High Pressure Coolant					
Double Clamp	Page	Lever Lock	Page	Wedge Clamp	Page
DWLNRL	B95	PWLNRL	B102	WWLNRL	B104
				MWLNRL	B113

KHP Coolant	
TH	Page
PWLNRL	B149

Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DWLNRL	B126	PWLNRL	B128	MWLNRL	B131

# WN



Dimensions (mm)					
Size	IC	RE	S	LE	D <sub>1</sub>
06	9.525	0.4~1.2	3.97~4.76	6.515	3.81
08	12.7	0.4~1.2	4.76	8.687	5.16
13	19.05	1.2	6.35	13.031	7.93

## Trigon 80° Negative

Workpiece	Machining types											
	P	M	K	N	S	H	●	●	●	●	●	●
Steel	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermet		Coated													Uncoated		Cutting Condition											
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	f <sub>n</sub> (mm/rev)	a <sub>p</sub> (mm)	
Medium cutting		WNMG 060404-MM																										0.08-0.35	0.50-4.00		
		060408-MM															●	●							●				0.10-0.40	0.50-4.00	
		060412-MM															●												0.12-0.45	0.50-4.00	
		080404-MM															●	●	●				●	●	●				0.10-0.40	0.50-4.00	
		080408-MM															●	●	●	●				●	●				0.12-0.45	0.50-4.00	
		080412-MM															●	●	●	●				●					0.15-0.60	0.50-4.00	
Roughing		WNMG 060404-RM																										0.10-0.50	1.50-3.00		
		060408-RM															●												0.15-0.55	1.50-3.00	
		060412-RM																											0.20-0.60	1.50-3.00	
		080404-RM																	●					●	●				0.10-0.50	2.00-4.00	
		080408-RM															●	●	●	●				●	●				0.15-0.55	2.00-4.00	
		080412-RM															●	●	●					●					0.20-0.60	2.00-4.00	
Medium to finishing		WNMG 080404-VP2																	●	●		●						0.10-0.45	0.50-5.00		
		080408-VP2									●									●	●	●	●	●	●	●	●		0.12-0.50	0.50-5.00	
		080412-VP2																					●	●					0.05-0.30	0.10-3.00	
Medium cutting		WNMG 060408-VP3																										0.06-0.38	0.40-3.50		
		060412-VP3																											0.06-0.38	0.40-3.50	
		080404-VP3																		●	●	●	●	●	●	●			0.10-0.45	0.50-5.00	
		080408-VP3																		●	●	●	●	●	●	●	●		0.12-0.50	0.50-5.00	
		080412-VP3																			●	●	●	●	●	●	●	●		0.05-0.30	0.10-3.00
		130612-VP3																												0.20-0.40	1.00-5.00
Medium cutting		WNGG 080404-VP3																										0.10-0.45	0.50-5.00		
Roughing		WNMG 080404-VP4																							●			0.15-0.35	1.00-4.00		
		080408-VP4																							●	●		0.15-0.35	1.00-4.00		
		080412-VP4																								●			0.20-0.40	1.00-4.00	

● : Stock item

High Pressure Coolant							
Double Clamp	Page	Lever Lock	Page	Wedge Clamp	Page	Multi Lock	Page
DWLNRL	B95	PWLNRL	B102	WWLNRL	B104	MWLNRL	B113

KHP Coolant	
TH	Page
PWLNRL	B149

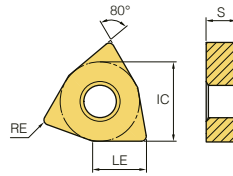
Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DWLNRL	B126	PWLNRL	B128	MWLNRL	B131



# B Turning Inserts (Negative)

WN○○○

## Trigon 80° Negative



Dimensions (mm)					
Size	IC	RE	S	LE	D1
06	9.525	0.4~1.2	4.76	6.515	3.81
08	12.7	0.4~1.2	4.76	8.687	5.16
10	15.875	0.8	6.35	10.859	6.35
13	19.05	1.2	6.35	13.031	7.93

Workpiece	Machining types															
	P	M	K	N	S	H	●	●	●	●	●	●	●	●	●	●
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermet		Coated		Coated													Uncoated		Cutting Condition								
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Medium to finishing	HA	WNMG 060404-HA																											0.05-0.30	0.10-3.00
		060408-HA																											0.10-0.40	0.80-3.50
		080404-HA																											0.05-0.30	0.80-3.50
		080408-HA																											0.10-0.40	0.80-3.50
		080412-HA																											0.13-0.55	0.80-3.50
Finishing	VW	WNMG 060404-VW																											0.05-0.30	0.40-3.00
		060408-VW																											0.08-0.30	0.40-3.50
		080404-VW																											0.10-0.30	0.50-3.00
		080408-VW																											0.15-0.50	0.50-4.00
		080412-VW																											0.18-0.50	1.00-4.00
Medium cutting	LW	WNMG 060408-LW																											0.15-0.60	0.50-3.50
		060412-LW																											0.20-0.70	0.80-3.50
		080408-LW																											0.15-0.60	1.00-5.00
		080412-LW																											0.20-0.70	1.00-6.00
Medium to finishing	SR	WNMX 080404R-SR																											0.10-0.35	0.70-3.00
		080408R-SR																											0.12-0.40	1.00-3.00
		080404L-SR																											0.10-0.35	0.70-3.00
		080408L-SR																											0.12-0.40	1.00-3.00
Medium cutting	SH	WNMX 080404R-SH																											0.15-0.30	1.00-4.00
		080408R-SH																											0.15-0.50	1.50-5.00
		080404L-SH																											0.15-0.30	1.00-4.00
		080408L-SH																											0.15-0.50	1.50-5.00
Medium to roughing	B25	WNMM 100608-B25																											0.30-0.80	3.00-8.00
		130612-B25																											0.40-0.90	4.00-10.00

●: Stock item

High Pressure Coolant					
Double Clamp	Page	Lever Lock	Page	Wedge Clamp	Page
DWLNLR/L	B95	PWLNLR/L	B102	WWLNLR/L	B104
				MWLNLR/L	B113

KHP Coolant	
TH	Page
PWLNLR/L	B149

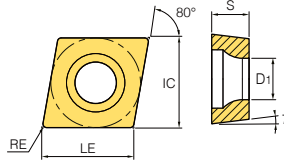
Boring Bar					
Double Clamp	Page	Lever Lock	Page	Multi Lock	Page
DWLNLR/L	B126	PWLNLR/L	B128	MWLNLR/L	B131



# B Turning Inserts (Positive)



**Rhombic 80° Positive**  
Relief Angle: 7°



Size	Dimensions (mm)				
	IC	RE	S	LE	D1
06	6.35	0.2-0.8	2.38	6.448	2.8
09	9.525	0.2-0.8	3.97	9.672	4.4
12	12.7	0.4-1.2	4.76	12.896	5.5

Workpiece	Material	Grade	Machining types														
			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel		P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel		M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron		K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal		N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy		S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel		H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

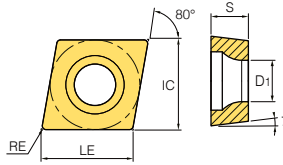
Application	Picture	Designation	Cermets		Coated		Coated											Uncoated		Cutting Condition											
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)	
Medium cutting		CCMT 060202-C25	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.03-0.12	0.40-2.00		
		CCMT 060204-C25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.05-0.15	0.60-2.30	
		CCMT 060208-C25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.07-0.20	0.80-2.30	
		CCMT 09T302-C25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.05-0.20	0.50-2.50	
		CCMT 09T304-C25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.08-0.25	0.80-3.00	
		CCMT 09T308-C25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.30	1.00-3.00	
		CCMT 120404-C25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.32	0.80-3.00	
		CCMT 120408-C25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.12-0.36	1.20-3.50	
		CCMT 120412-C25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.15-0.40	1.40-3.50	
Finishing		CCMT 060204-VP1																										0.06-0.12	0.10-1.50		
		CCMT 09T304-VP1																											0.06-0.20	0.10-1.50	
		CCMT 09T308-VP1																											0.08-0.20	0.50-2.00	
		CCMT 120404-VP1																											0.08-0.22	0.20-2.00	
		CCMT 120408-VP1																												0.10-0.25	0.50-2.00
		CCMT 120412-VP1																												0.10-0.30	0.80-2.50
Finishing		CCGT 060201-FS																	●	●								0.01-0.18	0.03-1.60		
		CCGT 060202-FS																	●	●									0.02-0.20	0.04-1.70	
		CCGT 060204-FS																	●	●									0.04-0.21	0.06-1.80	
		CCGT 09T301-FS																	●	●									0.01-0.20	0.04-1.80	
		CCGT 09T302-FS																	●	●									0.02-0.23	0.05-2.00	
		CCGT 09T304-FS																	●	●									0.04-0.23	0.08-2.00	
		CCGT 09T308-FS																	●	●									0.06-0.25	0.10-2.20	
Finishing		CCGT 060201MFN-FS																										0.01-0.18	0.03-1.60		
		CCGT 060202MFN-FS																											0.02-0.20	0.04-1.70	
		CCGT 060204MFN-FS																											0.04-0.21	0.06-1.80	
		CCGT 09T301MFN-FS																											0.01-0.20	0.04-1.80	
		CCGT 09T302MFN-FS																											0.02-0.23	0.05-2.00	
		CCGT 09T304MFN-FS																											0.04-0.23	0.08-2.00	
		CCGT 09T308MFN-FS																											0.06-0.25	0.10-2.20	
Medium cutting		CCGT 09T301-MS																	●	●								0.02-0.23	0.05-2.00		
		CCGT 09T302-MS																	●	●									0.03-0.25	0.07-2.50	
		CCGT 09T304-MS																	●	●									0.05-0.25	0.09-2.50	
Medium cutting		CCGT 09T301MFN-MS																										0.02-0.23	0.05-2.00		
		CCGT 09T302MFN-MS																											0.03-0.25	0.07-2.50	
		CCGT 09T304MFN-MS																					●						0.05-0.25	0.09-2.50	

● : Stock item

High Pressure Coolant		Auto Tool		Boring Bar		Compact Mini	
Screw on	Page	TH	Page	Screw on	Page	TH	Page
SCACR/L	B114	SCACR/L	B168	SCLCR/L	B132	SCLCR/L	B142
SCLCR/L	B114	SCLCR/L	B168				



## Rhombic 80° Positive Relief Angle: 7°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
03	*3.5	0.05~0.4	1.39	3.554	1.9
04	*4.3	0.05~0.4	1.79	4.366	2.3
06	6.35	0.1~0.4	2.38	6.448	2.8
09	9.525	0.1~0.4	3.97	9.672	4.4

\*: The IC and S are special dimensions.

Workpiece	Machining types									
	P	M	K	N	S	H	●	●	●	●
Steel	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermert		Coated										Uncoated		Cutting Condition														
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)	
Finishing		CCGT 060201-VP1																		●						●		0.05~0.06	0.06~1.00		
		060202-VP1																			●						●		0.03~0.10	0.08~1.50	
		060204-VP1																			●						●		0.05~0.12	0.10~1.50	
		09T301-VP1																			●						●		0.03~0.13	0.06~1.00	
		09T302-VP1																			●						●		0.04~0.15	0.08~1.50	
		09T304-VP1																			●						●		0.06~0.20	0.10~1.50	
Finishing		CCGT 060201MFN-VP1																				●							0.03~0.06	0.06~1.00	
		060202MFN-VP1																			●								0.03~0.10	0.08~1.50	
		060204MFN-VP1																					●							0.05~0.12	0.10~1.50
		09T301MFN-VP1																			●								0.03~0.13	0.06~1.00	
		09T302MFN-VP1																			●								0.04~0.15	0.08~1.50	
		09T304MFN-VP1																			●								0.06~0.20	0.10~1.50	
Finishing		*CCET 0301005R																										0.01~0.05	0.10~0.30		
		030101R																											0.01~0.05	0.10~0.30	
		030102R																											0.01~0.05	0.10~0.30	
		030104R																											0.01~0.05	0.10~0.30	
		0401005R																											0.01~0.10	0.10~0.50	
		040101R																											0.01~0.10	0.10~0.50	
		040102R																											0.01~0.10	0.10~0.50	
		040104R																											0.01~0.10	0.10~0.50	
		0301005L																											0.01~0.05	0.10~0.30	
		030101L																												0.01~0.05	0.10~0.30
		030102L			●	●																			●	●			0.01~0.05	0.10~0.30	
		030104L			●																									0.01~0.05	0.10~0.30
		0401005L																												0.01~0.10	0.10~0.50
		040101L																												0.01~0.10	0.10~0.50
040102L			●	●																				●	●			0.01~0.10	0.10~0.50		
040104L			●																									0.01~0.10	0.10~0.50		

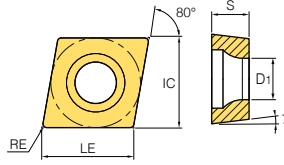
● : Stock item

High Pressure Coolant		Auto Tool		Boring Bar		Compact Mini	
Screw on	Page	TH	Page	Screw on	Page	TH	Page
SCACR/L	B114	SCACR/L	B168	SCLCR/L	B132	SCLCR/L	B142
SCLCR/L	B114	SCLCR/L	B168				

# B Turning Inserts (Positive)





**Rhombic 80° Positive**  
Relief Angle: 7°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
*03	3.5	0.03~0.4	1.39	3.554	1.9
*04	4.3	0.03~0.4	1.79	4.366	2.3
06	6.35	0.03~0.2	2.38	6.448	2.8
09	9.525	0.03~0.2	3.97	9.672	4.4

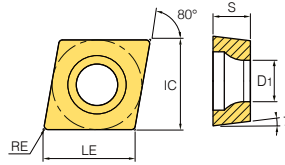
\*: The IC and S are special dimensions.

Workpiece	Material	Grade	Machining types															
			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel	P	M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Stainless steel	M	M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Cast iron	K	K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Non-ferrous metal	N	N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Heat resistant alloy, Titanium alloy	S	S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Hardened steel	H	H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

Application	Picture	Designation	Cermets		Coated		Coated														Uncoated		Cutting Condition									
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)		
Finishing	 [ High precision ]	*CCGT	0301003R-KF																●		●							0.01-0.05	0.10-0.30			
		030101R-KF																		●		●							0.01-0.05	0.10-0.30		
		030102R-KF																		●		●							0.01-0.05	0.10-0.30		
		030104R-KF																		●		●							0.01-0.05	0.10-0.30		
		0401003R-KF																		●		●							0.01-0.10	0.10-0.50		
		040101R-KF																		●		●							0.01-0.10	0.10-0.50		
		040102R-KF																		●		●							0.01-0.10	0.10-0.50		
		040104R-KF																		●		●							0.01-0.10	0.10-0.50		
		0602003R-KF																			●		●							0.01-0.10	0.10-0.50	
		060201R-KF																			●		●							0.01-0.10	0.10-0.50	
		060202R-KF																			●		●							0.01-0.10	0.10-0.50	
		060203R-KF																			●		●							0.01-0.10	0.10-0.50	
		060201R-KF																			●		●							0.01-0.06	0.04-1.30	
		060202R-KF																			●		●							0.02-0.08	0.05-1.50	
		060202R-KF																			●		●							0.03-0.11	0.06-1.70	
		09T3003R-KF																			●		●							0.02-0.08	0.05-1.50	
		09T301R-KF																			●		●							0.03-0.11	0.06-1.70	
		09T302R-KF																			●		●							0.04-0.15	0.08-2.00	
		Finishing	 [ Ultra high precision ]	CCET	0602005MFR-KF																										0.01-0.06	0.04-1.30
				060201MFR-KF																					●							0.02-0.08
060202MFR-KF																					●		●							0.03-0.11	0.06-1.70	
09T3005MFR-KF																														0.02-0.08	0.05-1.50	
09T301MFR-KF																					●		●							0.03-0.11	0.06-1.70	
09T302MFR-KF																					●		●							0.04-0.15	0.08-2.00	
0602005MFL-KF																														0.01-0.06	0.04-1.30	
060201MFL-KF																									●					0.02-0.08	0.05-1.50	
060202MFL-KF																						●		●						0.03-0.11	0.06-1.70	
09T3005MFL-KF																														0.02-0.08	0.05-1.50	
09T301MFL-KF																						●		●						0.03-0.11	0.06-1.70	
09T302MFL-KF																						●		●						0.04-0.15	0.08-2.00	

●: Stock item

High Pressure Coolant		Auto Tool		Boring Bar		Compact Mini	
Screw on	Page	TH	Page	Screw on	Page	TH	Page
SCACR/L	B114	SCACR/L	B168	SCLCR/L	B132	SCLCR/L	B142
SCLCR/L	B114	SCLCR/L	B168				



Dimensions (mm)					
Size	IC	RE	S	LE	D1
06	6.35	0.03~0.4	2.38	6.448	2.8
09	9.525	0.03~0.4	3.97	9.672	4.4

## Rhombic 80° Positive Relief Angle: 7°

Workpiece	Material										Machining types				
	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Titanium alloy	Hardened steel	P	M	K	N	S	H	●	⦿	✳
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermet		Coated										Uncoated		Cutting Condition													
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Medium to finishing	 [ High precision ]	CCGT 0602003R-KM																		●								0.01~0.06	0.04~1.30	
		060201R-KM																			●								0.02~0.08	0.05~1.50
		060202R-KM																			●			●					0.03~0.11	0.06~1.70
		060204R-KM																			●			●					0.04~0.13	0.04~1.70
		09T3003R-KM																			●			●					0.02~0.08	0.06~1.50
		09T301R-KM																			●			●					0.03~0.11	0.06~1.70
		09T302R-KM																			●			●					0.04~0.15	0.08~2.00
		09T304R-KM																			●			●					0.05~0.16	0.10~2.00
		0602003L-KM																			●			●					0.01~0.06	0.04~1.30
		060201L-KM																			●			●					0.02~0.08	0.05~1.50
		060202L-KM																			●			●					0.03~0.11	0.06~1.70
		060204L-KM																			●			●					0.04~0.13	0.04~1.70
		09T3003L-KM																			●			●					0.02~0.08	0.06~1.50
		09T301L-KM																			●			●					0.03~0.11	0.06~1.70
09T302L-KM																			●			●					0.04~0.15	0.08~2.00		
09T304L-KM																			●			●					0.05~0.16	0.10~2.00		
Medium to finishing	 [ Ultra high precision ]	CCET 0602005MFR-KM																		●								0.01~0.06	0.04~1.30	
		060201MFR-KM																		●		●						0.02~0.08	0.05~1.50	
		060202MFR-KM																		●		●						0.03~0.11	0.06~1.70	
		09T3005MFR-KM																		●								0.02~0.08	0.05~1.50	
		09T301MFR-KM																		●		●						0.03~0.11	0.06~1.70	
		09T302MFR-KM																		●		●						0.04~0.15	0.08~2.00	
		0602005MFL-KM																		●								0.01~0.06	0.04~1.30	
		060201MFL-KM																		●								0.02~0.08	0.05~1.50	
		060202MFL-KM																		●		●						0.03~0.11	0.06~1.70	
		09T3005MFL-KM																		●			●					0.02~0.08	0.05~1.50	
		09T301MFL-KM																		●			●					0.03~0.11	0.06~1.70	
09T302MFL-KM																		●		●						0.04~0.15	0.08~2.00			

● : Stock item

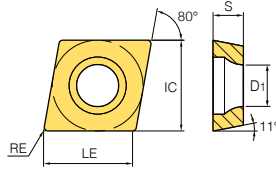
High Pressure Coolant		Auto Tool		Boring Bar		Compact Mini	
Screw on	Page	TH	Page	Screw on	Page	TH	Page
SCACR/L	B114	SCACR/L	B168	SCLCR/L	B132	SCLCR/L	B142
SCLCR/L	B114	SCLCR/L	B168				



# B Turning Inserts (Positive)

## CP

**Rhombic 80° Positive**  
Relief Angle: 11°



Size	Dimensions (mm)				
	IC	RE	S	LE	D1
06	6.35	0.4	2.38	6.448	2.8
08	7.94	0.4-0.8	2.38	8.062	3.4
09	9.525	0.4-0.8	3.18	9.672	4.4

Workpiece	Material	Machining types															
		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Stainless steel	M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Cast iron	K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Non-ferrous metal	N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Heat resistant alloy, Titanium alloy	S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Hardened steel	H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

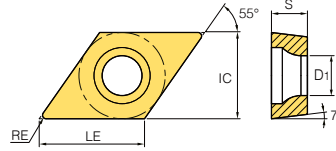
Application	Picture	Designation	Cermets		Coated		Coated													Uncoated		Cutting Condition								
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Finishing	VF	CPMT 080204-VF																										0.05-0.20	0.30-1.20	
		CPMT 080208-VF																											0.10-0.25	0.30-1.20
		CPMT 090304-VF																											0.05-0.20	0.30-1.50
		CPMT 090308-VF																											0.10-0.25	0.30-1.50
Finishing	VL	CPMT 080204-VL																										0.03-0.08	0.08-1.00	
		CPMT 080208-VL																										0.04-0.12	0.10-1.00	
		CPMT 090304-VL																										0.05-0.10	0.10-1.00	
		CPMT 090308-VL																										0.08-0.15	0.10-1.00	
Medium to finishing	HMP	CPGT 090308-HMP																									0.05-0.20	0.70-2.00		
Medium cutting	C25	CPMT 060204-C25																									0.05-0.15	0.60-2.30		
Finishing		CPGT 080202	●	●																								0.06-0.20	0.10-2.00	
		CPGT 080204	●	●																								0.08-0.20	0.30-2.00	
		CPGT 080208																										0.10-0.25	0.50-2.00	
		CPGT 090302																										0.04-0.20	0.30-1.50	
		CPGT 090304	●	●																									0.06-0.25	0.50-2.00
		CPGT 090308																											0.08-0.30	0.70-2.50

●: Stock item

Boring Bar	
Screw on	Page
SCLPR/L	B133

## DC

Rhombic **55° Positive**  
Relief Angle: 7°



Dimensions (mm)					
Size	IC	RE	S	LE	D <sub>1</sub>
07	6.35	0.2~0.8	2.38	7.752	2.8
11	9.525	0.2~1.2	3.97	11.628	4.4

Workpiece	Material						Machining types	
	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Titanium alloy	Hardened steel	●	⊙
Steel	P	●	●	●	●	●	●	●
Stainless steel	M	●	●	●	●	●	●	●
Cast iron	K	●	●	●	●	●	●	●
Non-ferrous metal	N	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	S	●	●	●	●	●	●	●
Hardened steel	H	●	●	●	●	●	●	●

Application	Picture	Designation	Cermets		Coated													Uncoated		Cutting Condition											
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	f <sub>n</sub> (mm/rev)	a <sub>p</sub> (mm)	
Finishing		DCMT 070202-FP																										0.01-0.10	0.05-0.80		
		DCMT 070204-FP	●	●	●													●					●						0.01-0.10	0.10-0.90	
		DCMT 070208-FP																												0.01-0.10	0.10-1.00
		DCMT 11T302-FP			●																									0.01-0.10	0.05-1.00
		DCMT 11T304-FP	●	●	●	●													●						●					0.01-0.10	0.10-1.00
		DCMT 11T308-FP	●	●																										0.04-0.12	0.10-1.00
Finishing		DCMT 070202-VF																										0.03-0.10	0.06-1.00		
		DCMT 070204-VF		●																									0.05-0.20	0.30-1.20	
		DCMT 11T302-VF		●																									0.04-0.15	0.08-1.50	
		DCMT 11T304-VF	●	●																									0.05-0.20	0.30-1.50	
		DCMT 11T308-VF	●	●																									0.10-0.25	0.30-1.50	
Finishing		DCMT 070202-VL																										0.02-0.10	0.06-0.80		
		DCMT 070204-VL	●	●	●	●																					●	0.04-0.10	0.08-0.90		
		DCMT 070208-VL																											0.06-0.12	0.10-1.00	
		DCMT 11T302-VL																											0.03-0.10	0.07-0.80	
		DCMT 11T304-VL	●	●	●	●	●	●	●																		●	0.05-0.10	0.10-1.00		
		DCMT 11T308-VL	●	●	●	●	●	●	●																				0.08-0.15	0.10-1.00	
Medium to finishing		DCMT 070202-HMP																										0.03-0.12	0.10-1.50		
		DCMT 070204-HMP		●																									0.06-0.17	0.20-2.30	
		DCMT 070208-HMP																											0.08-0.23	0.40-2.30	
		DCMT 11T302-HMP																											0.04-0.22	0.10-2.00	
		DCMT 11T304-HMP		●																									0.08-0.23	0.30-3.00	
		DCMT 11T308-HMP		●																									0.10-0.30	0.50-3.00	
Medium to finishing		DCMT 070202-MP	●	●	●																							0.04-0.12	0.12-1.80		
		DCMT 070204-MP	●	●	●	●	●	●																				0.05-0.15	0.30-1.80		
		DCMT 070208-MP	●	●	●	●	●	●																					0.08-0.22	0.30-1.80	
		DCMT 11T302-MP	●	●	●	●	●	●																					0.04-0.15	0.30-2.00	
		DCMT 11T304-MP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.08-0.20	0.50-2.30	
		DCMT 11T308-MP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.10-0.30	0.50-2.30	
DCMT 11T312-MP																											0.25-0.35	0.80-3.00			

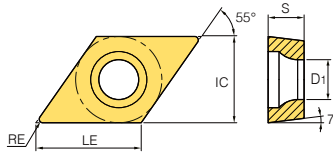
● : Stock item

High Pressure Coolant		Auto Tool		Boring Bar	
Screw on	Page	TH	Page	Screw on	Page
SDACR/L	B114	SDJCR/L	B168	SDQCR/L	B134
SDJCR/L	B115	SDNCN	B169	SDUCR/L	B135
SDNCN	B115			SDZCR/L	B136

# B Turning Inserts (Positive)

DC ○ ○ ○

**Rhombic 55° Positive**  
Relief Angle: 7°



Size	Dimensions (mm)				
	IC	RE	S	LE	D1
07	6.35	0.2-0.8	2.38	7.752	2.8
11	9.525	0.2-0.8	3.97	11.628	4.4

Workpiece	Material	Machining types															
		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Stainless steel	M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Cast iron	K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Non-ferrous metal	N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Heat resistant alloy, Titanium alloy	S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Hardened steel	H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

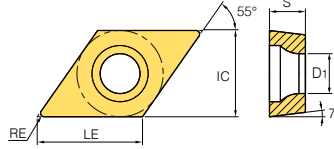
Application	Picture	Designation	Cermets		Coated																Uncoated		Cutting Condition							
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Medium cutting	C25	DCMT 070202-C25	●	●	●	●			●											●								0.03-0.15	0.30-2.00	
		DCMT 070204-C25	●	●	●	●			●	●	●	●	●							●	●		●		●			0.05-0.20	0.50-2.50	
		DCMT 070208-C25							●	●	●									●	●		●					0.06-0.25	0.80-2.50	
		DCMT 11T302-C25	●	●	●	●			●	●											●			●					0.04-0.25	0.50-2.50
		DCMT 11T304-C25	●	●	●	●			●	●	●	●	●	●							●			●		●			0.08-0.30	0.80-3.00
		DCMT 11T308-C25		●	●				●	●	●	●	●	●	●						●	●		●		●			0.10-0.30	1.00-3.00
Finishing	VP1	DCMT 070204-VP1																										0.05-0.12	0.10-1.50	
		DCMT 11T304-VP1																										0.06-0.20	0.10-1.50	
		DCMT 11T308-VP1																										0.08-0.23	0.10-1.50	
Finishing	FS	DCGT 070201-FS																		●		●						0.01-0.18	0.03-1.60	
		DCGT 070202-FS																		●		●						0.02-0.20	0.04-1.70	
		DCGT 11T301-FS																		●		●						0.01-0.20	0.04-1.80	
		DCGT 11T302-FS																		●		●						0.02-0.23	0.05-2.00	
		DCGT 11T304-FS																		●		●						0.04-0.23	0.08-2.00	
		DCGT 11T308-FS																		●		●						0.06-0.25	0.10-2.20	
Finishing	FS	DCGT 070201MFN-FS																										0.01-0.18	0.03-1.60	
		DCGT 070202MFN-FS																										0.02-0.20	0.04-1.70	
		DCGT 11T301MFN-FS																										0.01-0.20	0.04-1.80	
		DCGT 11T302MFN-FS																										0.02-0.23	0.05-2.00	
		DCGT 11T304MFN-FS																										0.04-0.23	0.08-2.00	
		DCGT 11T308MFN-FS																										0.06-0.25	0.10-2.20	
Medium cutting	MS	DCGT 11T301-MS																		●		●						0.02-0.23	0.05-2.00	
		DCGT 11T302-MS																		●		●						0.03-0.25	0.07-2.50	
		DCGT 11T304-MS																		●		●						0.05-0.25	0.09-2.50	
Medium cutting	MS	DCGT 11T301MFN-MS																		●		●						0.02-0.23	0.05-2.00	
		DCGT 11T302MFN-MS																										0.03-0.25	0.07-2.50	
		DCGT 11T304MFN-MS																			●		●					0.05-0.25	0.09-2.50	

●: Stock item

High Pressure Coolant		Auto Tool		Boring Bar	
Screw on	Page	TH	Page	Screw on	Page
SDACR/L	B114	SDJCR/L	B168	SDQCR/L	B134
SDJCR/L	B115	SDNCN	B169	SDUCR/L	B135
SDNCN	B115			SDZCR/L	B136

## DC

**Rhombic 55° Positive**  
Relief Angle: 7°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
07	6.35	0.03~0.4	2.38	7.752	2.8
11	9.525	0.03~0.4	3.97	11.628	4.4

Workpiece	Material										Machining types			
	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Titanium alloy	Hardened steel	P	M	K	N	S	H	●	⊙
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermets		Coated													Uncoated		Cutting Condition													
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)			
Finishing	 [ High precision ]	DCGT	070201-VP1																										0.03~0.06	0.06~1.00			
			070202-VP1																											0.03~0.10	0.08~1.50		
			070204-VP1																												0.05~0.12	0.10~1.50	
			11T301-VP1																												0.03~0.13	0.06~1.00	
			11T302-VP1																												0.04~0.15	0.08~1.50	
			11T304-VP1																												0.06~0.20	0.10~1.50	
Finishing	 [ Ultra high precision ]	DCGT	070201MFN-VP1																											0.03~0.06	0.06~1.00		
			070202MFN-VP1																												0.03~0.10	0.08~1.50	
			070204MFN-VP1																												0.05~0.12	0.10~1.50	
			11T301MFN-VP1																												0.03~0.13	0.06~1.00	
			11T302MFN-VP1																												0.04~0.15	0.08~1.50	
			11T304MFN-VP1																												0.06~0.20	0.10~1.50	
Finishing	 [ High precision ]	DCGT	0702003R-KF																											0.01~0.06	0.04~1.30		
			070201R-KF																												0.02~0.08	0.05~1.50	
			070202R-KF																												0.03~0.11	0.06~1.50	
			070204R-KF																												0.04~0.13	0.04~1.70	
			11T3003R-KF																												0.02~0.08	0.05~1.50	
			11T301R-KF																												0.03~0.11	0.06~1.70	
			11T302R-KF																												0.04~0.15	0.08~2.00	
			11T304R-KF																												0.05~0.16	0.10~2.00	
			0702003L-KF																													0.01~0.06	0.04~1.30
			070201L-KF																													0.02~0.08	0.05~1.50
			070202L-KF																													0.03~0.11	0.06~1.50
			070204L-KF																													0.04~0.13	0.04~1.70
			11T3003L-KF																													0.02~0.08	0.05~1.50
			11T301L-KF																													0.03~0.11	0.06~1.70
11T302L-KF																													0.04~0.15	0.08~2.00			
11T304L-KF																													0.05~0.16	0.10~2.00			
Finishing	 [ Ultra high precision ]	DCET	0702005MFR-KF																											0.01~0.06	0.04~1.30		
			070201MFR-KF																												0.02~0.08	0.05~1.50	
			070202MFR-KF																												0.03~0.11	0.06~1.70	
			11T3005MFR-KF																												0.02~0.08	0.05~1.50	
			11T301MFR-KF																												0.03~0.11	0.06~1.70	
			11T302MFR-KF																												0.04~0.15	0.08~2.00	
			0702005MFL-KF																												0.01~0.06	0.04~1.30	
			070201MFL-KF																													0.02~0.08	0.05~1.50
			070202MFL-KF																													0.03~0.11	0.06~1.70
			11T3005MFL-KF																													0.02~0.08	0.05~1.50
11T301MFL-KF																													0.03~0.11	0.06~1.70			
11T302MFL-KF																													0.04~0.15	0.08~2.00			

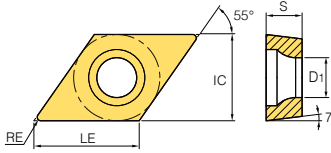
● : Stock item

High Pressure Coolant		Auto Tool		Boring Bar	
Screw on	Page	TH	Page	Screw on	Page
SDACR/L	B114	SDJCR/L	B168	SDQCR/L	B134
SDJCR/L	B115	SDNCN	B169	SDUCR/L	B135
SDNCN	B115			SDZCR/L	B136

# B Turning Inserts (Positive)

DC ○ ○ ○

**Rhombic 55° Positive**  
Relief Angle: 7°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
07	6.35	0.03~0.4	2.38	7.752	2.8
11	9.525	0.03~0.4	3.97	11.628	4.4

Workpiece	Material	Machining types															
		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

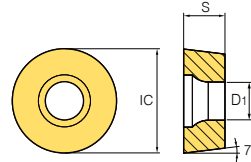
Application	Picture	Designation	Cermets		Coated																Uncoated		Cutting Condition									
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)		
Medium to finishing	 [ High precision ]	DCGT 0702003R-KM																										0.01-0.06	0.04-1.30			
		070201R-KM																											0.02-0.08	0.05-1.50		
		070202R-KM																											0.03-0.11	0.06-1.50		
		070204R-KM																											0.04-0.13	0.04-1.70		
		11T3003R-KM																											0.02-0.08	0.05-1.50		
		11T301R-KM																											0.03-0.11	0.06-1.70		
		11T302R-KM																											0.04-0.15	0.08-2.00		
		11T304R-KM																											0.05-0.16	0.10-2.00		
		0702003L-KM																												0.01-0.06	0.04-1.30	
		070201L-KM																												0.02-0.08	0.05-1.50	
		070202L-KM																												0.03-0.11	0.06-1.50	
		070204L-KM																												0.04-0.13	0.04-1.70	
		11T3003L-KM																												0.02-0.08	0.05-1.50	
		11T301L-KM																												0.03-0.11	0.06-1.70	
11T302L-KM																												0.04-0.15	0.08-2.00			
11T304L-KM																												0.05-0.16	0.10-2.00			
Medium to finishing	 [ Ultra high precision ]	DCET 0702005MFR-KM																											0.01-0.06	0.04-1.30		
		070201MFR-KM																												0.02-0.08	0.05-1.50	
		070202MFR-KM																												0.03-0.11	0.06-1.70	
		11T3005MFR-KM																												0.02-0.08	0.05-1.50	
		11T301MFR-KM																												0.03-0.11	0.06-1.70	
		11T302MFR-KM																												0.04-0.15	0.08-2.00	
		0702005MFL-KM																												0.01-0.06	0.04-1.30	
		070201MFL-KM																													0.02-0.08	0.05-1.50
		070202MFL-KM																													0.03-0.11	0.06-1.70
		11T3005MFL-KM																													0.02-0.08	0.05-1.50
		11T301MFL-KM																													0.03-0.11	0.06-1.70
11T302MFL-KM																													0.04-0.15	0.08-2.00		

● : Stock item

High Pressure Coolant		Auto Tool		Boring Bar	
Screw on	Page	TH	Page	Screw on	Page
SDACR/L	B114	SDJCR/L	B168	SDQCR/L	B134
SDJCR/L	B115	SDNCN	B169	SDUCR/L	B135
SDNCN	B115			SDZCR/L	B136

# RC

Round **R° Positive**  
Relief Angle: 7°



Dimensions (mm)			
Size	IC	S	D1
8	8	3.18	3.35
10	10	3.97	3.6
12	12	4.76	4.2
16	16	6.35	5.2
20	20	6.35	6.5
25	25	7.94	7.25
32	32	9.52	9.55

Workpiece	Material	Grade	Machining types															
			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel	P		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Stainless steel	M		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Cast iron	K		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Non-ferrous metal	N																	
Heat resistant alloy, Titanium alloy	S																	
Hardened steel	H																	

● Continuous cutting  
 ● General cutting  
 ● Interrupted cutting

Application	Picture	Designation	Cermet		Coated														Uncoated		Cutting Condition										
			CN1500	CN2500	CC-1015	CC-1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)	
Medium cutting		RCMT 0803M0-VM																										0.05-0.30	0.80-2.50		
		10T3M0-VM																											0.05-0.35	0.90-3.00	
		1204M0-VM																												0.10-0.50	1.00-3.50
		1606M0-VM																												0.13-0.60	1.30-6.50
Medium cutting		RCMX 1003M0						●	●			●	●															0.25-0.50	1.50-4.00		
		1204M0						●	●	●	●		●	●															0.30-0.60	2.50-5.00	
		1606M0						●	●			●	●																0.40-0.70	3.00-7.00	
		2006M0										●	●																0.48-0.90	3.50-9.00	
		2507M0										●	●																0.55-1.20	4.00-12.00	
		3209M0										●	●																0.65-1.50	5.00-15.00	

● : Stock item

High Pressure Coolant			
Lever Lock	Page	Screw on	Page
PRDCN	B98	SRDCN	B115
PRGCR/L	B99	SRGCR/L	B115

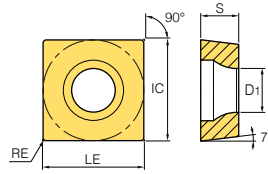
KHP Coolant	
TH	Page
SRGCR/L	B149



# B Turning Inserts (Positive)

SC ○ ○

**Square 90° Positive**  
Relief Angle: 7°



Size	Dimensions (mm)				
	IC	RE	S	LE	D1
09	9.525	0.4~0.8	3.97	9.525	4.4
12	12.7	0.4~1.2	4.76	12.7	5.5

Workpiece	Material	Machining types															
		● Continuous cutting ● General cutting ✳ Interrupted cutting															
Steel	P	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳
Stainless steel	M	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳
Cast iron	K	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳
Non-ferrous metal	N	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳
Heat resistant alloy, Titanium alloy	S	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳
Hardened steel	H	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳	●	✳

Application	Picture	Designation	Cermet		Coated		Coated													Uncoated		Cutting Condition								
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Finishing	FP  [ Mild steel ]	SCMT 09T304-FP	●				●																					0.01-0.10	0.10-1.00	
		09T308-FP	●	●			●	●								●							●						0.04-0.12	0.10-1.00
Finishing	VF 	SCMT 09T304-VF																	●									0.05-0.20	0.30-1.50	
Finishing	VL 	SCMT 09T304-VL	●	●												●			●			●						0.05-0.10	0.10-1.00	
		09T308-VL		●					●				●						●	●		●						0.08-0.15	0.10-1.00	
Medium to finishing	HMP 	SCMT 09T304-HMP								●	●								●				●					0.08-0.23	0.30-3.00	
		09T308-HMP								●	●								●				●					0.10-0.30	0.50-3.00	
		120404-HMP									●	●								●				●					0.09-0.27	0.30-3.60
		120408-HMP									●	●								●				●					0.12-0.36	0.60-3.60
Medium to finishing	MP 	SCMT 09T304-MP							●	●				●		●	●	●			●							0.05-0.25	0.30-2.80	
		09T308-MP						●	●	●				●	●				●			●						0.10-0.30	0.50-2.80	
		120404-MP							●	●					●		●	●			●							0.10-0.30	0.50-2.80	
		120408-MP							●	●					●	●	●	●			●			●				0.15-0.35	0.80-3.50	
		120412-MP													●	●	●	●			●			●				0.25-0.40	1.00-3.50	
Medium to finishing	C25 	SCMT 060204-C25										●	●	●														0.08-0.25	0.40-2.50	
		09T304-C25	●	●		●				●	●		●	●	●				●	●		●						0.08-0.25	0.60-3.00	
		09T308-C25	●	●		●				●	●	●	●	●	●	●				●	●		●					0.10-0.30	1.00-3.00	
		120404-C25		●						●	●				●	●				●	●		●		●			0.10-0.30	0.80-3.80	
		120408-C25				●				●	●	●	●	●	●	●	●			●	●		●		●			0.12-0.38	1.20-3.80	

●: Stock item

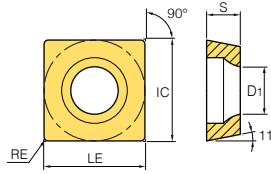
High Pressure Coolant		Boring Bar	
Screw on	Page	Screw on	Page
SSBCR/L	B116	SSKCR/L	B136
SSDCN	B116		
SSKCR/L	B117		
SSSCR/L	B117		



# B Turning Inserts (Positive)

## SP

Square **90° Positive**  
Relief Angle: 11°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
06	6.35	0.4	2.38	6.35	2.8
07	7.94	0.2~0.8	2.38	7.94	-
09	9.525	0.2~0.8	3.18	9.525	3.4~4.4
12	12.7	0.2~4.0	3.18	12.7	-
15	15.875	0.4~2.0	4.76	15.875	-
19	19.05	0.4~2.4	4.76	19.05	-

Workpiece	Machining types															
	P	M	K	N	S	H	1	2	3	4	5	6	7	8	9	10
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

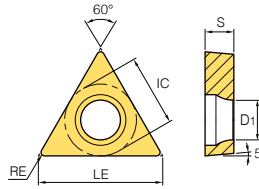
Application	Picture	Designation	Cermet		Coated														Uncoated		Cutting Condition										
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)	
Medium to finishing		SPGN 070202																										0.03-0.10	0.50-2.00		
		070208																											0.10-0.25	0.70-3.00	
		090302																											0.03-0.10	0.50-3.00	
		090304																											0.08-0.20	0.70-3.50	
		090308																											0.10-0.25	0.70-3.50	
		120302																											0.03-0.20	0.50-3.00	
		120304																											0.08-0.20	1.00-5.00	
		120308																												0.10-0.25	1.00-5.00
		120312																												0.15-0.30	1.00-5.00
		120316																												0.18-0.33	1.00-5.00
		120402																												0.03-0.20	0.50-3.00
		120404																												0.08-0.20	1.00-5.00
		120408																												0.10-0.25	1.00-5.00
		120412																												0.15-0.30	1.00-5.00
		120416																												0.18-0.33	1.00-5.00
		120430																												0.20-0.60	2.00-5.00
		120440																												0.25-0.70	3.00-5.00
		150404																												0.08-0.20	1.50-7.00
		150408																												0.10-0.25	1.50-7.00
		150412																												0.15-0.30	1.50-7.00
150416																												0.18-0.33	1.50-7.00		
150420																												0.20-0.45	1.50-7.00		
190404																												0.08-0.20	1.50-9.00		
190408																												0.10-0.25	1.50-9.00		
190412																												0.15-0.45	1.50-9.00		
190416																												0.18-0.60	1.50-9.00		
190424																												0.25-0.70	2.50-9.00		
Medium to finishing		SPGA 060204																										0.50-0.25	0.50-2.00		
		090308T	●	●																									0.10-0.25	0.70-3.00	
		090308T-Z		●																									0.10-0.25	0.70-3.00	
		* Note: 08T: corner C0.8 08T-Z: corner R0.8																													
Medium to finishing		SPGT 090304R																										0.08-0.23	0.30-3.00		
		090308R																											0.10-0.30	0.50-3.00	
		090304L		●																									0.08-0.23	0.30-3.00	
		090308L																											0.10-0.30	0.50-3.00	

●: Stock item

High Pressure Coolant	
Clamp on	Page
CSDPN	B105
CSKPR/L	B106

Boring Bar			
Clamp on	Page	Screw on	Page
CSKPR/L	B129	SSKPR/L	B136

# TB



Dimensions (mm)					
Size	IC	RE	S	LE	D <sub>1</sub>
06	3.97	0.2~0.4	1.59	6.876	2.16

**Triangular 60° Positive**  
Relief Angle: 5°

Workpiece	Machining types																												
	P	M	K	N	S	H	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● Continuous cutting  
● General cutting  
● Interrupted cutting

Application	Picture	Designation	Cermet		Coated														Uncoated		Cutting Condition										
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	f <sub>n</sub> (mm/rev)	a <sub>p</sub> (mm)	
Finishing		TBMT 060102-VL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.03-0.06	0.05-0.60
		TBGT 060102L	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.05-0.20
Finishing		060104L	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	0.08-0.20	0.10-1.30

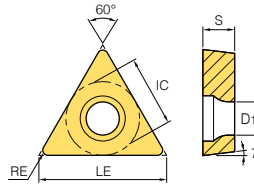
● : Stock item

Compact Mini	
TH	Page
STUBR/L	B142
STLBR/L	B142

# B Turning Inserts (Positive)




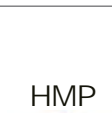

## TC ○○

 **Triangular 60° Positive**  
Relief Angle: 7°



Size	Dimensions (mm)				
	IC	RE	S	LE	D <sub>1</sub>
09	5.56	0.4~0.8	2.38	9.63	2.5
11	6.35	0.2~0.8	2.38	10.999	2.8
16	9.525	0.2~1.2	3.97	16.498	4.4
22	12.7	0.8	4.76	21.997	5.5

Workpiece	Material	Machining types															
		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermets		Coated		Coated														Uncoated		Cutting Condition							
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	f <sub>n</sub> (mm/rev)	a <sub>p</sub> (mm)
Finishing	 [Mild steel]	TCMT 110202-PP	●				●																					0.01-0.10	0.05-0.80	
		TCMT 110204-PP	●				●																						0.01-0.10	0.10-0.90
Finishing		TCMT 110202-VF																										0.03-0.13	0.06-0.70	
		TCMT 110204-VF			●															●									0.05-0.20	0.30-1.20
		TCMT 110208-VF																		●									0.10-0.25	0.30-1.20
		TCMT 16T302-VF																		●									0.05-0.15	0.10-1.30
		TCMT 16T304-VF									●									●									0.05-0.20	0.30-1.50
Finishing		TCMT 090208-VL																										0.08-0.20	0.10-1.20	
		TCMT 110204-VL			●	●																							0.05-0.15	0.10-1.30
		TCMT 110208-VL				●																							0.08-0.20	0.10-1.30
		TCMT 16T304-VL			●	●	●				●						●	●	●	●			●						0.05-0.20	0.30-1.50
		TCMT 16T308-VL							●	●	●						●			●	●		●						0.05-0.20	0.30-1.50
Medium to finishing		TCMT 090204-HMP									●																	0.06-0.17	0.20-2.30	
		TCMT 090208-HMP																											0.08-0.23	0.40-2.30
		TCMT 110202-HMP																											0.03-0.15	0.10-1.50
		TCMT 110204-HMP			●						●	●	●							●			●						0.06-0.19	0.20-2.50
		TCMT 110208-HMP			●								●							●			●						0.09-0.26	0.40-2.50
		TCMT 16T304-HMP			●								●	●						●			●						0.08-0.23	0.30-3.00
		TCMT 16T308-HMP									●	●								●			●						0.10-0.30	0.50-3.00
Medium to finishing		TCMT 090204-MP								●																		0.05-0.18	0.10-1.00	
		TCMT 090208-MP																											0.08-0.20	0.10-1.20
		TCMT 110202-MP									●	●																	0.03-0.12	0.20-1.50
		TCMT 110204-MP								●	●	●											●	●					0.05-0.15	0.20-1.50
		TCMT 110208-MP									●	●										●	●						0.10-0.28	0.25-2.00
		TCMT 16T302-MP																											0.08-0.25	0.20-1.50
		TCMT 16T304-MP			●	●					●	●	●							●			●	●	●	●	●	●	0.08-0.20	0.30-2.50
		TCMT 16T308-MP			●	●	●				●	●	●							●			●	●	●	●	●	●	0.10-0.30	0.50-2.50
		TCMT 16T312-MP									●	●													●				0.20-0.40	0.50-2.50
TCMT 220408-MP																											0.20-0.40	0.50-3.50		

●: Stock item

High Pressure Coolant		Auto Tool		Boring Bar	
Screw on	Page	TH	Page	Screw on	Page
STACR/L	B117	STACR/L	B169	STFCR/L	B137
STFCR/L	B118				
STGCR/L	B118				
STTCR/L	B118				

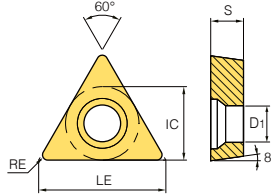




# B Turning Inserts (Positive)

## TO

**Triangular 60° Positive**  
Relief Angle: 8°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
06	3.97	0.2	1.59	6.928	2.15
09	5.56	0.4	2.38	9.699	2.8
14	8.2	0.4	3	14.203	3.8

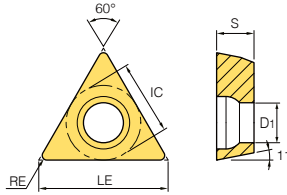
Workpiece	Material		Machining types																					
	Symbol	Color	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Steel	P	Blue	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Stainless steel	M	Yellow																						
Cast iron	K	Red	●	✱	●	✱																		
Non-ferrous metal	N	Green																						
Heat resistant alloy, Titanium alloy	S	Orange																						
Hardened steel	H	Grey																						

Application	Picture	Designation	Cermets		Coated																Uncoated		Cutting Condition							
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Medium to finishing		TOEH 060102L																										0.05-0.17	0.10-1.50	
		090204L																											0.05-0.20	0.30-2.50
		140304L	●	●																									0.05-0.25	0.30-2.50

● : Stock item

## TP

**Triangular 60° Positive**  
Relief Angle: 11°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
09	5.56	0.2-0.4	2.38	9.63	2.5
11	6.35	0.2-0.8	3.18	10.999	3.4
16	9.525	0.4-0.8	4.76	16.498	4.4

Workpiece	Material		Machining types																					
	Symbol	Color	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Steel	P	Blue	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱	●	✱
Stainless steel	M	Yellow																						
Cast iron	K	Red	●	✱	●	✱																		
Non-ferrous metal	N	Green																						
Heat resistant alloy, Titanium alloy	S	Orange																						
Hardened steel	H	Grey																						

Application	Picture	Designation	Cermets		Coated																Uncoated		Cutting Condition							
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Finishing		TPMT 090202-FP			●	●																						0.01-0.09	0.05-0.07	
		090204-FP	●	●	●	●																							0.01-0.09	0.10-0.08
		110302-FP																											0.01-0.10	0.05-0.08
		110304-FP	●	●	●	●																							0.01-0.10	0.10-0.90
		110308-FP	●	●	●	●																							0.04-0.10	0.10-1.00
		160404-FP		●																									0.01-0.10	0.10-1.00
		160408-FP																											0.04-0.12	0.10-1.00

● : Stock item

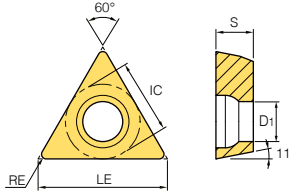
High Pressure Coolant	
Clamp on	Page
CTFPR/L	B106
CTGPR/L	B106

Boring Bar			
Clamp on	Page	Screw on	Page
CTFPR/L	B129	STFPR/L	B138
		STWPR/L	B139

Compact Mini	
TH	Page
STUPR/L	B143

# TP

**Triangular 60° Positive**  
Relief Angle: 11°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
09	5.56	0.2~0.8	2.38	9.63	2.5
11	6.35	0.2~0.8	3.18	10.999	3.4
16	9.525	0.4~1.2	3.18~4.76	16.498	4.4
22	12.7	0.8	4.76	21.997	-

Workpiece	Machining types															
	P	M	K	N	S	H	●	●	●	●	●	●	●	●	●	●
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermets		Coated													Uncoated		Cutting Condition										
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Finishing	VF	TPMT 110304-VF	●																									0.05-0.20	0.30-1.50	
		110308-VF																											0.10-0.25	0.30-1.50
		160404-VF																											0.05-0.20	0.30-2.00
		160408-VF																											0.10-0.25	0.30-2.00
Finishing	VL	TPMT 090204-VL																										0.04-0.10	0.10-0.90	
		090208-VL																										0.06-0.12	0.10-1.00	
		110304-VL	●	●	●	●		●								●		●		●	●							0.05-0.15	0.10-1.30	
		110308-VL																										0.08-0.20	0.10-1.30	
		160404-VL																										0.05-0.20	0.30-1.50	
		160408-VL																										0.05-0.20	0.30-1.50	
Medium to finishing	MP	TPMT 090202-MP																										0.03-0.15	0.10-1.00	
		090204-MP																										0.05-0.18	0.10-1.00	
		110302-MP																										0.03-0.12	0.20-1.50	
		110304-MP	●	●	●	●		●	●							●	●	●	●									0.05-0.20	0.20-1.50	
		110308-MP															●											0.10-0.28	0.30-2.00	
		160402-MP																										0.06-0.20	0.30-2.50	
		160404-MP																										0.08-0.20	0.30-2.50	
		160408-MP																										0.10-0.30	0.50-2.50	
Finishing	F	TPMR 090202-F																										0.05-0.15	0.10-1.00	
		090204-F																										0.05-0.15	0.10-1.00	
		110302-F																										0.05-0.15	0.10-1.50	
		110304-F									●	●	●	●											●			0.05-0.20	0.30-1.50	
		110308-F																										0.05-0.25	0.30-1.50	
		160304-F									●	●	●	●		●								●	●			0.08-0.25	0.50-2.00	
Finishing	F	TPGR 110302-F																										0.05-0.15	0.10-1.50	
		110304-F																										0.05-0.20	0.30-1.50	
		160304-F																										0.08-0.25	0.50-2.00	
Medium cutting	M	TPMR 110304-M																										0.10-0.25	0.70-3.00	
		110308-M																										0.13-0.30	1.00-3.00	
		160304-M																										0.10-0.25	1.00-5.00	
		160308-M																										0.13-0.30	1.00-5.00	
		160312-M																										0.15-0.35	1.00-5.00	
		220408-M																										0.13-0.30	1.50-7.00	

● : Stock item

High Pressure Coolant	
Clamp on	Page
CTFPR/L	B106
CTGPR/L	B106

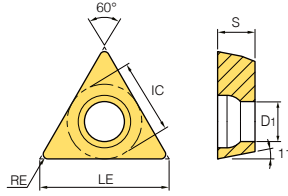
Boring Bar			
Clamp on	Page	Screw on	Page
CTFPR/L	B129	STFPR/L	B138
		STWPR/L	B139

Compact Mini	
TH	Page
STUPR/L	B143

# B Turning Inserts (Positive)




## TP

 **Triangular 60° Positive**  
Relief Angle: 11°



Size	Dimensions (mm)				
	IC	RE	S	LE	D1
09	5.56	0.4-0.8	2.38	9.63	-
11	6.35	0.2-0.8	2.38-3.18	10.999	-
16	9.525	0.2-1.6	3.18-4.76	16.498	-
22	12.7	0.4-4.0	4.76	21.997	-
27	15.875	0.8	4.76-6.35	27.496	-
33	19.05	2.0	6.35	32.996	-

Workpiece	Material	Grade	Machining types															
			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel	P	M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Stainless steel	M	M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Cast iron	K	K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Non-ferrous metal	N	N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Heat resistant alloy, Titanium alloy	S	S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Hardened steel	H	H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

Application	Picture	Designation	Cermets		Coated		Coated														Uncoated		Cutting Condition									
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)		
Medium cutting		TPGR	110308-M																									0.13-0.30	1.00-3.00			
			160308-M																											0.13-0.30	1.00-5.00	
Medium to finishing		TPUN	090308																									0.10-0.30	0.50-2.00			
			110208																										0.15-0.40	1.00-3.00		
			110304																											0.10-0.30	1.00-3.00	
			110308																											0.15-0.40	1.00-3.00	
			160304									●																		0.10-0.30	1.00-5.00	
			160308									●									●									0.15-0.40	1.00-5.00	
			160308TN																											0.15-0.40	1.00-5.00	
			160312																											0.20-0.50	1.50-5.00	
			160312TN																												0.20-0.50	1.50-5.00
			220404																												0.10-0.30	1.50-7.00
			220408											●																	0.15-0.40	1.50-7.00
			Medium to finishing		TPGN	090204																									0.07-0.20	0.70-2.00
110302																													0.05-0.15	0.50-2.00		
110304													●														●			0.07-0.20	0.70-3.00	
110308													●														●			0.10-0.25	1.00-3.00	
160302																														0.05-0.18	1.00-5.00	
160304													●	●														●		0.07-0.20	1.00-5.00	
160308													●	●														●		0.10-0.25	1.00-5.00	
160310																														0.10-0.25	1.00-5.00	
160312																														0.15-0.30	1.00-5.00	
160316																															0.15-0.30	1.00-5.00
160404																															0.07-0.20	1.00-5.00
220404														●																	0.07-0.20	1.50-7.00
220408											●																	0.10-0.25	1.50-7.00			
220412											●																	0.15-0.30	1.50-7.00			
220430																												0.30-0.45	1.50-7.00			
220440																												0.30-0.50	1.50-7.00			
270408																												0.15-0.25	3.00-8.00			
270608																												0.15-0.25	3.00-8.00			

●: Stock item

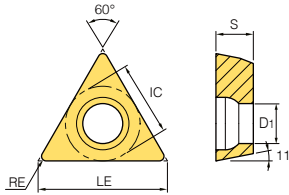
High Pressure Coolant	
Clamp on	Page
CTFPR/L	B106
CTGPR/L	B106

Boring Bar			
Clamp on	Page	Screw on	Page
CTFPR/L	B129	STFPR/L	B138
		STWPR/L	B139

Compact Mini	
TH	Page
STUPR/L	B143

# TP

**Triangular 60° Positive**  
Relief Angle: 11°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
08	4.76	0.2~0.4	2.38	8.245	2.5
09	5.56	0.2~0.8	2.38	9.63	3
11	6.35	0.2~0.8	3.18	10.999	3.4
16	9.525	0.4~0.8	4.76	16.498	4.4

Workpiece	Machining types																												
	P	M	K	N	S	H	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermet		Coated		Coated															Uncoated		Cutting Condition								
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)		
Finishing		TPGH 080202L	●	●																										0.01-0.12	0.06-1.70	
		080204L	●	●																										0.01-0.15	0.08-1.70	
		110202L																												0.01-0.12	0.06-2.00	
		110204L																												0.01-0.15	0.08-2.00	
Medium to finishing		TPGT 080202R																												0.05-0.20	0.30-1.50	
		080204R																												0.05-0.20	0.30-1.50	
		110302R																												0.05-0.20	0.30-1.50	
		110304R	●	●																										0.05-0.20	0.50-2.00	
		110308R																												0.07-0.25	0.50-2.00	
		160404R	●	●																										0.05-0.20	0.70-3.00	
		160408R		●																										0.05-0.20	0.70-3.00	
		080202L	●	●																					●	●			0.05-0.20	0.30-1.50		
		080204L		●																												
		110302L																													0.05-0.20	0.30-1.50
		110304L	●	●																											0.05-0.20	0.50-2.00
		110308L																													0.07-0.25	0.50-2.00
160404L	●	●																											0.05-0.20	0.70-3.00		
160408L																													0.05-0.20	0.70-3.00		
Medium to finishing		TPGX 090202L		●																										0.10-0.20	0.30-1.00	
		090204L		●																										0.10-0.25	0.50-1.00	
		090208L																												0.10-0.30	1.00-1.00	
		110304L		●																										0.10-0.25	0.50-1.20	

● : Stock item

High Pressure Coolant	
Clamp on	Page
CTFPR/L	B106
CTGPR/L	B106

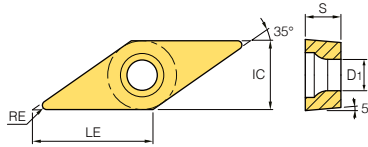
Boring Bar			
Clamp on	Page	Screw on	Page
CTFPR/L	B129	STFPR/L	B138
		STWPR/L	B139

Compact Mini	
TH	Page
STUPR/L	B143

# B Turning Inserts (Positive)

## VB

Rhombic **35° Positive**  
Relief Angle: 5°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
11	6.35	0.2-0.8	3.18	11.071	2.8
16	9.525	0.2-1.2	4.76	16.606	4.4

Workpiece	Machining types																									
	P	M	K	N	S	H	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

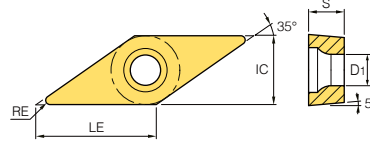
Application	Picture	Designation	Cermets		Coated		Coated																Uncoated		Cutting Condition						
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)	
Finishing	FP [Mild steel]	VBMT 110302-PP																											0.01-0.10	0.05-0.08	
		VBMT 110304-PP																												0.01-0.10	0.10-0.90
		VBMT 110308-PP																												0.01-0.10	0.10-1.00
		VBMT 160404-PP																												0.01-0.10	0.10-1.00
		VBMT 160408-PP																												0.04-0.12	0.10-1.00
Finishing	VB	VBMT 110302-VB																											0.05-0.15	0.20-1.20	
		VBMT 110304-VB																											0.06-0.18	0.20-1.20	
		VBMT 110308-VB																											0.08-0.20	0.60-1.20	
		VBMT 160402-VB																											0.06-0.20	0.05-1.00	
		VBMT 160404-VB																												0.08-0.20	0.20-1.50
		VBMT 160408-VB																												0.10-0.23	0.50-1.50
Finishing	VF	VBMT 160404-VF																											0.05-0.20	0.30-1.00	
		VBMT 160408-VF																											0.10-0.25	0.30-1.00	
Finishing	VL	VBMT 110302-VL																											0.03-0.20	0.20-1.20	
		VBMT 110304-VL																											0.04-0.20	0.20-1.20	
		VBMT 110308-VL																											0.08-0.20	0.20-1.20	
		VBMT 160402-VL																											0.03-0.20	0.30-1.50	
		VBMT 160404-VL																												0.05-0.20	0.30-1.50
		VBMT 160408-VL																												0.10-0.20	0.30-1.50
Medium to finishing	HMP	VBMT 110202-HMP																											0.03-0.20	0.15-2.70	
		VBMT 110304-HMP																											0.03-0.20	0.15-2.70	
		VBMT 110308-HMP																											0.05-0.25	0.40-2.70	
		VBMT 160404-HMP																											0.07-0.20	0.20-2.70	
		VBMT 160408-HMP																												0.09-0.27	0.50-2.70
Medium to finishing	MP	VBMT 110302-MP																											0.04-0.14	0.20-1.50	
		VBMT 110304-MP																											0.05-0.15	0.20-1.50	
		VBMT 110308-MP																											0.10-0.28	0.30-2.00	
		VBMT 160402-MP																											0.06-0.16	0.25-2.00	
		VBMT 160404-MP																												0.08-0.20	0.30-2.00
		VBMT 160408-MP																												0.10-0.25	0.50-2.30
VBMT 160412-MP																												0.10-0.35	0.50-2.30		

●: Stock item

High Pressure Coolant		Auto Tool		KHP Coolant		Boring Bar	
Screw on	Page	TH	Page	TH	Page	Screw on	Page
SVVBN	B120	SVJBR/L	B170	SVJBR/L	B149	SVQBR/L	B139
SVABR/L	B119					SVUBR/L	B140
SVHBR/L	B119						
SVJBR/L	B119						

# VB

Rhombic **35° Positive**  
Relief Angle: 5°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
11	6.35	0.1~0.4	3.18	11.071	2.8
16	9.525	0.2~0.8	4.76	16.606	4.4

Workpiece	Material										Machining types			
	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Titanium alloy	Hardened steel	P	M	K	N	S	H	●	⊙
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermet	Coated	Coated												Uncoated		Cutting Condition										
					CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01
Medium to finishing		VBMT 160404	●						●	●																		0.07-0.20	0.50-1.50
		VBMT 160408							●	●																			0.15-0.25
Medium to finishing		VBGT 160404																										0.07-0.20	0.50-1.50
		VBGT 160408																											0.15-0.25
Finishing		VBMT 160402-VP1																										0.04-0.20	0.16-1.50
		VBMT 160404-VP1																										0.05-0.20	0.18-1.80
		VBMT 160408-VP1																										0.06-0.20	0.20-1.80
Finishing		VBGT 110301-FS																										0.01-0.16	0.03-1.40
		VBGT 110302-FS																										0.02-0.18	0.04-1.50
		VBGT 110304-FS																										0.04-0.19	0.06-1.60
		VBGT 160401-FS																										0.01-0.16	0.04-1.80
		VBGT 160402-FS																										0.02-0.18	0.05-2.00
		VBGT 160404-FS																										0.04-0.19	0.08-2.00
Finishing		VBGT 110301MFN-FS																										0.01-0.16	0.03-1.40
		VBGT 110302MFN-FS																										0.02-0.18	0.04-1.50
		VBGT 110304MFN-FS																										0.04-0.19	0.06-1.60
		VBGT 160401MFN-FS																										0.01-0.16	0.04-1.80
		VBGT 160402MFN-FS																										0.02-0.18	0.05-2.00
Finishing		VBGT 160404MFN-FS																										0.04-0.19	0.08-2.00
		VBGT 110302-VP1																										0.03-0.10	0.08-1.50
		VBGT 160402-VP1																										0.04-0.20	0.16-1.50
		VBGT 160404-VP1																									0.05-0.20	0.18-1.80	

● : Stock item

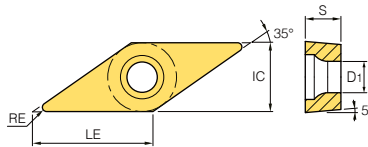
High Pressure Coolant		Auto Tool		KHP Coolant		Boring Bar	
Screw on	Page	TH	Page	TH	Page	Screw on	Page
SVVBN	B120	SVJBR/L	B170	SVJBR/L	B149	SVQBR/L	B139
SVABR/L	B119					SVUBR/L	B140
SVHBR/L	B119						
SVJBR/L	B119						



# B Turning Inserts (Positive)

## VB

**Rhombic 35° Positive**  
Relief Angle: 5°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
11	6.35	0.03~0.2	3.18	11.071	2.8

Workpiece	Machining types																									
	P	M	K	N	S	H	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermet		Coated		Coated														Uncoated		Cutting Condition							
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Finishing	 [ High precision ]	VBGT 1103003R-KF																	●									0.01-0.06	0.04-1.30	
		110301R-KF																		●									0.02-0.08	0.05-1.50
		110302R-KF																			●				●				0.03-0.13	0.06-1.70
		1103003L-KF																			●		●						0.01-0.06	0.04-1.30
		110301L-KF																			●								0.02-0.08	0.05-1.50
		110302L-KF																			●								0.03-0.13	0.06-1.70
Medium to finishing	 [ High precision ]	VBGT 1103003R-KM																		●		●						0.01-0.06	0.04-1.30	
		110301R-KM																		●								0.02-0.08	0.05-1.50	
		110302R-KM																			●		●					0.03-0.13	0.06-1.70	
		1103003L-KM																			●		●					0.01-0.06	0.04-1.30	
		110301L-KM																			●							0.02-0.08	0.05-1.50	
		110302L-KM																			●							0.03-0.13	0.06-1.70	

● : Stock item

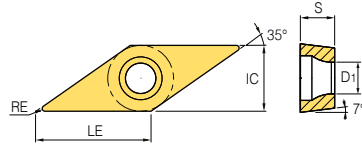
High Pressure Coolant		Auto Tool		KHP Coolant		Boring Bar	
Screw on	Page	TH	Page	TH	Page	Screw on	Page
SVVBN	B120	SVJBR/L	B170	SVJBR/L	B149	SVQBR/L	B139
SVABR/L	B119					SVUBR/L	B140
SVHBR/L	B119						
SVJBR/L	B119						



# B Turning Inserts (Positive)

## VC ○ ○

**Rhombic 35° Positive**  
Relief Angle: 7°



Size	Dimensions (mm)				
	IC	RE	S	LE	D1
11	6.35	0.1~0.4	3.18	11.071	2.8
12	7.5	0.08~0.4	3.0	13.076	2.8
16	9.525	0.1~0.8	4.76	16.606	4.4

Workpiece	Material	Machining types															
		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

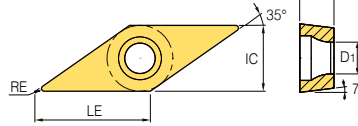
Application	Picture	Designation	Cermets		Coated		Coated										Uncoated		Cutting Condition											
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)
Finishing	FS [ High precision ]	VC GT	110301-FS																●									0.01-0.16	0.03-1.40	
			110302-FS																	●									0.02-0.18	0.04-1.50
			110304-FS																	●									0.04-0.19	0.06-1.60
			160401-FS																	●									0.01-0.16	0.04-1.80
			160402-FS																	●									0.02-0.18	0.05-2.00
			160404-FS																	●									0.04-0.19	0.08-2.00
Finishing	FS [ Ultra high precision ]	VC GT	110301MFN-FS																									0.01-0.16	0.03-1.40	
			110302MFN-FS																										0.02-0.18	0.04-1.50
			110304MFN-FS																										0.04-0.19	0.06-1.60
			160401MFN-FS																										0.01-0.16	0.04-1.80
			160402MFN-FS																										0.02-0.18	0.05-2.00
			160404MFN-FS																										0.04-0.19	0.08-2.00
Medium cutting	MS [ High precision ]	VC GT	110301-MS																●			●						0.02-0.23	0.05-2.00	
			110302-MS																●			●						0.03-0.25	0.07-2.50	
			110304-MS																●			●						0.05-0.25	0.09-2.50	
Medium cutting	MS [ Ultra high precision ]	VC GT	110301MFN-MS																●			●						0.02-0.23	0.05-2.00	
			110302MFN-MS																●			●						0.03-0.25	0.07-2.50	
			110304MFN-MS																●			●						0.05-0.25	0.09-2.50	
Medium cutting	MS [ Ultra high precision ]	VC GT	1203008FN-MS																●			●						0.02-0.20	0.04-1.80	
			120301FN-MS																●			●						0.03-0.26	0.06-2.20	
			120302FN-MS																●			●						0.05-0.28	0.08-2.80	
			120304FN-MS																●			●						0.06-0.30	0.10-2.80	
Finishing	VP1 [ High precision ]	VC GT	110301-VP1																●		●	●	●		●		0.02-0.15	0.05-0.50		
			110302-VP1																●		●	●	●		●		0.02-0.18	0.10-1.00		
			110304-VP1																●		●	●	●		●		0.03-0.18	0.15-1.20		
			160404-VP1																									0.05-0.20	0.18-1.80	
			160408-VP1																									0.06-0.20	0.20-1.80	

● : Stock item

High Pressure Coolant		Auto Tool		Boring Bar	
Screw on	Page	TH	Page	Screw on	Page
SVJCR/L	B120	SVJCR/L	B170	SVJCR/L	B139
SVCN	B120			SVQCR/L	B140
				SVUCR/L	B140

# VC

**Rhombic 35° Positive**  
Relief Angle: 7°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
11	6.35	0.03-0.4	3.18	11.071	2.8
12	7.5	0.08-0.8	3.0	13.076	2.8

Workpiece	Material										Machining types			
	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Titanium alloy	Hardened steel	P	M	K	N	S	H	●	⊙
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermets		Coated										Uncoated		Cutting Condition														
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)	
Finishing	 [ Ultra high precision ]	VCGT	110301MFN-VP1																●									0.02-0.15	0.05-0.50		
			110302MFN-VP1																	●									0.02-0.18	0.10-1.00	
			110304MFN-VP1																		●									0.03-0.18	0.15-1.20
			1203008FN-VP1																											0.03-0.12	0.06-1.20
			120301FN-VP1																											0.04-0.13	0.08-1.20
			120302FN-VP1																											0.04-0.15	0.08-1.20
			120304FN-VP1																											0.06-0.20	0.10-1.50
Finishing	 [ Ultra high precision ]	VCGX	120300MFR-VP1																●		●							0.02-0.10	0.05-0.50		
			120301MFR-VP1																			●							0.02-0.15	0.05-0.50	
			120302MFR-VP1																				●							0.02-0.18	0.10-1.00
			120304MFR-VP1																											0.03-0.20	0.12-1.20
			120308MFR-VP1																											0.05-0.20	0.15-1.20
Finishing	 [ High precision ]	VCGT	1103003R-KF																									0.01-0.06	0.04-1.30		
			110301R-KF																										0.02-0.08	0.05-1.50	
			110302R-KF																						●	●			0.03-0.13	0.06-1.70	
			1103003L-KF																											0.01-0.06	0.04-1.30
			110301L-KF																											0.02-0.08	0.05-1.50
			110302L-KF																											0.03-0.13	0.06-1.70
Finishing	 [ Ultra high precision ]	VCET	1103005MFR-KF																●		●							0.01-0.06	0.04-1.30		
			110301MFR-KF																			●							0.02-0.08	0.05-1.50	
			110302MFR-KF																											0.03-0.11	0.06-1.70
			1103005MFL-KF																											0.01-0.06	0.04-1.30
			110301MFL-KF																		●									0.02-0.08	0.05-1.50
			110302MFL-KF																					●						0.03-0.11	0.06-1.70
Finishing	 [ High precision ]	VCGT	1103003R-KM																									0.01-0.06	0.04-1.30		
			110301R-KM																										0.02-0.08	0.05-1.50	
			110302R-KM																											0.03-0.13	0.06-1.70
			1103003L-KM																											0.01-0.06	0.04-1.30
			110301L-KM																											0.02-0.08	0.05-1.50
			110302L-KM																											0.03-0.13	0.06-1.70
Medium to finishing	 [ Ultra high precision ]	VCET	1103005MFR-KM																										0.02-0.08	0.05-1.50	
			110301MFR-KM																											0.03-0.11	0.06-1.70
			110302MFR-KM																		●		●							0.04-0.15	0.08-2.00
			1103005MFL-KM																											0.02-0.08	0.05-1.50
			110301MFL-KM																											0.03-0.11	0.06-1.70
			110302MFL-KM																					●		●				0.04-0.15	0.08-2.00

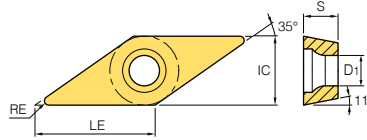
● : Stock item

High Pressure Coolant		Auto Tool		Boring Bar	
Screw on	Page	TH	Page	Screw on	Page
SVJCR/L	B120	SVJCR/L	B170	SVJCR/L	B139
SVVCN	B120			SVQCR/L	B140
				SVUCR/L	B140

# B Turning Inserts (Positive)

## VP ○○

**Rhombic 35° Positive**  
Relief Angle: 11°



Size	Dimensions (mm)				
	IC	RE	S	LE	D1
08	4.76	0.05~0.2	2.38	8.299	2.3
11	6.35	0.1~0.4	3.18	11.071	2.8

Workpiece	Machining types																											
	P	M	K	N	S	H	NC1015	NC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035
Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Application	Picture	Designation	Cermet		Coated		Coated														Uncoated		Cutting Condition									
			CN1500	CN2500	CC1015	CC1025	NC3205	NC3215	NC3225	NC3120	NC3030	NC3235	NC5320	NC5330	NC6310	NC6315	NC9115	NC9125	NC9135	PC5300	PC5400	PC8105	PC8110	PC8115	PC9030	PC9035	H01	H05	fn (mm/rev)	ap (mm)		
Finishing	VP1 [High precision]	VPGT 110301-VP1																	●								●	0.02-0.15	0.05-0.50			
		110302-VP1																		●								●	0.02-0.18	0.10-1.00		
		110304-VP1																			●							●	0.03-0.18	0.15-1.20		
Finishing	VP1 [Ultra high precision]	VPGT 110301MFN-VP1																		●								●	0.02-0.15	0.05-0.50		
		110302MFN-VP1																			●							●	0.02-0.18	0.10-1.00		
		110304MFN-VP1																			●							●	0.03-0.18	0.15-1.20		
Finishing	KF [Ultra high precision]	VPET 0802005MFR-KF																											●	0.01-0.12	0.05-0.50	
		080201MFR-KF																											●	0.02-0.15	0.05-0.50	
		080202MFR-KF																			●								●	0.02-0.18	0.10-1.00	
		0802005MFL-KF																												●	0.01-0.12	0.05-0.50
		080201MFL-KF																												●	0.02-0.15	0.05-0.50
		080202MFL-KF																				●								●	0.02-0.18	0.10-1.00
Medium to finishing	KM [Ultra high precision]	VPET 0802005MFR-KM																											●	0.01-0.12	0.05-0.50	
		080201MFR-KM																											●	0.02-0.15	0.05-0.50	
		080202MFR-KM																			●								●	0.02-0.18	0.10-1.00	
		0802005MFL-KM																												●	0.01-0.12	0.05-0.50
		080201MFL-KM																												●	0.02-0.15	0.05-0.50
		080202MFL-KM																				●								●	0.02-0.18	0.10-1.00

●: Stock item

Auto Tool	
TH	Page
SVAPR/L	B170
SVJPR/L	B171
SVVPN	B171





## Technical Information for Aluminum

### AK special chip breaker for aluminum

- Unique and 3-dimensional rake angle controls chip breaking and chip flow ensuring longer tool life and reducing cutting load
- High rake angle at cutting edge part reduces cutting load to increase tool life
- Buffed finish on top face controls chip flow reducing built-up edge



- 1 High rake angle & tabby pattern chip pocket - Low cutting load
- 2 Unique rake angle design - Effective chip breaking and good chip flow
- 3 Unique and 3-dimensional top face - Longer tool life & excellent surface roughness
- 4 Tabby pattern & Sharp cutting edge - Distributes cutting load and guarantees longer tool life
- 5 Buffed on top face - Excellent machining, prevents built-up edge, excellent chip flow

### AM special chip breaker for aluminum

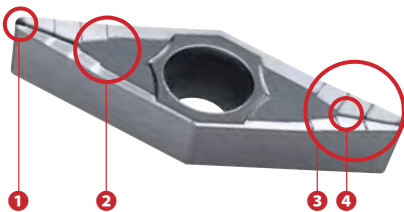
- Preventing welding and chip jam with internal bridge structure enhancing smooth chip flow
- Balanced surface finish and toughness from nose R and 2 step side rake angle
- Preventing minor cutting edge fracture with divided bridge structure on the top surface bottom part blocks chips over minor cutting edge



- 1 Nose R and 2 step rake angle - Balanced surface finish and toughness & smooth chip evacuation
- 2 Internal bridge - Preventing welding and chip jam & Smooth chip flow and chip control
- 3 Trigonal knobs on the back
  - Effective chip breaking in medium cutting
  - Less cutting resistance due to smooth chip flow
  - Directing flow of long chip for stable chip evacuation
  - Protecting cutting edge with a structure preventing chip jam
- 4 Side 2 step rake angle - Longer effective cutting edge, minimized cutting resistance, Good surface finish

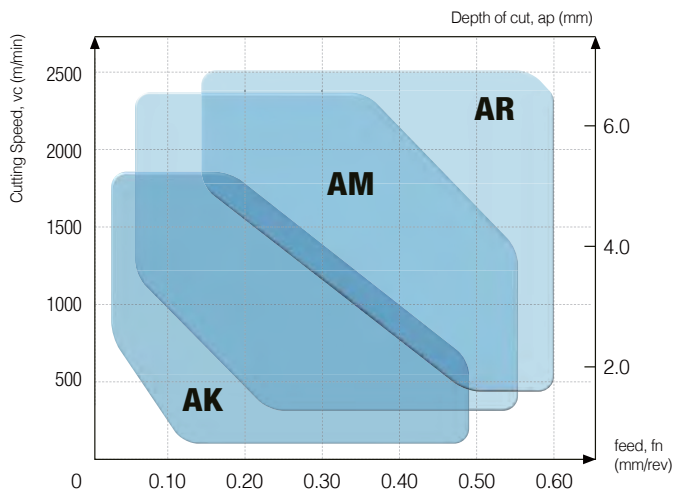
### AR special chip breaker for aluminum

- AR chip breaker ensures reliability and good cutting performance at high feed, speed and interrupted machining



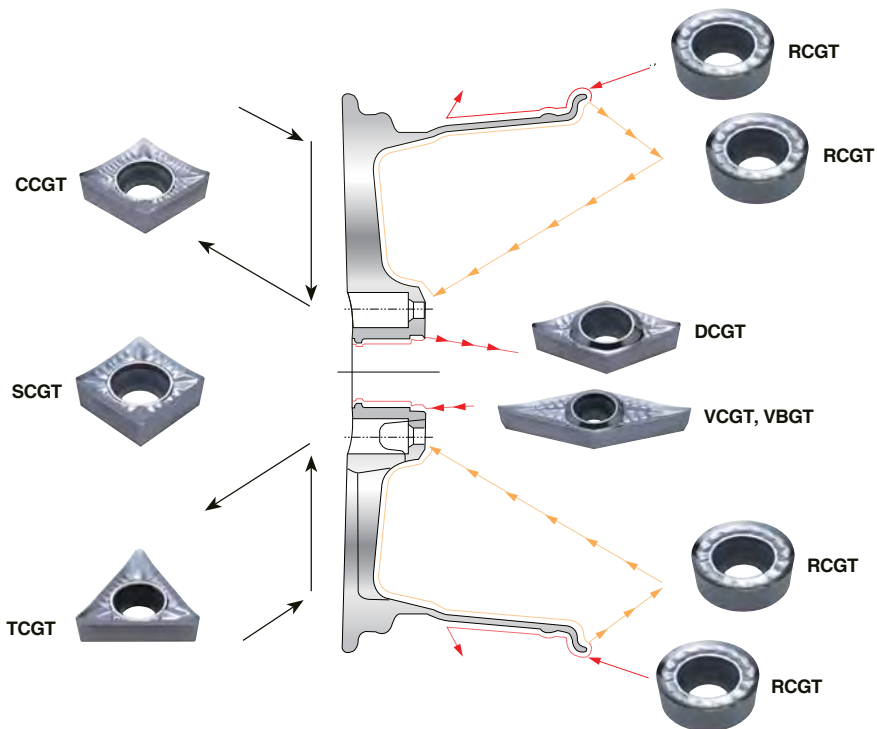
- 1 Flat corner cutting edge improved productivity at high feed machining and ensures good surface roughness and reliability owing to strong cutting edge
- 2 Specially buffed on top face controls chip flow reducing built-up edge
- 3 KORLOY's own technology applied for cutting edge and corner shape controlling chip flow ensures longer tool life
- 4 KORLOY special chip breaker design controls chip flow at high speed machining

## Chip breakers specially developed for aluminum: AK, AM, and AR



	Recommendation range	Grades
<b>AR</b>	ap = 0.50 ~ 6.00mm fn = 0.05 ~ 0.60mm/rev	H01 (Uncoated cemented carbides N10~N20) ND1000 (Diamond coating) PD1000 (DLC coating)
<b>AM</b>	ap = 0.30 ~ 5.50mm fn = 0.04 ~ 0.55mm/rev	H05 (Uncoated cemented carbides N10~N20)
<b>AK</b>	ap = 0.10 ~ 5.00mm fn = 0.03 ~ 0.50mm/rev	H01 (Uncoated cemented carbides N10~N20) ND1000 (Diamond coating) PD1000 (DLC coating)

- **AK** : 1<sup>st</sup> recommended in aluminum and non-ferrous metal cutting
- **AM** : recommended in medium cutting and light interrupted cutting  
1<sup>st</sup> recommended in Aluminum wheel machining
- **AR** : recommended when high toughness is required in heavily interrupted cutting



## Features of H01 and cutting conditions

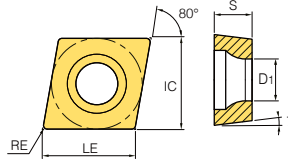
- Good for aluminum and alloy steel machining - Surface treatment reduces built-up edge
- 3-dimensional design reduces cutting resistance and ensures high machinability in high feed and speed machining

Workpiece		Hardness (HB)	kc(MPa)	vc(m/min)	fn(mm/rev)
<b>Aluminum alloy (forged)</b>	before heat treatment	50 ~ 70	500 ~ 600	1000 ~ 2500	0.1 ~ 0.6
	after heat treatment	90 ~ 110	700 ~ 900	300 ~ 1000	0.1 ~ 0.5
<b>Aluminum alloy (cast)</b>	before heat treatment	70 ~ 80	700 ~ 800	300 ~ 1000	0.1 ~ 0.6
	after heat treatment	80 ~ 100	800 ~ 950	200 ~ 600	0.1 ~ 0.4
<b>Copper alloy</b>	—	90 ~ 110	700	250 ~ 600	0.1 ~ 0.5
<b>Non-ferrous metal, etc.</b>	—	100	1700	150 ~ 300	0.1 ~ 0.6

# B Aluminum Insert

CC ○ ○


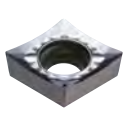

 Rhombic **80° Positive**  
Relief Angle: 7°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
06	6.35	0.2~0.8	2.38	6.448	2.8
09	9.525	0.2~0.8	3.97	9.672	4.4
12	12.7	0.2~1.2	4.76	12.896	5.5

Workpiece	Machining types					
	P	M	K	N	S	H
Steel	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●

● Continuous cutting  
 ● General cutting  
 ✦ Interrupted cutting

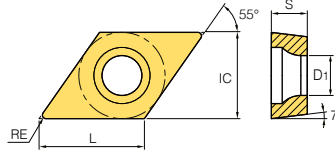
Picture	Designation	Coated				Uncoated		Cutting Conditions	
		ND3000	PC5040	PD1005	PD1010	H01	H05	fn (mm/rev)	ap (mm)
	CCGT	060202-AK	●					0.01~0.12	0.05~3.00
		060204-AK	●			●	●	0.02~0.15	0.10~3.00
		060208-AK				●		0.02~0.20	0.10~4.00
		09T302-AK		●		●		0.02~0.20	0.05~3.00
		09T304-AK		●		●		0.02~0.30	0.10~5.00
		09T308-AK		●		●		0.03~0.50	0.10~5.00
		120402-AK				●		0.02~0.30	0.05~4.00
		120404-AK		●		●		0.03~0.50	0.10~5.00
		120408-AK				●	●	0.04~0.80	0.10~5.50
	CCGT	09T302-AM					●	0.03~0.25	0.05~3.50
		09T304-AM					●	0.03~0.35	0.10~5.20
		09T308-AM					●	0.03~0.55	0.10~5.50
	CCGT	060202-AR				●		0.02~0.30	0.30~4.00
		060204-AR						0.03~0.35	0.50~4.50
		060208-AR						0.04~0.50	0.50~4.50
		09T302-AR				●		0.03~0.45	0.30~4.00
		09T304-AR				●		0.04~0.50	0.50~4.50
		09T308-AR				●		0.05~0.60	0.50~6.00
		120402-AR						0.04~0.50	0.30~5.00
		120404-AR				●		0.05~0.60	0.50~6.00
		120408-AR				●	●	0.06~0.65	0.50~6.00
	120412-AR						0.08~0.70	0.50~6.50	

● : Stock item

High Pressure Coolant		Auto Tool		Boring Bar		Compact Mini	
Screw on	Page	TH	Page	Screw on	Page	TH	Page
SCACR/L	B114	SCACR/L	B168	SCLCR/L	B132	SCLCR/L	B142
SCLCR/L	B114	SCLCR/L	B168				


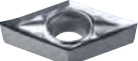

## DC ○○

**Rhombic 55° Positive**  
Relief Angle: 7°



Dimensions (mm)					
Size	IC	RE	S	LE	D <sub>1</sub>
07	6.35	0.2~0.8	2.38	7.752	2.8
11	9.525	0.2~1.2	3.97	11.628	4.4

Workpiece	Steel	P							Machining types	
	Stainless steel	M								
Cast iron	K									● General cutting
Non-ferrous metal	N	●	✱	✱	✱	✱	✱	✱		✱ Interrupted cutting
Heat resistant alloy, Titanium alloy	S									
Hardened steel	H									

Picture	Designation	Coated				Uncoated		Cutting Conditions	
		ND3000	PC5040	PD1005	PD1010	H01	H05	fn (mm/rev)	ap (mm)
<b>AK</b> 	DCGT <b>070202-AK</b>		●			●		0.01~0.20	0.05~3.00
	<b>070204-AK</b>		●			●		0.02~0.30	0.10~4.00
	<b>070208-AK</b>		●			●		0.03~0.40	0.10~4.00
	<b>11T302-AK</b>		●			●	●	0.02~0.30	0.05~4.00
	<b>11T304-AK</b>		●			●	●	0.03~0.50	0.10~5.00
	<b>11T308-AK</b>		●			●	●	0.03~0.50	0.10~5.00
	<b>11T312-AK</b>					●	●	0.04~0.60	0.15~5.00
<b>AM</b> 	DCGT <b>11T302-AM</b>						●	0.03~0.25	0.05~3.50
	<b>11T304-AM</b>						●	0.03~0.35	0.10~5.20
	<b>11T308-AM</b>						●	0.03~0.55	0.10~5.50
<b>AR</b> 	DCGT <b>070202-AR</b>					●		0.02~0.30	0.30~4.00
	<b>070204-AR</b>					●		0.03~0.40	0.50~5.00
	<b>070208-AR</b>					●		0.04~0.50	0.50~5.00
	<b>11T302-AR</b>							0.03~0.45	0.30~6.00
	<b>11T304-AR</b>					●		0.04~0.50	0.50~6.00
	<b>11T308-AR</b>					●		0.05~0.60	0.50~6.00
	<b>11T312-AR</b>					●		0.08~0.65	0.50~6.50

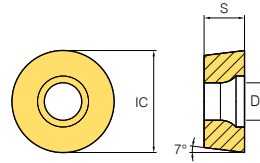
● : Stock item

High Pressure Coolant		Auto Tool		Boring Bar	
Screw on	Page	TH	Page	Screw on	Page
SDACR/L	B114	SDJCR/L	B168	SDQCR/L	B134
SDJCR/L	B115	SDNCN	B169	SDUCR/L	B135
SDNCN	B115			SDZCR/L	B136

# B Aluminum Insert



## RC ○○

Round **R° Positive**  
Relief Angle: 7°



Dimensions (mm)			
Size	IC	S	D1
06	06	2.38	2.8
08	08	3.18	3.35
10	10	3.18~3.97	4.4
12	12	4.76	4.4

Workpiece	Machining types							
	Steel	<b>P</b>						
Stainless steel	<b>M</b>							
Cast iron	<b>K</b>							
Non-ferrous metal	<b>N</b>	●	✦	✦	✦	✦	✦	
Heat resistant alloy, Titanium alloy	<b>S</b>							
Hardened steel	<b>H</b>							

Picture	Designation	Coated				Uncoated		Cutting Conditions	
		ND3000	PC5040	PD1005	PD1010	H01	H05	fn (mm/rev)	ap (mm)
AK 	RCGT <b>0602M0-AK</b>					●		0.05~0.20	0.50~2.00
	<b>0803M0-AK</b>					●	●	0.05~0.25	0.50~2.50
	<b>1003M0-AK</b>					●	●	0.10~0.30	1.00~3.00
	<b>1204M0-AK</b>					●		0.10~0.35	1.00~3.50
AR 	RCGT <b>0602M0-AR</b>							0.05~0.20	0.50~2.00
	<b>0803M0-AR</b>							0.05~0.25	0.50~2.50
	<b>1003M0-AR</b>					●	●	0.10~0.30	1.00~3.00
	<b>10T3M0-AR</b>							0.10~0.30	1.00~3.00
	<b>1204M0-AR</b>							0.10~0.35	1.00~3.50

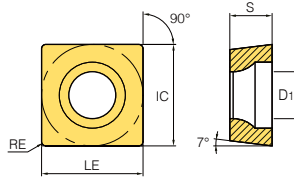
● : Stock item

High Pressure Coolant			
Lever Lock	Page	Screw on	Page
PRDCN	B98	SRDCN	B115
PRGCR/L	B99	SRGCR/L	B116

KHP Coolant	
TH	Page
SRGCR/L	B149


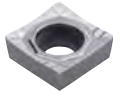
# SC ○○

 Square **90° Positive**  
Relief Angle: 7°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
09	9.525	0.2~0.8	3.97	9.525	4.4
12	12.7	0.4~1.6	4.76	12.7	5.5

Workpiece	Steel	P						Machining types	
	Stainless steel	M							
	Cast iron	K							
	Non-ferrous metal	N	●	⊛	⊛	⊛	⊛	⊛	● Continuous cutting
	Heat resistant alloy, Titanium alloy	S							● General cutting
Hardened steel	H							⊛ Interrupted cutting	

Picture	Designation	Coated				Uncoated		Cutting Conditions	
		ND3000	PC5040	PD1005	PD1010	H01	H05	fn (mm/rev)	ap (mm)
 AK	SCGT <b>09T302-AK</b>							0.02~0.30	0.10~4.00
	<b>09T304-AK</b>		●			●	●	0.04~0.40	0.10~5.00
	<b>09T308-AK</b>					●		0.03~0.40	0.10~5.00
	<b>120404-AK</b>					●		0.03~0.50	0.10~5.00
	<b>120408-AK</b>					●		0.04~0.60	0.15~5.50
	<b>120416-AK</b>							0.04~0.60	0.15~5.50
 AR	SCGT <b>09T302-AR</b>							0.03~0.40	0.50~5.00
	<b>09T304-AR</b>					●	●	0.04~0.50	0.50~6.00
	<b>09T308-AR</b>							0.04~0.50	0.50~6.50
	<b>120404-AR</b>					●	●	0.05~0.60	0.50~6.50
	<b>120408-AR</b>							0.05~0.60	0.50~7.00
	<b>120416-AR</b>							0.05~0.60	0.50~7.00

● : Stock item

High Pressure Coolant	
Screw on	Page
SSBCR/L	B116
SSDCN	B116
SSKCR/L	B117
SSSCR/L	B117

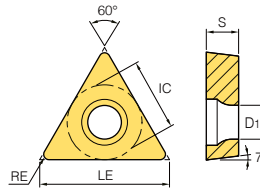
Boring Bar	
Screw on	Page
SSKCR/L	B136



# B Aluminum Insert

## TC ○○

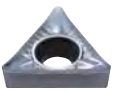
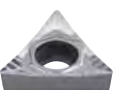
 Triangular **60° Positive**  
Relief Angle: 7°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
09	5.56	0.2~0.4	2.38	9.63	2.5
11	6.35	0.2~0.8	2.38	10.999	2.8
16	9.525	0.2~2.5	3.97	16.498	4.4

Workpiece	Machining types					
	P	M	K	N	S	H
Steel	●	●	●	●	●	●
Stainless steel	●	●	●	●	●	●
Cast iron	●	●	●	●	●	●
Non-ferrous metal	●	●	●	●	●	●
Heat resistant alloy, Titanium alloy	●	●	●	●	●	●
Hardened steel	●	●	●	●	●	●

● Continuous cutting  
 ● General cutting  
 ✦ Interrupted cutting

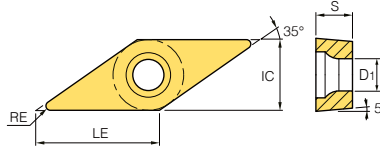
Picture	Designation	Coated				Uncoated		Cutting Conditions	
		ND3000	PC5040	PD1005	PD1010	H01	H05	fn (mm/rev)	ap (mm)
 AK	TCGT 090202-AK					●		0.01~0.12	0.05~3.00
	TCGT 090204-AK					●		0.02~0.15	0.10~4.00
	TCGT 110202-AK		●			●		0.02~0.20	0.05~4.00
	TCGT 110204-AK		●			●	●	0.03~0.30	0.10~4.00
	TCGT 110208-AK					●	●	0.03~0.40	0.10~5.00
	TCGT 16T302-AK					●		0.02~0.30	0.05~5.00
	TCGT 16T304-AK					●		0.03~0.40	0.10~5.50
	TCGT 16T308-AK					●	●	0.03~0.50	0.10~5.50
	TCGT 16T312-AK					●		0.04~0.60	0.15~5.50
	TCGT 16T316-AK					●	●	0.05~0.80	0.15~5.50
	TCGT 16T325-AK							0.06~0.90	0.20~7.00
 AR	TCGT 090202-AR							0.02~0.18	0.30~3.00
	TCGT 090204-AR					●		0.02~0.25	0.30~5.00
	TCGT 110202-AR							0.02~0.30	0.30~4.00
	TCGT 110204-AR					●		0.03~0.40	0.30~5.00
	TCGT 110208-AR							0.04~0.45	0.50~6.00
	TCGT 16T302-AR							0.03~0.45	0.30~5.00
	TCGT 16T304-AR					●		0.04~0.50	0.50~6.00
	TCGT 16T308-AR					●		0.05~0.60	0.50~6.00
	TCGT 16T312-AR							0.06~0.65	0.50~6.00
	TCGT 16T316-AR							0.08~0.70	0.50~6.50
	TCGT 16T325-AR							0.10~0.10	0.80~7.00

● : Stock item

High Pressure Coolant		Auto Tool		Boring Bar	
Screw on	Page	TH	Page	Screw on	Page
STACR/L	B117	STACR/L	B169	STFCR/L	B137
STFCR/L	B118				
STGCR/L	B118				
STTCR/L	B118				



## VB ○○

**Rhombic 35° Positive**  
Relief Angle: 5°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
11	6.35	0.2~0.8	3.18	11.071	2.8
16	9.525	0.2~1.2	4.76	16.606	4.4

Workpiece	Steel	P						Machining types	
	Stainless steel	M						● Continuous cutting	
Cast iron	K						● General cutting		
Non-ferrous metal	N	●	✱	●	●	●	✱	✱ Interrupted cutting	
Heat resistant alloy, Titanium alloy	S								
Hardened steel	H								

Picture	Designation	Coated				Uncoated		Cutting Conditions	
		ND3000	PC5040	PD1005	PD1010	H01	H05	fn (mm/rev)	ap (mm)
 AK	VBGT 110302-AK					●		0.02~0.15	0.05~3.00
	110304-AK					●	●	0.02~0.15	0.10~4.00
	110308-AK						●	0.03~0.18	0.10~5.00
	160402-AK							0.03~0.30	0.05~4.00
	160404-AK					●	●	0.03~0.40	0.10~5.00
	160408-AK					●		0.03~0.50	0.10~5.00
	160412-AK							0.05~0.60	0.10~5.50
 AR	VBGT 110302-AR							0.02~0.35	0.30~3.00
	110304-AR							0.03~0.45	0.30~4.00
	110308-AR							0.03~0.50	0.50~6.00
	160402-AR							0.04~0.45	0.30~5.00
	160404-AR					●		0.04~0.50	0.50~6.00
	160408-AR					●		0.05~0.60	0.50~6.00
	160412-AR							0.05~0.70	0.50~6.50

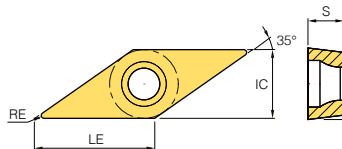
● : Stock item

High Pressure Coolant		Auto Tool		KHP Coolant		Boring Bar	
Screw on	Page	TH	Page	TH	Page	Screw on	Page
SVVBN	B120	SVJBR/L	B170	SVJBR/L	B149	SVQBR/L	B139
SVABR/L	B119					SVUBR/L	B140
SVHBR/L	B119						
SVJBR/L	B119						

# B Aluminum Insert

## VC ○○

Rhombic **35° Positive**  
Relief Angle: 7°



Dimensions (mm)					
Size	IC	RE	S	LE	D1
11	6.35	0.1~0.8	3.18	11.071	2.8
13	7.94	0.2~0.8	3.18	14.314	3.4
16	9.525	0.2~1.2	4.76	16.606	4.4
22	12.7	1.6~3.0	5.56	22.142	5.6

Workpiece	Steel	P						Machining types
	Stainless steel	M						
Cast iron	K							● Continuous cutting
Non-ferrous metal	N	●	✱	✱	✱	✱	✱	● General cutting
Heat resistant alloy, Titanium alloy	S							✱ Interrupted cutting
Hardened steel	H							

Picture	Designation	Coated				Uncoated		Cutting Conditions	
		ND3000	PC5040	PD1005	PD1010	H01	H05	fn (mm/rev)	ap (mm)
<p>AK</p>	VC GT	110301-AK				●		0.02~0.15	0.05~3.00
			110302-AK	●			●	0.02~0.20	0.05~3.00
			110304-AK	●			● ●	0.02~0.25	0.10~4.00
			110308-AK				● ●	0.03~0.30	0.10~5.00
			130302-AK	●			●	0.02~0.35	0.10~5.00
			130304-AK	●			●	0.03~0.35	0.10~5.00
			130308-AK					0.04~0.40	0.10~5.00
			160402-AK	●			●	0.02~0.30	0.05~5.00
			160404-AK	●			●	0.03~0.40	0.10~5.00
			160408-AK	●			● ●	0.03~0.50	0.10~5.00
			160412-AK				● ●	0.03~0.50	0.10~5.00
			220516-AK				●	0.03~0.60	0.10~7.00
			220525-AK					●	0.05~0.70
		220530-AK				● ●	0.08~1.00	0.10~7.00	
<p>AM</p>	VC GT	160402-AM					●	0.03~0.25	0.05~3.50
			160404-AM				●	0.03~0.35	0.10~5.20
			160408-AM				●	0.03~0.55	0.10~5.50
			220520-AM				●	0.12~1.00	1.20~7.00
			220530-AM				●	0.15~1.00	1.20~7.50
<p>AR</p>	VC GT	110301-AR				●		0.02~0.20	0.10~3.00
			110302-AR				●	0.02~0.25	0.30~3.00
			110304-AR				●	0.03~0.35	0.30~4.00
			110308-AR					0.04~0.45	0.50~6.00
			130302-AR					0.02~0.40	0.50~3.00
			130304-AR					0.03~0.45	0.50~4.00
			130308-AR					0.04~0.50	0.50~5.00
			160402-AR				● ●	0.03~0.40	0.30~5.00
			160404-AR				● ●	0.04~0.50	0.50~6.00
			160408-AR				● ●	0.05~0.60	0.50~6.00
			160412-AR					0.06~0.65	0.50~6.50
			220516-AR					0.10~0.65	0.80~6.50
			220525-AR					0.10~0.70	0.80~7.00
		220530-AR				● ●	0.12~0.75	1.00~7.00	

● : Stock item

High Pressure Coolant	
Screw on	Page
SVJCR/L	B120
SVVCN	B120

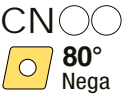
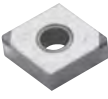

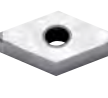


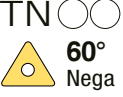


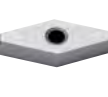
Auto Tool	
TH	Page
SVACR/L	B169

Boring Bar	
Screw on	Page
SVJCR/L	B139
SVQCR/L	B140
SVUCR/L	B140

# cBN

## Multi-Corner Type (Negative)

Dimensions (mm)				
Size	IC	RE	S	D <sub>1</sub>
12	12.7	0.4~1.2	4.76	5.16
15	12.7	0.4~1.2	4.76~6.35	5.16
16	9.525	0.4~1.2	4.76	3.81

Picture	Designation	Coated				Uncoated						Available tool holders					
		DNC100	DNC250	DNC300	DNC350	DB1000	DB2000	DBN250	DBN350	DBN700A	DBNX20	Designation	Page				
 	2NU-CNGA	120404	●	●	●	●	●					●	DCBNR/L	B91			
		120404F		●		●								DCLNR/L	B91		
		120404T		●		●	●							MCKNR/L	B107		
		120404W		●										MCLNR/L	B107		
		120404WF		●										MCMNN	B107		
		120408	●	●	●	●	●	●					●	PCBNR/L	B96		
		120408F		●		●								PCLNR/L	B97		
		120408T		●		●	●										
		120408W		●		●	●	●					●				
		120408WF								●							
		120412	●	●	●	●											
		120412F		●		●											
		120412T		●		●											
		120412W		●									●				
		120412WT						●									
	T-2NU-CNGA	120404		●													
		120408		●		●											
	4NU-CNGA	120404		●													
		120408		●		●											
		120412		●													
 	2NU-DNGA	150404		●	●	●		●	●				DDJNR/L	B92			
		150404F		●		●								MDJNR/L	B108		
		150404T		●		●								MDNNN	B108		
		150408		●	●	●	●	●	●	●				MDQNR/L	B109		
		150408F		●		●								MDUNR/L	B130		
		150408T		●		●	●	●						PDJNR/L	B97		
		150412		●		●								PDNNR/L	B98		
		150412F		●		●								PDSNR/L	B127		
		150412T		●		●								PDUNR/L	B127		
		150604	●	●		●											
		150608	●	●		●											
			4NU-DNGA	150404		●		●									
150408				●		●											
150412				●		●											
150608				●													
 	4NU-SNGA	120404		●									DSBNR/L	MSBNR/L	B92	B109	
		120408		●								●		MSDNN	MSKNR/L	B109	B110
														MSRNR/L	MSSNR/L	B110	B111
														PSBNR/L	PSDNN	B99	B100
														PSKNR/L		B100	
 	3NU-TNGA	160404		●		●	●	●		●			MTENN	MTFNR/L	B111	B111	
		160404T		●										MTGNR/L	MTJNR/L	B112	B112
		160408		●		●							●	PTFNR/L	PTGNR/L	B101	B102
		160408F		●										PTTNR/L	WTENN	B102	B103
		160408T		●										WTJNR/L	WTXNR/L	B103	B103
		160412					●										
 	2NU-VNGA	160404	●	●	●	●				●		●	MVJNR/L		B112		
		160404F		●		●								MVQNR/L		B113	
		160404T		●		●								MVUNR/L		B131	
		160408	●	●	●	●	●	●	●	●		●		MVVNN		B113	
		160408F		●		●											
		160408T		●		●				●							
		160408	●					●									


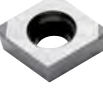


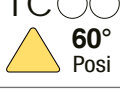

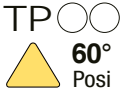







※ T-2NU-□□□□△△△△△△ designation package unit is 10pcs.

● : Stock item

## cBN

### Multi-Corner Type (Positive)

Dimensions (mm)					Dimensions (mm)				
Size	IC	RE	S	D <sub>1</sub>	Size	IC	RE	S	D <sub>1</sub>
06	6.35	0.2~0.8	2.38	2.8	11	6.35~9.525	0.2~0.8	3.18~3.97	3.4~4.4
07	6.35	0.4~0.8	2.38	2.8	16	9.525	0.2~0.8	4.76	4.4
09	5.56~9.525	0.2~0.8	2.38~3.97	2.5~4.4					

Picture	Designation	Coated										Uncoated										Available tool holders			
		DNC100	DNC250	DNC300	DNC350	DB1000	DB2000	DBN250	DBN350	DBN700A	DBN120	DNC100	DNC250	DNC300	DNC350	DB1000	DB2000	DBN250	DBN350	DBN700A	DBN120	Designation	Page		
 	2NU-CCGW	060202	●																			SCACR/L	B114		
		060202T	●																				SCLCR/L	B114	
		060204	●						●																
		060204F	●																						
		060204T	●																						
		060208								●															
		09T302	●																						
		09T304	●	●		●		●			●		●												
		09T304T	●																						
		09T308	●	●		●					●	●													
		09T308T	●																						
09T308W	●																								
 	2NU-DCGW	070204	●					●														SDACR/L	B114		
		070208	●																				SDJCR/L	B115	
		070208T								●													SDNCN	B115	
		11T302		●																			SDQCR/L	B134	
		11T304	●	●		●		●			●												SDUCR/L	B135	
		11T304F		●																			SDZCR/L	B136	
		11T304T		●																					
		11T308	●	●		●					●		●												
		11T308T	●																						
		T-2NU-DCGW	11T304	●																					
		11T308	●		●																				
 	3NU-TCGW	090204	●																			STACR/L	B117		
		090204F	●																				STFCR/L	B118	
		090204T	●																				STGCR/L	B118	
																							STTCR/L	B118	
 	3NU-TPGW	110304	●		●		●	●						●								CTFPR/L	B129		
		110304F	●																						
		110304T	●																						
		110308	●		●		●	●							●										
		110308F	●																						
		110308T	●																						
	3NU-TPGN	110308						●	●													CTFPR/L	B106		
		160304	●																				CTGPR/L	B106	
		160308	●																						
	3NU-TPGB	110304																				CTFPR/L	B106		
		110308F																					CTGPR/L	B106	
		110308T																							
 	2NU-VBGW	160402	●																			SVABR/L	B119		
		160404	●	●		●		●			●				●									SVHBR/L	B119
		160404F	●																					SVJBR/L	B119
		160404T	●																					SVQBR/L	B139
		160408	●	●		●					●	●												SVUBR/L	B140
		160408F	●																						
		160408T	●																						
		T-2NU-VBGW	160408																						
		 	2NU-VCGW	160404	●		●																	SVVCN	B120
160404F	●																							SVJCR/L	B120
160404T	●																							SVQCR/L	B140
160408	●																							SVUCR/L	B140
160408F	●																								
160408T	●											●													
T-2NU-VCGW	160404			●																					



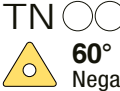





\* T-2NU-□□□□△△△△△△ designation package unit is 10pcs.

●: Stock item

# cBN

## Regrinding Type (Negative/Positive)

Size	Dimensions (mm)					Size	Dimensions (mm)				
	IC	RE	S	D <sub>1</sub>	IC		RE	S	D <sub>1</sub>		
09	9.525	0.4	3.97	4.4		15	12.7	0.4~0.8	4.76	5.16	
11	6.35~9.525	0.4~0.8	3.8~3.97	3.4~4.4		16	9.525	0.4~0.8	4.76	3.81~4.4	
12	12.7	0.4~0.8	4.76	5.16							

Picture	Designation	Coated				Uncoated				Available tool holders				
		DNC100	DNC250	DNC300	DNC350	DB1000	DB2000	DBN250	DBN350	DBN700A	DBNX20	Designation	Page	
 CN ○○ 80° Nega	CNMA	<b>120404</b>					●				DCBNR/L	MCKNR/L	B91	B107
			<b>120408</b>				●			●	DCLNR/L	MCLNR/L	B91	B107
	T-CNMA	<b>120408</b>					●				PCBNR/L	MCMNN	B96	B107
											PCLNR/L		B97	
 DN ○○ 55° Nega	DNMA	<b>150404</b>					●				DDJNR/L	MDJNR/L	B92	B108
			<b>150408</b>				●				MDNNN	MDQNR/L	B108	B109
											MDUNR/L	PDJNR/L	B130	B97
											PDNNR/L	PDSNR/L	B98	B127
											PDUNR/L		B127	
 TN ○○ 60° Nega	TNMA	<b>160404</b>					●				MTENN	MTFNR/L	B111	B111
			<b>160408</b>				●				MTGNR/L	MTJNR/L	B112	B112
											PTFNR/L	PTGNR/L	B101	B102
											PTTNR/L	WTENN	B102	B103
											WTJNR/L	WTXNR/L	B103	B103
 VN ○○ 35° Nega	T-VNMA	<b>160404</b>					●				MVJNR/L		B112	
			<b>160408</b>				●				MVQNR/L		B113	
	VNMA	<b>160404</b>					●				MVUNR/L		B131	
											MVVNN		B113	
 CC ○○ 80° Posi	CCMW	<b>09T304</b>					●				SCACR/L		B114	
											SCLCR/L		B114	
 DC ○○ 55° Posi	DCGW	<b>11T308</b>					●				SDACR/L		B114	
			<b>11T308</b>				●				SDJCR/L		B115	
	T-DCGW	<b>11T308</b>					●				SDNCN		B115	
 VB ○○ 35° Posi	VBMW	<b>160404</b>					●				SVABR/L		B119	
			<b>160408</b>				●				SVHBR/L		B119	
											SVJBR/L		B119	
											SVQBR/L		B139	
											SVUBR/L		B140	
 TP ○○ 60° Posi	T-TPGB	<b>110304</b>					●				CTFPR/L		B106	
			<b>110304</b>				●				CTGPR/L		B106	
	TPGB	<b>110304</b>					●							

※ T-2NU-□□□□△△△△△△ designation package unit is 10pcs.

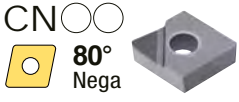
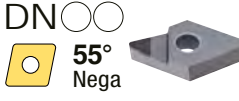
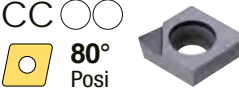





● : Stock item



## PCD

### Insert (Negative/Positive)

Dimensions (mm)					Dimensions (mm)				
Size	IC	RE	S	D <sub>1</sub>	Size	IC	RE	S	D <sub>1</sub>
06	6.35	0.2~0.4	2.38	2.8	11	6.35~9.525	0.2~0.8	3.18~3.97	3.4~4.4
07	6.35	0.2~0.4	2.38	2.8	12	12.7	0.4~0.8	4.76	5.16
08	4.76	0.4	2.38	2.3	15	12.7	0.4~0.8	4.76	5.16
09	5.56~9.525	0.4	2.38~3.97	2.5~4.4	16	9.525	0.4~0.8	4.76	3.81

Picture	Designation	PCD			Available tool holders			
		DP90	DP150	DP200	Designation		Page	
 <p>CN 80° Nega</p>	CNMM	120404	●		DCBNR/L	DCLNR/L	B91	B91
		120408	●		MCKNR/L	MCLNR/L	B107	B107
					MCMNN	PCBNR/L	B107	B96
					PCLNR/L		B97	
 <p>DN 55° Nega</p>	DNMM	150404	●		DDJNR/L	MDJNR/L	B92	B108
		150408	●		MDNNN	MDQNR/L	B108	B109
					MDUNR/L	PDJNR/L	B130	B97
					PDNNR/L	PDSNR/L	B98	B127
					PDUNR/L		B127	
 <p>CC 80° Posi</p>	CCMW	120404	●		SCACR/L		B114	
	CCMT	060202	●		SCLCR/L		B114	
		060204	●					
		09T304	●					
		09T308	●					
 <p>DC 55° Posi</p>	DCMT	070202	●		SDACR/L		B114	
		070204	●		SDJCR/L		B115	
		11T302	●		SDNCN		B115	
		11T304	●		SDQCR/L		B134	
		11T308	●		SDUCR/L		B135	
		11T304	●		SDZCR/L		B136	
 <p>TP 60° Posi</p>	TPGW	080204	●		STUPR/L		B143	
		090204	●		STFPR/L		B138	
		110304	●					
		110308	●					
 <p>VB 35° Posi</p>	VBGW	160404	●		SVHBR/L		B119	
	VBMT	110304	●		SVJBR/L		B119	
		110308	●		SVUBR/L		B140	
		160404	●					
		160408	●					
		VCMT	160404	●		SVVCN		B120
		160408	●					
 <p>TP 60° Posi</p>	TPGN	110304	●		CTFPR/L		B129	
		110308	●					
 <p>SP 90° Posi</p>	SPGN	090304	●		CSDPN		B105	
					CSKPR/L		B106	

● : Stock item

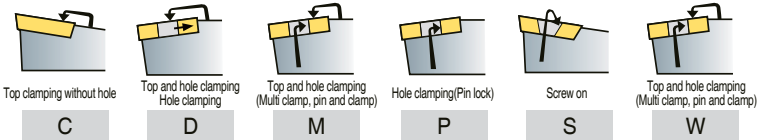
P S K N R 25 25 - M 12

1 2 3 4 5 6 7 8 9

Clamping Method of Insert    Insert Shape    Holder Style    Relief Angle of Insert    Hand    Height of Shank    Width of Shank    Length of Holder    Length of Insert Cutting Edge

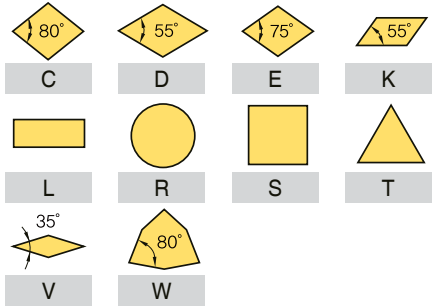
**1 Clamping Method of Insert**

P S K N R 25 25 - M 12



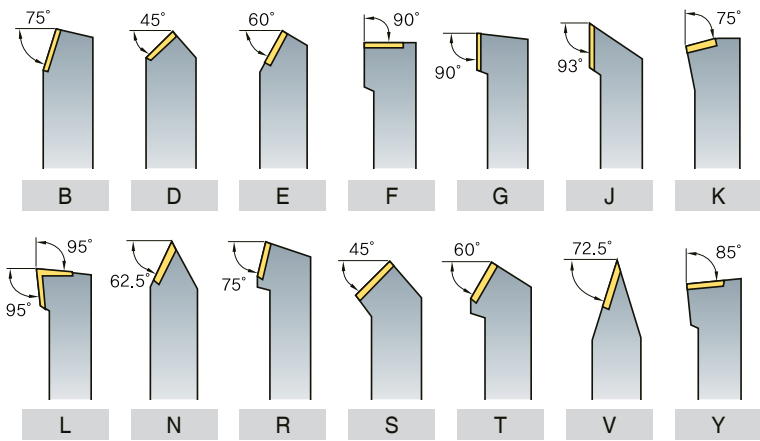
**2 Insert Shape**

P S K N R 25 25 - M 12



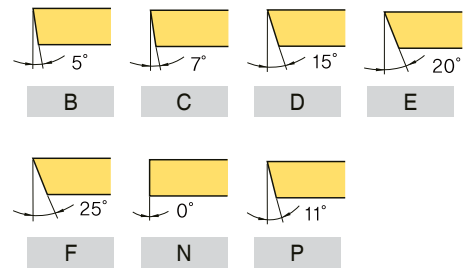
**3 Holder Style**

P S K N R 25 25 - M 12



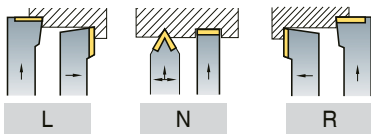
**4 Relief Angle of Insert**

P S K N R 25 25 - M 12



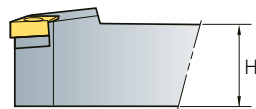
**5 Hand**

P S K N R 25 25 - M 12



**6 Height of Shank**

P S K N R 25 25 - M 12



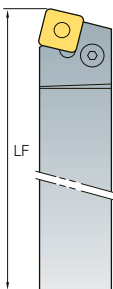
**7 Width of Shank**

P S K N R 25 25 - M 12



**8 Length of Holder**

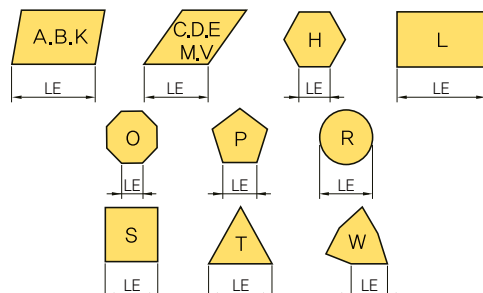
P S K N R 25 25 - M 12



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

**9 Length of Insert Cutting Edge**

P S K N R 25 25 - M 12



# B Index for External Holders

## Double Clamp System

Cutting Shape										
Designation	DCBNR/L	DCKNR/L	DCLNR/L	DDJNR/L	DSBNR/L	DSDNN	DSKNR/L	DSSNR/L	DTFNR/L	DTGNR/L
Tool cutting edge angle	75°	75°	95°	93°	75°	45°	75°	45°	90°	90°
Page	B91	B91	B91	B92	B92	B93	B93	B93	B94	B94
Turning	●		●	●	●	●		●		●
Copying				●						
Facing		●	●				●	●	●	
Chamfering						●				
Back turning			●	●						

Cutting Shape									
Designation	DVJNR/L	DVVNN	DWLNR/L						
Tool cutting edge angle	93°	72.5°	95°						
Page	B94	B95	B95						
Turning	●	●	●						
Copying	●	●							
Facing			●						
Chamfering									
Back turning	●		●						

## Lever Lock System

Cutting Shape										
Designation	PCBNR/L	PCKNR/L	PCLNR/L	PDJNR/L	PDNNR/L	PRDCN	PRGCR/L	PSBNR/L	PSDNN	PSKNR/L
Tool cutting edge angle	75°	75°	95°	93°	62.5°	-	-	75°	45°	75°
Page	B96	B96	B97	B97	B98	B98	B99	B99	B100	B100
Turning	●	●	●	●	●	●	●	●	●	
Copying				●	●	●	●			
Facing			●							●
Chamfering										
Back turning			●	●						

Cutting Shape									
Designation	PSSNR/L	PTFNR/L	PTGNR/L	PTTNR/L	PWLNR/L				
Tool cutting edge angle	45°	90°	90°	60°	95°				
Page	B101	B101	B102	B102	B102				
Turning	●		●	●	●				
Copying									
Facing	●	●			●				
Chamfering				●					
Back turning					●				

## Wedge Clamp System

<b>Cutting Shape</b>										
<b>Designation</b>	WTENN	WTJNR/L	WTXNR/L	WWLNR/L						
<b>Tool cutting edge angle</b>	60°	93°	105°	95°						
<b>Page</b>	B103	B103	B103	B104						
Turning	•	•	•	•						
Copying	•	•	•							
Facing				•						
Chamfering										
Back turning		•	•	•						

## Clamp on System

<b>Cutting Shape</b>										
<b>Designation</b>	CKJNR/L	CKNNR/L	CSDPN	CSKPR/L	CTFPR/L	CTGPR/L				
<b>Tool cutting edge angle</b>	93°	62.5°	45°	75°	90°	90°				
<b>Page</b>	B105	B105	B105	B106	B106	B106				
Turning	•	•	•			•				
Copying	•	•								
Facing				•	•					
Chamfering										
Back turning	•									

## Multi Lock System

<b>Cutting Shape</b>										
<b>Designation</b>	MCKNR/L	MCLNR/L	MCMNN	MCRNR/L	MDJNR/L	MDNNN	MDQNR/L	MSBNR/L	MSDNN	MSKNR/L
<b>Tool cutting edge angle</b>	75°	95°	50°	75°	93°	62.5°	107.5°	75°	45°	75°
<b>Page</b>	B107	B107	B107	B108	B108	B108	B109	B109	B109	B110
Turning		•	•	•	•	•	•	•	•	
Copying					•	•	•			
Facing	•	•								•
Chamfering										
Back turning		•			•		•			

<b>Cutting Shape</b>										
<b>Designation</b>	MSRRN/L	MSSNR/L	MTENN	MTFNR/L	MTGNR/L	MTJNR/L	MVJNR/L	MVQNR/L	MVVNN	MWLNR/L
<b>Tool cutting edge angle</b>	75°	45°	60°	90°	90°	93°	93°	117.5°	72.5°	95°
<b>Page</b>	B110	B111	B111	B111	B112	B112	B112	B113	B113	B113
Turning	•	•	•		•	•	•	•	•	•
Copying			•			•	•	•	•	
Facing		•		•		•				•
Chamfering										
Back turning						•	•	•		•

# B Index for External Holders

## Screw on System

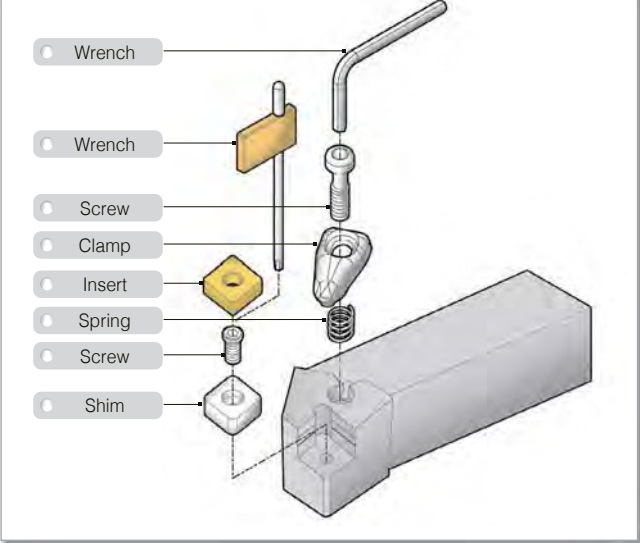
Cutting Shape										
<b>Designation</b>	SCACR/L	SCLCR/L	SDACR/L	SDJCR/L	SDNCN	SRDCN	SRGCR/L	SSBCR/L	SSDCN	SSKCR/L
<b>Tool cutting edge angle</b>	90°	95°	90°	93°	62.5°	-	-	75°	45°	75°
<b>Page</b>	B114	B114	B114	B115	B115	B115	B116	B116	B116	B117
Turning	•	•	•	•	•	•	•	•	•	
Copying			•	•	•	•	•			
Facing		•								•
Chamfering										
Back turning		•		•						

Cutting Shape										
<b>Designation</b>	SSSCR/L	STACR/L	STFCR/L	STGCR/L	STTCR/L	SVABR/L	SVHBR/L	SVJBR/L	SVJCR/L	SVVBN
<b>Tool cutting edge angle</b>	45°	90°	90°	90°	60°	90°	107.5°	93°	93°	72.5°
<b>Page</b>	B117	B117	B118	B118	B118	B119	B119	B119	B120	B120
Turning	•	•		•	•	•	•	•	•	•
Copying						•	•	•	•	•
Facing	•		•							
Chamfering										
Back turning						•	•	•	•	

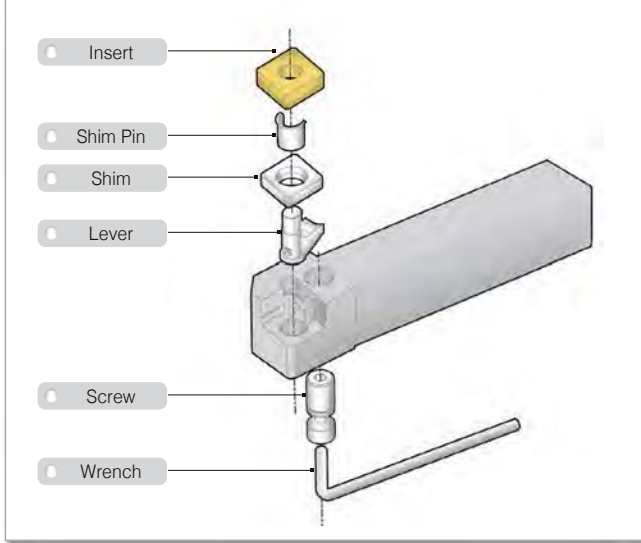
Cutting Shape										
<b>Designation</b>	SVVCN									
<b>Tool cutting edge angle</b>	72.5°									
<b>Page</b>	B120									
Turning	•									
Copying	•									
Facing										
Chamfering										
Back turning										

**Instruction of External Holders**

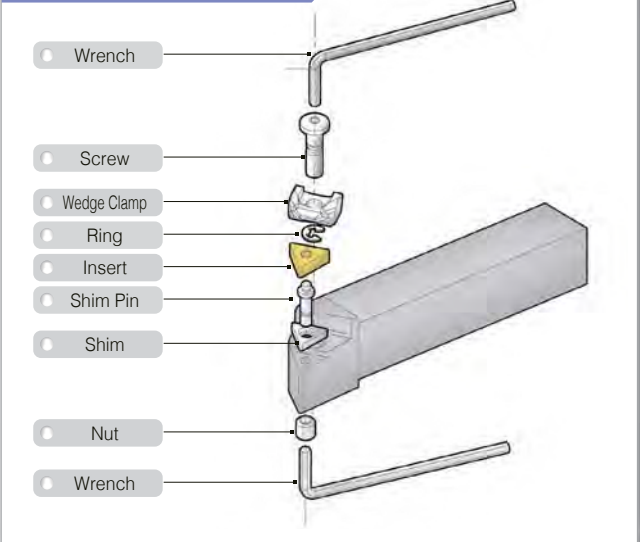
**Double Clamp System**



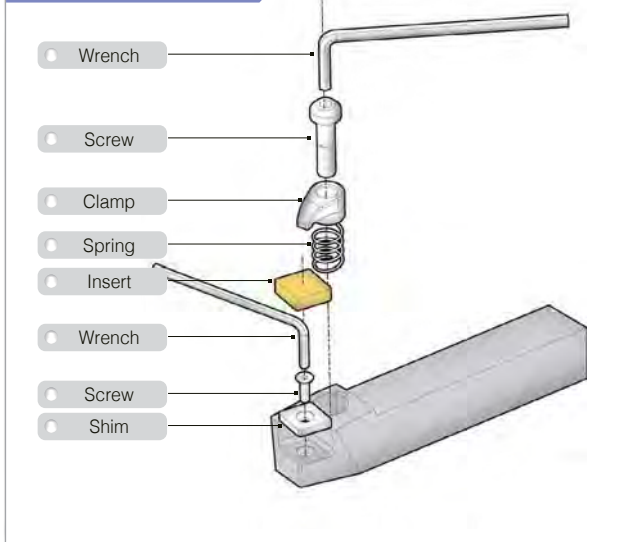
**Lever Lock System**



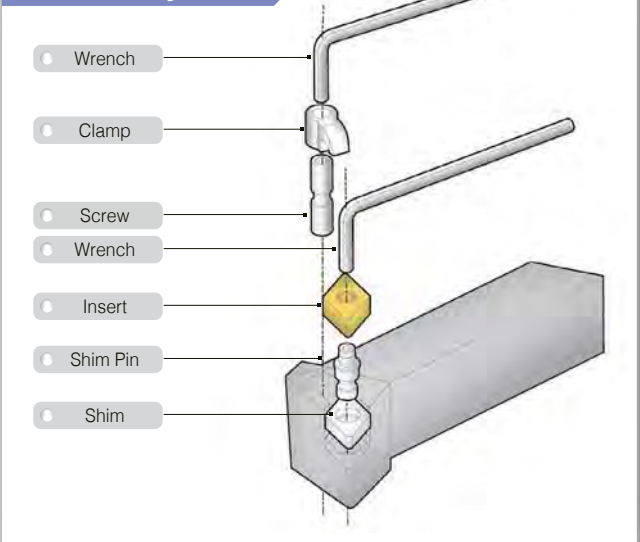
**Wedge Clamp System**



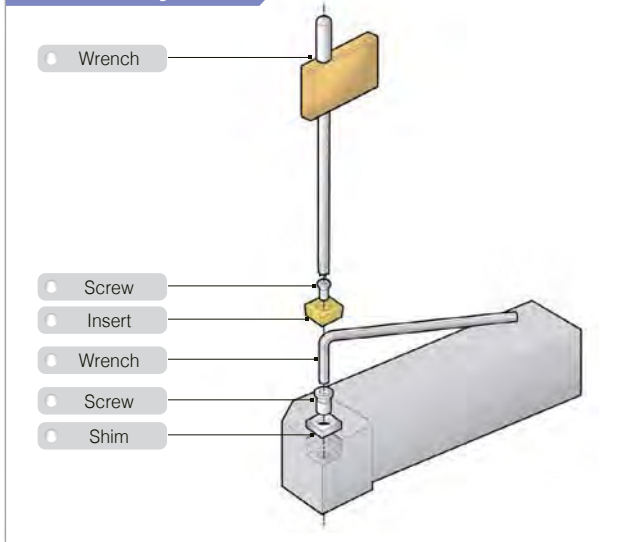
**Clamp on System**



**Multi Lock System**



**Screw on System**



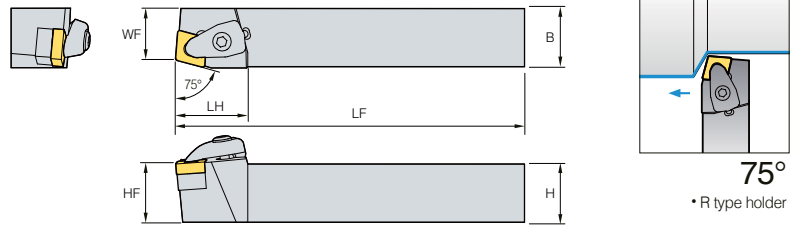


# B Double Clamp System

## DCBNR/L



CN□□



75°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
	R	L														
DCBNR/L 2020-K12	•	•	31	125	17	20	20	20	R/L	CN□□1204□□	CVH4	CHX0518	SC44V	FTKA0410	SPR0714	HW30P
	•	•	31	150	22	25	25	25	R/L							
	•		31	170	22	32	25	32	R/L							
2525-M12	•	•	31	150	22	25	25	25	R/L	CN□□1606□□	CVH5	CHX0622	SC54V	FTNA0511	SPR0811	HW40L
3225-P12	•		31	170	22	32	25	32	R/L							
2525-M16	•	•	38	150	22	25	25	25	R/L							
3232-P16	•	•	38	170	27	32	32	32	R/L	CN□□1906□□	CVH6	CHX0622	SC63V	FTNA0511	SPR0811	HW40L
3232-P19	•	•	43	170	27	32	32	32	R/L							
4040-S19	•		43	250	35	40	40	40	R/L							

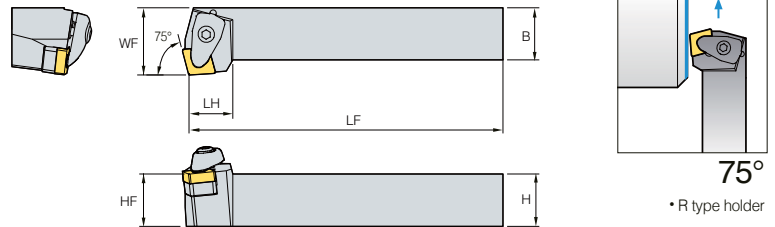
↻ Applicable inserts B5 ~ B12

•: Stock item

## DCKNR/L



CN□□



75°

• R type holder

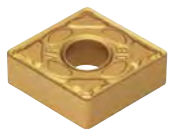
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
	R	L														
DCKNR/L 2020-K12			21	125	25	20	20	20	R/L	CN□□1204□□	CVH4	CHX0518	SC44V	FTKA0410	SPR0714	HW30P
	•	•	21	150	32	25	25	25	R/L							
			21	170	32	32	25	32	R/L							
2525-M12	•	•	21	150	32	25	25	25	R/L	CN□□1606□□	CVH5	CHX0622	SC54V	FTNA0511	SPR0811	HW40L
3225-P12			26	170	40	32	32	R/L								
3232-P16			26	250	50	40	40	R/L								

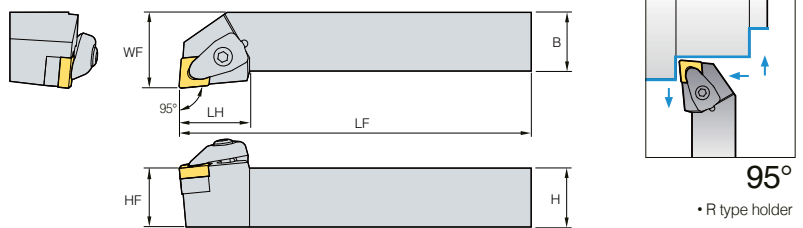
↻ Applicable inserts B5 ~ B12

•: Stock item

## DCLNR/L



CN□□



95°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
	R	L														
DCLNR/L 2020-K09			24.5	125	25	20	20	20	R/L	CN□□0903□□	CVH3	CHX0415	SC32V	FTKA0307	SPR0510	HW25P
	•	•	24.5	150	32	25	25	25	R/L							
2525-M09	•	•	24.5	150	32	25	25	25	R/L	CN□□1204□□	CVH4	CHX0518	SC44V	FTKA0410	SPR0714	HW30P
2020-K12	•	•	30	125	25	20	20	20	R/L							
2525-M12	•	•	30	150	32	25	25	25	R/L							
3225-P12	•	•	30	170	32	32	25	32	R/L	CN□□1606□□	CVH5	CHX0622	SC54V	FTNA0511	SPR0811	HW40L
3232-P12	•	•	30	170	40	32	32	32	R/L							
2525-M16	•	•	36	150	32	25	25	25	R/L							
3225-P16	•	•	36	170	32	32	25	32	R/L	CN□□1906□□	CVH6	CHX0622	SC63V	FTNA0511	SPR0811	HW40L
3232-P16	•	•	39	170	40	32	32	32	R/L							
2525-M19			40	150	32	25	25	25	R/L							
3225-P19			40	170	32	32	25	32	R/L	CN□□1906□□	CVH6	CHX0622	SC63V	FTNA0511	SPR0811	HW40L
3232-P19	•	•	40	170	40	32	32	32	R/L							
4040-S19	•	•	40	250	50	40	40	40	R/L							

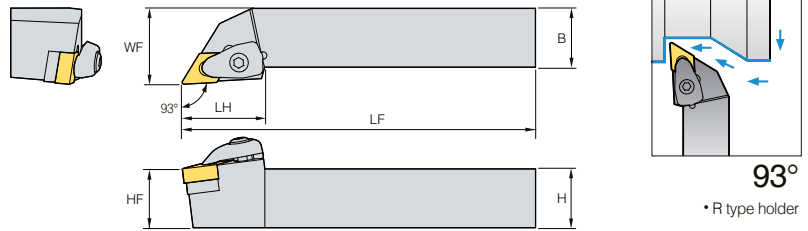
↻ Applicable inserts B5 ~ B12

•: Stock item

## DDJNR/L



DN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
	R	L														
DDJNR/L 2020-K11	●	●	30	125	25	20	20	20	R/L	DN□□1104□□	CVH3	CHX0415	SD32V	FTKA0307	SPR0510	HW25P
2525-M11	●	●	30	150	32	25	25	25	R/L							
3225-P11			30	170	32	32	25	32	R/L							
3232-P11			30	170	40	32	32	32	R/L	DN□□1506□□	CVH4	CHX0518	SD43V	FTKA0410	SPR0714	HW30P
2020-K15	●	●	35	125	25	20	20	20	R/L							
2525-M15	●	●	35	150	32	25	25	25	R/L							
3225-P15	●		35	170	32	32	25	32	R/L							
3232-P15	●	●	35	170	40	32	32	32	R/L	DN□□1504□□	CVH4	CHX0518	SD44V	FTKA0410	SPR0714	HW30P
2020-K15-3	●	●	35	125	25	20	20	20	R/L							
2525-M15-3	●	●	35	150	32	25	25	25	R/L							
3232-P15-3	●		35	170	40	32	32	32	R/L							

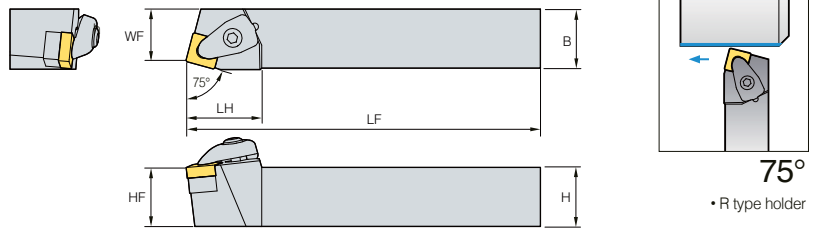
↻ Applicable inserts B13 ~ B18

● : Stock item

## DSBNR/L



SN□□



(mm)

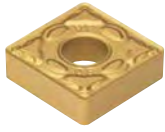
Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
	R	L														
DSBNR/L 2020-K09			25	125	17	20	20	20	R/L	SN□□0903□□	CVH3	CHX0415	SS32V	FTKA0307	SPR0510	HW25P
2525-M09			25	150	22	25	25	25	R/L							
2020-K12	●		32	125	17	20	20	20	R/L	SN□□1204□□	CVH4	CHX0518	SS44V	FTKA0410	SPR0714	HW30P
2525-M12	●	●	31	150	22	25	25	25	R/L							
3225-P12	●		32	170	22	32	25	32	R/L							
3232-P12			32	170	27	32	32	32	R/L	SN□□1506□□	CVH5	CHX0622	SS54V	FTNA0511	SPR0811	HW40L
2525-M15			38	150	22	25	25	25	R/L							
3225-P15			38	170	22	32	25	32	R/L	SN□□1906□□	CVH6	CHX0622	SS64V	FTNA0511	SPR0811	HW40L
3232-P15			38	170	27	32	32	32	R/L							
3232-P19			43	170	27	32	32	32	R/L							
4040-S19			43	250	35	40	40	40	R/L							

↻ Applicable inserts B20 ~ B28

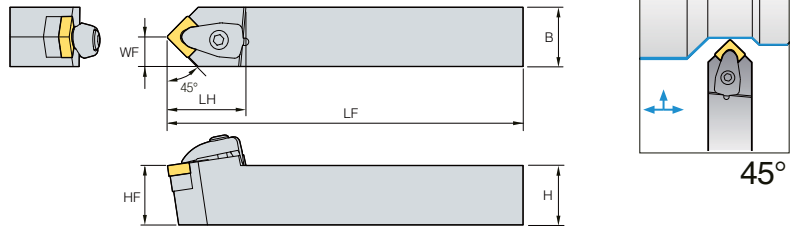
● : Stock item

# B Double Clamp System

## DSDNN



SN□□

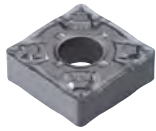


Designation	Stock	LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench	
DSDNN	2020-K09		26.55	125	10	20	20	20	N	SN□□0903□□						
	2020-K12	●	33	125	10	20	20	20	N	SN□□1204□□						
	2525-M12	●	33	150	12.5	25	25	25	N							
	3225-P12	●	33	170	12.5	32	25	32	N							
	3232-P12	●	33	170	16	32	32	32	N							
	2525-M15		39.4	150	12.5	25	25	25	N	SN□□1506□□						
	3232-P15		39.7	170	16	32	32	32	N	SN□□1906□□						
3232-P19	●	44.5	170	16	32	32	32	N								
4040-S19		45	250	20	40	40	40	N								

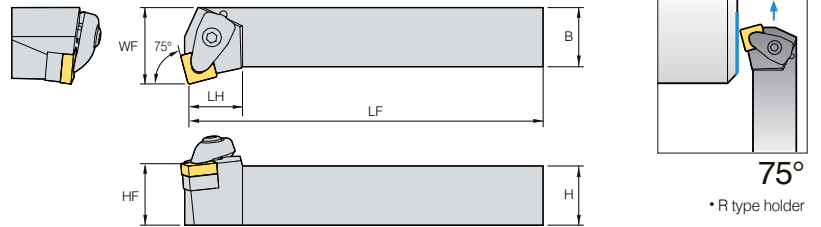
➔ Applicable inserts B20 ~ B28

● : Stock item

## DSKNR/L



SN□□



Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
	R	L														
DSKNR/L	2020-K09		20	125	25	20	20	20	R/L	SN□□0903□□						
	2020-K12	● ●	21.5	125	25	20	20	20	R/L	SN□□1204□□						
	2525-M12	●	23	150	32	25	25	25	R/L							
	3232-P12	●	23	170	40	32	32	32	R/L							
	3232-P15		28	170	40	32	32	32	R/L							
	3232-P19		35	170	40	32	32	32	R/L	SN□□1506□□						
	4040-S19		35	250	50	40	40	40	R/L	SN□□1906□□						

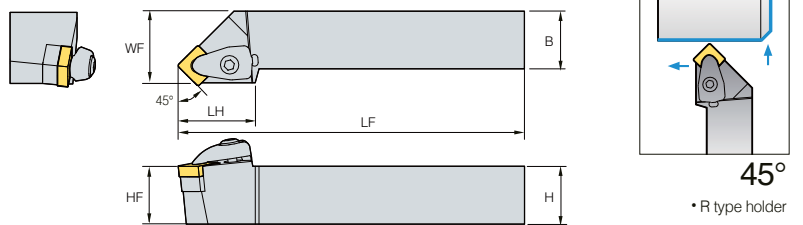
➔ Applicable inserts B20 ~ B28

● : Stock item

## DSSNR/L



SN□□



Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
	R	L														
DSSNR/L	2020-K09		28.5	125	25	20	20	20	R/L	SN□□0903□□						
	2020-K12	● ●	35	125	25	20	20	20	R/L	SN□□1204□□						
	2525-M12	● ●	35	150	32	25	25	25	R/L							
	3225-P12	●	35	170	32	32	25	32	R/L							
	3232-P12	●	35	170	40	32	32	32	R/L							
	2525-M15		38.5	150	32	25	25	25	R/L	SN□□1506□□						
	3232-P15		38.4	170	40	32	32	32	R/L	SN□□1906□□						
3232-P19	●	46	170	40	32	32	32	R/L								
4040-S19		46	250	50	40	40	40	R/L								

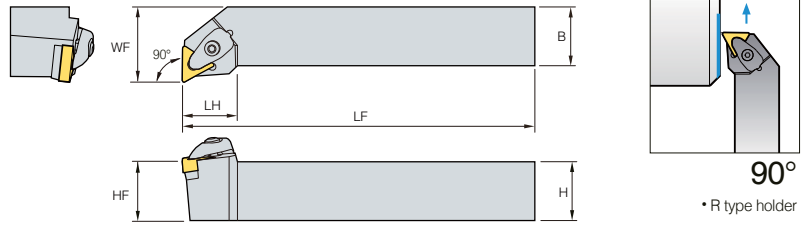
➔ Applicable inserts B20 ~ B28

● : Stock item

## DTFNR/L



TN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
	R	L														
DTFNR/L 2020-K16			23.5	125	25	20	20	20	R/L	TN□□1604□□						
			23.5	150	32	25	25	25	R/L							
			23.5	170	40	32	32	32	R/L							
2525-M22			33	150	32	25	25	25	R/L	TN□□2204□□						
3225-P22			33	170	32	32	25	32	R/L							
3232-P22			33	170	40	32	32	32	R/L							

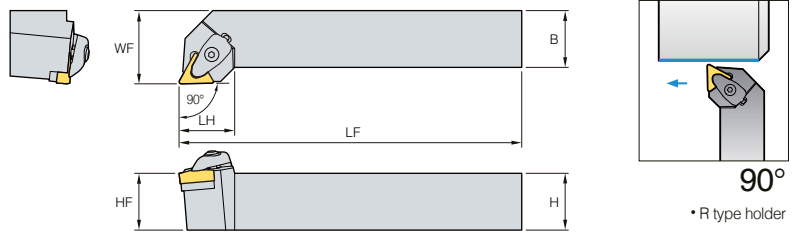
↻ Applicable inserts B29 ~ B36

● : Stock item

## DTGNR/L



TN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
	R	L														
DTGNR/L 2020-K16			24.5	125	25	20	20	20	R/L	TN□□1604□□						
			24.5	150	32	25	25	25	R/L							
			24.5	170	40	32	32	32	R/L							
2525-M22			32.6	150	32	25	25	25	R/L	TN□□2204□□						
3225-P22			32.6	170	32	32	25	32	R/L							
3232-P22			32.6	170	40	32	32	32	R/L							

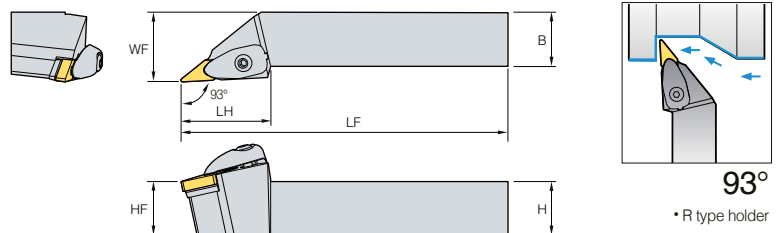
↻ Applicable inserts B29 ~ B36

● : Stock item

## DVJNR/L



VN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
	R	L														
DVJNR/L 2020-K16	●	●	41.5	125	25	20	20	20	R/L	VN□□1604□□						
	●	●	41.5	150	32	25	25	25	R/L							
	●	●	41.5	170	40	32	32	32	R/L							

↻ Applicable inserts B37 ~ B38

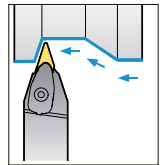
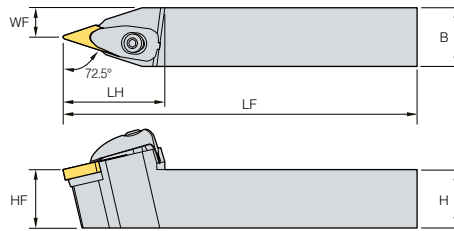
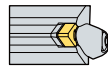
● : Stock item

# B Double Clamp System

## DVVNN



VN□□



72.5°

(mm)

Designation	Stock	LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
DVVNN 2020-K16		40	125	10.582	20	20	20	N	VN□□1604□□						
2525-M16	●	40	150	13.08	25	25	25	N							
3232-P16		40	170	16.58	32	32	32	N							

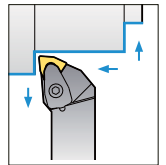
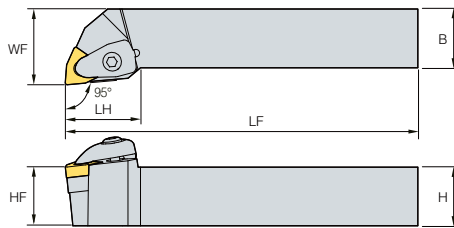
🔄 Applicable inserts B37 ~ B38

●: Stock item

## DWLNR/L



WN□□



95°

• R type holder

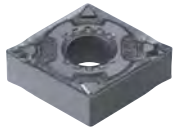
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
	R	L														
DWLNR/L 2020-K06	●	●	26.5	125	25	20	20	20	R/L	WN□□0604□□						
2525-M06	●	●	26	150	32	25	25	25	R/L							
2020-K08	●	●	32	125	25	20	20	20	R/L							
2525-M08	●	●	32	150	32	25	25	25	R/L	WN□□0804□□						

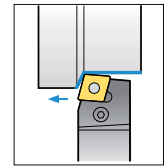
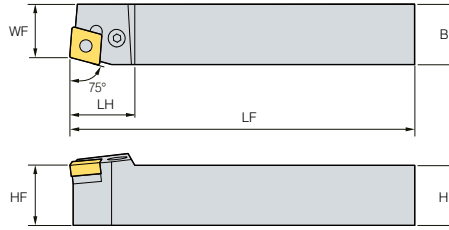
🔄 Applicable inserts B39 ~ B43

●: Stock item

# PCBNR/L



CN□□



75°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PCBNR/L 2020-K12	●	●	27	125	17	20	20	20	R/L	CN□□1204□□	LV4	VHX0821	SC42	SP4	HW30L	LSPS4
	●	●	27	150	22	25	25	25	R/L		LV5	VHX0825	SC53	SP5	HW30L	LSPS6
	●	●	33	170	22	25	25	25	R/L		LV6N	VHX1027N	SC63N	SP6N	HW40L	LSPS6
2525-M12	●	●	27	150	22	25	25	25	R/L	CN□□1606□□	LV8N	VHX1236N	SC84N	SP8N	HW50L	LSPS8
3225-P12	●	●	27	170	22	32	25	32	R/L		LV8N	VHX1236N	SC84N	SP8N	HW50L	LSPS8
2525-M16	●	●	33	150	22	25	25	25	R/L	CN□□1906□□	LV8N	VHX1236N	SC84N	SP8N	HW50L	LSPS8
3232-P16	●	●	33	170	27	32	32	32	R/L		LV8N	VHX1236N	SC84N	SP8N	HW50L	LSPS8
3232-P19	●	●	36	170	27	32	32	32	R/L	CN□□2509□□	LV8N	VHX1236N	SC84N	SP8N	HW50L	LSPS8
4040-S19	●	●	38	250	35	40	40	40	R/L		LV8N	VHX1236N	SC84N	SP8N	HW50L	LSPS8
4040-S25	●	●	47	250	35	40	40	40	R/L	CN□□2507□□	LV8N	VHX1236N	SC84N	SP8N	HW50L	LSPS8
4040-S25-5			47	250	35	40	40	40	R/L		LV8N	VHX1236N	SC84N	SP8N	HW50L	LSPS8
5050-T25	●	●	47	300	43	50	50	50	R/L	CN□□2509□□	LV8N	VHX1236N	SC84N	SP8N	HW50L	LSPS8

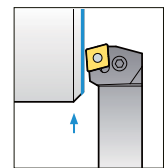
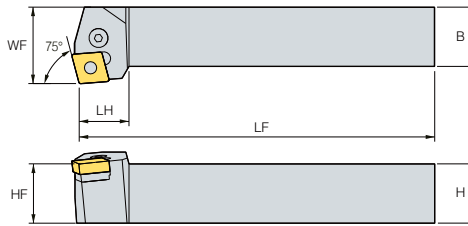
➡ Applicable inserts B5 ~ B12

● : Stock item

# PCKNR/L



CN□□



75°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PCKNR/L 2020-K12	●	●	27	125	25	20	20	20	R/L	CN□□1204□□	LV4	VHX0821	SC42	SP4	HW30L	LSPS4
	●	●	27	150	32	25	25	25	R/L		LV5	VHX0825	SC53	SP5	HW30L	HW30L
			30	170	32	32	25	32	R/L		LV5	VHX0825	SC53	SP5	HW30L	HW30L
3225-P12			33	170	39	32	32	32	R/L	CN□□1606□□	LV5	VHX0825	SC53	SP5	HW30L	HW30L
3232-P16			33	170	39	32	32	32	R/L		LV5	VHX0825	SC53	SP5	HW30L	HW30L
4040-S16			33	250	50	40	40	40	R/L							

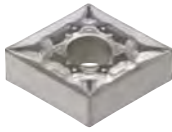
➡ Applicable inserts B5 ~ B12

● : Stock item

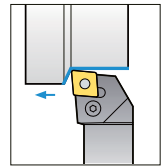
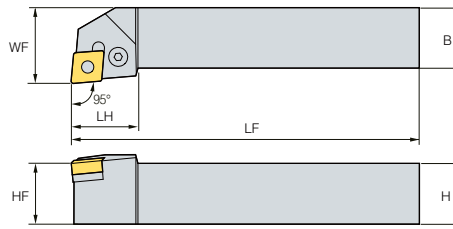


# B Lever Lock System

## PCLNR/L



CN□□



95°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PCLNR/L 1616-H09	●	●	22	100	20	16	16	16	R/L	CN□□0903□□	LV3	VHX0617	SC32	SP3	HW25L	LSPS3
	●	●	22	125	25	20	20	20	R/L							
2525-M09	●	●	22	150	32	25	25	25	R/L	CN□□1204□□	LV4	VHX0821	SC42	SP4	HW30L	LSPS4
1616-H12	●	●	28	100	20	16	16	16	R/L							
2020-K12	●	●	28	125	25	20	20	20	R/L	CN□□1606□□	LV5	VHX0825	SC53	SP5	HW30L	LSPS5
2525-M12	●	●	28	150	32	25	25	25	R/L							
3225-P12	●	●	28	170	32	32	25	32	R/L	CN□□1906□□	LV6N	VHX1027N	SC63N	SP6N	HW40L	LSPS6
3232-P12	●	●	28	170	32	32	32	32	R/L							
2525-M16	●	●	32	150	32	25	25	25	R/L	CN□□2509□□	LV8N	VHX1236N	SC84N	SP8N	HW50L	LSPS8
3232-P16	●	●	33	170	40	32	32	32	R/L							
2525-M19	●	●	36	150	32	25	25	25	R/L	CN□□2507□□	LV8N	VHX1236N	SC84N	SP8N	HW50L	LSPS8
3225-P19	●	●	36	170	32	32	25	32	R/L							
3232-P19	●	●	36	170	40	32	32	32	R/L	CN□□2507□□	LV8N	VHX1236N	SC84N	SP8N	HW50L	LSPS8
4040-P19	●	●	36	170	50	40	40	40	R/L							
4040-S19	●	●	36	250	50	40	40	40	R/L	CN□□2509□□	LV8N	VHX1236N	SC84N	SP8N	HW50L	LSPS8
4040-S25	●	●	47	250	50	40	40	40	R/L							
5050-T25	●	●	60	300	60	50	50	50	R/L	CN□□2507□□	LV8N	VHX1236N	SC84N	SP8N	HW50L	LSPS8
4040-S25-5			47	250	50	40	40	40	R/L							
5050-S25-5			47	250	60	50	50	50	R/L							

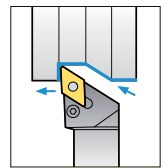
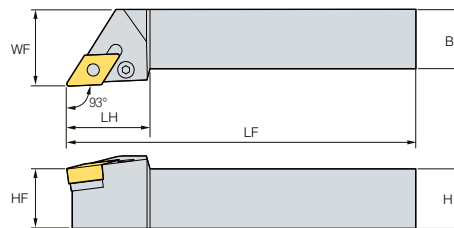
➤ Applicable inserts B5 ~ B12

●: Stock item

## PDJNR/L



DN□□



93°

• R type holder

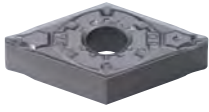
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PDJNR/L 1616-H11	●	●	25	100	20	16	16	16	R/L	DN□□1104□□	LV3	VHX0617	SD317	SP4	HW30L	LSPS4
	●	●	25	125	25	20	20	20	R/L							
2525-M11	●	●	30	150	30	25	25	25	R/L	DN□□1506□□	LV4B	VHX0821	SD42	SP4	HW30L	LSPS4
2020-K15	●	●	35	125	25	20	20	20	R/L							
2525-M15	●	●	35	150	32	25	25	25	R/L	DN□□1504□□	LV4	VHX0821	SD42	SP4	HW30L	LSPS4
3225-P15	●	●	35	170	32	32	25	32	R/L							
3232-P15	●	●	35	170	40	32	32	32	R/L	DN□□1504□□	LV4	VHX0821	SD42	SP4	HW30L	LSPS4
2020-K15-3	●	●	35	125	25	20	20	20	R/L							
2525-M15-3	●	●	35	150	32	25	25	25	R/L							
3232-P15-3			35	170	40	32	32	32	R/L							

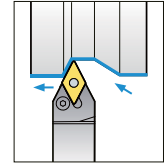
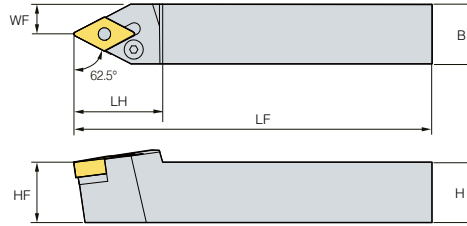
➤ Applicable inserts B13 ~ B18

●: Stock item

## PDNNR/L



DN□□



62.5°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PDNNR/L 2020-K15	●		37	125	8	20	20	20	R/L	DN□□1506□□						
	●	●	37	150	12.5	25	25	25	R/L							
	●		37	170	16	32	32	32	R/L							
4025-M15			37	150	12.5	40	25	40	R/L	DN□□1504□□						
2525-M15-3	●		37	150	12.5	25	25	25	R/L							
4025-M15-3			37	150	12.5	40	25	40	R/L							

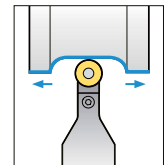
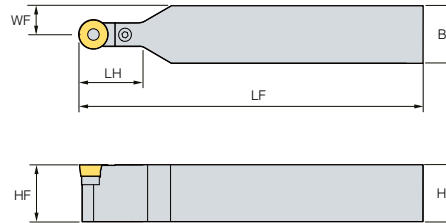
↻ Applicable inserts B13 ~ B18

● : Stock item

## PRDCN



RCMX



(mm)

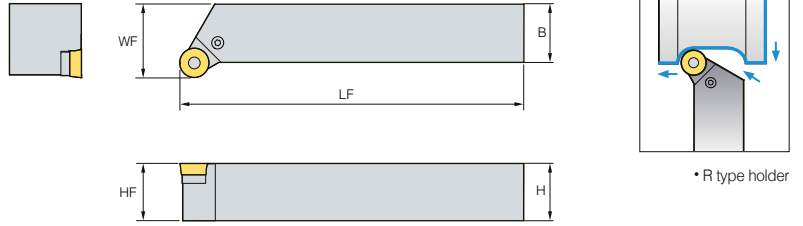
Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PRDCN 2020-M10	●		22	150	10	20	20	20	N	RCMX1003M0						
	●		24	150	12.5	25	25	25	N							
	●		24	150	12.5	25	25	25	N							
2020-K12	●		24	125	10	20	20	20	N	RCMX1204M0						
3225-Q12	●		24	180	12.5	32	25	32	N							
2525-Q16	●		30	180	12.5	25	25	25	N							
3225-Q16	●		30	180	12.5	32	25	32	N	RCMX1606M0						
3232-Q16	●		35	180	16	32	32	32	N							
3232-Q20	●		40	180	16	32	32	32	N							
4040-S25	●		42	250	20	40	40	40	N	RCMX2507M0						
4040-T25	●		42	300	20	40	40	40	N							
5050-U32	●		52	350	25	50	50	50	N							
										RCMX2006M0						
										RCMX2006M0						
										RCMX2006M0						
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# B Lever Lock System

## PRGCR/L



RCMX



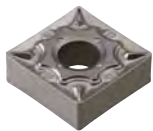
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PRGCR/L 2020-K10	●	●	-	125	25	20	20	20	R/L	RCMX1003M0						
	●	●	-	150	32	25	25	25	R/L							
2020-K12	●	●	-	125	25	20	20	20	R/L	RCMX1204M0						
	●	●	-	150	32	25	25	25	R/L							
2525-M12	●	●	-	150	32	25	25	25	R/L	RCMX1606M0						
	●	●	-	170	32	32	25	32	R/L							
3225-P12	●	●	-	170	32	32	25	32	R/L	RCMX2006M0						
	●	●	-	150	32	25	25	25	R/L							
2525-M16	●	●	-	150	32	25	25	25	R/L	RCMX2507M0						
	●	●	-	170	32	32	25	32	R/L							
3225-P16	●	●	-	170	32	32	25	32	R/L	RCMX2507M0						
	●	●	-	250	50	40	40	40	R/L							
3232-P20	●	●	-	170	40	32	32	32	R/L	RCMX2507M0						
	●	●	-	250	50	40	40	40	R/L							
4040-S25	●	●	-	250	50	40	40	40	R/L	RCMX2507M0						
	●	●	-	250	50	40	40	40	R/L							

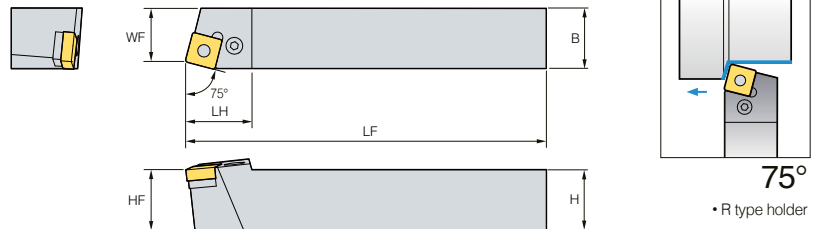
➔ Applicable inserts B54, B77

●: Stock item

## PSBNR/L



SN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PSBNR/L 1616-H09		●	21	100	13	16	16	16	R/L	SN□□0903□□						
			23	125	17	20	20	20	R/L							
2020-K12	●	●	28	125	17	20	20	20	R/L	SN□□1204□□						
	●	●	28	150	22	25	25	25	R/L							
2525-M12	●	●	28	150	22	25	25	25	R/L	SN□□1506□□						
	●	●	28	170	22	32	25	32	R/L							
3225-P12	●	●	28	170	22	32	25	32	R/L	SN□□1906□□						
	●	●	28	170	27	32	32	32	R/L							
2525-M15	●	●	35	150	22	25	25	25	R/L	SN□□2509□□						
	●	●	35	170	27	32	32	32	R/L							
3232-P15	●	●	41.5	170	27	32	32	32	R/L	SN□□2509□□						
	●	●	41.5	250	35	40	40	40	R/L							
4040-S19	●	●	41.5	250	35	40	40	40	R/L	SN□□2509□□						
	●	●	46	250	35	40	40	40	R/L							
4040-S25	●	●	46	250	35	40	40	40	R/L	SN□□2509□□						
	●	●	46	300	43	50	50	50	R/L							
4040-S25-6	●	●	46	300	43	50	50	50	R/L	SN□□2509□□						
	●	●	46	300	43	50	50	50	R/L							
5050-T25	●	●	46	300	43	50	50	50	R/L	SN□□2509□□						
	●	●	46	300	43	50	50	50	R/L							
5050-T25-6	●	●	46	300	43	50	50	50	R/L	SN□□2509□□						
	●	●	46	300	43	50	50	50	R/L							

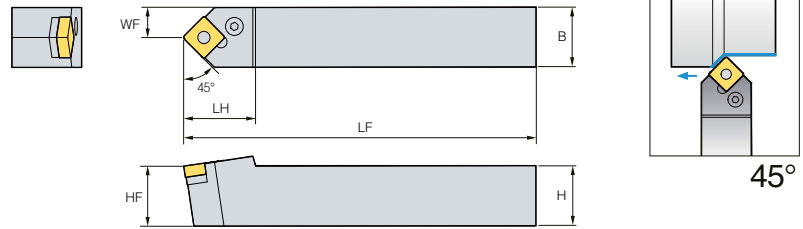
➔ Applicable inserts B20 ~ B28

●: Stock item

## PSDNN



SN□□



(mm)

Designation	Stock	LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
PSDNN	1616-H09	●	22	100	8	16	16	N	SN□□0903□□	LV3	VHX0617	SS32	SP3	HW25L	LSPS3
	2020-K12	●	30	125	10	20	20	N	SN□□1204□□	LV4	VHX0821	SS42	SP4	HW30L	LSPS4
	2525-M12	●	30	150	12.5	25	25	N							
	3225-P12	●	30	170	12.5	32	25	N							
	3232-P12	●	40	170	16	32	32	N	SN□□1506□□	LV5	VHX0825	SS53	SP5	HW30L	LSPS5
	2525-M15	●	40	150	12.5	25	25	N							
	3232-P15		40	170	16	32	32	N	SN□□1906□□	LV6N	VHX1027N	SS63N	SP6N	HW40L	LSPS6
	3225-P19		41.5	170	12.5	32	25	N							
	3232-P19	●	41.5	170	16	32	32	N	SN□□2507□□	LV8N	VHX1236N	SS84N	SP8N	HW50L	LSPS8
	4040-S19	●	40	250	20	40	40	N							
	4040-S25	●	48	250	20	40	40	N	SN□□2509□□	LV8N	VHX1236N	SS84N	SP8N	HW50L	LSPS8
	5050-T25	●	54	300	25	50	50	N							
	4040-S25-6	●	48	250	20	40	40	N	SN□□2509□□	LV8N	VHX1236N	SS84N	SP8N	HW50L	LSPS8
5050-T25-6	●	50	300	25	50	50	N								

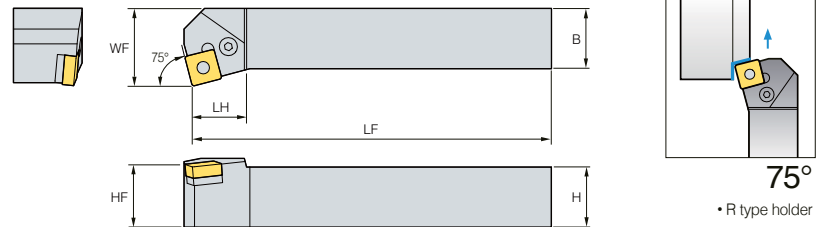
➡ Applicable inserts B20 ~ B28

● : Stock item

## PSKNR/L



SN□□



• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PSKNR/L	1616-H09		17	100	20	16	16	R/L	SN□□0903□□	LV3	VHX0617	SS32	SP3	HW25L	LSPS3	
	2020-K09	●	20	125	25	20	20	R/L	SN□□1204□□	LV4	VHX0821	SS42	SP4	HW30L	LSPS4	
	2020-K12	● ●	23	125	25	20	20	R/L								
	2525-M12	● ●	26	150	32	25	25	R/L								
	3232-P12		26	170	40	32	32	R/L	SN□□1506□□	LV5	VHX0825	SS53	SP5	HW30L	LSPS5	
	2525-M15	●	28	150	32	25	25	R/L								
	3232-P15	● ●	32	170	40	32	32	R/L	SN□□1906□□	LV6N	VHX1027N	SS63N	SP6N	HW40L	LSPS6	
	3232-P19	● ●	41.5	170	40	32	32	R/L								
	4040-S19	● ●	41.5	250	50	40	40	R/L	SN□□2507□□	LV8N	VHX1236N	SS84N	SP8N	HW50L	LSPS8	
	4040-S25	●	44	250	50	40	40	R/L								
	4040-S25-6	● ●	46	250	50	40	40	R/L	SN□□2509□□	LV8N	VHX1236N	SS84N	SP8N	HW50L	LSPS8	
	5050-T25-6	● ●	37.5	300	60	50	50	R/L								

➡ Applicable inserts B20 ~ B28

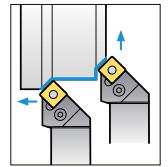
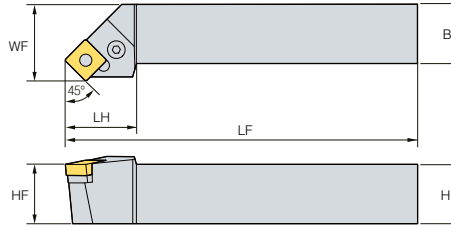
● : Stock item

# B Lever Lock System

## PSSNR/L



SN□□



45°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch	
	R	L															
PSSNR/L	1616-H09	●	25	100	20	16	16	16	R/L	SN□□0903□□	LV3	VHX0617	SS32	SP3	HW25L	LSPS3	
	2020-K12	● ●	30	125	25	20	20	20	R/L	SN□□1204□□	LV4	VHX0821	SS42	SP4	HW30L	LSPS4	
	2525-M12	● ●	36	150	32	25	25	25	R/L								
	3225-P12	●	35	170	32	32	25	32	R/L								
	3232-P12			40	170	40	32	32	32	R/L	SN□□1506□□	LV5	VHX0825	SS53	SP5	HW30L	LSPS5
	2525-M15	●	32	150	32	25	25	25	R/L								
	3232-P15	● ●	40	170	40	32	32	32	R/L	SN□□1906□□	LV6N	VHX1027N	SS63N	SP6N	HW40L	LSPS6	
	3232-P19	● ●	41.5	170	40	32	32	32	R/L								
	4040-R19	●	50	200	50	40	40	40	R/L								
	4040-S19	● ●	50	250	50	40	40	40	R/L								
4040-S25	●		48	250	50	40	40	40	R/L	SN□□2507□□	LV8N	VHX1236N	SS84N	SP8N	HW50L	LSPS8	
4040-S25-6	● ●	48	250	50	40	40	40	R/L	SN□□2509□□								

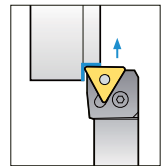
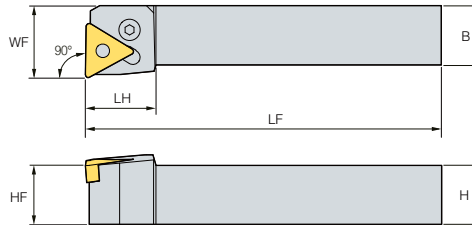
⊕ Applicable inserts B20 ~ B28

●: Stock item

## PTFNR/L



TN□□



90°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch	
	R	L															
PTFNR/L	1616-H16	● ●	20	100	20	16	16	16	R/L	TN□□1604□□	LV3	VHX0617	ST317	SP3	HW25L	LSPS3	
	2020-K16	● ●	20	125	25	20	20	20	R/L								
	2525-M16	● ●	20	150	32	25	25	25	R/L								
	2525-M22	● ●	25	150	32	25	25	25	R/L	TN□□2204□□	LV4	VHX0821	ST42	SP4	HW30L	LSPS4	
	3232-P22	●	25	170	40	32	32	32	R/L								
	3232-P27			34	170	40	32	32	32	R/L	TN□□2706□□	LV5	VHX0825	ST53	SP5	HW30L	LSPS5
	4040-S27			34	250	50	40	40	R/L								

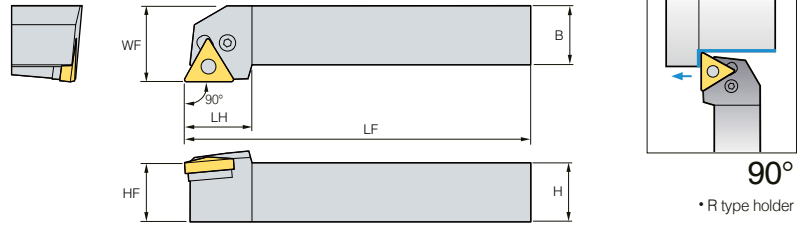
⊕ Applicable inserts B29 ~ B36

●: Stock item

## PTGNR/L



TN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PTGNR/L 1212-F11	●		18	80	16	12	12	12	R/L	TN□□1103□□	LV2	VHX0509B	-	-	HW20L	-
1616-H11	●		18	100	20	16	16	16	R/L							
2020-K11			19	125	25	20	20	20	R/L							
2525-M11			20	150	32	25	25	25	R/L	TN□□1604□□	LV3	VHX0617	ST317	SP3	HW25L	LSPS3
1616-H16	●	●	20	100	20	16	16	16	R/L							
2020-K16	●	●	20	125	25	20	20	20	R/L							
2525-M16	●	●	20	150	32	25	25	25	R/L							
3232-P16	●		20	170	40	32	32	32	R/L							
2525-M22	●	●	28	150	32	25	25	25	R/L	TN□□2204□□	LV4	VHX0821	ST42	SP4	HW30L	LSPS4
3232-P22	●	●	28	170	40	32	32	32	R/L							
3232-P27	●		33	170	40	32	32	32	R/L	TN□□2706□□	LV5	VHX0825	ST53	SP5	HW30L	LSPS5
4040-S27			33	250	50	40	40	40	R/L							

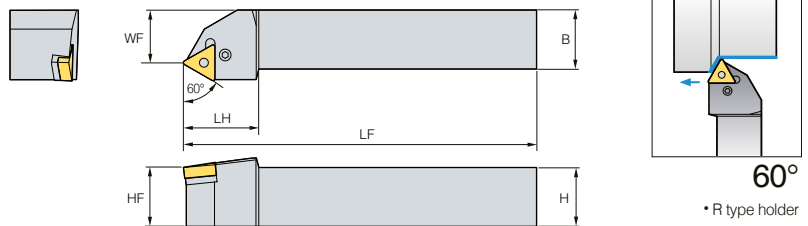
↻ Applicable inserts B29 ~ B36

● : Stock item

## PTTNR/L



TN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PTTNR/L 1616-H16			25	100	13	16	16	16	R/L	TN□□1604□□	LV3	VHX0617	ST317	SP3	HW25L	LSPS3
2020-K16	●		25	125	17	20	20	20	R/L							
2525-M16	●		32	150	22	25	25	25	R/L							
2525-M22	●		32	150	22	25	25	25	R/L							
										TN□□2204□□	LV4	VHX0821	ST42	SP4	HW30L	LSPS4

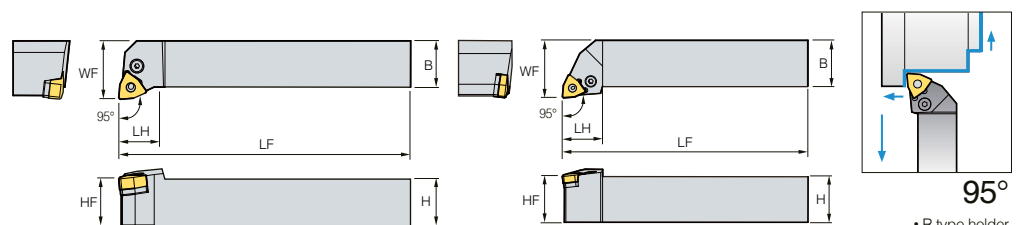
↻ Applicable inserts B29 ~ B36

● : Stock item

## PWLNR/L



WN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch	Fig.
	R	L															
PWLNR/L 1616-H06	●	●	20	100	20	16	16	16	R/L	WN□□0604□□	LV3	VHX0617	SW317	SP3	HW25L	LSPS3	1
2020-K06	●	●	20	125	25	20	20	20	R/L								
2525-M06	●	●	20	150	32	25	25	25	R/L								
2020-K08	●	●	26	125	25	20	20	20	R/L	WN□□0804□□	LV4	VHX0821	SW42	SP4	HW30L	LSPS4	2
2525-M08	●	●	30	150	32	25	25	25	R/L								

↻ Applicable inserts B39 ~ B43

● : Stock item

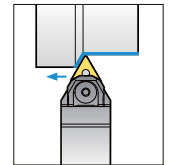
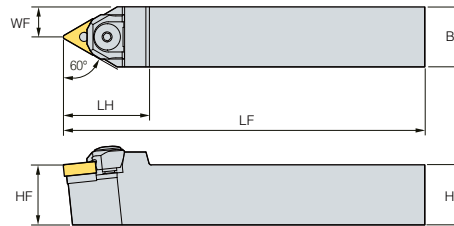


# B Wedge Clamp System

## WTENN



TN□□



60°

(mm)

Designation	Stock	LH	LF	WF	HF	B	H	HAND	Applicable insert	Wedge Clamp	Screw	Stopper Ring	Shim	Shim Pin	Nut	Wrench
WTENN 2020-K16	●	36	125	10	20	20	20	N	TN□□1604□□					SP3M-1		
	●	36	150	12.5	25	25	25	N						SP3M		
	●	42	150	12.5	25	25	25	N						SP3M		
3232-P22	●	42	170	16	32	32	32	N	TN□□2204□□					SP4M		

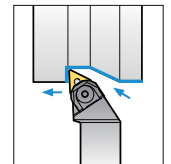
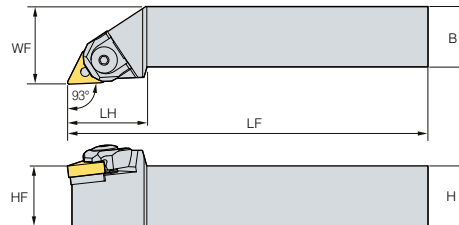
↻ Applicable inserts B29 ~ B36

●: Stock item

## WTJNR/L



TN□□



93°

• R type holder

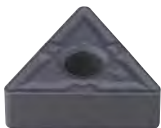
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Wedge Clamp	Screw	Stopper Ring	Shim	Shim Pin	Nut	Wrench
	R	L															
WTJNR/L 2020-K16	●	●	33	125	25	20	20	20	R/L	TN□□1604□□					SP3M-1		
	●	●	33	150	32	25	25	25	R/L						SP3M		
	●	●	33	170	40	32	32	32	R/L						SP3M		
	●	●	40	150	32	25	25	25	R/L						SP3M		
3232-P22	●	●	40	170	40	32	32	32	R/L	TN□□2204□□					SP4M		

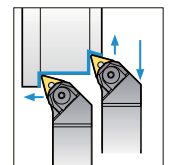
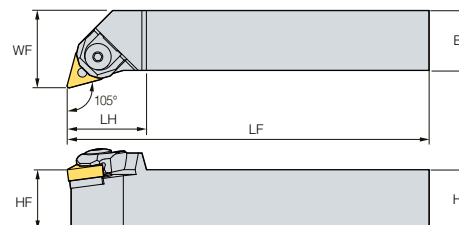
↻ Applicable inserts B29 ~ B36

●: Stock item

## WTXNR/L



TN□□



105°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Wedge Clamp	Screw	Stopper Ring	Shim	Shim Pin	Nut	Wrench
	R	L															
WTXNR/L 2020-K16	●	●	30	125	25	20	20	20	R/L	TN□□1604□□					SP3M-1		
	●	●	33	150	32	25	25	25	R/L						SP3M		
	●	●	33	170	40	32	32	32	R/L						SP3M		

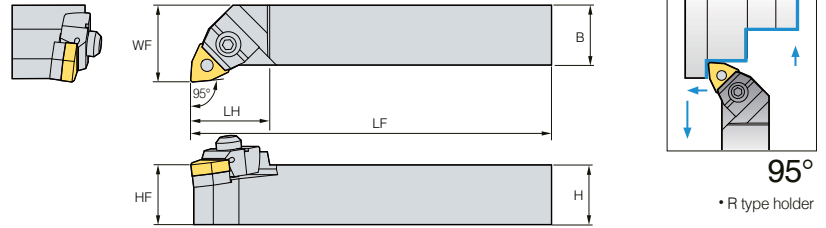
↻ Applicable inserts B29 ~ B36

●: Stock item

## WWLNR/L



WN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Wedge Clamp	Screw	Stopper Ring	Shim	Shim Pin	Nut	Wrench
	R	L															
<b>WWLNR/L 2020-K08</b>	●	●	32	125	25	20	20	20	R/L	WN□□0804□□	CMH6R/L3				SP2M		
<b>2525-M08</b>	●	●	33	150	32	25	25	25	R/L		CMH6R2	MHX0630	CR05	SW43M	SP4M	N0508	HW30L HW40L
<b>3232-P08</b>	●	●	33	170	40	32	32	32	R/L		CMH6R2						

↻ Applicable inserts **B39 ~ B43**

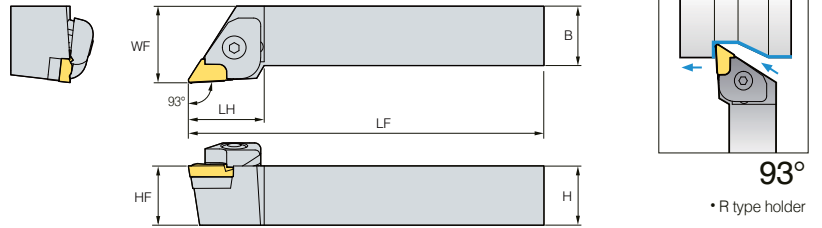
● : Stock item

# B Clamp on System

## CKJNR/L



KN□□



93°

• R type holder

(mm)

Designation	Stock	LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Spring	Shim	Pin + Spring	Shim Screw	Wrench
CKJNR	2020-K16	●	32	125	25	20	20	R	KN□□1604□□R	CTH6R1	CHX0625	SR3	SK33C	PN0515 SR4	SHX0310	HW20L HW40L
	2525-M16	●	32	150	32	25	25	R								
	3225-M16		32	150	32	32	32	R								
	3225-P16	●	32	170	32	32	32	R								
	3232-P16	●	32	170	40	32	32	R								
4040-R16	●	32	200	50	40	40	R									
CKJNL	2020-K16	●	32	125	25	20	20	L	KN□□1604□□L	CTH6L1	CHX0625	SR3	SK33CL	PN0515 SR4	SHX0310	HW20L HW40L
	2525-M16	●	32	150	32	25	25	L								
	3232-P16	●	32	170	40	32	32	L								
	4040-R16		32	200	50	40	40	L								

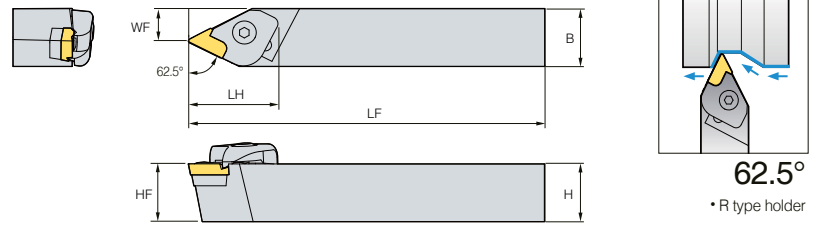
➔ Applicable inserts B19

●: Stock item

## CKNNR/L



KN□□



62.5°

• R type holder

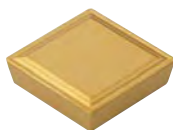
(mm)

Designation	Stock	LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Spring	Shim	Pin + Spring	Shim Screw	Wrench
CKNNR	2525-M16	●	25	150	14.3	25	25	R	KN□□1604□□R	CTH6R1	CHX0625	SR3	SK33C	PN0515 SR4	SHX0310	HW20L HW40L
	3232-P16		32	170	16.8	32	32	R								
CKNNL	2525-M16		25	150	14.3	25	25	L	KN□□1604□□L	CTH6L1	CHX0625	SR3	SK33CL	PN0515 SR4	SHX0310	HW20L HW40L
	3232-P16	●	32	170	16.8	32	32	L								

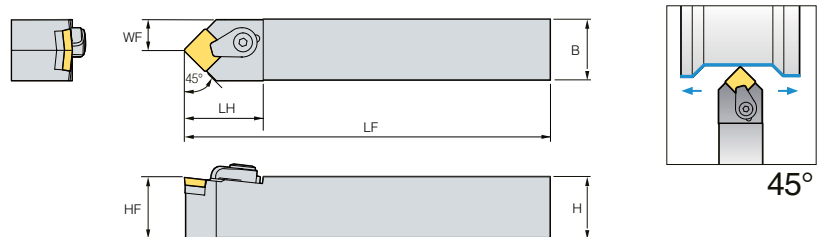
➔ Applicable inserts B19

●: Stock item

## CSDPN



SP□R



45°

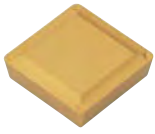
(mm)

Designation	Stock	LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	C-Ring	Wrench
CSDPN	1616-H09		30	100	8	16	16	N	SP□R0903□□	CH53R1	CH0515C	SS32C	SP3C	CR03C	HW25L
	2525-M12	●	35	150	12.5	25	25	N	SP□R1203□□	CH6R5	CHX0622C	SS42C	SP3C	CR04C	HW30L

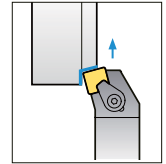
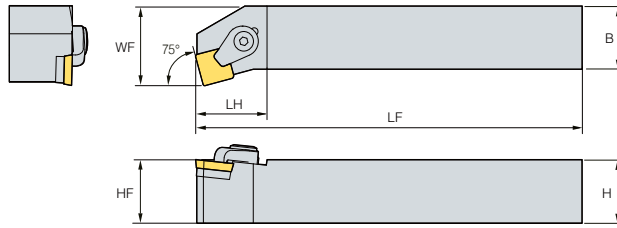
➔ Applicable inserts B56 ~ B57

●: Stock item

# CSKPR/L



SP□R



75°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	C-Ring	Wrench
	R	L														
<b>CSKPR/L 2525-M12</b>			32	150	32	25	25	25	R/L	SP□R1203□□	CH6R5	CHX0622C	SS42C	SP3C	CR04C	HW30L

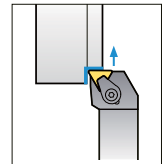
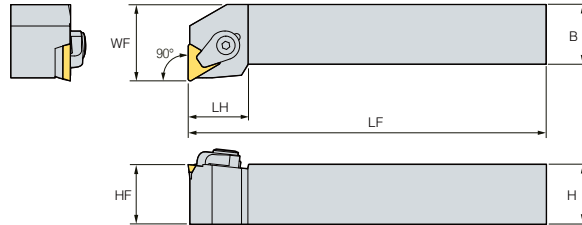
↻ Applicable inserts B56 ~ B57

● : Stock item

# CTFPR/L



TP□R



90°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	C-Ring	Wrench
	R	L														
<b>CTFPR/L 2020-K16</b>	●	●	32	125	25	20	20	20	R/L	TP□R1603□□	CH6R5	CHX0622C	ST32C	SP3C	CR04C	HW30L
<b>2525-M16</b>	●		32	150	32	25	25	25	R/L							

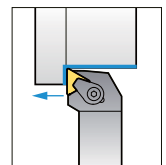
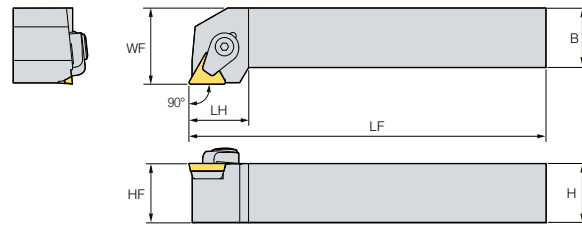
↻ Applicable inserts B61 ~ B64

● : Stock item

# CTGPR/L



TP□R



90°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	C-Ring	Wrench
	R	L														
<b>CTGPR/L 1212-F11</b>	●		20	80	16	12	12	12	R/L	TP□R1103□□	CH53R1	CHX0515C	-	-	CR03C	HW25L
<b>1616-H11</b>	●		20	100	20	16	16	16	R/L							
<b>2020-K11</b>			20	125	25	20	20	20	R/L							
<b>2020-K16</b>	●	●	20	125	25	20	20	20	R/L	TP□R1603□□	CH6R5	CHX0622C	ST32C	SP3C	CR04C	HW30L
<b>2525-M16</b>	●	●	25	150	32	25	25	25	R/L							
<b>2525-M22</b>	●		25	150	32	25	25	25	R/L	TP□R2204□□	CH83R1	CHX0823C	ST43C	SP4C	CR05C	HW40L
<b>3232-P22</b>			25	170	40	32	32	32	R/L							

↻ Applicable inserts B61 ~ B64

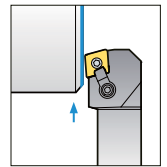
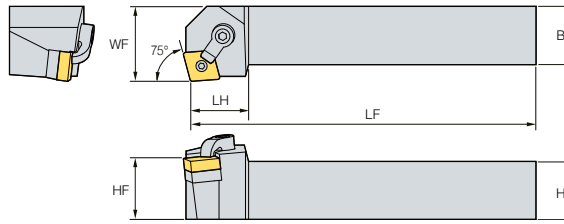
● : Stock item

# B Multi Lock System

## MCKNR/L



CN□□



75°

• R type holder

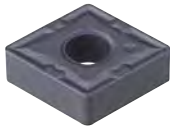
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MCKNR/L 2020-K12			27	125	25	20	20	20	R/L	CN□□1204□□	CDH6N	DHA1/4-25	SC43D	SP4D	HW31.8L HW23.8L
2525-M12	□		25	150	32	25	25	25	R/L						
3232-P12			25	170	40	32	32	32	R/L						

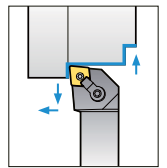
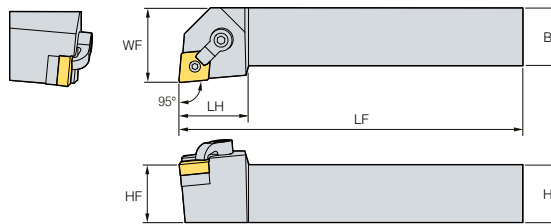
↻ Applicable inserts B5 ~ B12

●: Stock item

## MCLNR/L



CN□□



95°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MCLNR/L 1616-H09			22	100	20	16	16	16	R/L	CN□□0903□□	CDH7N	DHA10-32-19	SC32D	SP3DS	HW23.8L HW19.8L
2020-K09			25	125	25	20	20	20	R/L						
2525-M09			25	150	32	25	25	25	R/L						
2020-K12			30	125	25	20	20	20	R/L	CN□□1204□□	CDH6N	DHA1/4-25	SC43D	SP4D	HW31.8L HW23.8L
2525-M12	□	□	30	150	32	25	25	25	R/L						
3225-P12			30	170	32	32	25	32	R/L						
3232-P12	□		30	170	40	32	32	32	R/L	CN□□1606□□	CDH8N	DHA5/16-32	SC53D	SP5D	HW39.7L HW31.8L
2525-M16	□		35	150	32	25	25	25	R/L						
3232-P16	□		35	170	40	32	32	32	R/L						
4040-S16			35	250	50	40	40	40	R/L	CN□□1906□□	CDH8N	DHA5/16-32	SC63D	SP6D	HW39.7L HW35.7L
2525-M19			42	150	32	25	25	25	R/L						
3232-P19			42	170	40	32	32	32	R/L						
4040-S19			42	250	50	40	40	40	R/L	CN□□2507□□	CDH8N3	DHA3/8-35	SC84D	SP8D	HW39.7L HW47.6L
4040-S25			48.5	250	50	40	40	40	R/L						

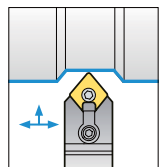
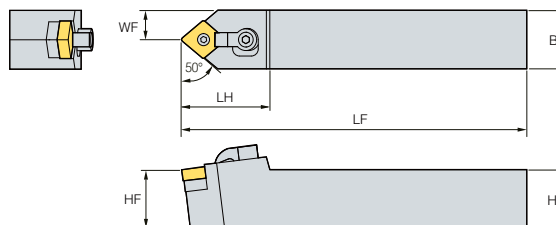
↻ Applicable inserts B5 ~ B12

●: Stock item

## MCMNN



CN□□



50°

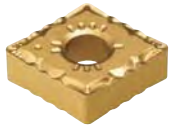
(mm)

Designation	Stock	LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
2525-M12		35	150	12.5	25	25	25	N						
3232-P12		35	170	16	32	32	32	N						
2525-M16		40	150	12.5	25	25	25	N	CN□□1606□□	CDH8N	DHA5/16-32	SC53D	SP5D	HW39.7L HW31.8L
3232-P16		40	170	16	32	32	32	N						
3232-P19		45	170	16	32	32	32	N						
4040-S19		45	250	16	40	40	40	N	CN□□1906□□	CDH8N	DHA5/16-32	SD63D	SP6D	HW39.7L HW35.7L

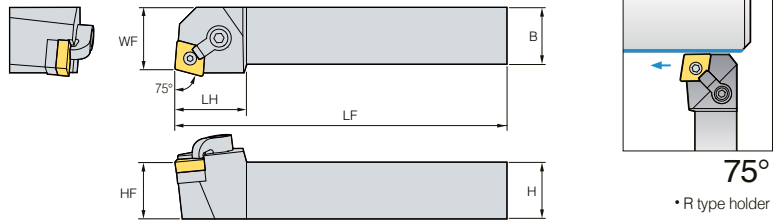
↻ Applicable inserts B5 ~ B12

●: Stock item

# MCRNR/L



CN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MCRNR/L 2020-K12			30	125	22	20	20	20	R/L	CN□□1204□□	CDH8N1	DHA5/16-32	SC43D	SP4D	HW39.7L HW23.8L
			30	150	27	25	25	25	R/L						
2525-M12			35	150	27	25	25	25	R/L	CN□□1606□□	CDH8N1	DHA5/16-32	SC53D	SP5D	HW39.7L HW31.8L
3232-P16			35	170	35	32	32	32	R/L						
3232-P19			38	170	35	32	32	32	R/L	CN□□1906□□	CDH8N1	DHA5/16-32	SC63D	SP6D	HW39.7L HW35.7L
4040-S19			38	250	43	40	40	40	R/L						

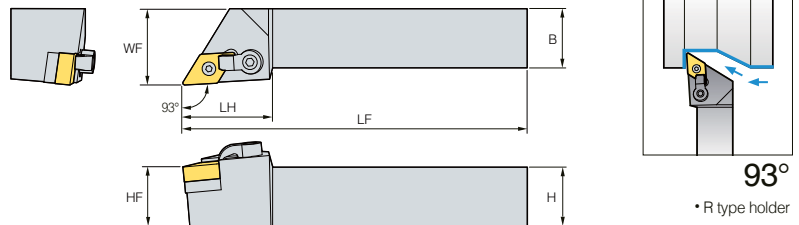
↻ Applicable inserts B5 ~ B12

● : Stock item

# MDJNR/L



DN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MDJNR/L 2020-K11			38	125	25	20	20	20	R/L	DN□□1104□□	CDH6N	DHA1/4-19	SD32D	SP3D	HW31.8L HW19.8L
			38	150	32	25	25	25	R/L						
2020-K15-3	□		38	125	25	20	20	20	R/L	DN□□1504□□	CDH6N	DHA1/4-25	SD43D	SP4D	HW31.8L HW23.8L
2525-M15-3	□		38	150	32	25	25	25	R/L						
3232-P15-3			38	170	40	32	32	32	R/L	DN□□1506□□	CDH6N	DHA1/4-25	SD43D	SP4DL	HW31.8L HW23.8L
2020-K15			37	125	25	20	20	20	R/L						
2525-M15			38	150	32	25	25	25	R/L	DN□□1506□□	CDH6N	DHA1/4-25	SD43D	SP4DL	HW31.8L HW23.8L
3232-P15			39	170	40	32	32	32	R/L						

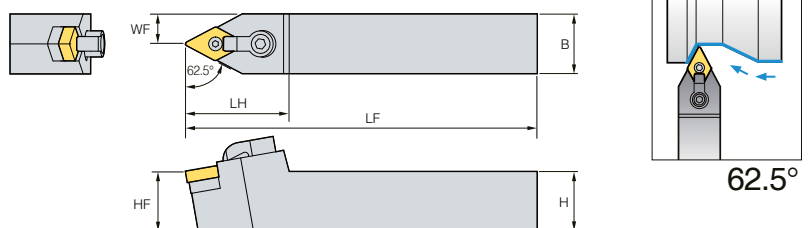
↻ Applicable inserts B13 ~ B18

● : Stock item

# MDNNN



DN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MDNNN		□	43.5	150	12.5	25	25	25	N	DN□□1504□□	CDH8N	DHA5/16-32	SD43D	SP4D	HW39.7L HW23.8L
			43.5	150	12.5	25	25	25	N						
2525-M15			43.5	150	12.5	25	25	25	N	DN□□1506□□	CDH8N	DHA5/16-32	SD43D	SP4DL	HW39.7L HW23.8L

↻ Applicable inserts B13 ~ B18

● : Stock item

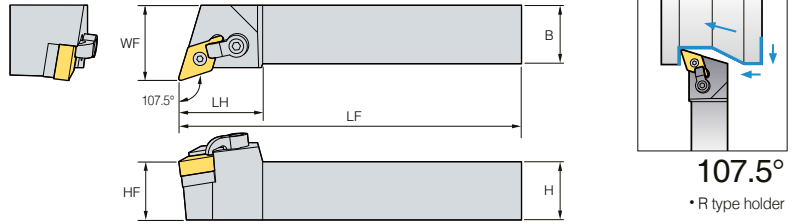


# B Multi Lock System

## MDQNR/L



DN□□



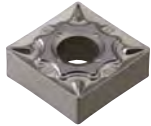
107.5°  
• R type holder

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MDQNR/L 2525-M15-3	•		36	150	32	25	25	25	R/L	DN□□1504□□	CDH6N	DHA1/4-25	SD43D	SP4D	HW31.8L HW23.8L
3232-P15-3			36	170	40	32	32	32	R/L						
2525-M15	•	•	36	150	32	25	25	25	R/L	DN□□1506□□	CDH6N	DHA1/4-25	SD43D	SP4DL	HW31.8L HW23.8L
3232-M15			36	150	40	32	32	32	R/L						

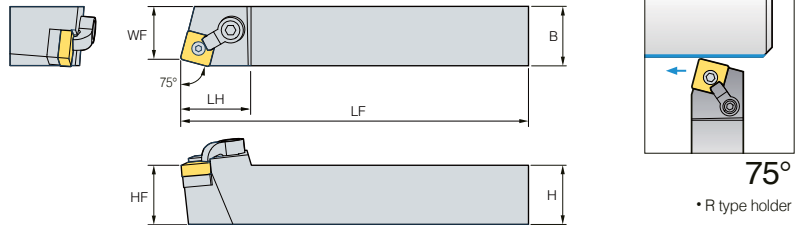
↻ Applicable inserts B13 ~ B18

•: Stock item

## MSBNR/L



SN□□



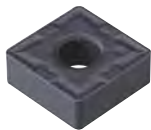
75°  
• R type holder

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MSBNR/L 2020-K12			30	125	17	20	20	20	R/L	SN□□1204□□	CDH8N1	DHA5/16-32	SS43D	SP4D	HW39.7L HW23.8L
2525-M12			30	150	22	25	25	25	R/L						
2525-M15			40	150	22	25	25	25	R/L	SN□□1506□□	CDH8N	DHA5/16-32	SS53D	SP5D	HW39.7L HW31.8L
3232-P15			40	170	27	32	32	32	R/L						
3232-P19			40	170	27	32	32	32	R/L	SN□□1906□□	CDH8N	DHA5/16-32	SS63D	SP6D	HW39.7L HW35.7L
4040-S19			40	250	35	40	40	40	R/L						

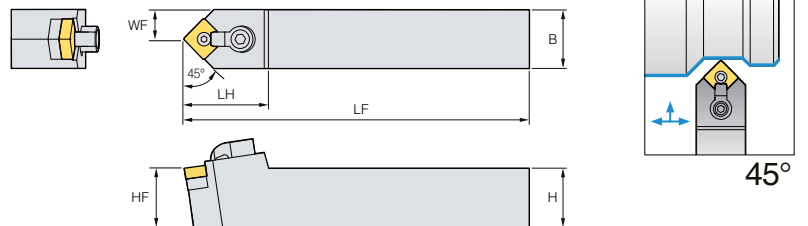
↻ Applicable inserts B20 ~ B28

•: Stock item

## MSDNN



SN□□



45°

Designation	Stock	LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
2020-K09		28	125	10	20	20	20	N						
2020-K12		36	125	10	20	20	20	N						
2525-M12		36	150	12.5	25	25	25	N	SN□□1204□□	CDH8N1	DHA5/16-32	SS43D	SP4D	HW39.7L HW23.8L
3225-P12		32	170	12.5	32	25	32	N						
2525-M15		40.9	150	12.5	25	25	25	N						
3225-P15		35	170	12.5	32	25	32	N	SN□□1506□□	CDH8N	DHA5/16-32	SS53D	SP5D	HW39.7L HW31.8L
3232-P15		40.9	170	16	32	32	32	N						
4040-S15		47	250	20	40	40	40	N						
3232-P19		46	170	16	32	32	32	N	SN□□1906□□	CDH8N	DHA5/16-32	SS63D	SP6D	HW39.7L HW35.7L
4040-S19		47	250	20	40	40	40	N						

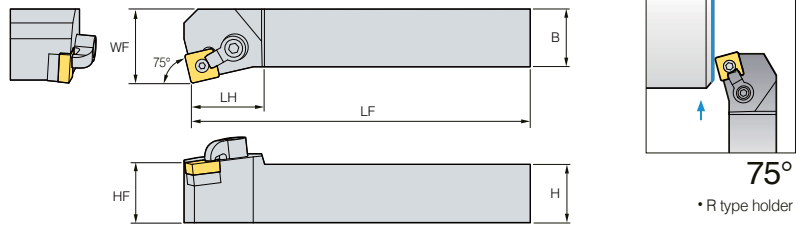
↻ Applicable inserts B20 ~ B28

•: Stock item

# MSKNR/L



SN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MSKNR/L 1616-H09			22	100	20	16	16	16	R/L	SN□□0903□□	CDH7N	DHA10-32-19	SS32D	SP3DS	HW19.8L HW23.8L
			22	125	25	20	20	20	R/L						
2020-K12			32	125	25	20	20	20	R/L	SN□□1204□□	CDH8N1	DHA5/16-32	SS43D	SP4D	HW39.7L HW23.8L
2525-M12			22	150	32	25	25	R/L							
3225-P12			32	170	32	32	25	32	R/L	SN□□1506□□	CDH8N	DHA5/16-32	SS53D	SP5D	HW39.7L HW31.8L
2525-M15			32	150	32	25	25	R/L							
3232-P15			34	170	40	32	32	32	R/L	SN□□1906□□	CDH8N	DHA5/16-32	SS63D	SP6D	HW39.7L HW35.7L
3232-P19			28	170	40	32	32	R/L							
4040-S19			36	250	50	40	40	40	R/L	SN□□2507□□	CDH8N3	DHA3/8-35	SS84D	SP8D	HW47.6L HW39.7L
4040-S25			43	250	50	40	40	R/L							

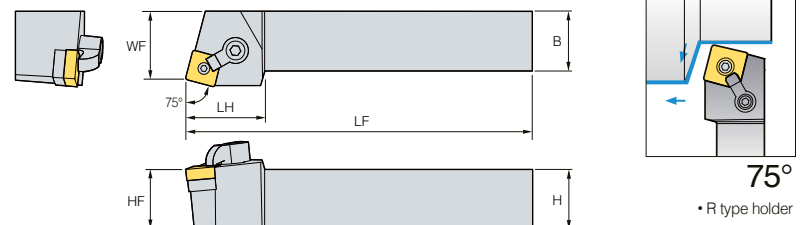
↻ Applicable inserts B20 ~ B28

● : Stock item

# MSRNR/L



SN□□



(mm)

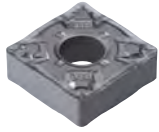
Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MSRNR/L 1616-H09			25	100	17	16	16	16	R/L	SN□□0903□□	CDH7N	DHA10-32-19	SS32D	SP3DS	HW19.8L HW23.8L
			28	125	22	20	20	20	R/L						
2020-K12			32	125	22	20	20	20	R/L	SN□□1204□□	CDH8N1	DHA5/16-32	SS43D	SP4D	HW39.7L HW23.8L
2525-M12			32	150	27	25	25	R/L							
2525-M15			38	150	27	25	25	25	R/L	SN□□1506□□	CDH8N	DHA5/16-32	SS53D	SP5D	HW39.7L HW31.8L
3232-P15			35	170	35	32	32	R/L							
3225-P19			40	170	27	32	25	32	R/L	SN□□1906□□	CDH8N	DHA5/16-32	SS63D	SP6D	HW39.7L HW35.7L
3232-P19			40	170	35	32	32	R/L							
4040-S19			40	250	43	40	40	40	R/L	SN□□2507□□	CDH8N3	DHA3/8-35	SS84D	SP8D	HW47.6L HW39.7L
4040-S25			51	250	43	40	40	R/L							

↻ Applicable inserts B20 ~ B28

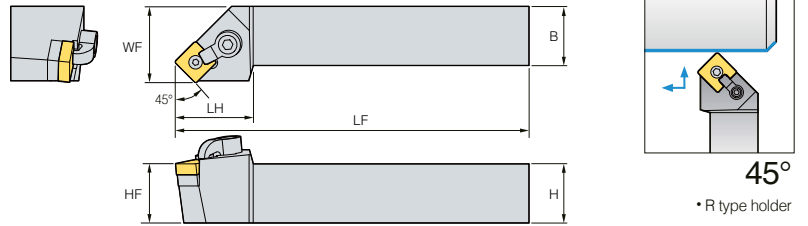
● : Stock item

# B Multi Lock System

## MSSNR/L



SN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MSSNR/L 1616-H09			28	100	20	16	16	16	R/L	SN□□0903□□	CDH7N	DHA10-32-19	SS32D	SP3DS	HW19.8L HW23.8L
2020-K09			28	125	25	20	20	20	R/L						
2020-K12			33	125	25	20	20	20	R/L	SN□□1204□□	CDH8N1	DHA5/16-32	SS43D	SP4D	HW39.7L HW23.8L
2525-M12			33	150	32	25	25	25	R/L						
2525-M15			35	150	32	25	25	25	R/L	SN□□1506□□	CDH8N1	DHA5/16-32	SS53D	SP5D	HW39.7L HW31.8L
3232-P15			40	170	40	32	32	32	R/L						
3232-P19			40	170	40	32	32	32	R/L						
4040-S19			43	250	50	40	40	40	R/L	SN□□1906□□	CDH8N1	DHA5/16-32	SS63D	SP6D	HW39.7L HW35.7L

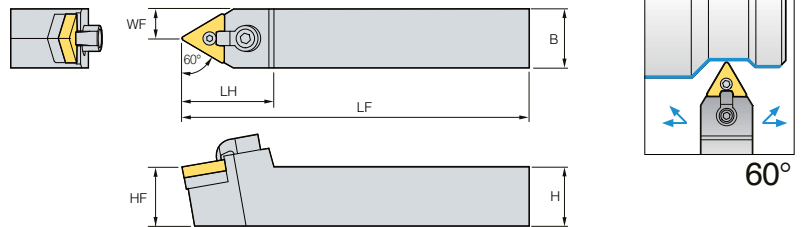
➔ Applicable inserts B20 ~ B28

●: Stock item

## MTENN



TN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MTENN 2020-K16			30	125	10	20	20	20	N	TN□□1604□□	CDH7N	DHA10-32-19	ST32D	SP3D	HW23.8L HW19.8L
2525-M16	●		30	150	12.5	25	25	25	N						
2525-M22			39	150	12.5	12.5	25	25	N	TN□□2204□□	CDH8N1	DHA5/16-32	ST43D	SP4D	HW39.7L HW23.8L
3232-P27			45	170	16	32	32	32	N	TN□□2706□□	CDH8N1	DHA5/16-32	ST53D	SP5D	HW39.7L HW31.8L
4040-S33			50	250	20	40	40	40	N	TN□□3307□□	CDH8N	DHA5/16-32	ST63D	SP6DL	HW39.7L HW35.7L

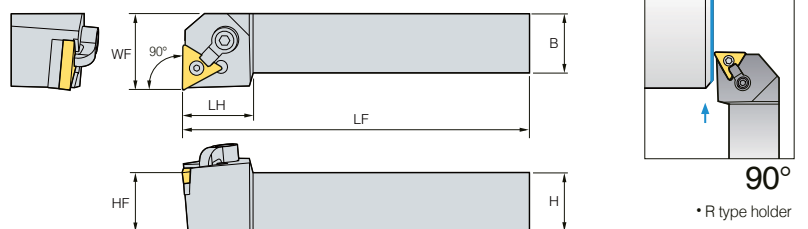
➔ Applicable inserts B29 ~ B36

●: Stock item

## MTFNR/L



TN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MTFNR/L 1616-H16			23.5	100	21	16	16	16	R/L						
2020-K16			23.5	125	25	20	16	20	R/L	TN□□1604□□	CDH7N	DHA10-32-19	ST32D	SP3D	HW23.8L HW19.8L
2525-M16			26	150	32	25	16	25	R/L						
2525-M22			36	150	32	25	22	25	R/L						
3232-P22			32	170	40	32	22	32	R/L	TN□□2204□□	CDH8N1	DHA5/16-32	ST43D	SP4D	HW39.7L HW23.8L
4040-S22			32	250	50	40	22	40	R/L						
3232-P27			35	170	40	32	27	32	R/L						
4040-S27			35	250	50	40	27	40	R/L	TN□□2706□□	CDH8N1	DHA5/16-32	ST53D	SP5D	HW39.7L HW31.8L
4040-S33			40	250	50	40	33	40	R/L	TN□□3307□□	CDH8N	DHA5/16-32	ST63D	SP6DL	HW39.7L HW35.7L

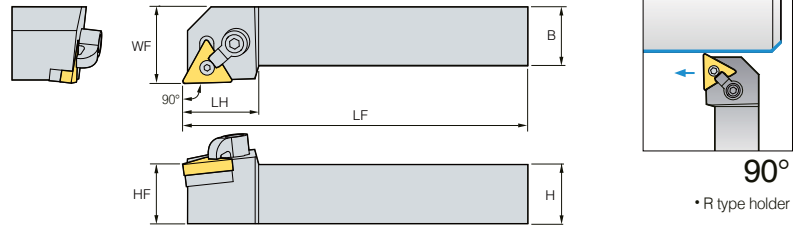
➔ Applicable inserts B29 ~ B36

●: Stock item

# MTGNR/L



TN□□



90°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MTGNR/L 1616-H16			27.5	100	20	16	16	16	R/L	TN□□1604□□	CDH7N	DHA10-32-19	ST32D	SP3D	HW23.8L HW19.8L
			32	125	25	20	20	20	R/L						
			27.5	150	32	25	25	25	R/L						
2525-M16			27.5	150	32	25	25	25	R/L	TN□□2204□□	CDH8N1	DHA5/16-32	ST43D	SP4D	HW39.7L HW23.8L
2525-M22			35	150	32	25	25	R/L							
3232-P22			35	170	40	32	32	32	R/L	TN□□2706□□	CDH8N1	DHA5/16-32	ST53D	SP5D	HW39.7L HW31.8L
3232-P27			35	170	40	32	32	R/L							
4040-S27			40	250	50	40	40	40	R/L	TN□□3307□□	CDH8N	DHA5/16-32	ST63D	SP6DL	HW39.7L HW35.7L
4040-S33			45	250	50	40	40	R/L							

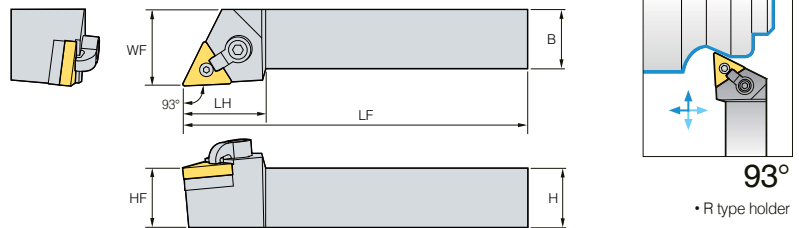
➤ Applicable inserts B29 ~ B36

● : Stock item

# MTJNR/L



TN□□



93°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MTJNR/L 2020-K16			28	125	25	20	20	20	R/L	TN□□1604□□	CDH7N	DHA10-32-19	ST32D	SP3D	HW23.8L HW19.8L
		●	28	150	32	25	25	25	R/L						
2525-M16			28	150	32	25	25	25	R/L	TN□□2204□□	CDH8N1	DHA5/16-32	ST43D	SP4D	HW39.7L HW23.8L
2525-M22			35	150	32	25	25	R/L							
3232-P22			35	170	40	32	32	32	R/L	TN□□2706□□	CDH8N1	DHA5/16-32	ST53D	SP5D	HW39.7L HW31.8L
3232-P27			40	170	40	32	32	R/L							
4040-S27			40	250	50	40	40	40	R/L	TN□□3307□□	CDH8N	DHA5/16-32	ST63D	SP6DL	HW39.7L HW35.7L
4040-S33			48	250	50	40	40	R/L							

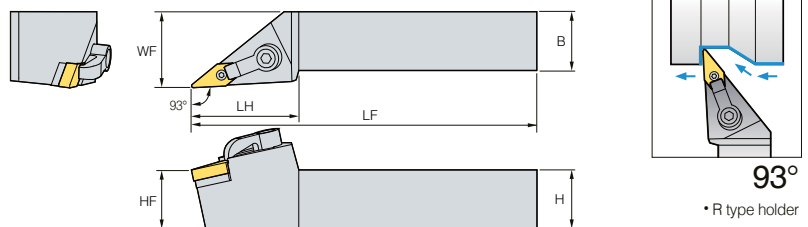
➤ Applicable inserts B29 ~ B36

● : Stock item

# MVJNR/L



VN□□



93°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MVJNR/L 2020-K16	●	●	44	125	25	20	20	20	R/L	VN□□1604□□	CDH8N2	DHA5/16-32	SV32D	SP3D	HW39.7L HW19.8L
	●	●	45.5	150	32	25	25	25	R/L						
3232-P16			55.5	170	40	32	32	32	R/L	VN□□2204□□	CDH8N2	DHA5/16-32	SV43D	SP4D	HW39.7L HW23.8L
2525-M22			56	150	32	25	25	R/L							
3232-P22			55	170	40	32	32	32	R/L	VN□□2204□□	CDH8N2	DHA5/16-32	SV43D	SP4D	HW39.7L HW23.8L
4040-S22			65	250	50	40	40	R/L							

➤ Applicable inserts B37 ~ B38

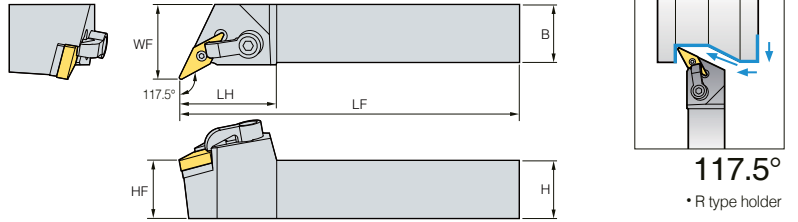
● : Stock item

# B Multi Lock System

## MVQNR/L



VN□□



117.5°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MVQNR/L 2020-K16	●	●	42	125	25	20	20	20	R/L	VN□□1604□□	CDH8N2	DHA5/16-32	SV32D	SP3D	HW39.7L HW19.8L
2525-M16	●	●	42	150	32	25	25	25	R/L						
3232-P16			42	170	40	32	32	32	R/L						

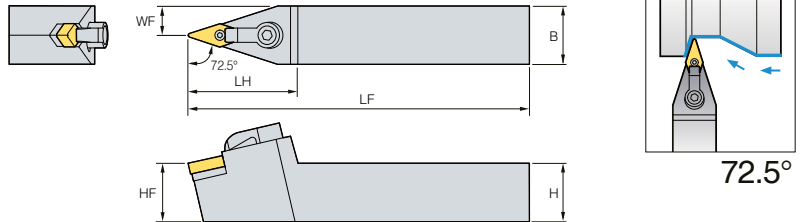
↻ Applicable inserts B37 ~ B38

●: Stock item

## MVVNN



VN□□



72.5°

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MVVNN 2020-K16	●		47	125	10	20	20	20	N	VN□□1604□□	CDH8N2	DHA5/16-32	SV32D	SP3D	HW39.7L HW19.8L
2525-M16	●		47	150	12.5	25	25	25	N						

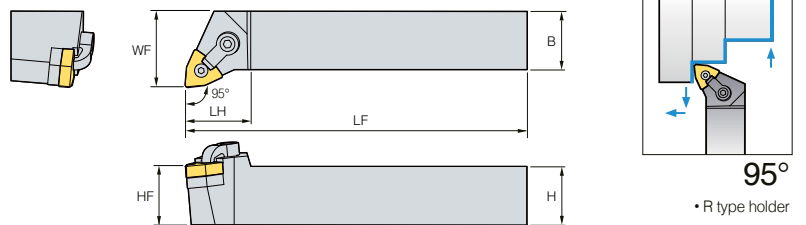
↻ Applicable inserts B37 ~ B38

●: Stock item

## MWLNR/L



WN□□



95°

• R type holder

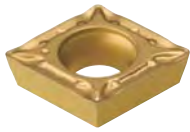
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench
	R	L													
MWLNR/L 2020-K06			24	125	25	20	20	20	R/L	WN□□0604□□	CDH7N	DHA10-32-19	SW32D	SP3D	HW19.8L HW23.8L
2525-M06			24	150	32	25	25	25	R/L						
3232-P06			27	170	40	32	32	32	R/L						
2020-K08	●		28	125	25	20	20	20	R/L	WN□□0804□□	CDH6N	DHA1/4-21	SW43D	SP4D	HW31.8L HW23.8L
2525-M08	●	●	28	150	32	25	25	25	R/L						
3232-P08			30	170	40	32	32	32	R/L						

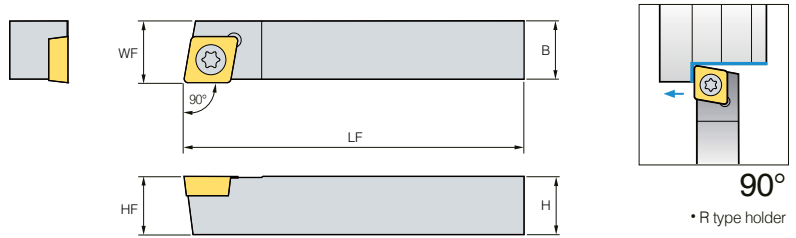
↻ Applicable inserts B39 ~ B43

●: Stock item

# SCACR/L



CC□T



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SCACR/L 1010-E06	●	●	10	70	10.5	10	10	10	R/L	CC□T0602□□	FTKA02565	-	-	TW07P
1212-F09	●	●	16	80	12.5	12	12	12	R/L	CC□T09T3□□	FTGA03508	-	-	TW15P

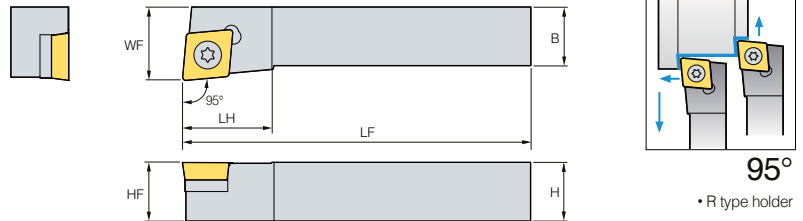
↻ Applicable inserts B44 ~ B48, B75

● : Stock item

# SCLCR/L



CC□T



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SCLCR/L 0808-D06	●	●	10	60	10	8	8	8	R/L	CC□T0602□□	FTKA02565	-	-	TW07P
1010-E06	●	●	10	70	12	10	10	10	R/L	CC□T09T3□□	FTGA03508	-	-	TW15P
1212-F09	●	●	16	80	16	12	12	12	R/L					
1616-H09	●	●	16	100	20	16	16	16	R/L					
2020-K09	●	●	18	125	25	20	20	20	R/L					
2525-M09	●	●	26	150	32	25	25	25	R/L					
2020-K12	●	●	25	125	25	20	20	20	R/L	CC□T1204□□	FTGA0411F	SC42S	SHXN0610F	TW15P, HW40L
2525-M12	●	●	26	150	32	25	25	25	R/L					

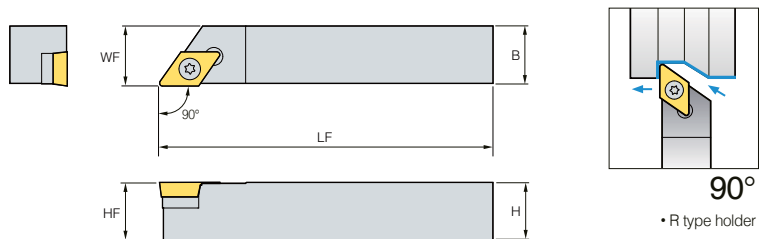
↻ Applicable inserts B44 ~ B48, B75

● : Stock item

# SDACR/L



DC□T



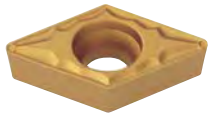
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SDACR/L 1010-E07			15	70	10.5	10	10	10	R/L	DC□T0702□□	FTKA02565	-	-	TW07P
1212-F11	●		15	80	12.5	12	12	12	R/L	DC□T11T3□□	FTGA03508	-	-	TW15P
1616-H11	●		24	100	16.5	16	16	16	R/L		FTGA03512	SD32S	SHXN0509F	TW15P, HW35L

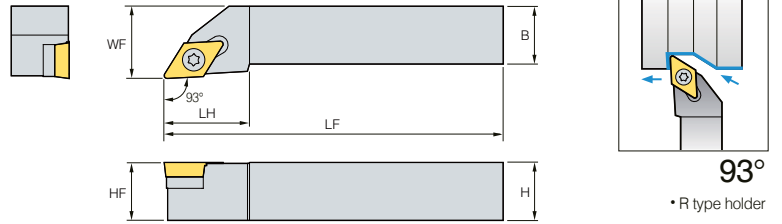
↻ Applicable inserts B50 ~ B53, B77

● : Stock item

## SDJCR/L



DC□T



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SDJCR/L	1010-E07	●	15	70	12	10	10	10	R	DC□T0702□□	FTKA02565	-	-	TW07P
	1212-F07	●	15	80	16	12	12	12	R					
	1616-H07	●	18	100	20	16	16	16	R					
	2020-K07	●	20	125	25	20	20	20	R					
SDJCR/L	1212-F11	●	20	80	16	12	12	12	R	DC□T11T3□□	FTGA03512	SD32S	SHXN0509F	TW15P, HW35L
	1616-H11	●	24	100	20	16	16	16	R					
	2020-K11	●	24	125	25	20	20	20	R					
	2525-M11	●	29	150	32	25	25	25	R					

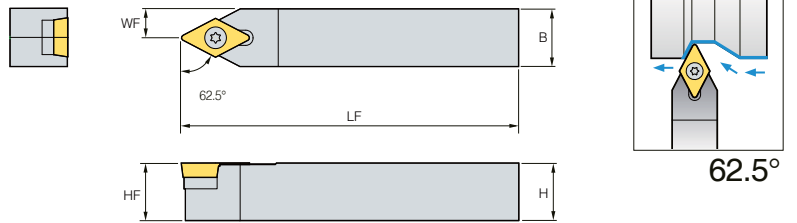
↻ Applicable inserts B50 ~ B53, B76

●: Stock item

## SDNCN



DC□T



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SDNCN	1010-E07	●	20	70	5	10	10	10	N	DC□T0702□□	FTKA02565	-	-	TW07P
	1212-F07	●	20	80	6	12	12	12	N					
	1212-H11	●	30	100	6	12	12	12	N					
	1616-H11	●	30	100	8	16	16	16	N					
SDNCN	2020-K11	●	30	125	10	20	20	20	N	DC□T11T3□□	FTGA03512	SD32S	SHXN0509F	TW15P, HW35L
	2025-M11	●	30	150	12.5	25	25	25	N					

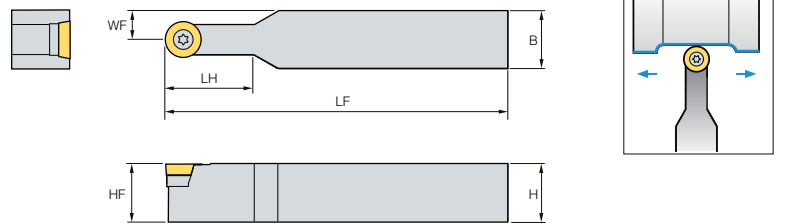
↻ Applicable inserts B50 ~ B53, B76

●: Stock item

## SRDCN



RC□T



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SRDCN	1010-E06		10	70	5	10	10	10	N	RC□T0602M0	FTKA02565	-	-	TW07P
	1212-F06	●	12	80	6	12	12	12	N					
	1616-H06		12	100	8	16	16	16	N					
	2525-M06	●	24	150	12.5	25	25	25	N					
	1616-H08	●	16	100	8	16	16	16	N					
SRDCN	2020-K08		20	125	10	20	20	20	N	RC□T0803M0	FTNA0307	-	-	TW09P
	2525-M08	●	20	150	12.5	25	25	25	N					
SRDCN	1616-H10		25	100	8	16	16	16	N	RC□T1003M0	FTKA03511A	SR10S	SHXN0509F	TW15P, HW35L
	2020-K10	●	25	125	10	20	20	20	N					
	2525-M10	●	25	150	12.5	25	25	25	N					
	2020-K12		28	125	10	20	20	20	N					
	2525-M12	●	28	150	12.5	25	25	25	N					

↻ Applicable inserts B54, B77

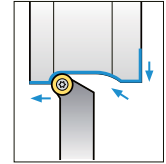
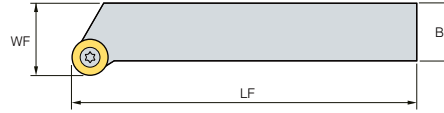
●: Stock item



# SRGCR/L



RC□T



• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench*
	R	L												
SRGCR/L 1010-E06			-	70	12	10	10	10	R/L	RC□T0602M0	FTKA02565	-	-	TW07P
1212-F06	●		-	80	16	12	12	12	R/L					
1616-H06			-	100	20	16	16	16	R/L					
1616-H08			-	100	20	16	16	16	R/L	RC□T0803M0	FTNA0307	-	-	TW09P
2020-K08			-	125	25	20	20	20	R/L					
2525-M08			-	150	32	25	25	25	R/L					
1616-H10			-	100	20	16	16	16	R/L	RC□T1003M0	FTKA03511A	SR10S	SHXN0509F	TW15P HW35L
2020-K10	●	●	-	125	25	20	20	20	R/L					
2525-M10			-	150	32	25	25	25	R/L					
2020-K12	●	●	-	125	25	20	20	20	R/L	RC□T1204M0	FTGA03512	SR12S	SHXN0509F	TW15P HW35L
2525-M12	●	●	-	150	32	25	25	25	R/L					

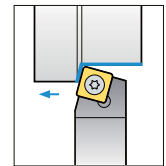
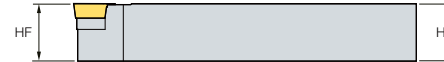
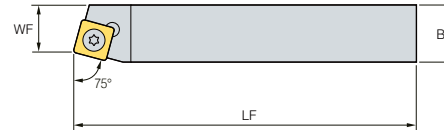
↻ Applicable inserts B54, B77

● : Stock item

# SSBCR/L



SC□T



75°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench*
	R	L												
SSBCR/L 1212-F09			16	80	11	12	12	12	R/L	SC□T09T3□□	FTGA03508	-	-	TW15P
1616-H09	●		16	100	13	16	16	16	R/L					
2020-K12			25	125	17	20	20	20	R/L					

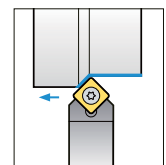
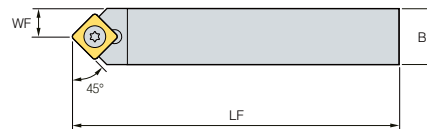
↻ Applicable inserts B55, B78

● : Stock item

# SSDCN



SC□T



45°

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench*
	R	L												
SSDCN 1212-F09	●		15.5	80	6	12	12	12	N	SC□T09T3□□	FTGA03508	-	-	TW15P
1616-H09	●		15.5	100	8	16	16	16	N					

↻ Applicable inserts B55, B78

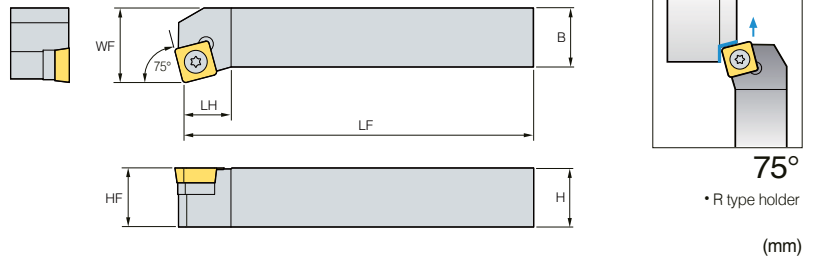
● : Stock item

# B Screw on System

## SSKCR/L



SC□T



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SSKCR/L 1616-H09			13	100	20	16	16	16	R/L	SC□T09T3□□	FTGA03512	SS32S	SHXN0509F	TW15P, HW35L

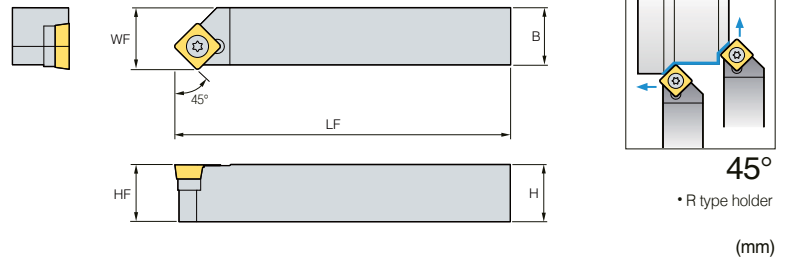
↻ Applicable inserts B55, B78

●: Stock item

## SSSCR/L



SC□T



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SSSCR/L 1616-H09	●		15.5	100	17	16	16	16	R/L	SC□T09T3□□	FTGA03512	SS32S	SHXN0509F	TW15P, HW35L
2020-K12	●	●	24	125	21	20	20	20	R/L	SC□T1204□□	FTGA0411F	SS42S	SHXN0610F	TW15P, HW40L
2525-M12	●	●	24	150	26	25	25	25	R/L	SC□T1204□□	FTGA0411F	SS42S	SHXN0610F	TW15P, HW40L

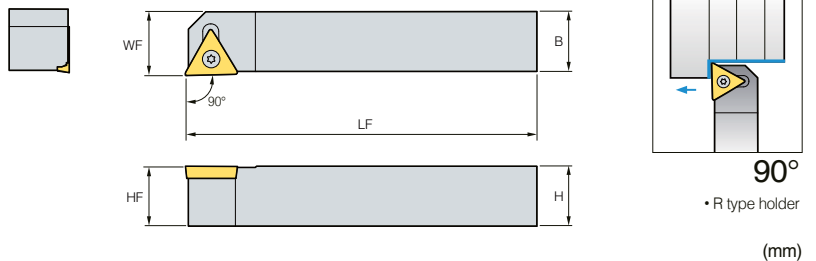
↻ Applicable inserts B55, B78

●: Stock item

## STACR/L



TC□T



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
STACR/L 1010-E09			10	70	12	10	10	10	R/L	TC□T0902□□	FTKA02206	-	-	TW06P
1212-F11	●		14	80	12.5	12	12	12	R/L	TC□T1102□□	FTKA02565	-	-	TW07P

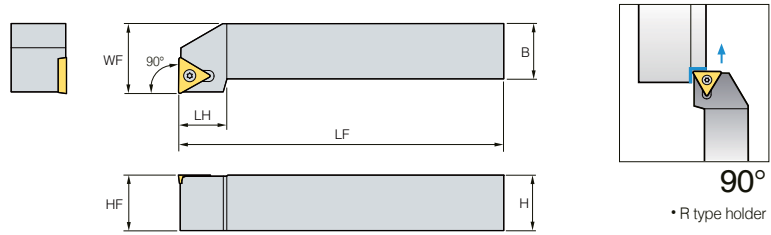
↻ Applicable inserts B59 ~ B60, B79

●: Stock item

# STFCR/L



TC□T



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
STFCR/L 1010-E09			10	70	12	10	10	10	R/L	TC□T0902□□	FTKA02206	-	-	TW06P
	●		14	80	16	12	12	12	R/L	TC□T1102□□	FTKA02565	-	-	TW07P
1616-H11	●		14	100	20	16	16	16	R/L					
1616-H16			19	100	20	16	16	16	R/L	TC□T16T3□□	FTGA03512	ST32S	SHXN0509F	TW15P, HW35L
2020-K16	●	●	19	125	25	20	20	20	R/L	TC□T16T3□□	FTGA03512	ST32S	SHXN0509F	TW15P, HW35L
2525-M16	●	●	25.2	150	32	25	25	25	R/L					

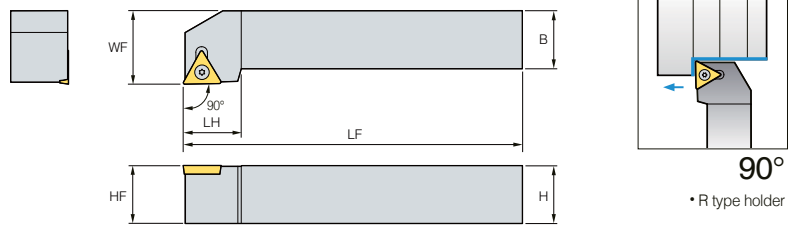
↻ Applicable inserts B59 ~ B60, B79

● : Stock item

# STGCR/L



TC□T



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
STGCR/L 0808-D09			11	60	10	8	8	8	R/L	TC□T0902□□	FTKA02206	-	-	TW06P
	●		11	70	12	10	10	10	R/L	TC□T1102□□	FTKA02565	-	-	TW07P
1212-F11	●	●	14	80	16	12	12	12	R/L					
1616-H11	●	●	16	100	20	16	16	16	R/L	TC□T16T3□□	FTGA03512	ST32S	SHXN0509F	TW15P, HW35L
1616-H16	●	●	21	100	20	16	16	16	R/L					
2020-K16	●	●	21	125	25	20	20	20	R/L	TC□T16T3□□	FTGA03512	ST32S	SHXN0509F	TW15P, HW35L
2525-M16	●	●	21	150	32	25	25	25	R/L					

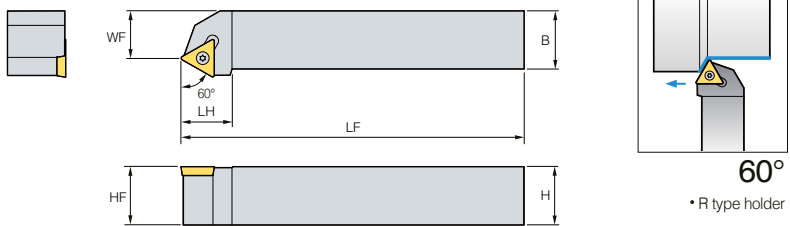
↻ Applicable inserts B59 ~ B60, B79

● : Stock item

# STTCR/L



TC□T



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
STTCR/L 1616-H11			14	100	13	16	16	16	R/L	TC□T1102□□	FTKA02565	-	-	TW07P
	●		19	100	13	16	16	16	R/L	TC□T16T3□□	FTGA03512	ST32S	SHXN0509F	TW15P, HW35L
1616-H16			19	100	13	16	16	16	R/L					
2020-K16			19	125	17	20	20	20	R/L	TC□T16T3□□	FTGA03512	ST32S	SHXN0509F	TW15P, HW35L
			19	125	17	20	20	20	R/L					

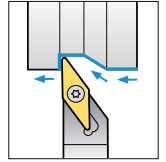
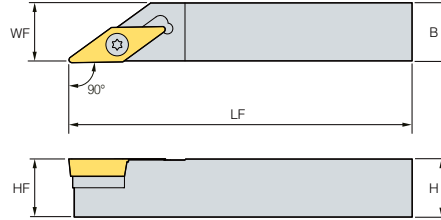
↻ Applicable inserts B59 ~ B60, B79

● : Stock item

## SVABR/L



VB□T



90°  
• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SVABR/L 1616-H16	•	•	28	100	16.5	16	16	16	R/L	VB□T1604□□	FTGA03512	SV32S	SHXN0509F	TW15P, HW35L
2020-K16	•	•	28	125	20.5	20	20	20	R/L					

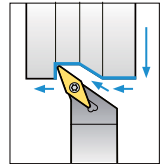
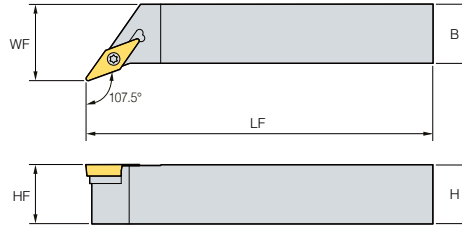
↻ Applicable inserts B65 ~ B67, B80

•: Stock item

## SVHBR/L



VB□T



107.5°  
• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SVHBR/L 2525-M16	•	•	31.5	150	32	25	25	25	R/L	VB□T1604□□	FTGA03512	SV32S	SHXN0509F	TW15P, HW35L
3225-P16	•	•	31.5	170	32	32	25	32	R/L					

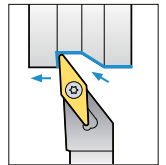
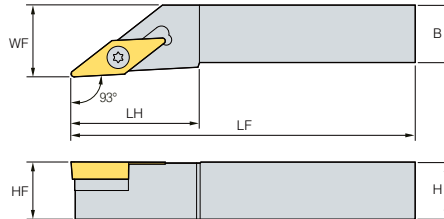
↻ Applicable inserts B65 ~ B67, B80

•: Stock item

## SVJBR/L



VB□T



93°  
• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SVJBR/L 1212-F11	•	•	27	80	16	12	12	12	R/L	VB□T1102□□	FTKA02565	-	-	TW07P
1616-H11	•	•	27	80	16	16	16	16	R/L					
2020-K11	•	•	27	125	25	20	20	20	R/L					
1212-F11-2	•	•	27	80	16	12	12	12	R/L	VB□T1103□□	FTKA02565	-	-	TW07P
1616-H11-2	•	•	27	80	16	16	16	16	R/L					
2020-K11-2	•	•	27	125	25	20	20	20	R/L					
1616-H16	•	•	36	100	20	16	16	16	R/L	VB□T1604□□	FTGA03512	SV32S	SHXN0509F	TW15P, HW35L
2020-K16	•	•	41	125	25	20	20	20	R/L					
2525-M16	•	•	41	150	32	25	25	25	R/L	VB□T1604□□	FTGA03512	SV32S	SHXN0509F	TW15P, HW35L
3225-P16	•	•	41	170	32	32	25	32	R/L					
3232-P16	•	•	55	170	40	32	32	32	R/L					

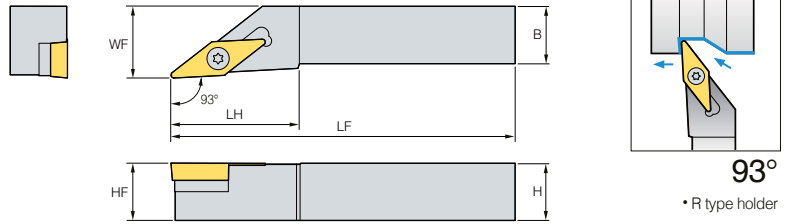
↻ Applicable inserts B65 ~ B67, B80

•: Stock item

# SVJCR/L



VC□T



93°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SVJCR/L 1212-F11	•		25	80	16	12	12	12	R/L	VC□T1103□□	FTKA02565	-	-	TW07P
	•		25	100	20	16	16	16	R/L					
	•	•	25	125	25	20	20	20	R/L					
1212-F13			32	80	16	12	12	12	R/L	VC□T1303□□	FTKA0307	-	-	TW09P
	•		32	100	20	16	16	16	R/L					
	•		32	125	25	20	20	20	R/L					
1616-H16			40	100	20	16	16	16	R/L	VC□T1604□□	FTGA03512	SV32S	SHXN0509F	TW15P, HW35L
2020-K16	•	•	40	125	25	20	20	20	R/L					
2525-M16	•	•	40	150	32	25	25	25	R/L					

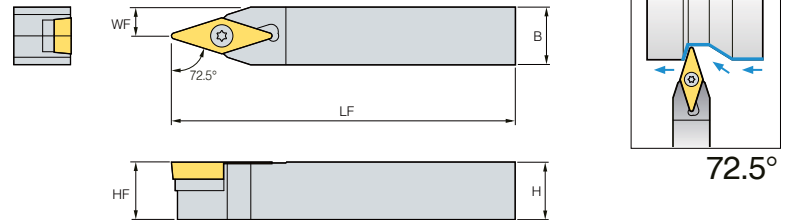
↻ Applicable inserts B68 ~ B70, B81

• : Stock item

# SVVBN



VB□T



72.5°

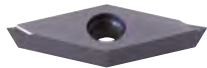
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SVVBN 1212-F11	•		27	80	6	12	12	12	N	VB□T1102□□	FTKA02565	-	-	TW07P
			27	100	8	16	16	16	N					
1616-H11			27	125	8	20	20	20	N	VB□T1103□□	FTKA02565	-	-	TW07P
2020-K11	•		27	80	6	12	12	12	N					
1212-F11-2	•		27	100	8	16	16	16	N	VB□T1604□□	FTGA03512	SV32S	SHXN0509F	TW15P, HW35L
1616-H11-2	•		27	125	8	20	20	20	N					
2020-K11-2	•		33	100	8	16	16	16	N	VB□T1604□□	FTGA03512	SV32S	SHXN0509F	TW15P, HW35L
1616-H16	•		32	125	10	20	20	20	N					
2020-K16	•		32	150	12.5	25	25	25	N	VB□T1604□□	FTGA03512	SV32S	SHXN0509F	TW15P, HW35L
2525-M16	•		32	170	12.5	32	25	32	N					
3225-P16	•		32	170	12.5	32	25	32	N					

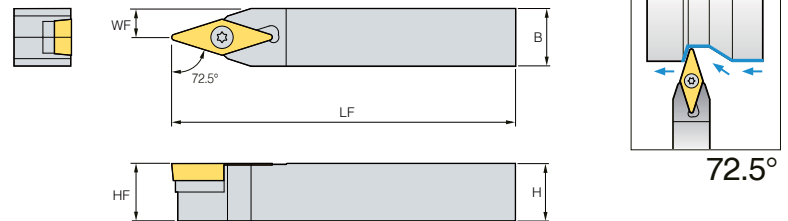
↻ Applicable inserts B65 ~ B67, B80

• : Stock item

# SVVCN



VC□T



72.5°

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SVVCN 1212-F11	•		25	80	6	12	12	12	N	VC□T1103□□	FTKA02565	-	-	TW07P
			25	100	8	16	16	16	N					
	•		25	125	10	20	20	20	N					
1212-F13			32	80	6	12	12	12	N	VC□T1303□□	FTNA0307	-	-	TW09P
1616-H13			32	100	8	16	16	16	N					
2020-K13			32	125	10	20	20	20	N					
1616-H16			32	100	8	16	16	16	N	VC□T1604□□	FTGA03512	SV32S	SHXN0509F	TW15P, HW35L
2020-K16	•		32	125	10	20	20	20	N					
2525-M16	•		32	150	12.5	25	25	25	N					

↻ Applicable inserts B68 ~ B70, B81

• : Stock item

# B Boring Bar Code System (ISO)

S 12 M - S T F P R - 11

1 2 3 4 5 6 7 8 9

Type of Bar Bar Diameter Bar Length Clamping system Insert Shape Lead Angle of Boring Bar Relief Angle of Insert Hand of Bar Length of Insert Cutting Edge

**1 Type of Bar**  
**S** 12 M - S T F P R - 11

"A" Steel with coolant hole  
 "E" Carbide bar with fixed steel head and coolant hole  
 "C" Carbide shank  
 "S" Steel shank  
 "X" Special type

**2 Bar Diameter**  
**S** 12 M - S T F P R - 11

**3 Bar Length**  
**S** 12 M - S T F P R - 11

Symbol(LF)	Length(mm)
H	100
J	110
K	125
M	150
N	160
Q	180
R	200
S	250
T	300
U	350
V	400
W	450
Y	500

**4 Clamping system**  
**S** 12 M - S T F P R - 11

Top clamping **C**  
 Top and hole clamping **D**  
 Top and hole clamping **M**  
 Hole clamping **P**  
 Screw on **S**

**5 Insert Shape**  
**S** 12 M - S T F P R - 11

**6 Lead Angle of Boring Bar**  
**S** 12 M - S T F P R - 11

95° **L** 90° **F**  
 93° **U** 75° **K**  
 107.5° **Q** 93° (95°) **Z**  
 52° **J** 60° **W**

**7 Relief Angle of Insert**  
**S** 12 M - S T F P R - 11

5° **B**  
 7° **C**  
 0° **N**  
 11° **P**

**8 Hand of Bar**  
**S** 12 M - S T F P R - 11

**9 Length of Cutting Edge**  
**S** 12 M - S T F P R - 11

## Double Clamp System

<b>Cutting Shape</b>							
<b>Designation</b>	<b>DCLNR/L</b>	<b>DDUNR/L</b>	<b>DSKNR/L</b>	<b>DTFNR/L</b>	<b>DWLNR/L</b>		
Tool cutting edge angle	95°	93°	75°	90°	95°		
<b>Page</b>	B125	B125	B125	B126	B126		
Copying		•					
Facing	•				•		
Back turning		•					
Turning	•	•	•	•	•		

## Lever Lock System

<b>Cutting Shape</b>								
<b>Designation</b>	<b>PCLNR/L</b>	<b>PDSNR/L</b>	<b>PDUNR/L</b>	<b>PSKNR/L</b>	<b>PTFNR/L</b>	<b>PWLNR/L</b>		
Tool cutting edge angle	95°	62.5°	93°	75°	90°	95°		
<b>Page</b>	B127	B127	B127	B128	B128	B128		
Copying		•	•					
Facing	•					•		
Back turning		•	•			•		
Turning	•	•	•	•	•	•		

## Clamp on System

<b>Cutting Shape</b>							
<b>Designation</b>	<b>CKUNR/L</b>	<b>CSKPR/L</b>	<b>CTFPR/L</b>				
Tool cutting edge angle	93°	75°	90°				
<b>Page</b>	B129	B129	B129				
Copying							
Facing							
Back turning	•						
Turning	•	•	•				

## Multi Lock System

<b>Cutting Shape</b>								
<b>Designation</b>	<b>MCLNR/L</b>	<b>MDUNR/L</b>	<b>MSKNR/L</b>	<b>MTFNR/L</b>	<b>MVUNR/L</b>	<b>MWLNR/L</b>		
Tool cutting edge angle	95°	93°	75°	90°	93°	95°		
<b>Page</b>	B130	B130	B130	B131	B131	B131		
Copying		•			•			
Facing	•					•		
Back turning		•			•			
Turning	•	•	•	•	•	•		



# B Index for Boring Bars

## Screw on System

<b>Cutting Shape</b>								
<b>Designation</b>	SCLCR/L	SCLPR/L	SDQCR/L	SDUCR/L	SDZCR/L	SSKCR/L	SSKPR/L	STFCR/L
<b>Tool cutting edge angle</b>	95°	95°	107.5°	93°	93°	75°	75°	90°
<b>Page</b>	B132	B133	B134	B135	B136	B136	B136	B137
Copying			•	•				
Facing	•	•						
Back turning			•	•	•			
Turning	•	•	•	•	•	•	•	•

<b>Cutting Shape</b>								
<b>Designation</b>	STFPR/L	STWPR/L	SVJCR/L	SVQBR/L	SVQCR/L	SVUBR/L	SVUCR/L	SWLCR/L
<b>Tool cutting edge angle</b>	90°	60°	52°	107.5°	107.5°	93°	93°	95°
<b>Page</b>	B138	B139	B139	B139	B140	B140	B140	B141
Copying			•	•	•	•	•	•
Facing								
Back turning				•	•	•	•	•
Turning	•	•	•	•	•	•	•	•

## Compact Mini

<b>Cutting Shape</b>								
<b>Designation</b>	SCLCR/L	STUBR/L	STLBR/L	STUPR/L	SWUBR/L			
<b>Tool cutting edge angle</b>	95°	93°	95°	93°	93°			
<b>Page</b>	B142	B142	B142	B143	B144			
Copying								
Facing	•	•	•					
Back turning				•				
Turning	•	•	•	•	•			

## Carbide Shank Boring Bar

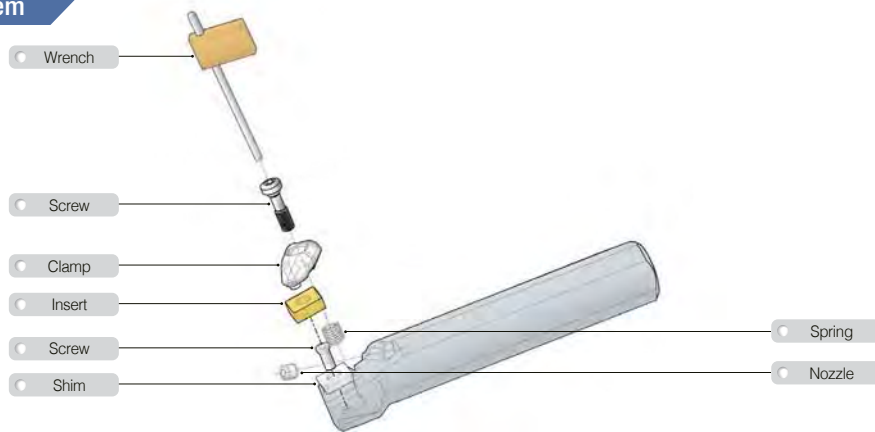
<b>Designation</b>	SCLCR/L	SCLPR/L	SDQCR/L	SDUCR/L	STFCR/L
<b>Tool cutting edge angle</b>	95°	95°	107.5°	93°	90°
<b>Page</b>	B132	B133	B134	B135	B137
<b>Designation</b>	STFPR/L	STUBR/L	STUPR/L	SWUBR/L	-
<b>Tool cutting edge angle</b>	90°	93°	93°	93°	-
<b>Page</b>	B138	B142	B143	B144	-

## Sleeve

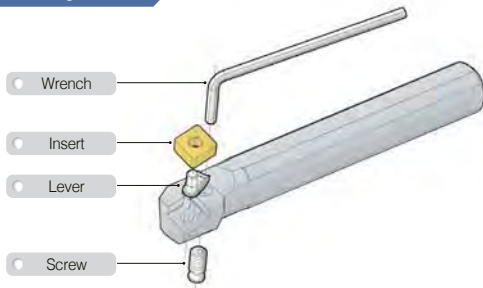
<b>Shape</b>	
<b>Designation</b>	SL
<b>Page</b>	B144

## Instructions of Boring Bar Assembly

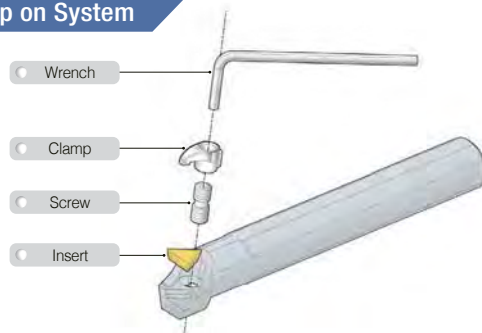
### Double Clamp System



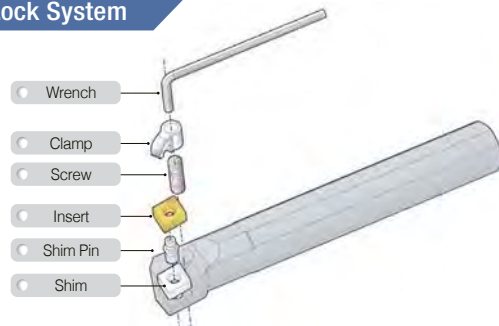
### Lever Lock System



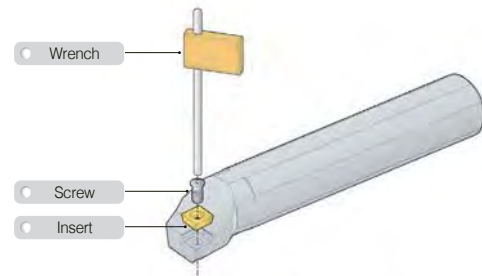
### Clamp on System



### Multi Lock System



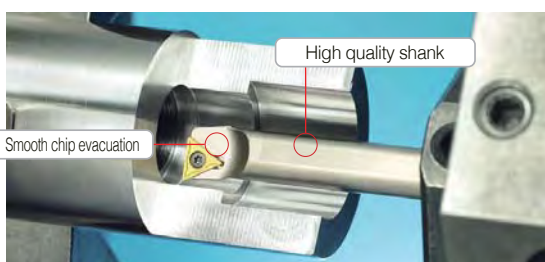
### Screw on System



## Carbide Shank Boring Bar

- Excellent cutting performance even in internal machining with chattering
- Available for various workpieces such as steel, stainless steel, cast iron, etc.
- Improved tool life and surface roughness

### Features



Higher strength and durability than steel shank, special surface treatment applied

### Comparison of chipping

Specifications	Steel boring bar			Carbide boring bar		
	<b>R<sub>max</sub></b>	<b>R<sub>z</sub></b>	<b>R<sub>a</sub></b>	<b>R<sub>max</sub></b>	<b>R<sub>z</sub></b>	<b>R<sub>a</sub></b>
	4.67	3.68	0.62	3.07	2.76	0.53

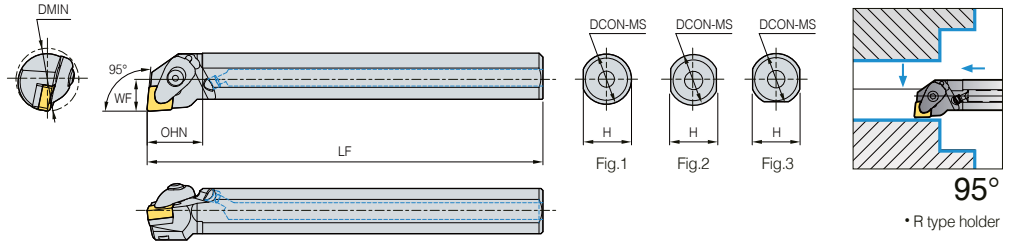
- SCM440
- $v_c$  (m/min) = 200
- $a_p$  (mm) = 0.4
- $f_n$  (mm/rev) = 0.15
- Cutting depth: 5D

# B Double Clamp System

## DCLNR/L



CN□□



• R type holder

(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Nozzle	Wrench	Fig.
	R	L																
A25R-DCLNR/L-09			32	40	200	17	24	25	R/L	CN□□0903□□	CVH3	CHX0415	SC32V	FTKA0307	SPR0510	CN0605	HW25P	1
A25R-DCLNR/L-12	●	●	32	40	200	17	24	25	R/L	CN□□1204□□	CVH4	CHX0518	SC42V	FTKA0410	SPR0714	CN0605	HW30P	1
A32S-DCLNR/L-12	●	●	40	50	200	22	30	32	R/L									3
A40T-DCLNR/L-12	●	●	50	60	300	27	38	40	R/L	CN□□1606□□	CVH5	CHX0622	SC54V	FTNA0511	SPR0811	CN0605	HW40L	3
A50U-DCLNR/L-16			63	70	350	35	47	50	R/L									3

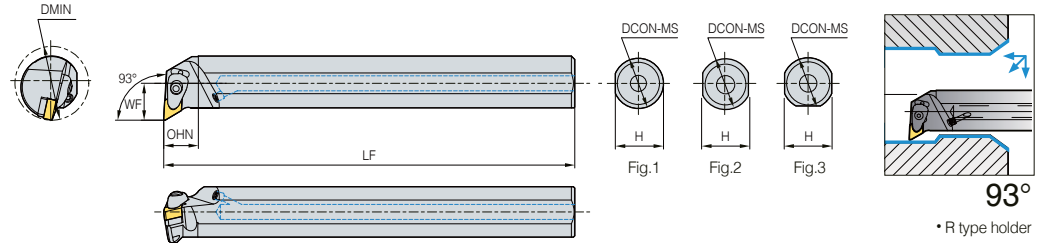
↻ Applicable inserts B5 ~ B12

●: Stock item

## DDUNR/L



DN□□



• R type holder

(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Nozzle	Wrench	Fig.
	R	L																
A40T-DDUNR/L-15	●		50	60	300	27	38	40	R/L	DN□□1506□□	CVH4	CHX0518	SD43V	FTKA0410	SPR0714	CN0605	HW30P	3
A50U-DDUNR/L-15		●	63	70	350	35	47	50	R/L									3
A40T-DDUNR/L-15-3			50	60	300	27	38	40	R/L	DN□□1504□□	CVH4	CHX0518	SD44V	FTKA0410	SPR0714	CN0605	HW30P	3
A50U-DDUNR/L-15-3			63	70	350	35	47	50	R/L									3

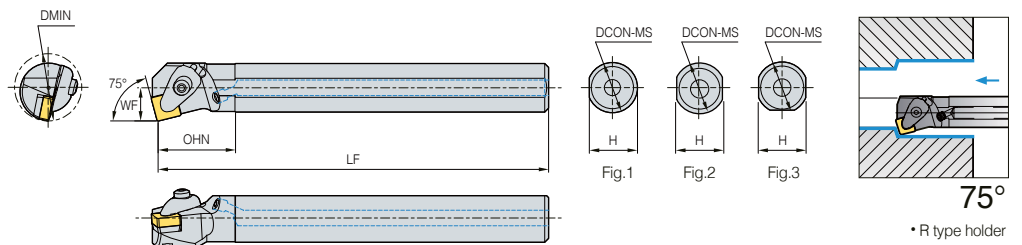
↻ Applicable inserts B13 ~ B18

●: Stock item

## DSKNR/L



SN□□



• R type holder

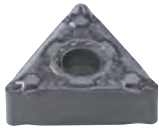
(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Nozzle	Wrench	Fig.
	R	L																
A25R-DSKNR/L-09	●	●	32	40	200	17	24	25	R/L	SN□□0903□□	CVH3	CHX0415	SS32V	FTKA0307	SPR0510	CN0605	HW25P	1
A25R-DSKNR/L-12			32	40	200	17	24	25	R/L	SN□□1204□□	CVH4	CHX0518	SS42V	FTKA0410	SPR0714	CN0605	HW30P	1
A32S-DSKNR/L-12	●		40	50	250	22	30	32	R/L									3
A40T-DSKNR/L-12			50	60	300	27	38	40	R/L	3								

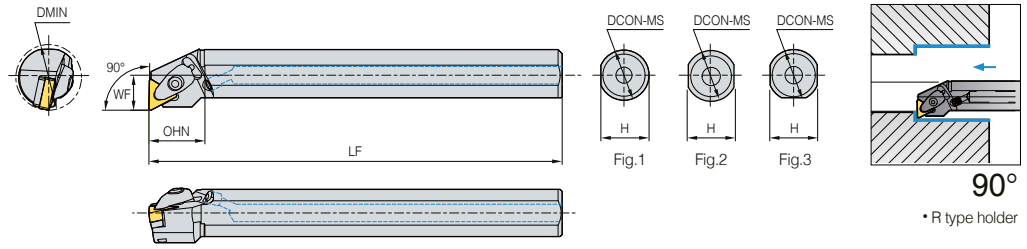
↻ Applicable inserts B20 ~ B28

●: Stock item

## DTFNR/L



TN□□



90°

• R type holder

(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Nozzle	Wrench	Fig.
	R	L																
A25R-DTFNR/L-16	●	●	32	40	200	17	24	25	R/L	TN□□1604□□	CVH3	CHX0415	ST32V	FTKA0307	SPR0510	CN0605	HW25P	1
A32S-DTFNR/L-16	●		40	50	250	22	30	32	R/L									3
A40T-DTFNR/L-22	●		50	60	300	27	38	40	R/L	TN□□2204□□	CVH4	CHX0518	ST44V	FTKA0410	SPR0714	CN0605	HW30P	3
A50U-DTFNR/L-22	●		63	70	350	35	47	50	R/L									

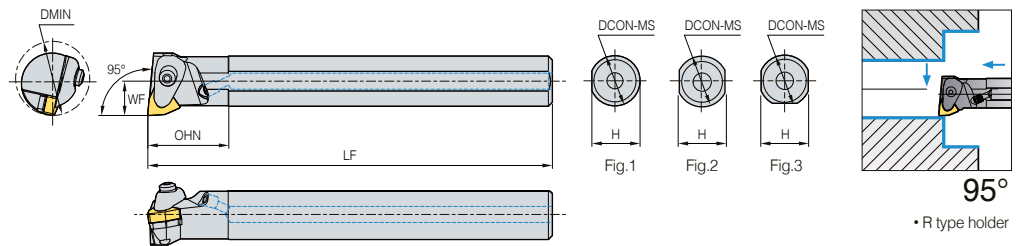
↻ Applicable inserts B29 ~ B36

● : Stock item

## DWLNR/L



WN□□



95°

• R type holder

(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Nozzle	Wrench	Fig.
	R	L																
A25R-DWLNR/L-06	●		32	40	200	17	24	25	R/L	WN□□0604□□	CVH3	CHX0415	SW32V	FTKA0307	SPR0510	CN0605	HW25P	1
A32S-DWLNR/L-06	●		40	50	250	22	30	32	R/L									3
A40T-DWLNR/L-06		●	50	60	300	27	38	40	R/L									
A25R-DWLNR/L-08	●	●	32	40	200	17	24	25	R/L	WN□□0804□□	CVH4	CHX0518	SW42V	FTKA0410	SPR0714	CN0605	HW30P	1
A32S-DWLNR/L-08	●	●	40	50	250	22	30	32	R/L									3
A40T-DWLNR/L-08	●		50	60	300	27	38	40	R/L									
A50U-DWLNR/L-08	●	●	63	70	350	35	47	50	R/L									

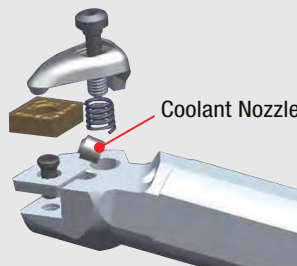
↻ Applicable inserts B39 ~ B43

● : Stock item



### Features of Double Clamp (Boring bar)

Longer tool life and excellent surface finish can be achieved with the adjustable Coolant Nozzle

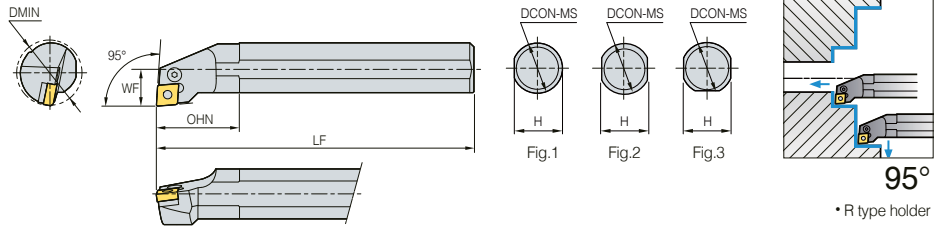


# B Lever Lock System

## PCLNR/L



CN□□



Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Shim Pin Punch	Wrench	Fig.
	R	L															
S16R-PCLNR/L-09	●	●	20	25	200	11	14	16	R/L	CN□□0903□□	LV3C	VHX0509B	-	-	-	HW20L	2
S20S-PCLNR/L-09	●	●	25	32	250	13	18	20	R/L		3						
S25R-PCLNR/L-09	●	●	32	40	200	17	23	25	R/L		3						
S25R-PCLNR/L-12	●	●	32	40	200	17	23	25	R/L	CN□□1204□□	LV4A	VHX0613A	-	-	-	HW25L	3
S25T-PCLNR/L-12	●	●	32	40	300	17	23	25	R/L		3						
S32S-PCLNR/L-12	●	●	40	50	250	22	30	32	R/L		3						
S32U-PCLNR/L-12	●	●	40	50	350	22	30	32	R/L		3						
S40T-PCLNR/L-12	●	●	50	60	300	27	38	40	R/L		3						
S50U-PCLNR/L-12	●	●	63	70	350	35	47	50	R/L		3						
S50U-PCLNR/L-19	●	●	63	70	350	35	47	50	R/L	CN□□1906□□	LV6	VHX1027	SC63	SP6	LSPS6	HW40L	3
A25R-PCLNR/L-12	●	●	32	40	200	17	24	25	R/L	CN□□1204□□	LV4A	VHX0613A	-	-	-	HW25L	1
A32S-PCLNR/L-12	●	●	44	50	250	22	30	32	R/L		3						
A40T-PCLNR/L-12	●	●	50	60	300	27	38	40	R/L		3						

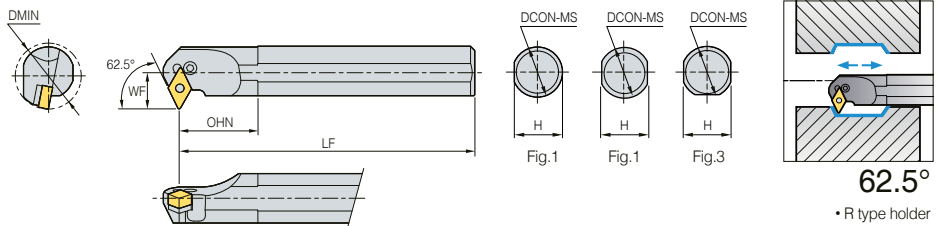
Applicable inserts B5 ~ B12

●: Stock item

## PDSNR/L



DN□□

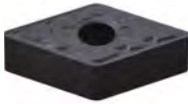


Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Shim Pin Punch	Wrench	Fig.
	R	L															
S32S-PDSNR/L-15	●	●	40	50	250	22	30	32	R/L	DN□□1506□□	LV4B	VHX0821	SD42	SP4	LSPS4	HW30L	3
S40T-PDSNR/L-15	●	●	50	60	300	27	38	40	R/L		3						
S32S-PDSNR/L-15-3			40	50	250	22	30	32	R/L		3						
S40T-PDSNR/L-15-3			50	45	300	27	38	40	R/L	3							
A32S-PDSNR/L-15			40	50	250	22	30	32	R/L	3							
A32S-PDSNR/L-15-3			40	50	250	22	30	32	R/L	3							

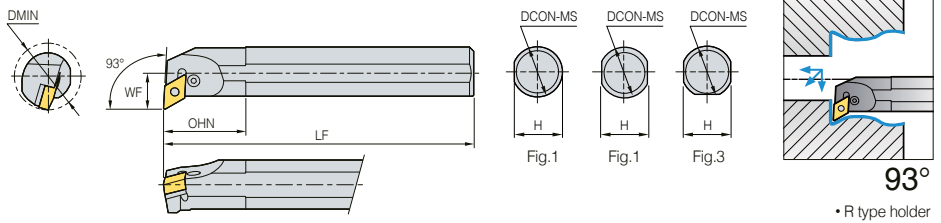
Applicable inserts B13 ~ B18

●: Stock item

## PDUNR/L



DN□□



Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Shim Pin Punch	Wrench	Fig.
	R	L															
S32S-PDUNR/L-11			40	50	250	22	30	32	R/L	DN□□1104□□	LV3	VHX0617	SD317	SP3	LSPS3	HW25L	3
S32S-PDUNR/L-15	●	●	40	50	250	22	30	32	R/L	DN□□1506□□	LV4B	VHX0821	SD42	SP4	LSPS4	HW30L	3
S40T-PDUNR/L-15	●	●	50	60	300	27	38	40	R/L		3						
S50U-PDUNR/L-15	●	●	63	55	350	35	47	50	R/L		3						
S32S-PDUNR/L-15-3			40	50	250	22	30	32	R/L	3							
S40T-PDUNR/L-15-3			50	60	300	27	38	40	R/L	3							
A32S-PDUNR/L-15			40	50	250	22	30	32	R/L	3							
A32S-PDUNR/L-15-3			40	50	250	22	30	32	R/L	3							

Applicable inserts B13 ~ B18

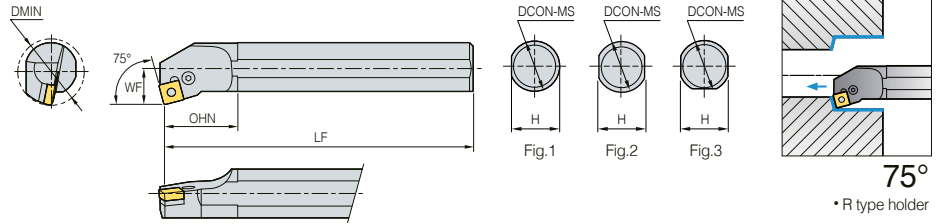
●: Stock item



# PSKNR/L



SN□□



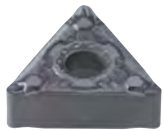
(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Shim Pin Punch	Wrench	Fig.
	R	L															
S25R-PSKNR/L-12	●	●	32	40	200	17	23	25	R/L	SN□□1204□□	LV4A	VHX0613A	-	-	-	HW30L	3
S32S-PSKNR/L-12	●		40	50	250	22	30	32	R/L		LV4	VHX0821	SS42B	SP4	LSPS4	HW30L	
S40T-PSKNR/L-12	●		50	60	300	27	38	40	R/L	SN□□1204□□	LV4A	VHX0613A	-	-	-	HW25L	1
A25R-PSKNR/L-12			32	40	200	17	24	25	R/L		LV4	VHX0821	SS42B	SP4	LSPS4	HW30L	3

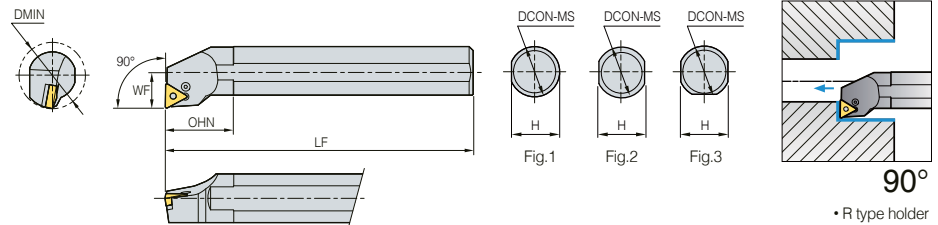
↻ Applicable inserts B20 ~ B28

● : Stock item

# PTFNR/L



TN□□



(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Shim Pin Punch	Wrench	Fig.
	R	L															
S16R-PTFNR/L-11	●		20	25	200	11	14	16	R/L	TN□□1103□□	LV2	VHX0509B	-	-	-	HW25L	2
S20S-PTFNR/L-11	●		25	32	250	13	18	20	R/L		LV3B	VHX0512B	-	-	-	HW20L	3
S25R-PTFNR/L-11	●		32	40	200	17	23	25	R/L	TN□□1604□□	LV3	VHX0617	ST317B	SP3	LSPS3	HW25L	3
S25R-PTFNR/L-16	●	●	32	40	200	17	23	25	R/L		LV3	VHX0617	-	-	-	HW25L	
S32S-PTFNR/L-16	●	●	40	50	250	22	30	32	R/L	TN□□1604□□	LV3	VHX0617	ST317B	SP3	LSPS3	HW25L	3
S40T-PTFNR/L-16	●	●	50	60	300	27	38	40	R/L		LV3	VHX0617	ST317B	SP3	LSPS3	HW25L	
A25R-PTFNR/L-16			32	40	200	17	24	25	R/L								
A32S-PTFNR/L-16			40	50	250	22	30	32	R/L								

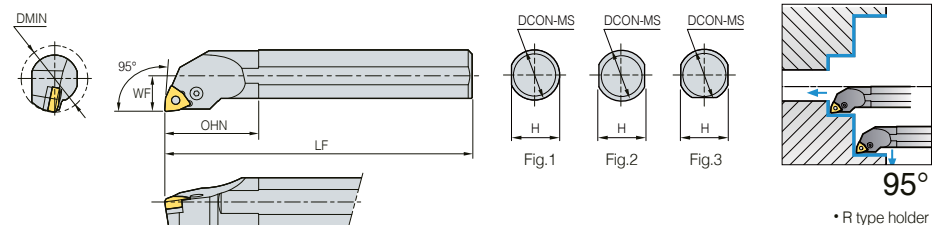
↻ Applicable inserts B29 ~ B36

● : Stock item

# PWLNR/L



WN□□



(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Shim Pin Punch	Wrench	Fig.
	R	L															
S16R-PWLNR/L-06	●		20	40	200	6	14	16	R/L	WN□□0604□□	LV3B	VHX0512B	-	-	-	HW20L	2
S20S-PWLNR/L-06	●	●	25	32	250	13	18	20	R/L	WN□□0604□□	LV3B	VHX0512B	-	-	-	HW20L	2
S25R-PWLNR/L-06	●		32	40	200	17	23	25	R/L		LV3	VHX0617	SW317	SP3	LSPS3	HW25L	
S32S-PWLNR/L-06	●		40	50	250	22	30	32	R/L	WN□□0804□□	LV4A	VHX0613A	-	-	-	HW25L	3
S25R-PWLNR/L-08	●	●	32	40	200	17	23	25	R/L		LV4	VHX0821	SW42	SP4	LSPS3	HW30L	
S32S-PWLNR/L-08	●	●	40	50	250	22	30	32	R/L								

↻ Applicable inserts B39 ~ B43

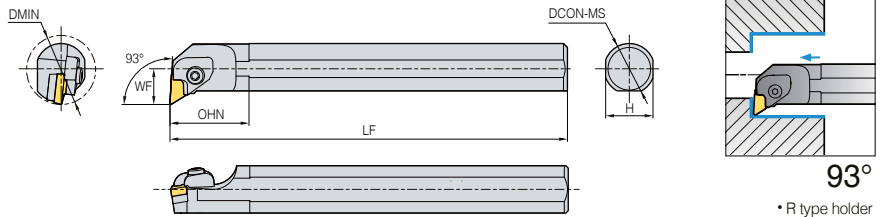
● : Stock item

# B Clamp on System

## CKUNR/L



KN□□



(mm)

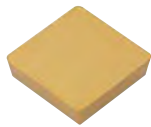
Designation	Stock	DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Clamp	Clamp Screw	Spring	Shim	Pin-Spring	Shim Screw	Wrench
S32S-CKUNR-16	●	40	70	250	22	30	32	R	KN□□1604□□L							
S40T-CKUNR-16	●	50	60	300	27	37	40	R								
S50U-CKUNR-16	●	63	55	350	35	43	50	R								
S32S-CKUNL-16		40	70	250	22	30	32	L	KN□□1604□□R							
S40T-CKUNL-16		50	60	300	27	37	40	L								
S50U-CKUNL-16		63	55	350	35	43	50	L								

➔ Applicable inserts **B19**

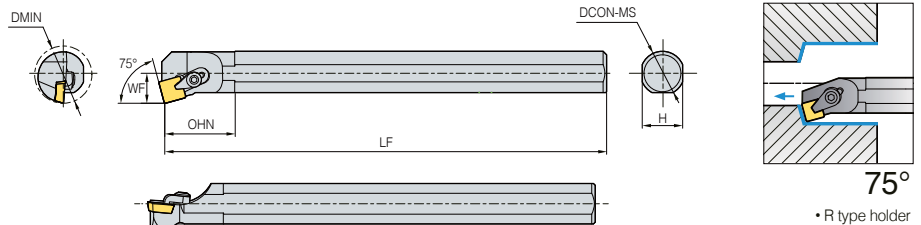
• Use left handed insert for right handed holder

●: Stock item

## CSKPR/L



SP□□



(mm)

Designation	Stock	DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Clamp	Clamp Screw	C-ring	Wrench
S16R-CSKPR/L-09	●	20	30	200	11	15	16	R/L	SP□□0903□□				
S20S-CSKPR/L-09		25	36	250	13	18	20	R/L					
S20S-CSKPR/L-12	●	25	28	250	13	18	20	R/L	SP□□1203□□				
S25R-CSKPR/L-12		32	40	200	12	23	25	R/L					

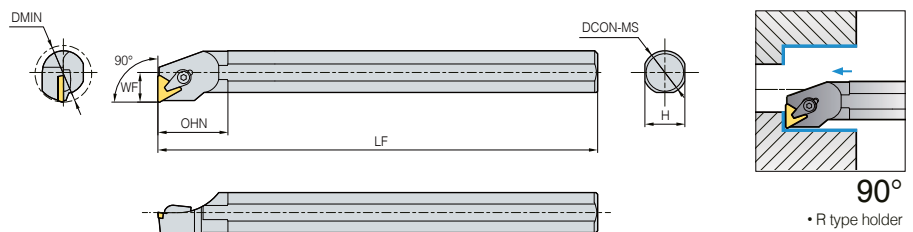
➔ Applicable inserts **B56 ~ B57**

●: Stock item

## CTFPR/L



TP□□



(mm)

Designation	Stock	DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Clamp	Clamp Screw	C-ring	Shim	Shim Pin	Wrench
S12M-CTFPR/L-11	●	16	26	150	9	11	12	R/L	TP□□1103□□						
S16R-CTFPR/L-11	●	20	40	200	11	15	16	R/L							
S20S-CTFPR/L-11	●	25	40	250	13	18	20	R/L							
S16R-CTFPR/L-16	●	20	40	200	11	15	16	R/L	TP□□1603□□						
S20S-CTFPR/L-16	●	25	40	250	13	18	20	R/L							
S25R-CTFPR/L-16	●	32	40	200	16	23	25	R/L							
S32S-CTFPR/L-16	●	40	45	250	22	30	32	R/L	TP□□2204□□						
S40T-CTFPR/L-16		50	60	300	27	37	40	R/L							
S40T-CTFPR/L-22		50	60	300	27	37	40	R/L							

➔ Applicable inserts **B61 ~ B64**

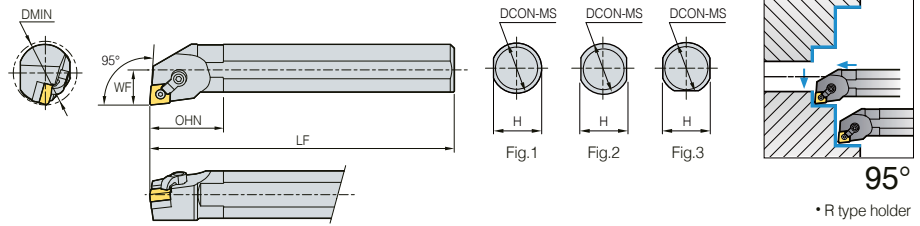
●: Stock item



# MCLNR/L



CN□□



95°

• R type holder

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench	Fig.
	R	L														
S20S-MCLNR/L-09			25	32	250	13	18	20	R/L	CN□□0903□	CDH7N	DHA10/32-19	-	SP3D3	HW19.8L HW23.8L	2 3
S25R-MCLNR/L-09			32	40	200	17	23	25	R/L							
S25R-MCLNR/L-12	●		32	40	200	17	23	25	R/L	CN□□1204□	CDH6N	DHA1/4-21	SC43D	SP4D	HW31.8L HW23.8L	3
S32S-MCLNR/L-12	●		40	50	250	22	30	32	R/L							
S40T-MCLNR/L-12			50	60	300	27	38	40	R/L	CN□□1204□	CDH6N	DHA1/4-21	-	SP4DS	HW31.8L HW23.8L	1 3
A25R-MCLNR/L-12			32	40	200	17	24	25	R/L							
A32S-MCLNR/L-12			40	50	250	22	30	32	R/L				SC43D	SP4D	HW23.8L	3

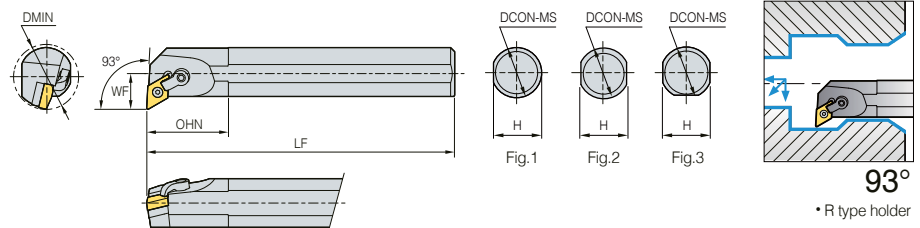
➔ Applicable inserts B5 ~ B12

● : Stock item

# MDUNR/L



DN□□



93°

• R type holder

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench	Fig.
	R	L														
S32S-MDUNR/L-15-3			40	50	250	22	30	32	R/L	DN□□1504□	CDH6N	DHA1/4-21	SD43D	SP4D	HW31.8L HW23.8L	3
S40T-MDUNR/L-15-3			50	60	300	27	38	40	R/L							
A32S-MDUNR/L-15-3			40	50	250	22	30	32	R/L							

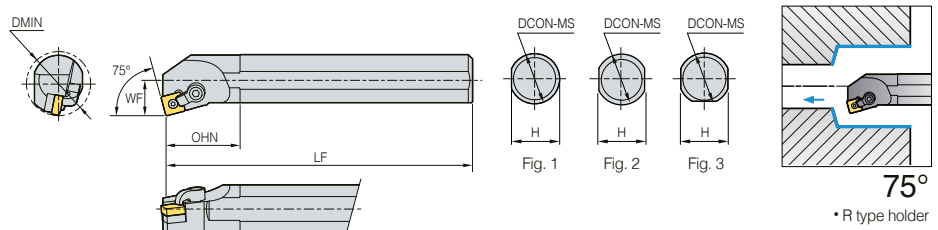
➔ Applicable inserts B13 ~ B18

● : Stock item

# MSKNR/L



SN□□



75°

• R type holder

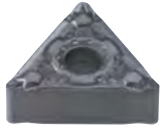
Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench	Fig.
	R	L														
S25R-MSKNR/L-12			32	45	200	17	23	25	R/L	SN□□1204□	CDH8N1	DHA5/16-28	-	SP4DS	HW39.7L HW23.8L	3
S32S-MSKNR/L-12			40	50	250	22	30	32	R/L							
S40T-MSKNR/L-12			50	60	300	27	38	40	R/L							
A25R-MSKNR/L-12			32	40	200	17	23	25	R/L	SN□□1204□	CDH8N1	DHA5/16-28	SS43D	SP4D	HW39.7L HW23.8L	1 3
A32S-MSKNR/L-12			40	50	250	22	30	32	R/L							
A40T-MSKNR/L-12			50	50	300	27	37	40	R/L							

➔ Applicable inserts B20 ~ B28

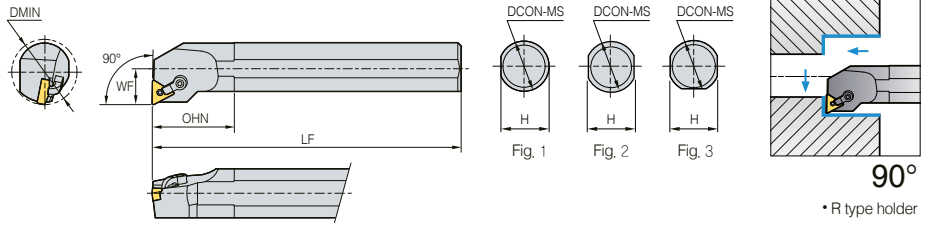
● : Stock item

# B Multi Lock System

## MTFNR/L



TN□□



(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench	Fig.
	R	L														
S25R-MTFNR/L-16			32	91	25	23	200	17	R/L	TN□□1604□	CDH7N1	DHA10-32-19	-	SP3D3	HW23.8L	3
S32S-MTFNR/L-16			40	61	32	30	250	22	R/L							
S40T-MTFNR/L-16			50	61	40	38	300	27	R/L	TN□□1604□	CDH7N1	DHA10-32-19	-	SP3D3	HW23.8L	1
A25R-MTFNR/L-16			32	91	25	23	200	17	R/L							
A32S-MTFNR/L-16			40	61	32	30	250	22	R/L							3

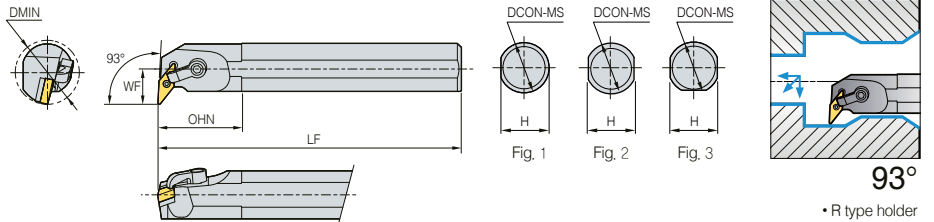
↻ Applicable inserts B29 ~ B36

●: Stock item

## MVUNR/L



VN□□



(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench	Fig.
	R	L														
S32S-MVUNR/L-16			40	93	32	30	250	22	R/L	VN□□1604□	CDH8N2	DHA5/16-28	SV32D	SP3D	HW39.7L HW19.8L	3
S40T-MVUNR/L-16			50	93	40	38	300	27	R/L							
A32S-MVUNR/L-16	●		40	93	32	30	250	22	R/L							
A40T-MVUNR/L-16			50	93	40	38	300	27	R/L							

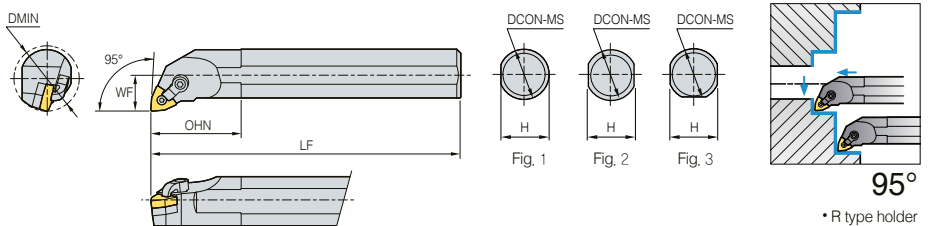
↻ Applicable inserts B37 ~ B38

●: Stock item

## MWLNR/L



WN□□



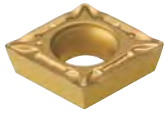
(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Pin	Wrench	Fig.		
	R	L																
S25R-MWLNR/L-06	●		32	95	25	23	200	17	R/L	WN□□0604□	CDH7N	DHA10/32-19	-	SP3D3	HW23.8L HW19.8L	3		
S32S-MWLNR/L-06			32	95	32	30	250	22	R/L								SW32D	SP3D
S40T-MWLNR/L-06			50	95	40	38	300	27	R/L									
S25R-MWLNR/L-08	●	●	32	95	25	23	200	17	R/L	WN□□0804□	CDH6N	DHA1/4-21	-	SP4DS	HW31.8L HW23.8L	3		
S32S-MWLNR/L-08	●		40	95	32	30	250	22	R/L								SW43D	SP4D
S40T-MWLNR/L-08	●		50	95	40	38	300	27	R/L									
A25R-MWLNR/L-06			32	95	25	23	200	17	R/L	WN□□0604□	CDH7N	DHA10/32-19	-	SP3D3	HW31.8L	1		
A32S-MWLNR/L-06			32	95	32	30	250	22	R/L								SW32D	SP3D
A25R-MWLNR/L-08			32	95	25	23	200	17	R/L	WN□□0804□	CDH6N	DHA1/4-21	-	SP4DS	HW31.8L	1		
A32S-MWLNR/L-08			40	95	32	30	250	22	R/L								SW43D	SP4D

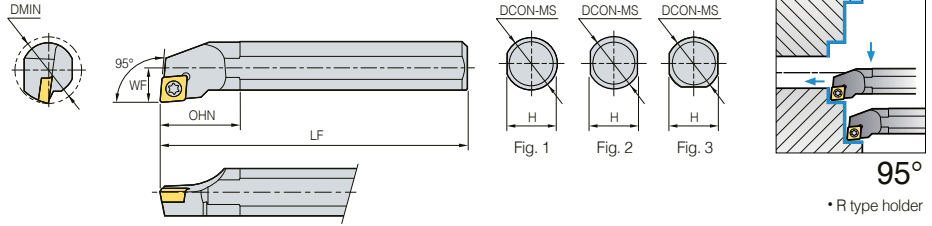
↻ Applicable inserts B39 ~ B43

●: Stock item

# SCLCR/L



CC□T



## Steel shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench	Fig.
	R	L													
S08K-SCLCR/L-06	●	●	10	12	125	5	7.2	8	R/L	CC□T0602□□	FTKA02555	-	-	TW07	2
S10K-SCLCR/L-06	●	●	12	16	125	6	9	10	R/L		FTKA02565	-	-	TW07P	
S10M-SCLCR/L-06	●	●	12	16	150	6	9	10	R/L						
S12M-SCLCR/L-06	●	●	16	20	150	9	11	12	R/L						
S16R-SCLCR/L-06	●	●	20	25	200	11	14	16	R/L						
S12M-SCLCR/L-09	●	●	16	20	150	9	11	12	R/L	CC□T09T3□□	FTGA03508	-	-	TW15P	2
S16R-SCLCR/L-09	●	●	20	25	200	11	14	16	R/L		FTGA03510	-	-	TW15P	3
S20S-SCLCR/L-09	●	●	25	32	250	13	18	20	R/L						
S25R-SCLCR/L-09	●	●	32	40	200	17	23	25	R/L						
S25R-SCLCR/L-12	●	●	32	40	200	17	23	25	R/L	CC□T1204□□	FTGA0411F	-	-	TW15P	3
S32S-SCLCR/L-12	●	●	40	50	250	22	30	32	R/L		FTGA0411F	SC42S	SHXN0610F	HW40L TW15P	
S40T-SCLCR/L-12	●	●	50	60	300	27	38	40	R/L						
A08F-SCLCR/L-06	●	●	10	14	80	5	7.6	8	R/L	CC□T0602□□	FTKA02555	-	-	TW07P	1
A10H-SCLCR/L-06	●	●	12	16	100	6	9.5	10	R/L		FTKA02565	-	-	TW07P	
A12K-SCLCR/L-06	●	●	16	20	125	9	11.5	12	R/L						
A12K-SCLCR/L-09	●	●	16	20	125	9	11.5	12	R/L						
A16M-SCLCR/L-09	●	●	20	25	150	11	15	16	R/L	CC□T09T3□□	FTGA03508	-	-	TW15P	1
A20Q-SCLCR/L-09	●	●	25	32	180	13	19	20	R/L		FTGA03510	-	-	TW15P	
A25R-SCLCR/L-09	●	●	32	40	200	17	24	25	R/L						
A25R-SCLCR/L-12	●	●	32	40	200	17	24	25	R/L	CC□T1204□□	FTGA0411F	-	-	TW15P	1
A32S-SCLCR/L-12	●	●	40	50	250	22	30	32	R/L		FTGA0411F	SC42S	SHXN0610F	HW40L,TW15P	

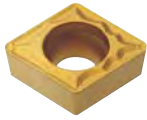
## Carbide shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.	
	R	L												
C04G-SCLCR/L-03	●	●	5	-	90	2.5	3.8	4	R/L	CC□T0301□□	FTNA01633	TW06P	1	
C05H-SCLCR/L-03	●	●	6	-	100	3	4.4	5	R/L					
C06H-SCLCR/L-04	●	●	7	-	100	3.5	5.4	6	R/L	CC□T0401□□	FTNA0238	TW06P	1	
C07K-SCLCR/L-04	●	●	8	-	125	4	6.4	7	R/L					
C08K-SCLCR/L-06	●	●	10	-	125	5	7	8	R/L	CC□T0602□□	FTKA02555	TW07P	2	
C10K-SCLCR/L-06	●	●	12	-	125	6	9	10	R/L					
C10M-SCLCR/L-06	●	●	12	-	150	6	9	10	R/L					
C12M-SCLCR/L-06	●	●	16	-	150	9	11	12	R/L					
C12Q-SCLCR/L-06	●	●	14	-	180	7	11	12	R/L					
C12M-SCLCR/L-09	●	●	16	-	150	9	11	12	R/L	CC□T09T3□□	FTGA03508	TW15P	2	
C12Q-SCLCR/L-09	●	●	15	-	180	8	11	12	R/L					
C16R-SCLCR/L-09	●	●	20	-	200	10	15	16	R/L					
C16S-SCLCR/L-09	●	●	20	-	250	10	15	16	R/L					
C20R-SCLCR/L-09	●	●	25	-	200	13	18	20	R/L					
C20S-SCLCR/L-09	●	●	25	-	250	13	18	20	R/L					
C25T-SCLCR/L-12	●	●	32	-	300	17	23	25	R/L	CC□T1204□□	FTGA0411F	TW15P		
E06H-SCLCR/L-04	●	●	7	-	100	3.5	5.4	6	R/L	CC□T0401□□	FTNA0238	TW06P	1	
E07K-SCLCR/L-04	●	●	8	-	125	4	6.6	7	R/L					
E08K-SCLCR/L-06	●	●	10	-	125	5	7.5	8	R/L	CC□T0602□□	FTKA02555	TW07P	2	
E10K-SCLCR/L-06	●	●	12	-	125	6	9	10	R/L					
E10M-SCLCR/L-06	●	●	12	-	150	6	9.5	10	R/L					
E12M-SCLCR/L-06	●	●	16	-	150	9	11.5	12	R/L					
E12Q-SCLCR/L-06	●	●	14	-	180	7	11	12	R/L					
E12M-SCLCR/L-09	●	●	14	-	150	7	11	12	R/L	CC□T09T3□□	FTGA03508	TW15P	2	
E12Q-SCLCR/L-09	●	●	15	-	180	8	11	12	R/L					
E16R-SCLCR/L-09	●	●	20	-	200	11	15.5	16	R/L					
E16S-SCLCR/L-09	●	●	20	-	250	10	15	16	R/L					
E20R-SCLCR/L-09	●	●	25	-	200	13	18	20	R/L					
E20S-SCLCR/L-09	●	●	25	-	250	13	19	20	R/L					
E25T-SCLCR/L-12	●	●	32	-	300	17	23	25	R/L	CC□T1204□□	FTGA0411F	TW15P		

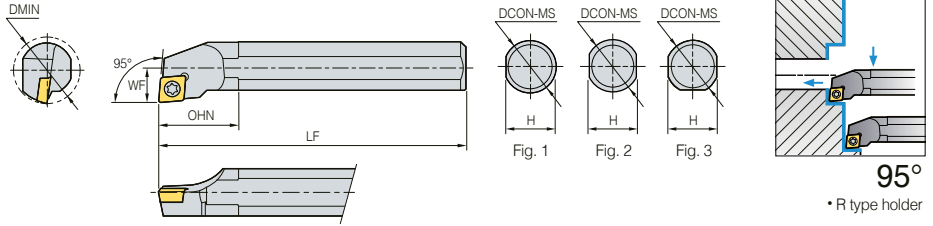
Applicable inserts B44 ~ B48, B75

● : Stock item

## SCLPR/L



CP□T



### Steel shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
S10M-SCLPR/L-08	●		13	16	150	7	9	10	R/L	CP□T0802□□	FTNA0305	TW09P	2
S12M-SCLPR/L-08	●		16	20	150	9	11	12	R/L		FTNA0307	TW09P	
S16N-SCLPR/L-09	●		20	25	160	11	14	16	R/L	CP□T0903□□	FTNA0408	TW15P	2
S16R-SCLPR/L-09	●		20	25	200	11	14	16	R/L				
S20N-SCLPR/L-09	●		25	32	160	13	18	20	R/L				
S20S-SCLPR/L-09	●		25	32	250	13	18	20	R/L				3
A10H-SCLPR/L-08			12	16	100	6	9.5	10	R/L	CP□T0802□□	FTNA0305	TW09P	1
A12K-SCLPR/L-08			16	20	125	9	11.5	12	R/L		FTNA0307	TW09P	
A16M-SCLPR/L-09			20	25	150	10	15	16	R/L	CP□T0903□□	FTNA0408	TW15P	1
A20Q-SCLPR/L-09			25	32	180	13	19	20	R/L				3

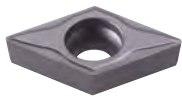
### Carbide shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
C10K-SCLPR/L-08	●		12	14.5	125	6	9	10	R/L	CP□T0802□□	FTNA0305	TW09P	2
C10M-SCLPR/L-08	●		12	14.5	150	6	9	10	R/L		FTNA0306	TW09P	
C12M-SCLPR/L-08	●		16	14.7	150	9	11	12	R/L	CP□T0903□□	FTNA0408	TW15P	2
C12Q-SCLPR/L-08			15	14.7	180	7.5	11	12	R/L				
C12M-SCLPR/L-09	●		16	14.4	150	9	11	12	R/L				
C12Q-SCLPR/L-09	●		15	14.4	180	8	11	12	R/L				
C16R-SCLPR/L-09	●		20	22.4	200	10	15	16	R/L	CP□T0802□□	FTNA0305	TW09P	2
C16S-SCLPR/L-09	●		20	22.4	250	10	15	16	R/L				
C20R-SCLPR/L-09	●		25	22.5	200	13	18	20	R/L				
C20S-SCLPR/L-09	●		25	22.5	250	12.5	18	20	R/L	CP□T0903□□	FTNA0407	TW09P	2
E10K-SCLPR/L-08			12	14.5	125	6	9	10	R/L				
E10M-SCLPR/L-08			12	14.5	150	6	9.5	10	R/L	CP□T0802□□	FTNA0305	TW09P	2
E12M-SCLPR/L-08			16	14.7	150	8	11	12	R/L				
E12Q-SCLPR/L-08			15	14.7	180	7.5	11	12	R/L	CP□T0903□□	FTNA0408	TW15P	2
E12M-SCLPR/L-09			15	14.4	150	8	11	12	R/L				
E12Q-SCLPR/L-09			15	14.4	180	8	11	12	R/L				
E16R-SCLPR/L-09			20	22.4	200	10	15	16	R/L	CP□T0802□□	FTNA0305	TW09P	2
E16S-SCLPR/L-09			20	22.4	250	10	15	16	R/L				
E20R-SCLPR/L-09			25	22.5	200	13	18	20	R/L	CP□T0903□□	FTNA0408	TW15P	2
E20S-SCLPR/L-09	●		25	22.5	250	12.5	19	20	R/L				

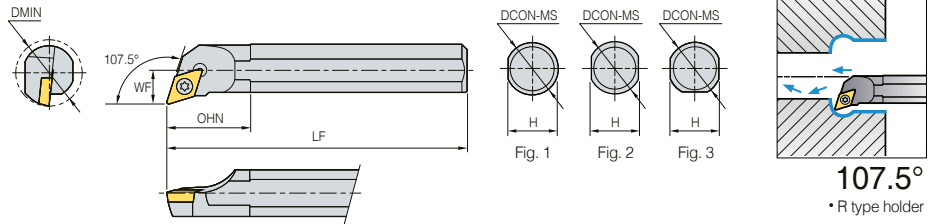
● Applicable inserts B49

●: Stock item

# SDQCR/L



DC□T



## Steel shank type

(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
S10M-SDQCR/L-07	●	●	13	16	150	7	9	10	R/L	DC□T0702□□	FTKA02555	TW07P	2
S12M-SDQCR/L-07	●	●	16	20	150	9	11	12	R/L		FTKA02565	TW07P	
S16R-SDQCR/L-07	●	●	20	25	200	11	14	16	R/L	DC□T11T3□□	FTGA03508	TW15P	2
S16R-SDQCR/L-11	●	●	20	25	200	11	14	16	R/L		FTGA03510	TW15P	
S20S-SDQCR/L-11	●	●	25	32	250	13	18	20	R/L	DC□T0702□□	FTKA02555	TW07P	1
S25R-SDQCR/L-11	●	●	32	40	200	17	23	25	R/L		FTKA02565	TW07P	
A10H-SDQCR/L-07	●		13	16	100	7	9.5	10	R/L	DC□T11T3□□	FTGA03508	TW15P	1
A12K-SDQCR/L-07	●		16	20	125	9	11.5	12	R/L		FTGA03510	TW15P	
A16M-SDQCR/L-11			20	25	150	11	15	16	R/L	DC□T0702□□	FTKA02555	TW07P	1
A20Q-SDQCR/L-11	●		25	32	180	13	19	20	R/L		FTKA02565	TW07P	
A25R-SDQCR/L-11	●		32	40	200	17	24	25	R/L	FTGA03508	TW15P	1	
										FTGA03510	TW15P	1	

## Carbide shank type

(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
C08K-SDQCR/L-07	●		10	-	125	6	7	8	R/L	DC□T0702□□	FTKA02555	TW07P	2
C10K-SDQCR/L-07	●		13	14	125	7	9	10	R/L		FTKA02565	TW07P	
C12M-SDQCR/L-07	●		16	14	150	9	11	12	R/L	DC□T11T3□□	FTGA03508	TW15P	2
C16R-SDQCR/L-07	●		20	-	200	11	15	16	R/L		FTGA03510	TW15P	
C16R-SDQCR/L-11	●		20	21.3	200	11	15	16	R/L	DC□T0702□□	FTKA02555	TW07P	2
C20R-SDQCR/L-11	●		25	24	200	13	18	20	R/L		FTKA02565	TW07P	
C20S-SDQCR/L-11	●		25	24	250	13	18	20	R/L	DC□T11T3□□	FTGA03508	TW15P	2
E08K-SDQCR/L-07	●		10	-	125	6	7	8	R/L		FTGA03510	TW15P	
E10K-SDQCR/L-07	●		12	14	125	7	9	13	R/L	DC□T0702□□	FTKA02555	TW07P	2
E12M-SDQCR/L-07			16	14	150	9	11	12	R/L		FTKA02565	TW07P	
E16R-SDQCR/L-07			20	-	200	11	15	16	R/L	DC□T11T3□□	FTGA03508	TW15P	2
E16R-SDQCR/L-11	●		20	21.3	200	11	15	16	R/L		FTGA03510	TW15P	
E20R-SDQCR/L-11			25	24	200	13	18	20	R/L	DC□T0702□□	FTKA02555	TW07P	2
E20S-SDQCR/L-11			25	24	250	13	18	20	R/L		FTKA02565	TW07P	

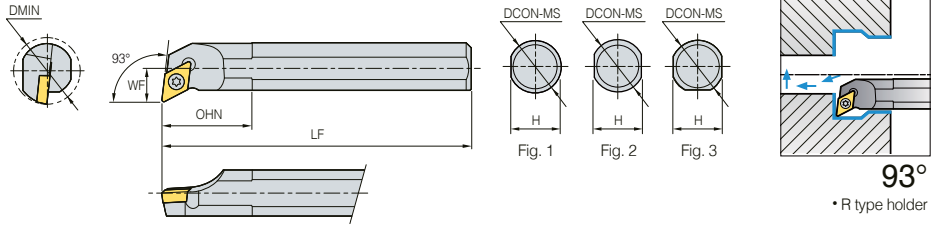
↻ Applicable inserts B50 ~ B53, B76

● : Stock item

## SDUCR/L



DC□T



### Steel shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
S10M-SDUCR/L-07	●	●	13	16	150	7	9	10	R/L	DC□T0702□□	FTKA02555	TW07P	2
S12M-SDUCR/L-07	●	●	16	20	150	9	11	12	R/L		FTKA02565	TW07P	2
S16R-SDUCR/L-07	●	●	20	25	200	11	14	16	R/L	DC□T11T3□□	FTGA03508	TW15P	2
S16R-SDUCR/L-11	●	●	20	25	200	11	14	16	R/L				
S20S-SDUCR/L-11	●	●	25	32	250	13	18	20	R/L		FTGA03510	TW15P	3
S25R-SDUCR/L-11	●	●	32	40	200	17	23	25	R/L				
S32S-SDUCR/L-11	●	●	40	50	250	22	30	32	R/L	DC□T0702□□	FTKA02555	TW07P	1
A10H-SDUCR/L-07	●		13	16	100	7	9.5	10	R/L		FTKA02565	TW07P	1
A12K-SDUCR/L-07	●		16	20	125	9	11.5	12	R/L	DC□T11T3□□	FTGA03508	TW15P	1
A16M-SDUCR/L-07	●	●	20	25	150	11	15	16	R/L		FTGA03510	TW15P	
A20Q-SDUCR/L-11	●	●	25	32	180	13	19	20	R/L	DC□T11T3□□	FTGA03510	TW15P	1
A25R-SDUCR/L-11	●		32	40	200	17	24	25	R/L				

### Carbide shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.	
	R	L												
C10K-SDUCR/L-07	●		13	9.8	125	7	9	10	R/L	DC□T0702□□	FTKA02555	TW07P	2	
C10M-SDUCR/L-07	●		12	9.8	150	7	9	10	R/L					
C12M-SDUCR/L-07	●		16	11	150	9	11	12	R/L		FTKA02565	TW07P		
C12Q-SDUCR/L-07	●		16	11	180	9	11	12	R/L					
C16R-SDUCR/L-07	●		20	-	200	11	15	16	R/L		DC□T11T3□□	FTGA03508		TW15P
C16S-SDUCR/L-07	●		20	-	250	11	15	16	R/L					
C16R-SDUCR/L-11	●		20	-	200	11	15	16	R/L	FTGA03510		TW15P		
C16S-SDUCR/L-11	●		20	-	250	11	15	16	R/L					
C20R-SDUCR/L-11	●		25	-	200	13	18	20	R/L	DC□T0702□□	FTKA02555	TW07P	2	
C20S-SDUCR/L-11	●		25	-	250	13	18	20	R/L					
C25T-SDUCR/L-11	●		32	-	300	17	23	25	R/L	FTKA02565	TW07P			
E10K-SDUCR/L-07	●		12	9.8	125	7	9	13	R/L					
E10M-SDUCR/L-07	●		13	9.8	150	7	9.5	10	R/L	DC□T11T3□□	FTGA03508	TW15P		
E12M-SDUCR/L-07	●		16	11	150	9	11.5	12	R/L					
E12Q-SDUCR/L-07			16	11	180	9	11.5	12	R/L	FTGA03510	TW15P			
E16R-SDUCR/L-07	●		20	-	200	11	15	16	R/L					
E16S-SDUCR/L-07			20	-	250	11	15	16	R/L	FTGA03510	TW15P			
E16R-SDUCR/L-11	●		20	-	200	11	15	16	R/L					
E16S-SDUCR/L-11			20	-	250	11	15	16	R/L	FTGA03510	TW15P			
E20R-SDUCR/L-11	●		25	-	200	13	18	20	R/L					
E20S-SDUCR/L-11	●		25	-	250	13	18	20	R/L	FTGA03510	TW15P			
E25T-SDUCR/L-11			32	-	300	17	23	25	R/L					

Applicable inserts B50 ~ B53, B76

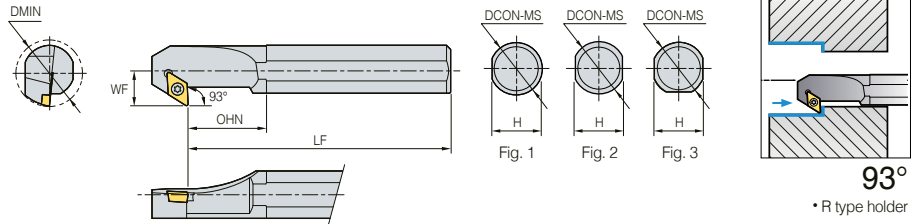
●: Stock item



# SDZCR/L



DC□T



93°  
• R type holder

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench	Fig.
	R	L													
S16R-SDZCR/L-07	●		20	25	200	11	14	16	R/L	DC□T0702□□	FTKA02565	-	-	TW07P	2
S20S-SDZCR/L-07	●		25	32	250	13	18	20	R/L		FTGA03510	-	-	TW15P	
S25R-SDZCR/L-11	●		32	40	200	17	23	25	R/L	DC□T11T3□□	FTGA03512	SD32S	SHXN0509F	TW15P, HW35L	3
S32S-SDZCR/L-11	●		40	50	250	22	30	32	R/L		FTGA03510	-	-	TW15P	
S40T-SDZCR/L-11	●		50	60	300	27	38	40	R/L		FTGA03512	SD32S	SHXN0509F	TW15P, HW35L	
A25R-SDZCR/L-11			32	40	200	17	24	25	R/L		FTGA03510	-	-	TW15P	
A32S-SDZCR/L-11			40	50	250	22	30	32	R/L	FTGA03512	SD32S	SHXN0509F	TW15P, HW35L	3	

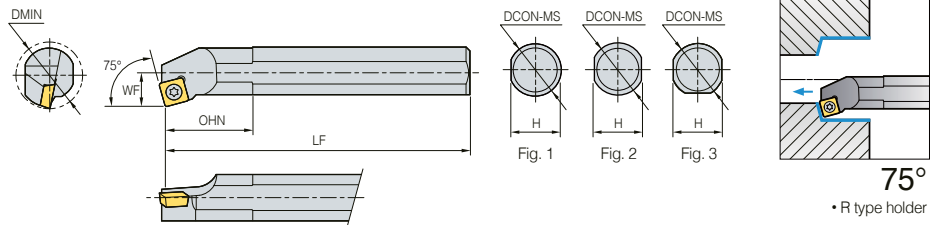
↻ Applicable inserts B50 ~ B53, B76

● : Stock item

# SSKCR/L



SC□T



75°  
• R type holder

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench	Fig.
	R	L													
S12M-SSKCR/L-09	●		16	20	150	9	11	12	R/L	SC□T09T3□□	FTGA03507	-	-	TW15P	2
S16R-SSKCR/L-09	●		20	25	200	11	14	16	R/L		FTGA03508	-	-	TW15P	
S20S-SSKCR/L-09	●		25	32	250	13	18	20	R/L		FTGA0411F	-	-	TW15P	
S25R-SSKCR/L-12	●		32	40	200	17	23	25	R/L	SC□T1204□□	FTGA0411F	SS42S	SHXN0610F	TW15P, HW40L	3
S32S-SSKCR/L-12	●		40	50	250	22	30	32	R/L		FTGA03507	-	-	TW15P	
A12K-SSKCR/L-09			16	25	125	9	11.5	12	R/L	SC□T09T3□□	FTGA03508	-	-	TW15P	1
A16M-SSKCR/L-09			20	25	150	11	15	16	R/L		FTGA0411F	-	-	TW15P	
A20Q-SSKCR/L-09			32	32	180	13	19	20	R/L	SC□T1204□□	FTGA0411F	SS42S	SFXN0610F	TW15P, HW40L	3
A25R-SSKCR/L-12			32	40	200	17	24	25	R/L		FTGA0411F	-	-	TW15P	
A32S-SSKCR/L-12			40	42.8	250	22	31	32	R/L	FTGA0411F	SS42S	SFXN0610F	TW15P, HW40L	3	

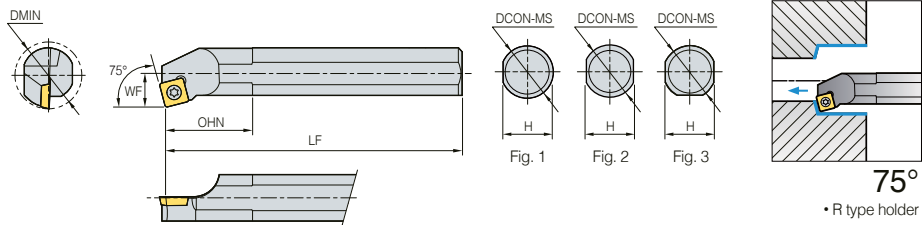
↻ Applicable inserts B55, B78

● : Stock item

# SSKPR/L



SP□T



75°  
• R type holder

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
S12M-SSKPR/L-09	●		16	20	150	9	11	12	R/L	SP□T09T3□□	FTNA0307	TW09P	2
S16N-SSKPR/L-09			20	25	160	11	14	16	R/L				
S16R-SSKPR/L-09	●		20	25	200	11	14	16	R/L				
S20N-SSKPR/L-09			25	32	160	13	18	20	R/L				
S20S-SSKPR/L-09	●		25	35	250	13	18	20	R/L				
A12K-SSKPR/L-09			16	21	125	8	11.5	12	R/L	SP□T09T3□□	FTNA0307	TW09P	1
A16M-SSKPR/L-09			20	30.5	150	10	15	16	R/L				
A20Q-SSKPR/L-09			25	32.5	180	12.5	19	20	R/L				

↻ Applicable inserts B56 ~ B57

• Use left handed insert for right handed holder

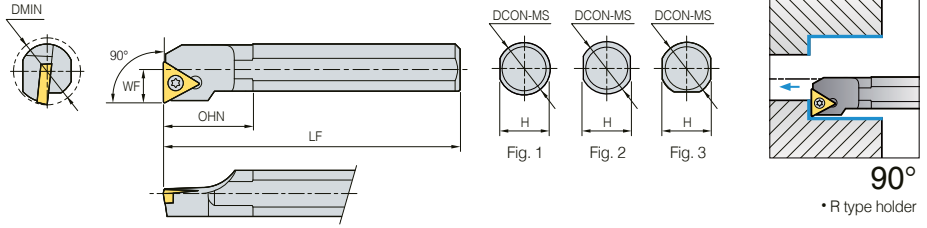
● : Stock item



## STFCR/L



TC□T



### Steel shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench	Fig.
	R	L													
S10M-STFCR/L-09	●	●	13	16	150	7	9	10	R/L	TC□T0902□□	FTKA02206	-	-	TW06P	2
S12M-STFCR/L-09	●		16	20	150	9	11	12	R/L						
S12M-STFCR/L-11	●	●	16	20	150	9	11	12	R/L	TC□T1102□□	FTKA02565	-	-	TW07P	2
S16R-STFCR/L-11	●	●	20	25	200	11	14	16	R/L						
S20S-STFCR/L-11	●	●	25	32	250	13	18	20	R/L						
S20S-STFCR/L-16	●		25	32	250	13	18	20	R/L	TC□T16T3□□	FTGA03510	-	-	TW15P	2
S25R-STFCR/L-16	●	●	32	40	200	17	23	25	R/L						3
S32S-STFCR/L-16	●		40	50	250	22	30	32	R/L	TC□T16T3□□	FTGA03512	ST32S	SHXN0509F	TW15P, HW35L	3
S40T-STFCR/L-16	●		50	60	300	27	37	40	R/L						
A10H-STFCR/L-09			13	16	100	7	9.5	10	R/L	TC□T0902□□	FTKA02206	-	-	TW06P	1
A12K-STFCR/L-09			16	20	125	9	11.5	12	R/L						
A12K-STFCR/L-11			16	20	125	9	11.5	12	R/L						
A16M-STFCR/L-11	●		20	25	150	11	15	16	R/L	TC□T1102□□	FTKA02565	-	-	TW07P	1
A20Q-STFCR/L-11			25	32	180	13	19	20	R/L						
A25R-STFCR/L-16			32	40	200	17	24	25	R/L	TC□T16T3□□	FTKA03510	-	-	TW15P	1
A32S-STFCR/L-16			40	50	250	22	30	32	R/L	TC□T16T3□□	FTGA03512	ST32S	SHXN0509F	TW15P, HW35L	3

### Carbide shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
C08K-STFCR/L-09	●		10	-	125	5	7	8	R/L	TC□T0902□□	FTKA02206	TW06P	2
C10K-STFCR/L-09	●	●	12	14	125	6	9	10	R/L				
C10K-STFCR/L-11	●		12	12.5	125	6	9	10	R/L				
C12M-STFCR/L-11	●		16	-	150	9	11	12	R/L	TC□T1102□□	FTKA02565	TW07P	
C16R-STFCR/L-11	●		20	-	200	11	15	16	R/L				
C20R-STFCR/L-11	●		25	23	200	13	18	20	R/L				
C20S-STFCR/L-11	●		25	23	250	13	18	20	R/L	TC□T16T3□□	FTGA03510	TW15P	
C20R-STFCR/L-16	●		25	-	200	13	18	20	R/L				
C20S-STFCR/L-16	●		25	-	250	13	18	20	R/L	TC□T0902□□	FTKA02206	TW06P	
E08K-STFCR/L-09	●		10	-	125	5	7	8	R/L				
E10K-STFCR/L-09			12	14	125	6	9	13	R/L				
E10K-STFCR/L-11			12	12.5	125	6	9	13	R/L				
E12M-STFCR/L-11	●		16	-	150	9	11	12	R/L	TC□T1102□□	FTKA02565	TW07P	2
E16R-STFCR/L-11	●		20	-	200	11	15.5	16	R/L				
E20R-STFCR/L-11			25	23	200	13	18	20	R/L				
E20S-STFCR/L-11			25	23	250	13	18	20	R/L	TC□T16T3□□	FTGA03510	TW15P	
E20R-STFCR/L-16			25	-	200	13	18	20	R/L				
E20S-STFCR/L-16	●		25	-	250	13	18	20	R/L				

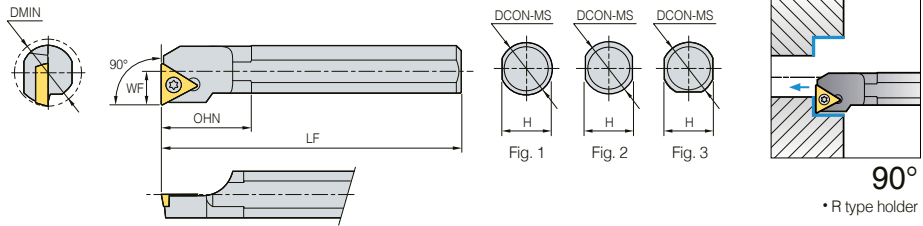
Applicable inserts B59 ~ B60, B79

●: Stock item

# STFPR/L



TP□□



## Steel shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
S10M-STFPR/L-11	●		13	16	150	7	9	10	R/L	TP□T1103□□	FTNA0306	TW09P	2
S12M-STFPR/L-11	●		16	20	150	9	11	12	R/L				
S16N-STFPR/L-11	●		20	25	160	11	14	16	R/L				
S16R-STFPR/L-11	●	●	20	25	200	11	14	16	R/L	TP□T1604□□	FTNA0408	TW15P	2
S20N-STFPR/L-16	●		25	32	160	13	18	20	R/L				
S20S-STFPR/L-16	●		25	32	250	13	18	20	R/L	TP□T1103□□	FTNA0306	TW09P	1
A10H-STFPR/L-11			13	16	100	7	9.5	10	R/L				
A12K-STFPR/L-11			16	20	125	9	11.5	12	R/L				
A16M-STFPR/L-11			20	25	150	11	15	16	R/L				
A20Q-STFPR/L-16			25	32	180	13	19	20	R/L	TP□T1604□□	FTNA0408	TW15P	1

## Carbide shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
C08K-STFPR/L-08	●		10	13.7	125	8	7	8	R/L	TP□T0802□□	FTNA02205	TW06P	2
C10K-STFPR/L-11	●		12	14	125	6	9	10	R/L				
C10M-STFPR/L-11	●		12	14	150	6	9	10	R/L				
C12M-STFPR/L-11	●		16	-	150	8	11	12	R/L				
C12Q-STFPR/L-11	●		15	-	180	8	11	12	R/L				
C16R-STFPR/L-11	●		20	-	200	11	15	16	R/L				
C16S-STFPR/L-11	●		20	-	250	10	15	16	R/L				
C20R-STFPR/L-11	●		25	-	200	13	18	20	R/L				
C20S-STFPR/L-11	●		25	-	250	13	18	20	R/L				
C20R-STFPR/L-16	●		25	-	200	13	18	20	R/L				
C20S-STFPR/L-16	●		25	-	250	12.5	18	20	R/L	TP□T1604□□	FTNA0408	TW15P	2
C25T-STFPR/L-16	●		32	23.5	300	17	23	25	R/L				
E08K-STFPR/L-08	●		10	13.7	125	5	7	8	R/L	TP□T0802□□	FTNA02205	TW06P	2
E10K-STFPR/L-11	●		12	14	125	6	9	13	R/L				
E10M-STFPR/L-11	●		12	14	150	6	9.5	10	R/L				
E12M-STFPR/L-11	●		16	-	150	8	11.5	12	R/L				
E12Q-STFPR/L-11			16	-	180	8	11.5	12	R/L				
E16R-STFPR/L-11	●		20	-	200	11	15.5	16	R/L				
E16S-STFPR/L-11			20	-	250	10	15	16	R/L				
E20R-STFPR/L-11			25	-	200	13	18	20	R/L				
E20S-STFPR/L-11			25	-	250	13	18	20	R/L				
E20R-STFPR/L-16			25	-	200	13	18	20	R/L				
E20S-STFPR/L-16			25	-	250	12.5	18	20	R/L				
E25T-STFPR/L-16			32	23.5	300	17	23	25	R/L				

● Applicable inserts B61 ~ B64

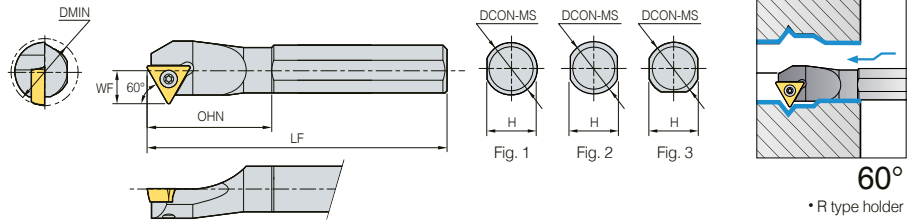
• Use left handed insert for right handed holder

● : Stock item

## STWPR/L



TP□□



60°

• R type holder

(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
S10M-STWPR/L-11	●		12	16	150	6	9	10	R/L	TPGH1102□□	FTNA0305	TW09P	2
S12M-STWPR/L-11	●		16	25	150	9	11	12	R/L	TPGH1103□□ TPMT1103□□	FTNA0306	TW09P	
S16Q-STWPR/L-11	●		20	25	180	11	14	16	R/L				
S20R-STWPR/L-11	●		25	32	200	13	18	20	R/L				

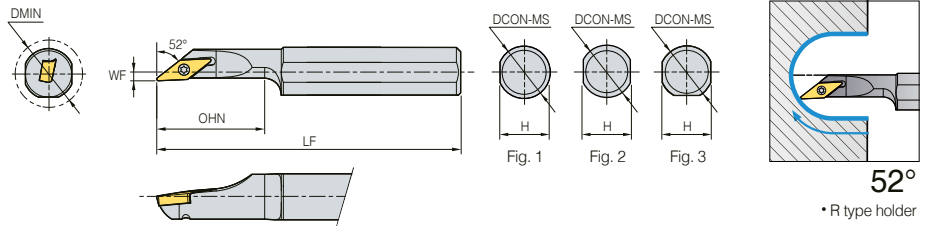
↻ Applicable inserts B61 ~ B64

●: Stock item

## SVJCR/L



VC□□



52°

• R type holder

(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
S12M-SVJCR/L-08	●		16	30	150	2	11	12	R/L	VCMT0802□□	FTNA0204	TW06P	2
S16Q-SVJCR/L-08	●	●	20	36	180	2	15	16	R/L				

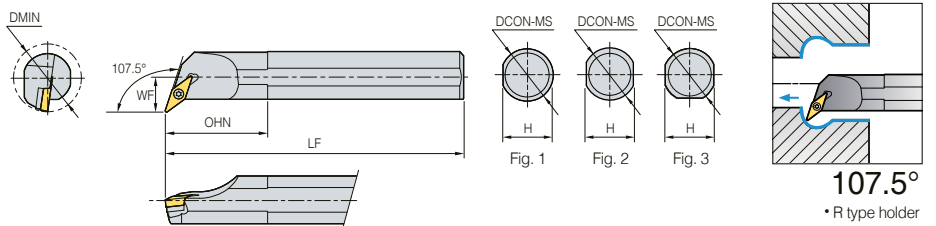
↻ Applicable inserts B65 ~ B70, B81

●: Stock item

## SVQBR/L



VB□T



107.5°

• R type holder

(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench	Fig.
	R	L													
S32S-SVQBR/L-16	●	●	40	50	250	22	30	32	R/L	VB□T1604□□	FTGA03512	SV32S	SHXN0509F	TW15P HW35L	3
S40T-SVQBR/L-16	●		50	60	300	27	38	40	R/L						
A32S-SVQBR/L-16			40	50	250	22	30	32	R/L						

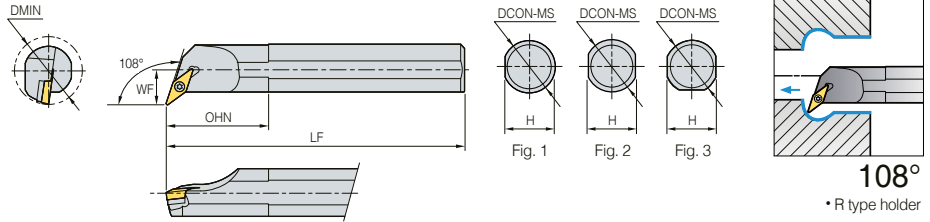
↻ Applicable inserts B65 ~ B67, B80

●: Stock item

# SVQCR/L



VC□T

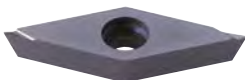


Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench	Fig.
	R	L													
S16R-SVQCR/L-11	●		20	25	200	11	14	16	R/L	VC□T1103□□	FTKA02565	-	-	TW07P	2
S20S-SVQCR/L-11			25	32	250	13	18	20	R/L						3
S25R-SVQCR/L-11			32	40	200	17	23	25	R/L	VC□T1303□□	FTKA0307	-	-	TW07P	2
S20S-SVQCR/L-13			25	32	250	13	18	20	R/L						3
S25R-SVQCR/L-13			32	40	200	17	23	25	R/L	VC□T1604□□	FTGA03510	-	-	TW15P	2
S25R-SVQCR/L-16	●	●	32	40	200	17	23	25	R/L						3
S32S-SVQCR/L-16	●		40	50	250	22	30	32	R/L	VC□T1604□□	FTGA03512	SV32S	SHXN0509F	TW15P HW35L	3
S40T-SVQCR/L-16	●		50	60	300	27	38	40	R/L						

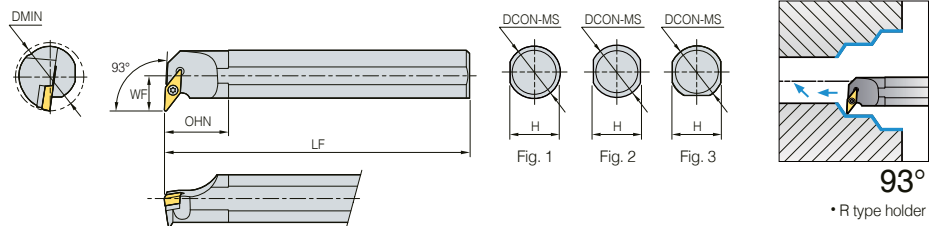
↻ Applicable inserts B65 ~ B67, B81

● : Stock item

# SVUBR/L



VB□T



Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench	Fig.
	R	L													
S32S-SVUBR/L-16	●	●	40	50	250	22	30	32	R/L	VB□T1604□□	FTGA03512	SV32S	SHXN0509F	TW15P HW35L	3
S40T-SVUBR/L-16	●		50	60	300	27	38	40	R/L						
A32S-SVUBR/L-16			40	50	250	22	30	32	R/L						

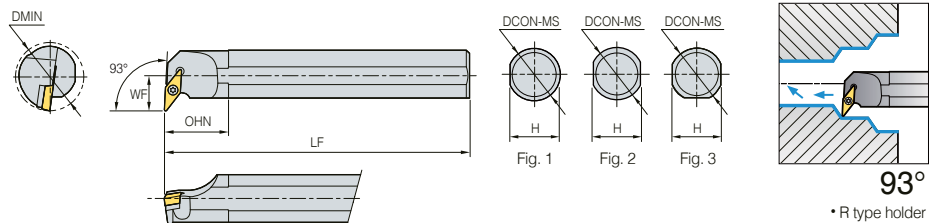
↻ Applicable inserts B65 ~ B67, B80

● : Stock item

# SVUCR/L



VC□T

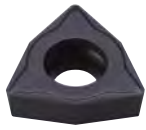


Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench	Fig.
	R	L													
S16R-SVUCR/L-11	●		20	25	200	11	14	16	R/L	VC□T1103□□	FTKA02565	-	-	TW07P	2
S20S-SVUCR/L-11	●		25	32	250	13	18	20	R/L						3
S25T-SVUCR/L-11			32	40	300	17	23	25	R/L	VC□T1303□□	FTKA0307	-	-	TW09P	2
S20S-SVUCR/L-13	●		28	32	250	16	18	20	R/L						3
S25R-SVUCR/L-13			32	40	200	17	23	25	R/L	VC□T1604□□	FTGA03510	-	-	TW15P	2
S25R-SVUCR/L-16	●	●	32	40	200	17	23	25	R/L						3
S32S-SVUCR/L-16	●		40	50	250	22	30	32	R/L	VC□T1604□□	FTGA03512	SV32S	SHXN0509F	TW15P HW35L	3
S40T-SVUCR/L-16	●	●	50	60	300	27	38	40	R/L						

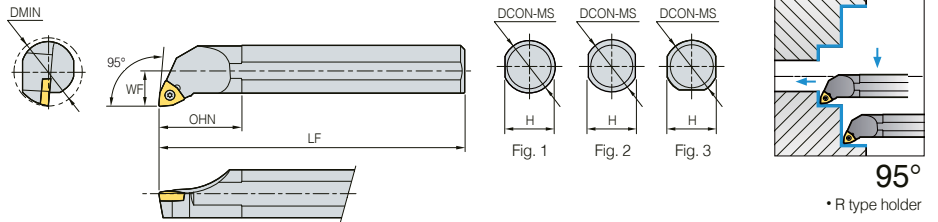
↻ Applicable inserts B65 ~ B67, B81

● : Stock item

## SWLCR/L



WC□T

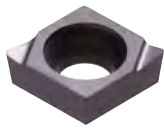


(mm)

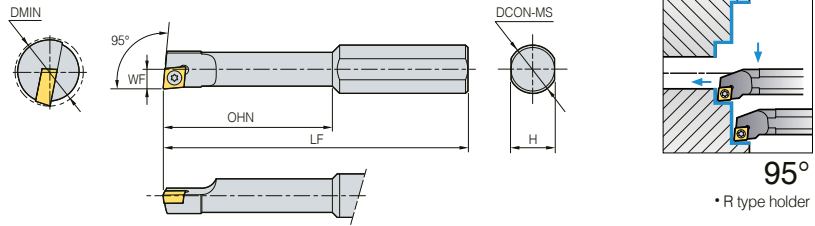
Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
<b>S25R-SWLCR/L-08</b>			32	40	200	17	23	25	R/L	WC□T0804□□	FTGA0411F	TW15P	3
<b>S32S-SWLCR/L-08</b>			40	50	250	22	30	32	R/L				
<b>A25R-SWLCR/L-08</b>			32	40	200	17	24	25	R/L	WC□T0804□□	FTGA0411F	TW15P	1
<b>A32S-SWLCR/L-08</b>			40	50	250	22	30	32	R/L				3

●: Stock item

# SCLCR/L



CCET



(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench
	R	L										
S10H-SCLCR/L-0305	●		5	25	100	2.5	9	10	R/L	CCET0301□□	FTNA01633	TW06P
S10H-SCLCR/L-0306	●		6	25	100	3	9	10	R/L			
S10J-SCLCR/L-0407	●		7	30	110	3.5	9	10	R/L	CCET0401□□	FTNA0238	TW06P
S10J-SCLCR/L-0408	●		8	30	110	4	9	10	R/L			

↻ Applicable inserts B44 ~ B48, B75

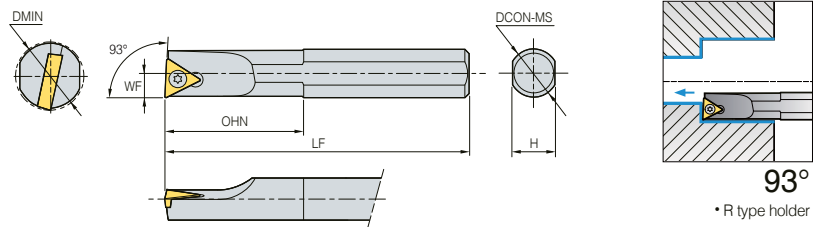
· Use left handed insert for right handed holder  
 · It is not an ISO type holder, and the last two digits of the model number are not related to the tool specifications.

● : Stock item

# STUBR/L



TB□□



(mm)

↻ Steel shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench
	R	L										
S08K-STUBR/L-06	●		8	30	125	4	7	8	R/L	TB□□0601□□R/L	FTNA0204	TW06P
A08F-STUBR/L-06			8	30	80	4	7.5	8	R/L			

↻ Carbide shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench
	R	L										
C08K-STUBR/L-06	●	●	8	-	125	4	7	8	R/L	TB□T0601□□	FTNA0204	TW06P
C10K-STUBR/L-06	●		12	-	125	6	9	10	R/L			
E08K-STUBR/L-06	●		10	-	125	5	7	8	R/L	TB□T0601□□	FTNA0204	TW06P
E10K-STUBR/L-06	●		12	-	125	6	9	13	R/L			

↻ Applicable inserts B58

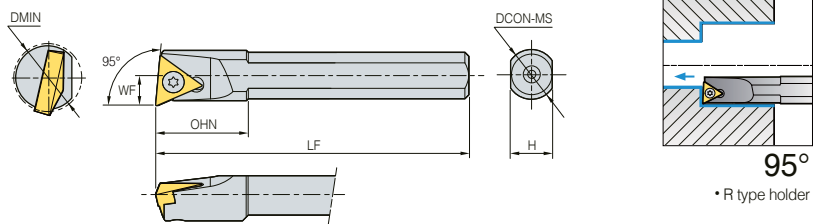
· Use left handed insert for right handed holder

● : Stock item

# STLBR/L



TB□□



(mm)

↻ Steel shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench
	R	L										
S06H-STLBR/L-06-SP			8	12	100	3.8	5	6	R/L	TB□□0601□□R/L	FTNA0204	TW06P

↻ Applicable inserts B58

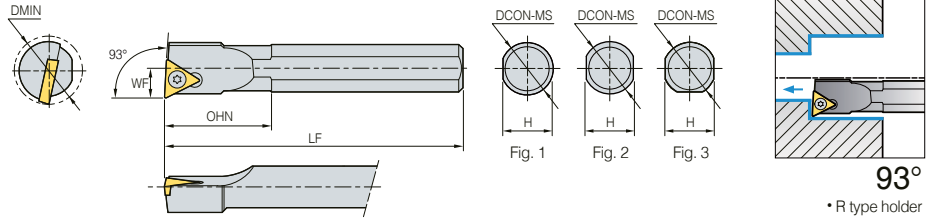
· Use left handed insert for right handed holder

● : Stock item

## STUPR/L



TP□□



### Steel shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
S08K-STUPR/L-08	●		10	18	125	5	7	8	R/L	TP□□0802□□R/L	FTNA02205	TW06P	2
A08F-STUPR/L-08			10	18	80	4	7.5	8	R/L				

### Carbide shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
C08K-STUPR/L-08	●		10	-	125	5	7	8	R/L	TP□□T1103□□	FTNA02205	TW06P	2
C10K-STUPR/L-11	●		12	-	125	6	9	10	R/L		FTNA0305	TW09P	
C10M-STUPR/L-11	●		12	-	150	6	9	10	R/L		FTNA0307	TW09P	
C12M-STUPR/L-11	●		16	-	150	9	11	12	R/L		FTNA0307	TW09P	
C12Q-STUPR/L-11	●		15	-	180	8	11	12	R/L		FTNA0307	TW09P	
C16R-STUPR/L-11	●		20	-	200	11	15	16	R/L		FTNA0307	TW09P	
C16S-STUPR/L-11	●		20	-	250	10	15	16	R/L		FTNA0307	TW09P	
C20R-STUPR/L-11	●		25	-	200	13	18	20	R/L		FTNA0307	TW09P	
C20S-STUPR/L-11	●		25	-	250	13	18	20	R/L		FTNA0307	TW09P	
C20R-STUPR/L-16	●		25	-	200	13	18	20	R/L		FTNA0307	TW09P	
C20S-STUPR/L-16			25	-	250	13	18	20	R/L	TP□□T1604□□	FTNA0408	TW15P	
C25T-STUPR/L-16			32	-	300	17	23	25	R/L	TP□□T1604□□	FTNA0408	TW15P	
E08K-STUPR/L-08	●		10	-	125	5	7	8	R/L	TP□□T1103□□	FTNA02205	TW06P	2
E10K-STUPR/L-11			12	-	125	6	9	13	R/L		FTNA0305	TW09P	
E10M-STUPR/L-11	●		12	-	150	6	9	10	R/L		FTNA0307	TW09P	
E12M-STUPR/L-11	●		15	-	150	8	11	12	R/L		FTNA0307	TW09P	
E12Q-STUPR/L-11			15	-	180	8	11	12	R/L		FTNA0307	TW09P	
E16R-STUPR/L-11	●		20	-	200	11	15	16	R/L		FTNA0307	TW09P	
E16S-STUPR/L-11			20	-	250	10	15	16	R/L		FTNA0307	TW09P	
E20R-STUPR/L-11			25	-	200	13	18	20	R/L		FTNA0307	TW09P	
E20S-STUPR/L-11			25	-	250	13	18	20	R/L		FTNA0307	TW09P	
E20R-STUPR/L-16			25	-	200	13	18	20	R/L		TP□□T1604□□	FTNA0408	
E20S-STUPR/L-16			25	-	250	13	18	20	R/L	TP□□T1604□□	FTNA0408	TW15P	
E25T-STUPR/L-16			32	-	300	17	23	25	R/L	TP□□T1604□□	FTNA0408	TW15P	

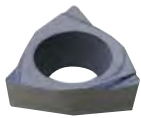
● Applicable inserts B61 ~ B64

\* Use left handed insert for right handed holder

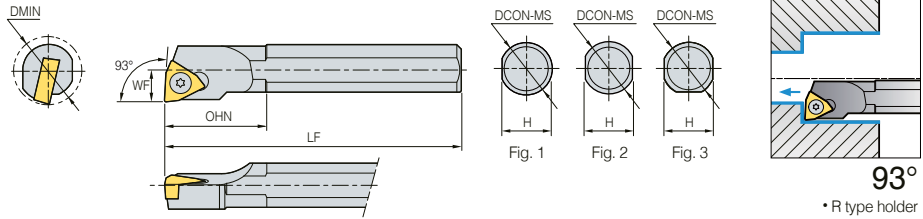
● : Stock item



# SWUBR/L



WB□T



## Steel shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
S05H-SWUBR/L-02	●		5.5	-	100	2.75	4.5	5	R/L	WBG T0201 □ □ R/L	FTNA0203	TW06P	2
S08K-SWUBR/L-02	●		8	30	125	4	7	8	R/L				
S08K-SWUBR/L-S3			10	16	125	5	7	8	R/L	WBG TS302 □ □ R/L	FTNA02205	TW06P	
A08F-SWUBR/L-02			8	12	80	4	7.6	8	R/L	WBG T0201 □ □ R/L	FTNA0203	TW06P	
A08F-SWUBR/L-S3			10	16	80	5	7.5	8	R/L	WBG TS302 □ □ R/L	FTNA02205	TW06P	

## Carbide shank type

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench	Fig.
	R	L											
C05H-SWUBR/L-02	●		5.5	-	100	2.75	4.5	5	R/L	WB□T0201 □ □	FTNA0203	TW06P	1
C06H-SWUBR/L-02	●		7	-	125	3.5	5.4	6	R/L				
C08K-SWUBR/L-02	●		8	-	125	4	7	8	R/L	WB□TS301 □ □	FTNA02205	TW06P	
C08K-SWUBR/L-S3	●		10	-	125	4	7	8	R/L	WB□T0201 □ □	FTNA0203	TW06P	
E06H-SWUBR/L-02			7	-	100	3.5	5.4	6	R/L	WB□T0201 □ □	FTNA02033	TW06P	
E08K-SWUBR/L-02	●		8	-	125	4	7.5	8	R/L	WB□TS301 □ □	FTNA02205	TW06P	
E08K-SWUBR/L-S3			10	-	125	5	7	8	R/L	WB□T0201 □ □	FTNA0203	TW06P	

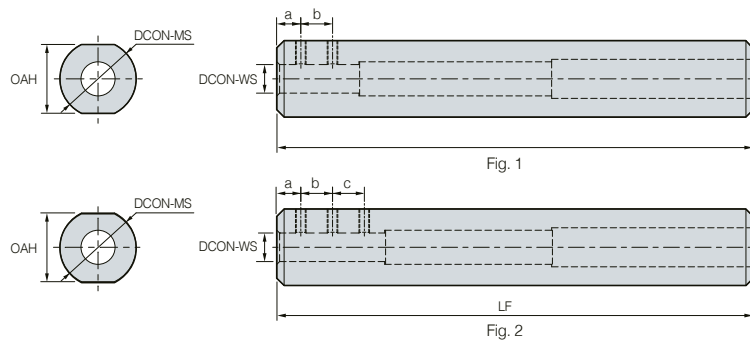
Applicable inserts **B72**

Use left handed insert for right handed holder

● : Stock item

## Sleeve

# SL (Sleeve)



Designation	Stock	DCON-MS	a	b	c	DCON-WS	OAH	LF	Screw	Wrench	Fig.
SL1604	●	16	5	6	-	4	14	100	M4	HW20L	
SL1605	●	16	5	8	-	5	14	100	M4	HW20L	
SL1606	●	16	5	6	6	6	14	100	M4	HW20L	
SL1607	●	16	5	6	8	7	14	100	M4	HW20L	
SL2008	●	20	5	10	10	8	18	100	M4	HW20L	2
SL2010	●	20	5	10	10	10	18	100	M5	HW20L	

※ Fine tolerance and surface roughness

● : Stock item

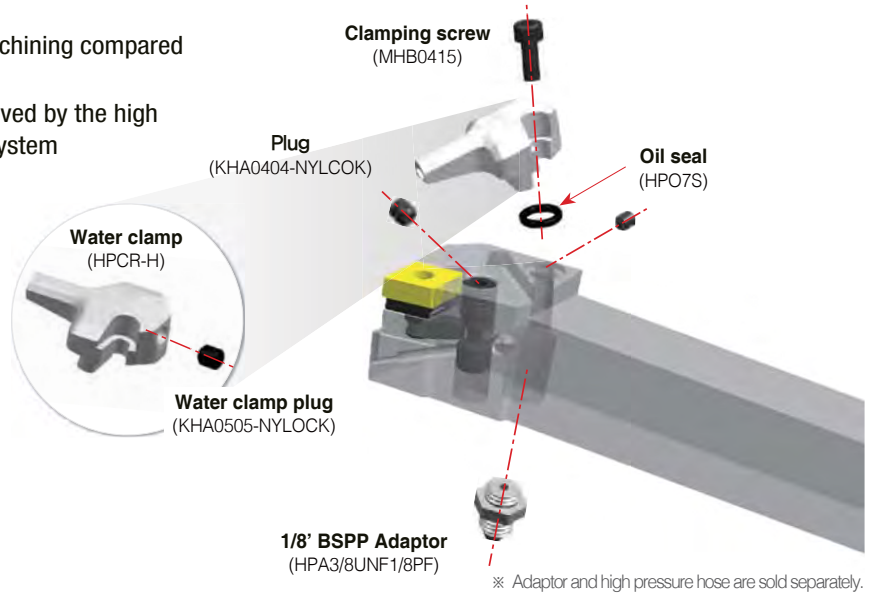
# B Technical Information for KHP Coolant

## KORLOY High Pressure Coolant

# KHP Coolant

### ISO TURNING HOLDER

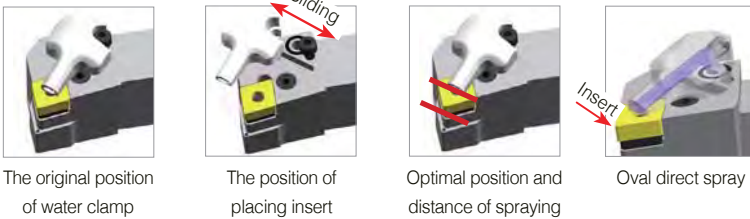
- 300% increased productivity on Inconel machining compared to low pressure coolant system
- Cooling, tool life, and chip control are improved by the high volume coolant multi-directional injection system



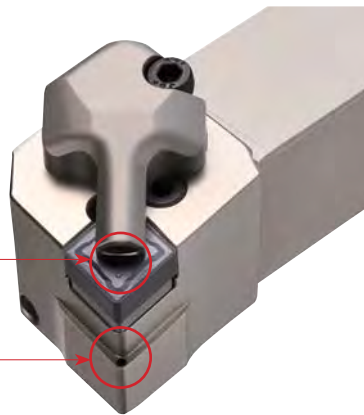
### Features

- The optimal distance between the insert and the jet orifice and the ideal place of the jet orifice
- Minimized coolant pressure loss due to streamlined design of internal path
- Easy to clamp an insert with the sliding clamp system

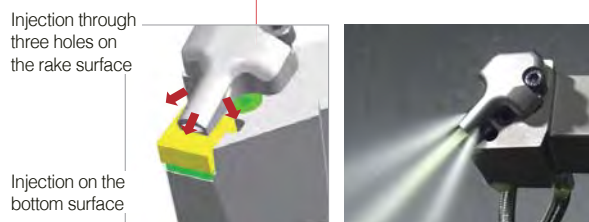
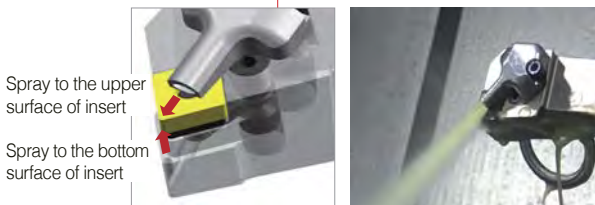
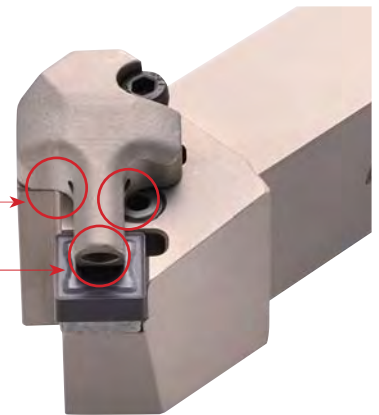
Max 300 bar		
Workpiece	The minimum pressure	The maximum pressure
P	50	300
M	70	
K	60	
N	50	
S	70	



### Water clamp with a hole



### Water clamp with three holes

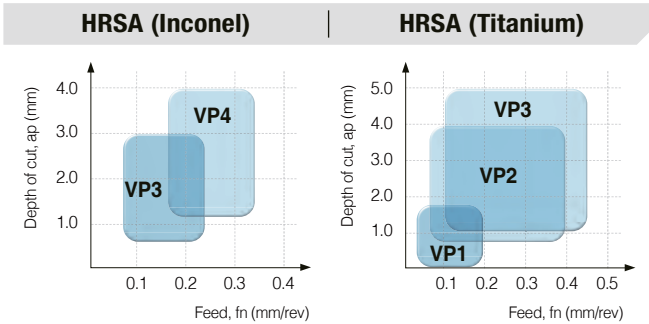


※ Clamp is sold separately

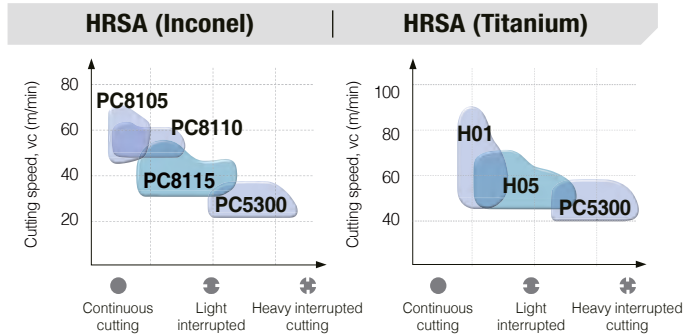
## How to use the water clamp



## Application range



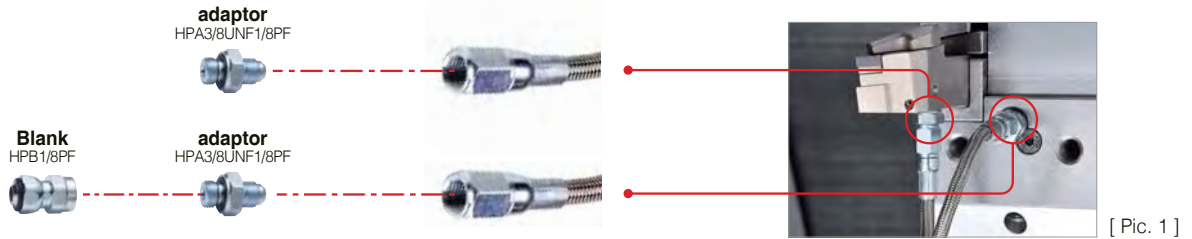
## Grade Line-up



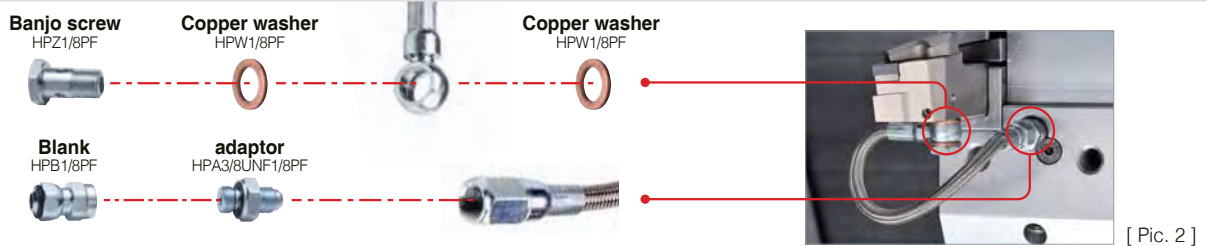
## How to clamp the KHP

- 3 types of installation systems makes clamping easy
- The banjo type hose provides wider area for machining than other types

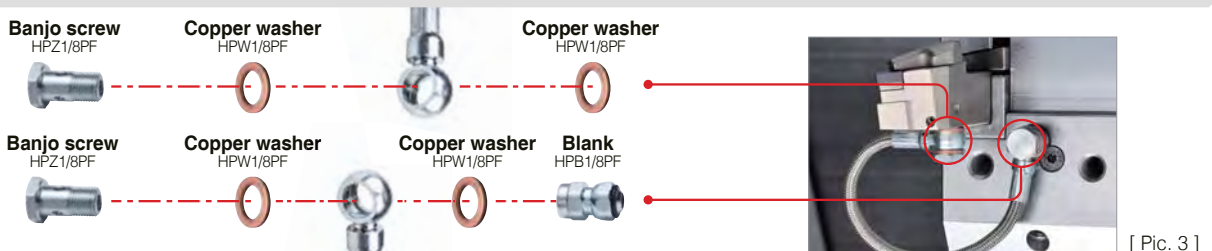
### Straight to straight (S-S)



### Straight to banjo (S-B)



### Banjo to banjo (B-B)






- ※ Blank including a fixed oil seal provides easy clamping
- ※ Banjo screws provide easy clamping and clamping a holder to the turning machine with various types of blanks


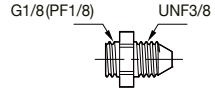

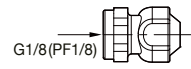

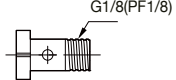


# B Technical Information for KHP Coolant

## Components of KHP Coolant




- The components of high pressure coolant are sold separately
- Various components are available according to different machining sites and uses machining with high pressure coolant

Designation	Shape	Hose length	High pressure hose	Blank	Adaptor	Banjo screw	Copper washer	Pic.
HPH3/8UNF-200-SET		200mm	1 EA	1 EA	2 EA	-	-	1
HPH3/8UNF-250-SET		250mm						
HPH3/8UNF1/8PF-200-SET		200mm						
HPH3/8UNF1/8PF-250-SET		250mm						
HPH1/8PF-200-SET		200mm						
HPH1/8PF-250-SET		250mm						

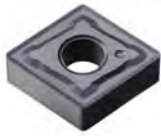
## KHP Coolant Parts

Division	Designation	Shape
Adaptor	HPA3/8UNF1/8PF	 
Blank	HPB1/8PF	 
Banjo screw	HPZ1/8PF	 
Copper washer	HPW1/8PF	 

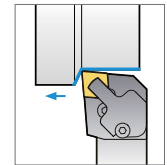
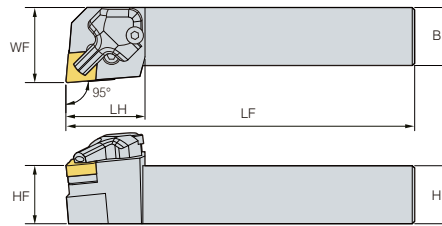
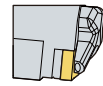
## KHP Coolant High pressure hose

High pressure hose shape		Length	S	B
Straight to straight (HPH3/8UNF)		200mm	UNF3/8	-
		250mm		
Straight to banjo (HPH3/8UNF1/8PF)		200mm	UNF3/8	Internal Ø10
		250mm		
Banjo to banjo (HPH1/8PF)		200mm	-	Internal Ø10
		250mm		

# PCLNR/L



CN□□



95°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert
	R	L								
PCLNR/L 2525-M12-KHP	●	●	34	150	32	25	25	25	R/L	CN□□1204□□
3232-P12-KHP			34	170	40	32	32	32	R/L	

Part	Lever	Screw	Shim	Ship pin	Shim Pin Punch	Clamp	Clamping screw	Oil seal	Plug	Wrench
PCLNR/L 2525-M12-KHP										
3232-P12-KHP	LV4N	VHX0820N	SC42N	SP4N	LSPS4	HPCR/L-H	MHB0415	HPO7S	KHA0404-NYLOCK	HW20L HW30L

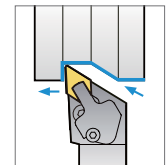
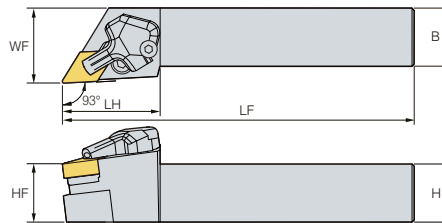
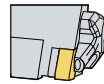
↻ Applicable inserts B5 ~ B12

● : Stock item

# PDJNR/L



DN□□



93°

• R type holder

(mm)

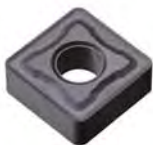
Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert
	R	L								
PDJNR/L 2525-M11-KHP			42	150	32.25	25	25	25	R/L	DN□□1104□□
2525-M1504-KHP	●	●	93	25	25	150	25	32.25	R/L	DN□□1504□□
2525-M1506-KHP	●	●	42	150	32.25	25	25	25	R/L	DN□□1506□□

Part	Lever	Screw	Shim	Ship pin	Shim Pin Punch	Clamp	Clamping screw	Oil seal	Plug	Wrench
PDJNR/L 2525-M11-KHP										
2525-M1504-KHP	LV3AN	VHX0617N	SD32N	SP3	LSPS3	HPCR/L-H	MHB0415	HPO7S	KHA0404-NYLOCK	HW20L, HW25L, HW30L
2525-M1506-KHP	LV4BN	VHX0821N	SD43N	SP4N	LSPS4	HPCR/L-H	MHB0415	HPO7S	KHA0404-NYLOCK	HW20L, HW30L
	LV4BN	VHX0821N	SD42N	SP4N	LSPS4	HPCR/L-H	MHB0415	HPO7S	KHA0404-NYLOCK	HW20L, HW30L

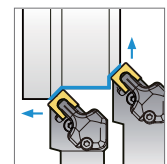
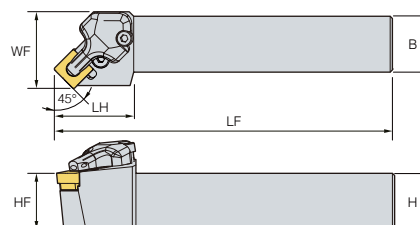
↻ Applicable inserts B13 ~ B18

● : Stock item

# PSSNR/L



SN□□



45°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert
	R	L								
PSSNR/L 2525-M12-KHP	●	●	35.5	150	34.25	25	25	25	R/L	SN□□1204□□

Part	Lever	Screw	Shim	Ship pin	Shim Pin Punch	Clamp	Clamping screw	Oil seal	Plug	Wrench
PSSNR/L 2525-M12-KHP										
	LV4N	VHX0821	SS42N	SP4N	LSPS4	HPCR/L-3H	MHB0415	HPO7S	KHA0404-NYLOCK	HW20L, HW30L

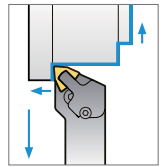
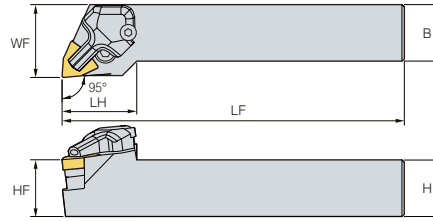
↻ Applicable inserts B20 ~ B28

● : Stock item

## PWLNR/L



WN□□



95°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert
	R	L								
PWLNR/L 2525-M08-KHP	•	•	33	150	32.25	25	25	25	R/L	WN□□0804□□
3232-P08-KHP			33	170	39.25	32	32	32	R/L	

Part	Lever	Screw	Shim	Ship pin	Shim Pin Punch	Clamp	Clamping screw	Oil seal	Plug	Wrench
PWLNR/L 2525-M08-KHP 3232-P08-KHP	LV4N	VHX0820N	SW42N	SP4N	LSPS4	HPCR/L-H	MHB0415	HPO7S	KHA0404-NYLOCK	HW20L HW30L

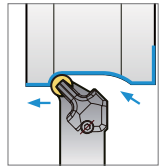
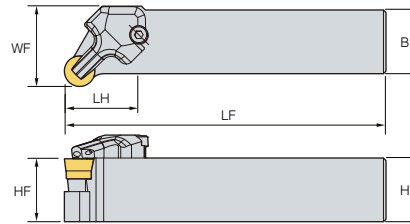
➤ Applicable inserts B39 ~ B46

•: Stock item

## SRGCR/L



RCGT



• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert
	R	L								
SRGCR/L 2525-M12-KHP	•	•	33	150	31.5	25	25	25	R/L	RCGT1204M0

Part	Screw	Shim	Shim Screw	Clamp	Clamping screw	Oil seal	Wrench
SRGCR/L 2525-M12-KHP	FTGA03512	SR12S	SHXN0509F	HPCR/L-3H	MHB0415	HPO7S	HW15P, HW30L, HW35L

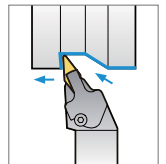
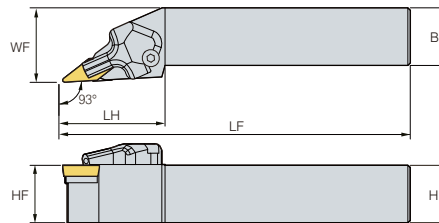
➤ Applicable inserts B54, B77

•: Stock item

## SVJBR/L



VB□□



93°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert
	R	L								
SVJBR/L 2525-M16-KHP	•	•	46.19	150	32.38	25	25	25	R/L	VB□□1604□□

Part	Screw	Shim	Shim Screw	Clamp	Clamping screw	Oil seal	Wrench
SVJBR/L 2525-M16-KHP	FTGA03512	SV32S	SHXN0509F	HPCR/L-H	MHB0415	HPO7S	HW15P, HW30L, HW35L

➤ Applicable inserts B65 ~ B67, B80

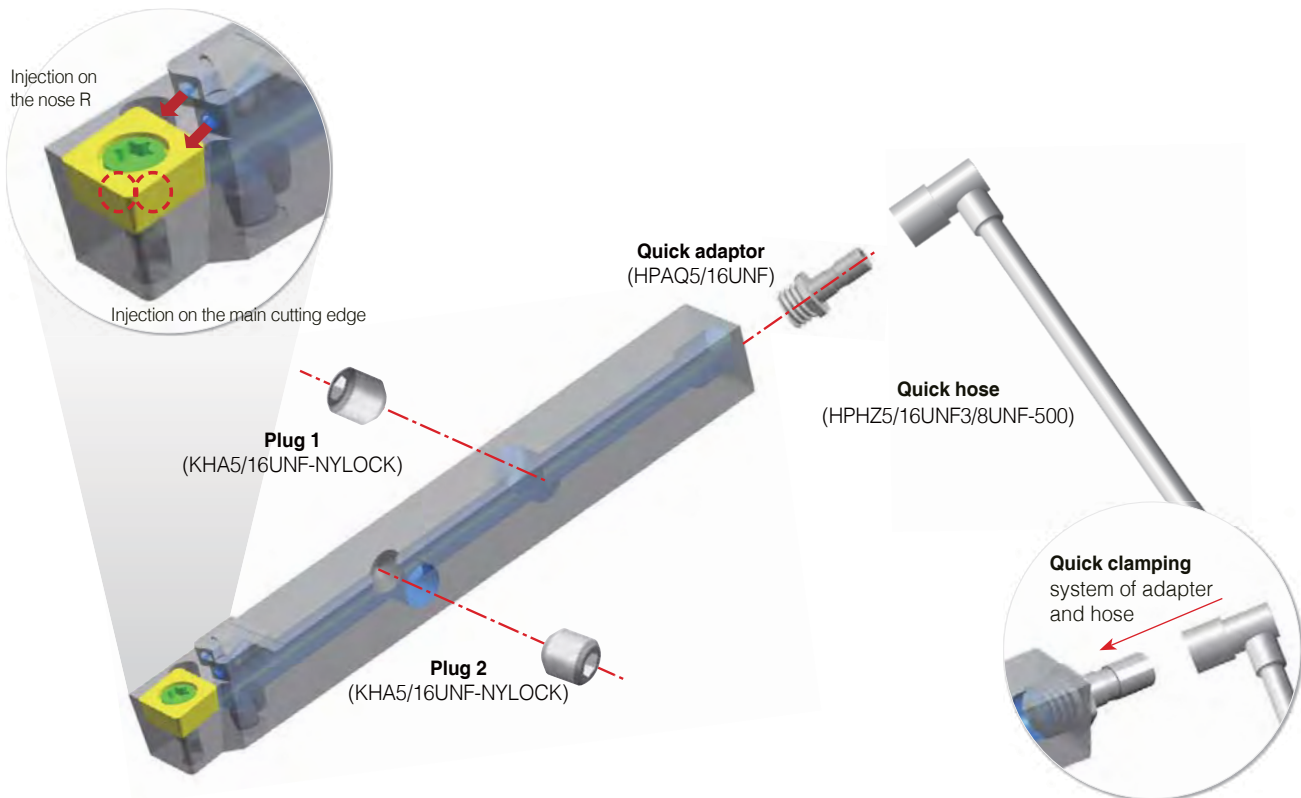
•: Stock item



## Auto Tools (KHP)




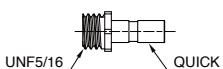
- High-pressure coolant holder for high productivity in precision machining on automatic lathes
- Cooling and chip control improved by concentrically injecting coolant through two holes to the main cutting edge and nose R
- Two holes with different injection angles increase chip control
- Convenient use due to the easy clamping system of the quick hose adapter and quick hose

### Structure of holder



※ Quick adaptor and quick hose are sold separately

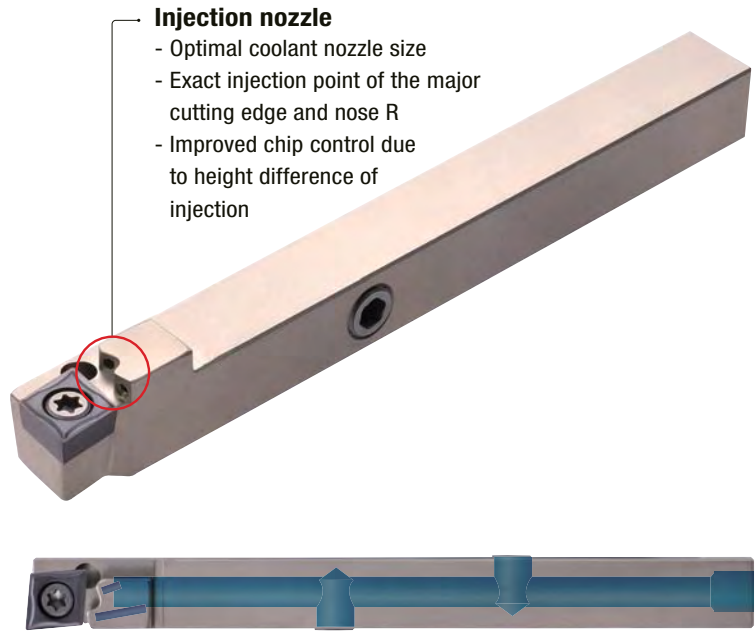
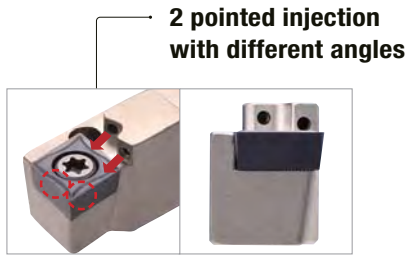
### Parts

	Shape	Configuration	Length	Q clamping dimensions	S clamping dimensions
Quick to straight	HPHZ5/16UNF3/8UNF-500 	 UNF3/8 QUICK	500mm	UNF5/16	-
Quick adaptor	HPAQ5/16UNF 	 UNF5/16 QUICK	18.5mm	UNF5/16	



# B Technical information for Auto Tools (KHP)

## Features



Max 300 bar		
Workpiece	The minimum pressure	The maximum pressure
P	100	300
M	120	
K	110	
N	100	
S	120	

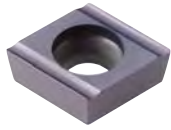
## Parts

Division	Designation	Shape	
Adaptor	HPA3/8UNF1/8PF		
Blank	HPB1/8PF		
Quick adaptor	HPAQ5/16UNF		

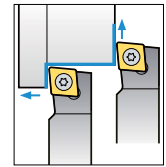
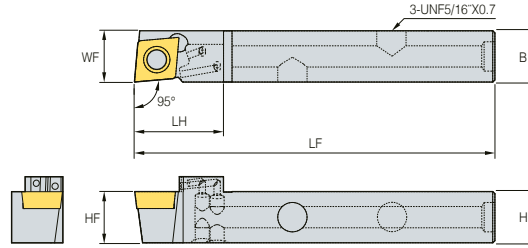
## High pressure hose

Shape	length	Q clamping dimensions	S clamping dimensions
Quick to straight (HPHZ5/16UNF3/8UNF-500)	500mm	UNF5/16	-

# SCLCR/L



CC□T



95°

• R type holder

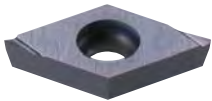
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Plug	Wrench
	R	L											
<b>SCLCR/L 1212-X09A-KHP</b>	●	●	21	120	12	12	12	12	R/L	CC□T09T3□□	FTKA0410	KHA0404-NYLOCK	TW15P

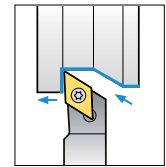
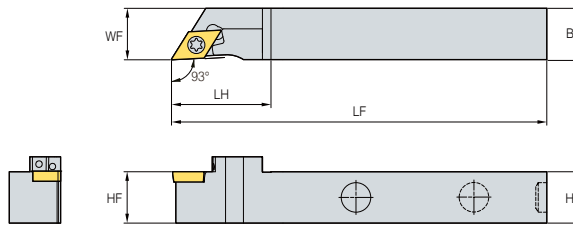
➔ Applicable inserts **B44 ~ B48, B75**

● : Stock item

# SDJCR/L



DC□T



93°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Plug	Wrench
	R	L											
<b>SDJCR/L 1212-X07A-KHP</b>	●	●	21	120	12	12	12	12	R/L	DC□T0702□□	FTKA02565	KHA0404-NYLOCK	TW07P
<b>1212-X11A-KHP</b>	●	●	21	120	14	12	12	12	R/L	DC□T11T3□□	FTKA0408	KHA0404-NYLOCK	TW15P

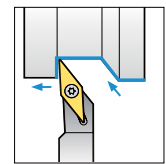
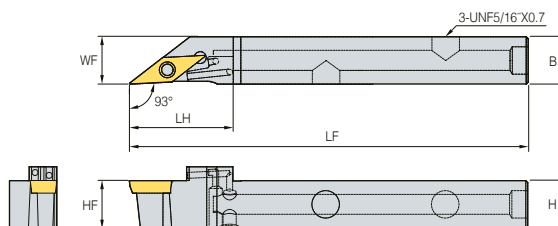
➔ Applicable inserts **B50 ~ B53, B76**

● : Stock item

# SVJCR/L



VC□□



93°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Plug	Wrench
	R	L											
<b>SVJCR/L 1212-X11A-KHP</b>	●	●	26	120	12	12	12	12	R/L	VC□T1103□□	FTKA02565	KHA0404-NYLOCK	TW07P
<b>1212-X12A-KHP</b>	●	●	26	120	12	12	12	12	R/L	VC□□1203□□	FTKA02565	KHA0404-NYLOCK	TW07P

➔ Applicable inserts **B68 ~ B70, B81**

● : Stock item

# B Technical Information for Save Turn

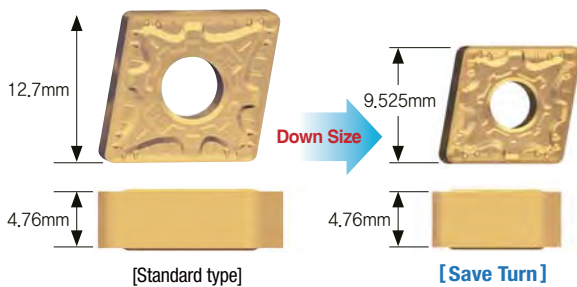
Economical small insert with powerful cutting performance

## Save Turn

- Strongly recommended turning insert for machining smaller diameter than  $\varnothing 100$
- Small but powerful and economical insert which performs the same like standard-sized inserts under the depth of cut of 3.0 mm

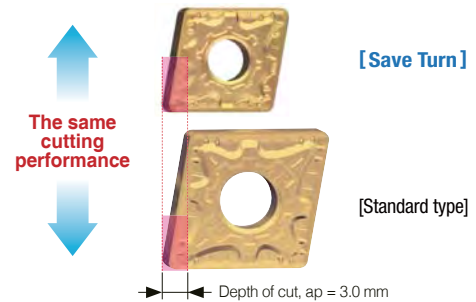
### Features

#### Comparison of insert sizes






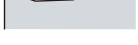

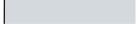
- ▶ Optimized size of the same performance like the standard type

#### Comparison of cutting performance

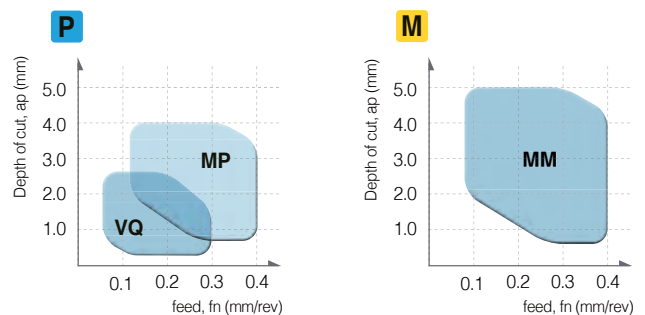


- ▶ Performs the same like standard type inserts under the depth of cut of 3.0 mm

### Features of chip breaker

Insert shape	Cutting edge	Features
<b>VQ</b> 		<ul style="list-style-type: none"> <li>• For finishing steel</li> <li>• Efficient chip breaking and low cutting resistance</li> <li>• Various application available at low depth of cut</li> <li>• Recommended depth of cut: 0.5~2.5 mm</li> </ul>
<b>MP</b> 		<ul style="list-style-type: none"> <li>• For medium cutting of steel</li> <li>• 4dots for improved chip control in medium cutting to finishing</li> <li>• Stable chip evacuation at high depth of cut</li> <li>• Stable tool life due to lower cutting loads at high feed</li> <li>• Recommended depth of cut: 0.5~4.0 mm</li> </ul>
<b>MM</b> 		<ul style="list-style-type: none"> <li>• For medium cutting of stainless steel</li> <li>• Limits plastic deformation caused by heat</li> <li>• Stable tool life thanks to the balanced cutting performance and toughness</li> <li>• Stable chip flow at high speeds and feeds</li> <li>• Recommended depth of cut: 0.5~5.0 mm</li> </ul>

### Application area of chip breaker


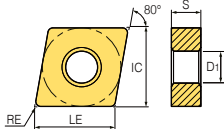



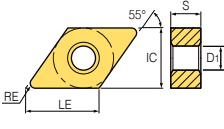



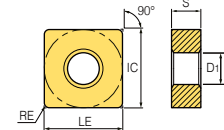



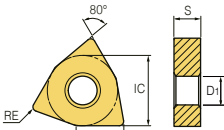




**VQ** : Depth of cut,  $a_p = 0.5\sim 2.5\text{mm}$  /feed,  $f_n = 0.05\sim 0.30\text{mm/rev}$

**MP** : Depth of cut,  $a_p = 0.5\sim 4.0\text{mm}$  /feed,  $f_n = 0.15\sim 0.40\text{mm/rev}$

**MM** : Depth of cut,  $a_p = 0.5\sim 5.0\text{mm}$  /feed,  $f_n = 0.10\sim 0.40\text{mm/rev}$

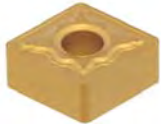
**Applicable insert**

Type	Inserts	Designation	Coated						Dimensions (mm)					Cutting condition		Configuration		
			NC3215	NC3225	NC5330	NC6310	NC9125	NC9135	PC9030	IC	RE	S	LE	D1	HAND		ap (mm)	fn (mm/rev)
C type	 CNMG-VQ	CNMG 090408-VQ			●				9.525	0.8	3.18	9.672	3.81	N	0.50~2.50	0.08~0.30		
		CNMG 090412-VQ							9.525	1.2	3.18	9.672	3.81	N	0.50~2.50	0.10~0.30		
	 CNMG-MP	CNMG 090404-MP							9.525	0.4	3.18	9.672	3.81	N	0.50~4.00	0.10~0.40		
		CNMG 090408-MP							9.525	0.8	3.18	9.672	3.81	N	0.50~4.00	0.15~0.40		
		CNMG 090412-MP							9.525	1.2	4.76	9.672	3.81	N	0.50~4.00	0.15~0.45		
	 CNMG-MM	CNMG 090404-MM							9.525	0.4	4.76	9.672	3.81	N	0.50~5.00	0.08~0.35		
		CNMG 090408-MM							9.525	0.8	3.18	9.672	3.81	N	0.50~5.00	0.10~0.40		
		CNMG 090412-MM							9.525	1.2	4.76	9.672	3.81	N	0.50~5.00	0.12~0.45		
	D type	 DNMG-VQ	DNMG 110508-VQ						9.525	0.8	5.56	11.627	3.81	N	0.50~2.50	0.08~0.30		
DNMG 110512-VQ									9.525	1.2	5.56	11.627	3.81	N	0.50~2.50	0.10~0.30		
 DNMG-MP		DNMG 110504-MP							9.525	0.4	5.56	11.627	3.81	N	0.50~4.00	0.10~0.40		
		DNMG 110508-MP							9.525	0.8	5.56	11.627	3.81	N	0.50~4.00	0.15~0.40		
		DNMG 110512-MP							9.525	1.2	5.56	11.627	3.81	N	0.50~4.00	0.15~0.45		
 DNMG-MM		DNMG 110504-MM							9.525	0.4	5.56	11.627	3.81	N	0.50~5.00	0.08~0.35		
		DNMG 110508-MM							9.525	0.8	5.56	11.627	3.81	N	0.50~5.00	0.10~0.40		
		DNMG 110512-MM							9.525	1.2	5.56	11.627	3.81	N	0.50~5.00	0.12~0.45		
S type		 SNMG-VQ	SNMG 090408-VQ			●			9.525	0.8	3.18	9.525	3.81	N	0.50~2.50	0.08~0.30		
	SNMG 090412-VQ								9.525	1.2	3.18	9.525	3.81	N	0.50~2.50	0.10~0.30		
	 SNMG-MP	SNMG 090404-MP							9.525	0.4	3.18	9.525	3.81	N	0.50~4.00	0.10~0.40		
		SNMG 090408-MP							9.525	0.8	3.18	9.525	3.81	N	0.50~4.00	0.15~0.40		
		SNMG 090412-MP							9.525	1.2	3.18	9.525	3.81	N	0.50~4.00	0.15~0.45		
	 SNMG-MM	SNMG 090404-MM							9.525	0.4	4.76	9.525	3.81	N	0.50~5.00	0.08~0.35		
		SNMG 090408-MM							9.525	0.8	4.76	9.525	3.81	N	0.50~5.00	0.10~0.40		
		SNMG 090412-MM							9.525	1.2	4.76	9.525	3.81	N	0.50~5.00	0.12~0.45		
	W type	 WNMG-VQ	WNMG 060404-VQ						9.525	0.4	4.76	6.515	3.81	N	0.30~2.00	0.06~0.30		
WNMG 060408-VQ									9.525	0.8	4.76	6.515	3.81	N	0.50~2.00	0.08~0.30		
WNMG 060412-VQ										9.525	1.2	4.76	6.515	3.81	N	0.50~2.00	0.10~0.30	
 WNMG-MP		WNMG 060404-MP	●	●	●	●			9.525	0.4	4.76	6.515	3.81	N	0.50~3.50	0.10~0.40		
		WNMG 060408-MP	●	●	●	●	●			9.525	0.8	4.76	6.515	3.81	N	0.50~3.50	0.15~0.40	
		WNMG 060412-MP								9.525	1.2	4.76	6.515	3.81	N	0.50~3.50	0.15~0.45	
 WNMG-MM		WNMG 060404-MM							9.525	0.4	4.76	6.515	3.81	N	0.50~4.00	0.08~0.35		
		WNMG 060408-MM			●	●	●			9.525	0.8	4.76	6.515	3.81	N	0.50~4.00	0.10~0.40	
		WNMG 060412-MM			●					9.525	1.2	4.76	6.515	3.81	N	0.50~4.00	0.12~0.45	

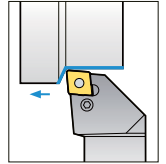
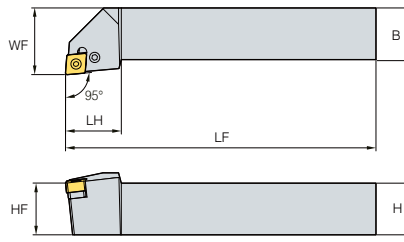
● : Stock item

# B Save Turn Holders

## PCLNR/L



CN□□



95°  
• R type holder

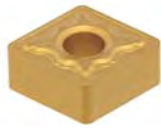
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PCLNR/L 1616-H09-4N	•		20	100	20	16	16	16	R/L	CN□□ 0904□□	LV3N	VHX0617N	SC32N	SP3	HW25L	LSPS3
2020-K09-4N	•		25	125	25	20	20	R/L								
2525-M09-4N	•		27	150	32	25	25	R/L								

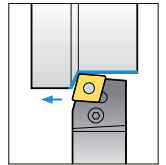
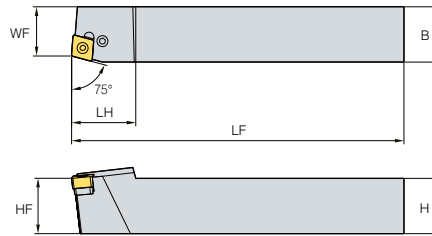
Applicable inserts B154

•: Stock item

## PCBNR/L



CN□□



75°  
• R type holder

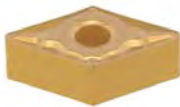
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PCBNR/L 2020-K09-4N			27	125	17	20	20	20	R/L	CN□□ 0904□□	LV3N	VHX0617N	SC32N	SP3	HW25L	LSPS3
2525-M09-4N	•		29	150	22	25	25	R/L								

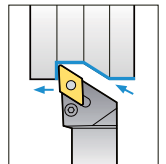
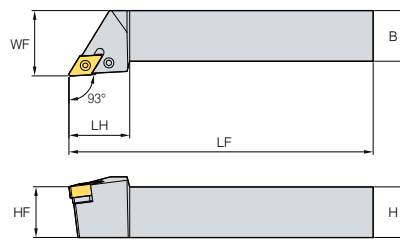
Applicable inserts B154

•: Stock item

## PDJNR/L



DN□□



93°  
• R type holder

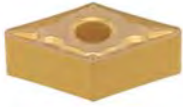
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PDJNR/L 2020-K11-5N	•		30	125	25	20	20	20	R/L	DN□□ 1105□□	LV3AN	VHX0617N	SD32N	SP3	HW25L	LSPS3
2525-M11-5N	•		30	150	32	25	25	R/L								

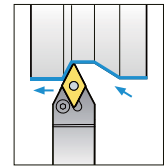
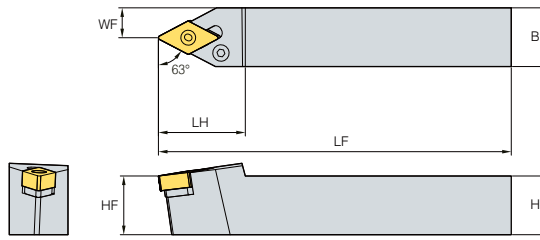
Applicable inserts B154

•: Stock item

# PDNNR/L



DN□□



63°

• R type holder

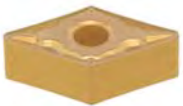
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PDNNR/L 2020-K11-5N	□		30	125	10	20	20	20	R/L	DN□□ 1105□□	LV3AN	VHX0617N	SD32N	SP3	HW25L	LSPS3
2525-M11-5N			30	150	12.5	25	25	25	R/L							

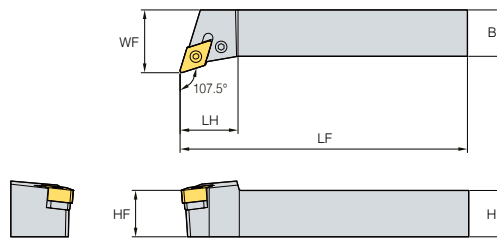
↻ Applicable inserts **B154**

● : Stock item

# PDQNR/L



DN□□



107.5°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PDQNR/L 2020-K11-5N	□		25	125	25	20	20	20	R/L	DN□□ 1105□□	LV3AN	VHX0617N	SD32N	SP3	HW25L	LSPS3
2525-M11-5N			25	150	32	25	25	25	R/L							

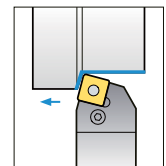
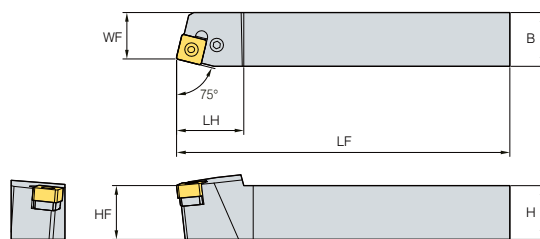
↻ Applicable inserts **B154**

● : Stock item

# PSBNR/L



SN□□



75°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PSBNR/L 2020-K09-4N			25	125	17	20	20	20	R/L	SN□□ 0904□□	LV3AN	VHX0617N	SS32N	SP3	HW25L	LSPS3
2525-M09-4N			24.4	150	22	25	25	25	R/L							

↻ Applicable inserts **B154**

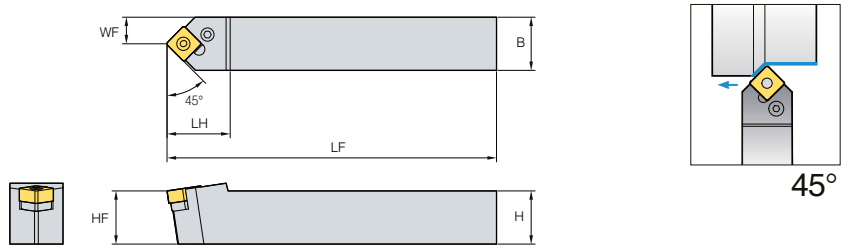
● : Stock item

# B Save Turn Holders

## PSDNN



SN□□



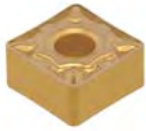
(mm)

Designation	Stock	LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
PSDNN 2020-K09-4N	●	23	125	10	20	20	20	N	SN□□ 0904□□						
2525-M09-4N	●	23	150	12.5	25	25	25	N							

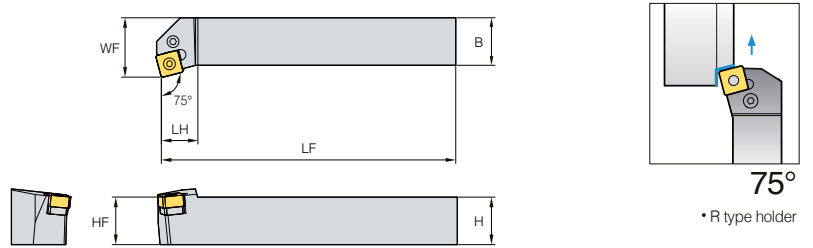
Applicable inserts B154

●: Stock item

## PSKNR/L



SN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PSKNR/L 2020-K09-4N			14.3	125	25	20	20	20	R/L	SN□□ 0904□□						
2525-M09-4N	●		24.4	150	32	25	25	R/L								

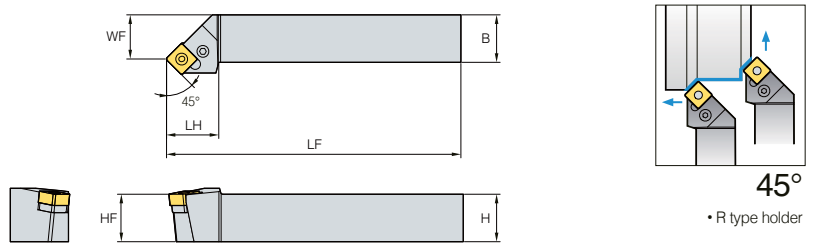
Applicable inserts B154

●: Stock item

## PSSNR/L



SN□□



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PSSNR/L 2020-K09-4N	●		22	125	25	20	20	20	R/L	SN□□ 0904□□						
2525-M09-4N	●	●	27	150	32	25	25	R/L								

Applicable inserts B154

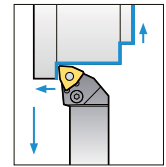
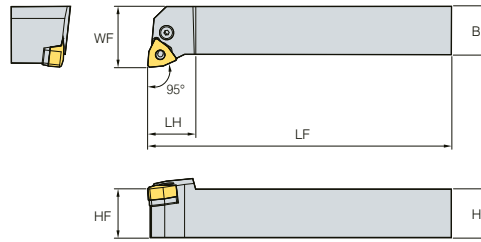
●: Stock item



# PWLNRL/L



WN□□



95°

• R type holder

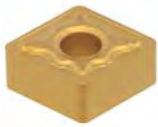
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
PWLNRL/ 1616-H06	●	●	20	100	20	16	16	16	R/L	WN□□0604□□	LV3AN	VHX0617N	SS32N	SP3	HW25L	LSPS3
2020-K06	●	●	20	125	25	20	20	20	R/L							
2525-M06	●	●	20	150	32	25	25	25	R/L							

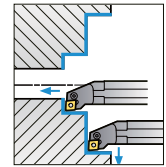
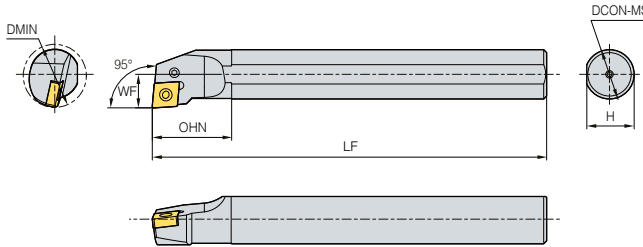
➔ Applicable inserts **B154**

● : Stock item

# PCLNR/L



CN□□



95°

• R type holder

(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
S20Q-PCLNR/L-09-4N	●	●	25	25	180	13	18	20	R/L	CN□□0904□□	LV3B	VHX0512B	-	-	HW20L	-
S25R-PCLNR/L-09-4N	●	●	32	30	200	17	23	25	R/L							
S32S-PCLNR/L-09-4N			40	50	250	22	30	32	R/L							

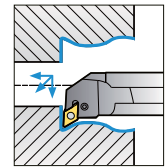
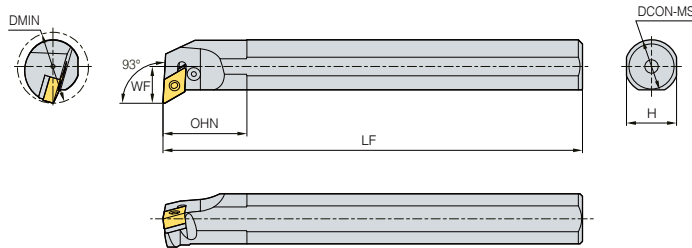
➔ Applicable inserts **B154**

● : Stock item

# PDUNRL/L



DN□□



93°

• R type holder

(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
S32S-PDUNRL/L-11-5N	●	●	40	50	250	22	30	32	R/L	DN□□1105□□	LV3AN	VHX0617N	SD32N	SP3	HW25L	LSPS3
S40T-PDUNRL/L-11-5N	●	●	50	50	300	27	38	40	R/L							

➔ Applicable inserts **B154**

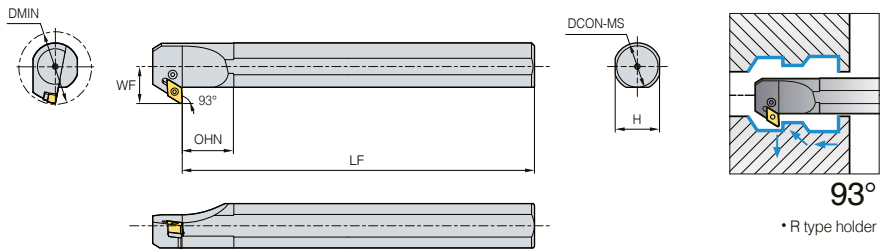
● : Stock item

# B Save Turn Boring Bars

## PDZNR/L



DN□□



• R type holder

(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
S32S-PDZNR/L-11-5N			40	35	250	25	30	32	R/L	DN□□1105□□	LV3AN	VHX0617N	SD32N	SP3	HW25L	LSPS3
S40T-PDZNR/L-11-5N			50	40	300	29	37	40	R/L							

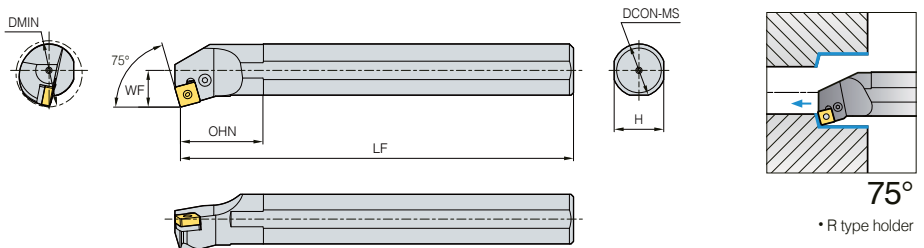
🔗 Applicable inserts B154

●: Stock item

## PSKNR/L



SN□□



• R type holder

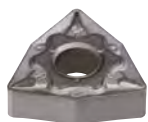
(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
S25R-PSKNR/L-09-4N			32	0	200	17	23	25	R/L	SN□□0904□□	LV3B	VHX0512B	-	-	HW20L	-
S32S-PSKNR/L-09-4N			40	0	250	22	30	32	R/L		LV3N	VHX0617N	SS32N	-	HW25L	LSPS3

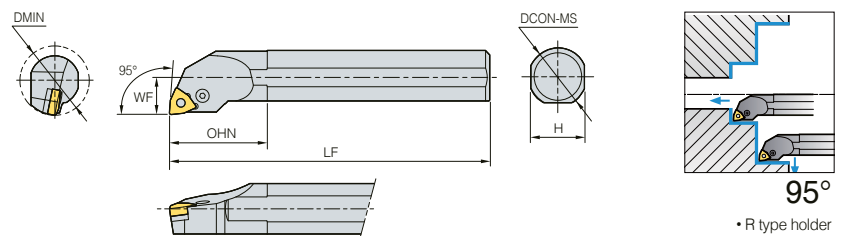
🔗 Applicable inserts B154

●: Stock item

## PWLNR/L



WN□□



• R type holder

(mm)

Designation	Stock		DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Wrench	Shim Pin Punch
	R	L														
S20S-PWLNR/L-06	●	●	25	32	250	13	18	20	R/L	WN□□0604□□	LV3B	VHX0512B	-	-	-	-
S25R-PWLNR/L-06	●		32	40	200	17	23	25	R/L							
S32S-PWLNR/L-06	●		40	50	250	22	30	32	R/L		LV3B	VHX0617B	SW317	SP3	HW25L	LSPS3

🔗 Applicable inserts B154

●: Stock item

Excellent for precision machining

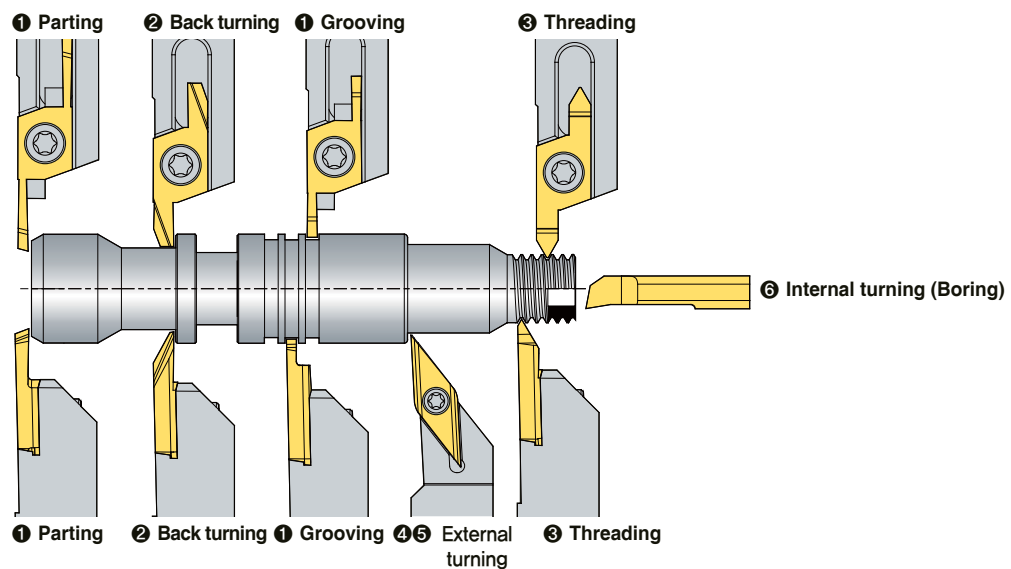
# Auto Tools

- High precision machining of small parts and complex forms, etc.
- High quality products through stable machining
- Exclusive insert for automatic lathes

## Type



## Application example



## Index

Specification	① Parting and Grooving						② Back turning		
<b>Holder</b>	SXGNR/L	SXGNR/L	SBHR/L	SBHR/L	MGEHR/L	KGEHR/L	SXGNR/L	SXGNR/L	SBHR/L
<b>Insert</b>	SG	SC	SBG	SBC	MGMN	KGMM	SB	SGB	SBB
<b>Holder size</b>	10~20mm	10~20mm	10~16mm	10~16mm	10~16mm	10~16mm	10~20mm	10~20mm	10~16mm
<b>Insert shape</b>									
<b>Cutting width</b>	1~3mm	1~3mm	0.7~2.0mm	0.7~2.0mm	1.5~2.5mm	1.5~2.5mm	2~4mm	2~3mm	3.18mm
<b>ØDmax</b>	Ø18	Ø18	Ø16	Ø16	Ø32	Ø32	Tmax 8.0	Tmax 8.5	Tmax 8.0
<b>Page</b>	B145	B145	B142	B142	B149	B148	B145	B145	B142

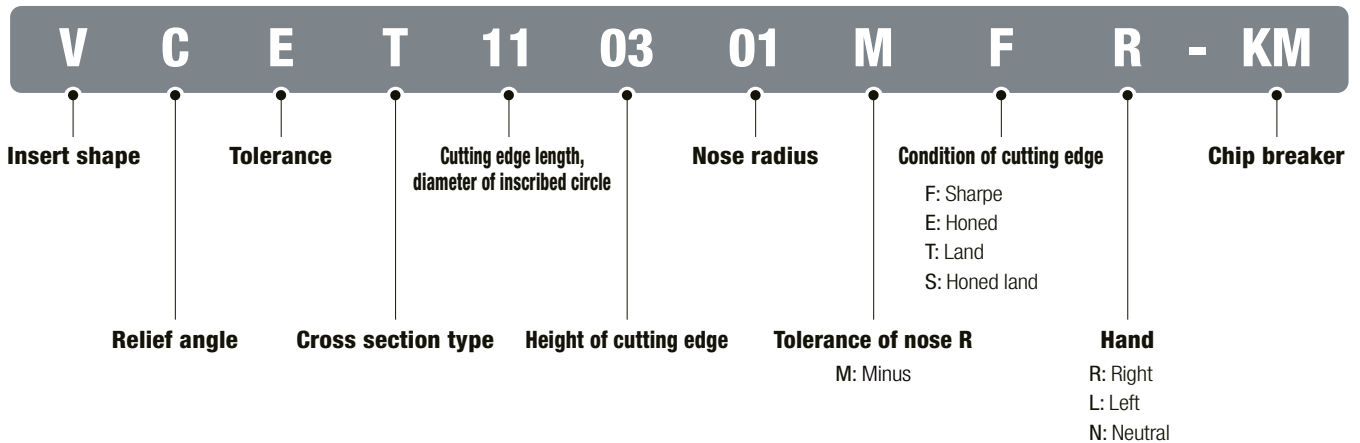
Specification	③ Threading		④ External turning and Copy machining				⑤ External turning and Facing		
<b>Holder</b>	SXGNR/L	SBHR/L	SDJCR/L	SDNCN	SVJBR/L	SVJCR/L	SCACR/L	SCLCR/L	STACR/L
<b>Insert</b>	ST	SBT	DC□T	DC□T	VB□T	VC□T	CC□T	CC□T	TC□T
<b>Holder size</b>	10~20mm	10~16mm	8~16mm	8~16mm	10~16mm	10~16mm	8~16mm	8~16mm	8~10mm
<b>Insert shape</b>									
<b>Feature</b>	Pitch ranges 0.5~1.5 / 1.5~3.0	Pitch ranges 0.2~1.5 / 1.0~2.0	Offset "0"				Offset "0"		
<b>Page</b>	B145	B142	B128	B129	B130	B130	B128	B128	B129

## Auto Tools (ISO)

- ISO inserts for automatic lathes
- Precise R shape with the use of minus tolerance of nose R
- Tolerance class precise enough in no need for adjusting tools with the use of accurate cutting edge height
- Sharp blade for excellent chip control and surface roughness with low cutting force
- High precision tools for electrical/ electronics instruments and medical instruments



### Code system (ISO type)



### VP1/MS/FS chip breaker

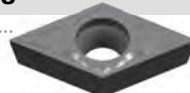
- Exclusive chip breaker for hard-to-cut materials such as titanium alloy, Inconel, stainless steel, etc.
- Minimized cutting heat by reducing contact area between chips and rake surface with the use of high positive blade

**VP1**



- Hard cutting edge for medium cutting
- Optimal width of chip breaker by each depth of cuts realizes wide workpiece machining

**MS**



- Good surface finish for medium cutting
- Preventing welding in titanium machining
- Increasing chip evacuation in high feed machining
- Protecting cutting edge due to structure for good chip evacuation

**FS**

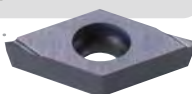


- For finishing (for surface roughness)
- 1<sup>st</sup> recommended chip breaker for chip control
- Better surface roughness, surface finish and chip control

### KF/KM chip breaker, ground type for grooving

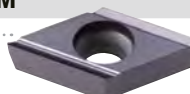
- Ground chip breaker with sharp cutting edge
- High precision insert of E-class tolerance with accurate nose radius

**KF**



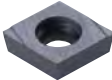
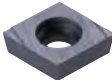
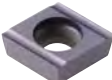
- For finishing
- Low cutting loads with sharp cutting edges
- Longer tool life due to lower chip evacuation resistance at high speed
- Excellent surface roughness

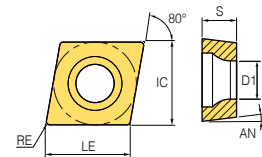
**KM**



- For medium cutting to finishing
- Better chip flow due to wide chip pockets
- Longer tool life and better cutting action due to improved chip evacuation
- Excellent surface roughness

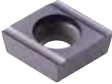
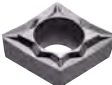

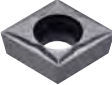
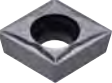
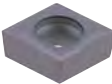
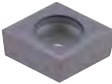

**Applicable insert**

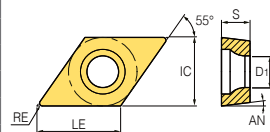
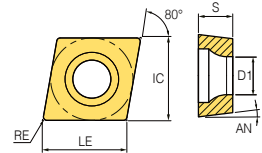
Picture	Designation	Coated				Uncoated H01	Dimensions (mm)						Configuration
		PC5300	PC8105	PC8110	PC8115		IC	RE	S	LE	AN	D1	
 Finishing (High precision)	0301003R-KF	●	●				3.5	0.03	1.39	3.554	7	1.9	R
	030101R-KF	●	●				3.5	0.1	1.39	3.554	7	1.9	R
	030102R-KF	●	●				3.5	0.2	1.39	3.554	7	1.9	R
	030104R-KF	●	●				3.5	0.4	1.39	3.554	7	1.9	R
	0401003R-KF	●	●				4.3	0.03	1.79	4.355	7	2.3	R
	040101R-KF	●	●				4.3	0.1	1.79	4.355	7	2.3	R
	040102R-KF	●	●				4.3	0.2	1.79	4.355	7	2.3	R
	040104R-KF	●	●				4.3	0.4	1.79	4.355	7	2.3	R
	0602003R-KF						6.35	0.03	2.38	6.448	7	2.8	R
	060201R-KF						6.35	0.1	2.38	6.448	7	2.8	R
	060202R-KF						6.35	0.2	2.38	6.448	7	2.8	R
	09T3003R-KF						9.525	0.03	3.97	9.672	7	4.4	R
	09T301R-KF						9.525	0.1	3.97	9.672	7	4.4	R
	09T302R-KF						9.525	0.2	3.97	9.672	7	4.4	R
	0301003L-KF	●	●				3.5	0.03	1.39	3.554	7	1.9	L
	030101L-KF	●	●				3.5	0.1	1.39	3.554	7	1.9	L
	030102L-KF	●	●				3.5	0.2	1.39	3.554	7	1.9	L
	030104L-KF	●	●				3.5	0.4	1.39	3.554	7	1.9	L
	0401003L-KF	●	●				4.3	0.03	1.79	4.355	7	2.3	L
	040101L-KF	●	●				4.3	0.1	1.79	4.355	7	2.3	L
	040102L-KF	●	●				4.3	0.2	1.79	4.355	7	2.3	L
	040104L-KF	●	●				4.3	0.4	1.79	4.355	7	2.3	L
	0602003L-KF						6.35	0.03	2.38	6.448	7	2.8	L
	060201L-KF						6.35	0.1	2.38	6.448	7	2.8	L
	060202L-KF						6.35	0.2	2.38	6.448	7	2.8	L
	09T3003L-KF						9.525	0.03	3.97	9.672	7	4.4	L
	09T301L-KF						9.525	0.1	3.97	9.672	7	4.4	L
	09T302L-KF						9.525	0.2	3.97	9.672	7	4.4	L
 Finishing (Ultra high precision)	0602005MFR-KF						6.35	< 0.05	2.38	6.448	7	2.8	R
	060201MFR-KF		●				6.35	< 0.1	2.38	6.448	7	2.8	R
	060202MFR-KF	●	●				6.35	< 0.2	2.38	6.448	7	2.8	R
	09T3005MFR-KF						9.525	< 0.05	3.97	9.672	7	4.4	R
	09T301MFR-KF	●	●				9.525	< 0.1	3.97	9.672	7	4.4	R
	09T302MFR-KF	●					9.525	< 0.2	3.97	9.672	7	4.4	R
	0602005MFL-KF						6.35	< 0.05	2.38	6.448	7	2.8	L
	060201MFL-KF		●				6.35	< 0.1	2.38	6.448	7	2.8	L
	060202MFL-KF	●	●				6.35	< 0.2	2.38	6.448	7	2.8	L
	09T3005MFL-KF						9.525	< 0.05	3.97	9.672	7	4.4	L
	09T301MFL-KF	●					9.525	< 0.1	3.97	9.672	7	4.4	L
09T302MFL-KF	●	●				9.525	< 0.2	3.97	9.672	7	4.4	L	
 Medium to finishing (High precision)	0602003R-KM	●	●				6.35	0.03	2.38	6.448	7	2.8	R
	060201R-KM	●					6.35	0.1	2.38	6.448	7	2.8	R
	060202R-KM	●	●				6.35	0.2	2.38	6.448	7	2.8	R
	060204R-KM	●	●				6.35	0.4	2.38	6.448	7	2.8	R
	09T3003R-KM	●	●				9.525	0.03	3.97	9.672	7	4.4	R
	09T301R-KM	●	●				9.525	0.1	3.97	9.672	7	4.4	R
	09T302R-KM	●	●				9.525	0.2	3.97	9.672	7	4.4	R
	09T304R-KM	●	●				9.525	0.4	3.97	9.672	7	4.4	R
	0602003L-KM	●	●				6.35	0.03	2.38	6.448	7	2.8	L
	060202L-KM	●	●				6.35	0.2	2.38	6.448	7	2.8	L
	060204L-KM	●	●				6.35	0.4	2.38	6.448	7	2.8	L
	09T3003L-KM	●	●				9.525	0.03	3.97	9.672	7	4.4	L
	09T301L-KM	●					9.525	0.1	3.97	9.672	7	4.4	L
	09T302L-KM	●	●				9.525	0.2	3.97	9.672	7	4.4	L
09T304L-KM	●	●				9.525	0.4	3.97	9.672	7	4.4	L	



● : Stock item

## Applicable insert








Picture	Designation	Coated				Uncoated	Dimensions (mm)						Configuration
		PC5300	PC8105	PC8110	PC8115	H01	IC	RE	S	LE	AN	D1	
 <p>Medium to finishing (Ultra high precision)</p>	0602005MFR-KM	●	●	●	●		6.35	< 0.05	2.38	6.448	7	2.8	R
	060201MFR-KM	●	●	●	●		6.35	< 0.1	2.38	6.448	7	2.8	R
	060202MFR-KM	●	●	●	●		6.35	< 0.2	2.38	6.448	7	2.8	R
	09T3005MFR-KM	●	●	●	●		9.525	< 0.05	3.97	9.672	7	4.4	R
	09T301MFR-KM	●	●	●	●		9.525	< 0.1	3.97	9.672	7	4.4	R
	09T302MFR-KM	●	●	●	●		9.525	< 0.2	3.97	9.672	7	4.4	R
	0602005MFL-KM	●	●	●	●		6.35	< 0.05	2.38	6.448	7	2.8	L
	060201MFL-KM	●	●	●	●		6.35	< 0.1	2.38	6.448	7	2.8	L
	060202MFL-KM	●	●	●	●		6.35	< 0.2	2.38	6.448	7	2.8	L
	09T3005MFL-KM	●	●	●	●		9.525	< 0.05	3.97	9.672	7	4.4	L
09T301MFL-KM	●	●	●	●		9.525	< 0.1	3.97	9.672	7	4.4	L	
09T302MFL-KM	●	●	●	●		9.525	< 0.2	3.97	9.672	7	4.4	L	
 <p>Finishing (High precision)</p>	060201-FS	●	●	●	●		6.35	0.1	2.38	6.448	7	2.8	N
	060202-FS	●	●	●	●		6.35	0.2	2.38	6.448	7	2.8	N
	060204-FS	●	●	●	●		6.35	0.4	2.38	6.448	7	2.8	N
	09T301-FS	●	●	●	●		9.525	0.1	3.97	9.672	7	4.4	N
	09T302-FS	●	●	●	●		9.525	0.2	3.97	9.672	7	4.4	N
	09T304-FS	●	●	●	●		9.525	0.4	3.97	9.672	7	4.4	N
 <p>Finishing (Ultra high precision)</p>	060201MFN-FS	●	●	●	●		6.35	< 0.1	2.38	6.448	7	2.8	N
	060202MFN-FS	●	●	●	●		6.35	< 0.2	2.38	6.448	7	2.8	N
	060204MFN-FS	●	●	●	●		6.35	< 0.1	2.38	6.448	7	2.8	N
	09T301MFN-FS	●	●	●	●		9.525	< 0.1	3.97	9.672	7	4.4	N
	09T302MFN-FS	●	●	●	●		9.525	< 0.2	3.97	9.672	7	4.4	N
	09T304MFN-FS	●	●	●	●		9.525	< 0.4	3.97	9.672	7	4.4	N
 <p>Medium cutting (High precision)</p>	09T301-MS	●	●	●	●		9.525	0.1	3.97	9.672	7	4.4	N
	09T302-MS	●	●	●	●		9.525	0.2	3.97	9.672	7	4.4	N
	09T304-MS	●	●	●	●		9.525	0.4	3.97	9.672	7	4.4	N
 <p>Medium cutting (Ultra high precision)</p>	09T301MFN-MS	●	●	●	●		9.525	< 0.1	3.97	9.672	7	4.4	N
	09T302MFN-MS	●	●	●	●		9.525	< 0.2	3.97	9.672	7	4.4	N
	09T304MFN-MS	●	●	●	●		9.525	< 0.4	3.97	9.672	7	4.4	N
 <p>Finishing (High precision)</p>	60201-VP1	●	●	●	●	●	6.35	0.1	2.38	6.448	7	2.8	N
	60202-VP1	●	●	●	●	●	6.35	0.2	2.38	6.448	7	2.8	N
	60204-VP1	●	●	●	●	●	6.35	0.4	2.38	6.448	7	2.8	N
	09T301-VP1	●	●	●	●	●	9.525	0.1	3.97	9.672	7	4.4	N
	09T302-VP1	●	●	●	●	●	9.525	0.2	3.97	9.672	7	4.4	N
	09T304-VP1	●	●	●	●	●	9.525	0.4	3.97	9.672	7	4.4	N
 <p>Finishing (Ultra high precision)</p>	060201MFN-VP1	●	●	●	●		6.35	< 0.1	2.38	6.448	7	2.8	N
	060202MFN-VP1	●	●	●	●		6.35	< 0.2	2.38	6.448	7	2.8	N
	060204MFN-VP1	●	●	●	●		6.35	< 0.4	2.38	6.448	7	2.8	N
	09T301MFN-VP1	●	●	●	●		9.525	< 0.1	3.97	9.672	7	4.4	N
	09T302MFN-VP1	●	●	●	●		9.525	< 0.2	3.97	9.672	7	4.4	N
	09T304MFN-VP1	●	●	●	●		9.525	< 0.4	3.97	9.672	7	4.4	N
 <p>Finishing (High precision)</p>	0702003R-KF	●	●	●	●		6.35	0.03	2.38	7.752	7	2.8	R
	070201R-KF	●	●	●	●		6.35	0.1	2.38	7.752	7	2.8	R
	070202R-KF	●	●	●	●		6.35	0.2	2.38	7.752	7	2.8	R
	070204R-KF	●	●	●	●		6.35	0.4	2.38	7.752	7	2.8	R
	11T3003R-KF	●	●	●	●		9.525	0.03	3.97	11.628	7	4.4	R
	11T301R-KF	●	●	●	●		9.525	0.1	3.97	11.628	7	4.4	R
	11T302R-KF	●	●	●	●		9.525	0.2	3.97	11.628	7	4.4	R
	11T304R-KF	●	●	●	●		9.525	0.4	3.97	11.628	7	4.4	R
	0702003L-KF	●	●	●	●		6.35	0.03	2.38	7.752	7	2.8	L
	070201L-KF	●	●	●	●		6.35	0.1	2.38	7.752	7	2.8	L
	070202L-KF	●	●	●	●		6.35	0.2	2.38	7.752	7	2.8	L
	070204L-KF	●	●	●	●		6.35	0.4	2.38	7.752	7	2.8	L
	11T3003L-KF	●	●	●	●		9.525	0.03	3.97	11.628	7	4.4	L
	11T301L-KF	●	●	●	●		9.525	0.1	3.97	11.628	7	4.4	L
	11T302L-KF	●	●	●	●		9.525	0.2	3.97	11.628	7	4.4	L
	11T304L-KF	●	●	●	●		9.525	0.4	3.97	11.628	7	4.4	L

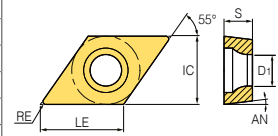


●: Stock item



**Applicable insert**


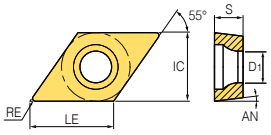



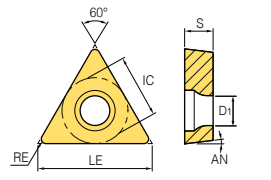


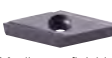

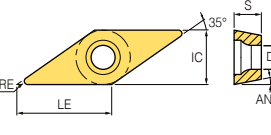


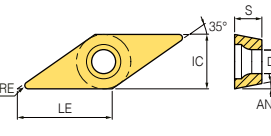
Picture	Designation	Coated				Uncoated H01	Dimensions (mm)						Configuration
		PC5300	PC8105	PC8110	PC8115		IC	RE	S	LE	AN	D1	
 <p>DCET-KF Finishing (Ultra high precision)</p>	0702005MFR-KF	●	●			6.35	< 0.05	2.38	7.752	7	2.8	R	
	070201MFR-KF		●			6.35	< 0.1	2.38	7.752	7	2.8	R	
	070202MFR-KF		●			6.35	< 0.2	2.38	7.752	7	2.8	R	
	11T3005MFR-KF	●	●			9.525	< 0.05	3.97	11.628	7	4.4	R	
	11T301MFR-KF		●			9.525	< 0.1	3.97	11.628	7	4.4	R	
	11T302MFR-KF	●	●			9.525	< 0.2	3.97	11.628	7	4.4	R	
	0702005MFL-KF		●			6.35	< 0.05	2.38	7.752	7	2.8	L	
	070201MFL-KF					6.35	< 0.1	2.38	7.752	7	2.8	L	
	070202MFL-KF					6.35	< 0.2	2.38	7.752	7	2.8	L	
	11T3005MFL-KF	●	●			9.525	< 0.05	3.97	11.628	7	4.4	L	
	11T301MFL-KF					9.525	< 0.1	3.97	11.628	7	4.4	L	
	11T302MFL-KF					9.525	< 0.2	3.97	11.628	7	4.4	L	
 <p>DCGT-KM Medium to finishing (High precision)</p>	0702003R-KM	●	●			6.35	0.03	2.38	7.752	7	2.8	R	
	070201R-KM	●	●			6.35	0.1	2.38	7.752	7	2.8	R	
	070202R-KM	●	●			6.35	0.2	2.38	7.752	7	2.8	R	
	070204R-KM	●				6.35	0.4	2.38	7.752	7	2.8	R	
	11T3003R-KM	●	●			9.525	0.03	3.97	11.628	7	4.4	R	
	11T301R-KM	●	●			9.525	0.1	3.97	11.628	7	4.4	R	
	11T302R-KM	●	●			9.525	0.2	3.97	11.628	7	4.4	R	
	11T304R-KM	●	●			9.525	0.4	3.97	11.628	7	4.4	R	
	0702003L-KM	●	●			6.35	0.03	2.38	7.752	7	2.8	L	
	070201L-KM	●				6.35	0.1	2.38	7.752	7	2.8	L	
	070202L-KM	●				6.35	0.2	2.38	7.752	7	2.8	L	
	070204L-KM	●				6.35	0.4	2.38	7.752	7	2.8	L	
	11T3003L-KM	●				9.525	0.03	3.97	11.628	7	4.4	L	
	11T301L-KM	●				9.525	0.1	3.97	11.628	7	4.4	L	
	11T302L-KM	●	●			9.525	0.2	3.97	11.628	7	4.4	L	
	11T304L-KM	●				9.525	0.4	3.97	11.628	7	4.4	L	
 <p>DCET-KM Medium to finishing (Ultra high precision)</p>	0702005MFR-KM					6.35	< 0.05	2.38	7.752	7	2.8	R	
	070201MFR-KM	●	●			6.35	< 0.1	2.38	7.752	7	2.8	R	
	070202MFR-KM	●	●			6.35	< 0.2	2.38	7.752	7	2.8	R	
	11T3005MFR-KM	●	●			9.525	< 0.05	3.97	11.628	7	4.4	R	
	11T301MFR-KM	●	●			9.525	< 0.1	3.97	11.628	7	4.4	R	
	11T302MFR-KM	●	●			9.525	< 0.2	3.97	11.628	7	4.4	R	
	0702005MFL-KM		●			6.35	< 0.05	2.38	7.752	7	2.8	L	
	070201MFL-KM	●				6.35	< 0.1	2.38	7.752	7	2.8	L	
	070202MFL-KM	●	●			6.35	< 0.2	2.38	7.752	7	2.8	L	
	11T3005MFL-KM	●	●			9.525	< 0.05	3.97	11.628	7	4.4	L	
	11T301MFL-KM	●	●			9.525	< 0.1	3.97	11.628	7	4.4	L	
	11T302MFL-KM	●				9.525	< 0.2	3.97	11.628	7	4.4	L	
 <p>DCGT-FS Finishing (High precision)</p>	070201-FS	●	●			6.35	0.1	2.38	7.752	7	2.8	N	
	070202-FS	●	●			6.35	0.2	2.38	7.752	7	2.8	N	
	11T301-FS	●	●			9.525	0.1	3.97	11.628	7	4.4	N	
	11T302-FS	●	●			9.525	0.2	3.97	11.628	7	4.4	N	
	11T304-FS	●	●			9.525	0.4	3.97	11.628	7	4.4	N	
	11T308-FS	●	●			9.525	0.8	3.97	11.628	7	4.4	N	
 <p>DCGT-FS Finishing (Ultra high precision)</p>	070201MFN-FS					6.35	< 0.1	2.38	7.752	7	2.8	N	
	070202MFN-FS					6.35	< 0.2	2.38	7.752	7	2.8	N	
	11T301MFN-FS					9.525	< 0.1	3.97	11.628	7	4.4	N	
	11T302MFN-FS					9.525	< 0.2	3.97	11.628	7	4.4	N	
	11T304MFN-FS					9.525	< 0.4	3.97	11.628	7	4.4	N	
	11T308MFN-FS					9.525	< 0.1	3.97	11.628	7	4.4	N	
 <p>DCGT-MS Medium cutting (High precision)</p>	11T301-MS	●	●			9.525	0.1	3.97	11.628	7	4.4	N	
	11T302-MS	●	●			9.525	0.2	3.97	11.628	7	4.4	N	
	11T304-MS	●	●			9.525	0.4	3.97	11.628	7	4.4	N	
 <p>DCGT-MS Medium cutting (Ultra high precision)</p>	11T301MFN-MS	●	●			9.525	< 0.1	3.97	11.628	7	4.4	N	
	11T302MFN-MS					9.525	< 0.2	3.97	11.628	7	4.4	N	
	11T304MFN-MS	●	●			9.525	< 0.4	3.97	11.628	7	4.4	N	



● : Stock item














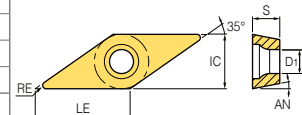
## Applicable insert

Picture	Designation	Coated				Uncoated	Dimensions (mm)						Configuration	
		PC5300	PC8105	PC8110	PC8115	H01	IC	RE	S	LE	AN	D1		HAND
 <p>Finishing (High precision)</p>	070201-VP1	●	●	●	●	●	6.35	0.1	2.38	7.752	7	2.8	N	
	070202-VP1	●	●	●	●	●	6.35	0.2	2.38	7.752	7	2.8	N	
	070204-VP1	●	●	●	●	●	6.35	0.4	2.38	7.752	7	2.8	N	
	11T301-VP1	●	●	●	●	●	9.525	0.1	3.97	11.628	7	4.4	N	
	11T302-VP1	●	●	●	●	●	9.525	0.2	3.97	11.628	7	4.4	N	
	11T304-VP1	●	●	●	●	●	9.525	0.4	3.97	11.628	7	4.4	N	
 <p>Finishing (Ultra high precision)</p>	070201MFN-VP1	●	●	●	●	●	6.35	< 0.1	2.38	7.752	7	2.8	N	
	070202MFN-VP1	●	●	●	●	●	6.35	< 0.2	2.38	7.752	7	2.8	N	
	070204MFN-VP1	●	●	●	●	●	6.35	< 0.4	2.38	7.752	7	2.8	N	
	11T301MFN-VP1	●	●	●	●	●	9.525	< 0.1	3.97	11.628	7	4.4	N	
	11T302MFN-VP1	●	●	●	●	●	9.525	< 0.2	3.97	11.628	7	4.4	N	
	11T304MFN-VP1	●	●	●	●	●	9.525	< 0.4	3.97	11.628	7	4.4	N	
 <p>Finishing (High precision)</p>	0802003R-KF	●	●	●	●	●	4.76	0.03	2.38	8.245	7	2.3	R	
	080201R-KF	●	●	●	●	●	4.76	0.1	2.38	8.245	7	2.3	R	
	080202R-KF	●	●	●	●	●	4.76	0.2	2.38	8.245	7	2.3	R	
	08020003L-KF	●	●	●	●	●	4.76	0.03	2.38	8.245	7	2.3	L	
	080201L-KF	●	●	●	●	●	4.76	0.1	2.38	8.245	7	2.3	L	
	080202L-KF	●	●	●	●	●	4.76	0.2	2.38	8.245	7	2.3	L	
 <p>Finishing (High precision)</p>	110201-FS	●	●	●	●	●	6.349	0.1	2.38	10.999	7	2.8	N	
	110202-FS	●	●	●	●	●	6.348	0.2	2.38	10.999	7	2.8	N	
	110204-FS	●	●	●	●	●	6.345	0.4	2.38	10.999	7	2.8	N	
 <p>Finishing (Ultra high precision)</p>	110201MFN-FS	●	●	●	●	●	6.35	< 0.1	2.38	10.999	7	2.8	N	
	110202MFN-FS	●	●	●	●	●	6.35	< 0.2	2.38	10.999	7	2.8	N	
	110204MFN-FS	●	●	●	●	●	6.35	< 0.4	2.38	10.999	7	2.8	N	
 <p>Finishing (High precision)</p>	1103003R-KF	●	●	●	●	●	6.35	0.03	3.18	11.071	5	2.8	R	
	110301R-KF	●	●	●	●	●	6.35	0.1	3.18	11.071	5	2.8	R	
	110302R-KF	●	●	●	●	●	6.35	0.2	3.18	11.071	5	2.8	R	
	1103003L-KF	●	●	●	●	●	6.35	0.03	3.18	11.071	5	2.8	L	
	110301L-KF	●	●	●	●	●	6.35	0.1	3.18	11.071	5	2.8	L	
	110302L-KF	●	●	●	●	●	6.35	0.2	3.18	11.071	5	2.8	L	
 <p>Medium to finishing (High precision)</p>	1103003R-KM	●	●	●	●	●	6.35	0.03	3.18	11.071	5	2.8	R	
	110301R-KM	●	●	●	●	●	6.35	0.1	3.18	11.071	5	2.8	R	
	110302R-KM	●	●	●	●	●	6.35	0.2	3.18	11.071	5	2.8	R	
	1103003L-KM	●	●	●	●	●	6.35	0.03	3.18	11.071	5	2.8	L	
	110301L-KM	●	●	●	●	●	6.35	0.1	3.18	11.071	5	2.8	L	
	110302L-KM	●	●	●	●	●	6.35	0.2	3.18	11.071	5	2.8	L	
 <p>Finishing (High precision)</p>	110301-FS	●	●	●	●	●	6.35	0.1	3.18	11.071	5	2.8	N	
	110302-FS	●	●	●	●	●	6.35	0.2	3.18	11.071	5	2.8	N	
	110304-FS	●	●	●	●	●	6.35	0.4	3.18	11.071	5	2.8	N	
	160401-FS	●	●	●	●	●	9.525	0.1	4.76	16.606	5	4.4	N	
	160402-FS	●	●	●	●	●	9.525	0.2	4.76	16.606	5	4.4	N	
	160404-FS	●	●	●	●	●	9.525	0.4	4.76	16.606	5	4.4	N	
 <p>Finishing (Ultra high precision)</p>	110301MFN-FS	●	●	●	●	●	6.35	< 0.1	3.18	11.071	5	2.8	N	
	110302MFN-FS	●	●	●	●	●	6.35	< 0.2	3.18	11.071	5	2.8	N	
	110304MFN-FS	●	●	●	●	●	6.35	< 0.4	3.18	11.071	5	2.8	N	
	160401MFN-FS	●	●	●	●	●	9.525	< 0.1	4.76	16.606	5	4.4	N	
	160402MFN-FS	●	●	●	●	●	9.525	< 0.2	4.76	16.606	5	4.4	N	
	160404MFN-FS	●	●	●	●	●	9.525	< 0.4	4.76	16.606	5	4.4	N	
 <p>Finishing (High precision)</p>	1103003R-KF	●	●	●	●	●	6.35	0.03	3.18	11.071	7	2.8	R	
	110301R-KF	●	●	●	●	●	6.35	0.1	3.18	11.071	7	2.8	R	
	110302R-KF	●	●	●	●	●	6.35	0.2	3.18	11.071	7	2.8	R	
	1103003L-KF	●	●	●	●	●	6.35	0.03	3.18	11.071	7	2.8	L	
	110301L-KF	●	●	●	●	●	6.35	0.1	3.18	11.071	7	2.8	L	
	110302L-KF	●	●	●	●	●	6.35	0.2	3.18	11.071	7	2.8	L	

●: Stock item






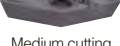
**Applicable insert**

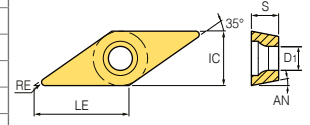
Picture	Designation	Coated				Uncoated H01	Dimensions (mm)						Configuration
		PC5300	PC8105	PC8110	PC8115		IC	RE	S	LE	AN	D1	
 <p>Finishing (Ultra high precision)</p>	1103005MFR-KF	●	●			6.35	< 0.05	3.18	11.071	7	2.8	R	
	110301MFR-KF		●			6.35	< 0.1	3.18	11.071	7	2.8	R	
	110302MFR-KF					6.35	< 0.2	3.18	11.071	7	2.8	R	
	1103005MFL-KF					6.35	< 0.05	3.18	11.071	7	2.8	L	
	110301MFL-KF			●		6.35	< 0.1	3.18	11.071	7	2.8	L	
	110302MFL-KF			●		6.35	< 0.2	3.18	11.071	7	2.8	L	
 <p>Medium to finishing (High precision)</p>	1103003R-KM					6.35	0.03	3.18	11.071	7	2.8	R	
	110301R-KM					6.35	0.1	3.18	11.071	7	2.8	R	
	110302R-KM					6.35	0.2	3.18	11.071	7	2.8	R	
	1103003L-KM					6.35	0.03	3.18	11.071	7	2.8	L	
	110301L-KM					6.35	0.1	3.18	11.071	7	2.8	L	
	110302L-KM					6.35	0.2	3.18	11.071	7	2.8	L	
 <p>Medium to finishing (Ultra high precision)</p>	1103005MFR-KM			●		6.35	< 0.05	3.18	11.071	7	2.8	R	
	110301MFR-KM			●		6.35	< 0.1	3.18	11.071	7	2.8	R	
	110302MFR-KM	●	●			6.35	< 0.2	3.18	11.071	7	2.8	R	
	1103005MFL-KM					6.35	< 0.05	3.18	11.071	7	2.8	L	
	110301MFL-KM					6.35	< 0.1	3.18	11.071	7	2.8	L	
	110302MFL-KM	●	●			6.35	< 0.2	3.18	11.071	7	2.8	L	
 <p>Finishing (High precision)</p>	110301-FS	●	●			6.35	0.1	3.18	11.071	7	2.8	N	
	110302-FS	●	●			6.35	0.2	3.18	11.071	7	2.8	N	
	110304-FS	●	●			6.35	0.4	3.18	11.071	7	2.8	N	
	160401-FS	●	●			9.525	0.1	4.76	16.606	7	4.4	N	
	160402-FS	●	●			9.525	0.2	4.76	16.606	7	4.4	N	
	160404-FS	●	●			9.525	0.4	4.76	16.606	7	4.4	N	
 <p>Finishing (Ultra high precision)</p>	110301MFN-FS					6.35	< 0.1	3.18	11.071	7	2.8	N	
	110302MFN-FS					6.35	< 0.2	3.18	11.071	7	2.8	N	
	110304MFN-FS					6.35	< 0.4	3.18	11.071	7	2.8	N	
	160401MFN-FS					9.525	< 0.1	4.76	16.606	7	4.4	N	
	160402MFN-FS					9.525	< 0.2	4.76	16.606	7	4.4	N	
	160404MFN-FS					9.525	< 0.4	4.76	16.606	7	4.4	N	
 <p>Medium cutting (High precision)</p>	110301-MS	●	●			6.35	0.1	3.18	11.071	7	2.8	N	
	110302-MS	●	●			6.35	0.2	3.18	11.071	7	2.8	N	
	110304-MS	●	●			6.35	0.4	3.18	11.071	7	2.8	N	
 <p>Medium cutting (Ultra high precision)</p>	11T301MFN-MS	●	●			6.35	< 0.1	3.18	11.071	7	2.8	N	
	11T302MFN-MS	●	●			6.35	< 0.2	3.18	11.071	7	2.8	N	
	11T304MFN-MS	●	●			6.35	< 0.4	3.18	11.071	7	2.8	N	
 <p>Finishing (High precision)</p>	110301-VP1	●	●	●	●	6.35	0.1	3.18	11.071	7	2.8	N	
	110302-VP1	●	●	●	●	6.35	0.2	3.18	11.071	7	2.8	N	
	110304-VP1	●	●	●	●	6.35	0.4	3.18	11.071	7	2.8	N	
 <p>Finishing (Ultra high precision)</p>	110301MFN-VP1	●	●			6.35	< 0.1	3.18	11.071	7	2.8	N	
	110302MFN-VP1	●	●			6.35	< 0.2	3.18	11.071	7	2.8	N	
	110304MFN-VP1	●	●			6.35	< 0.4	3.18	11.071	7	2.8	N	
 <p>Medium cutting (Ultra high precision)</p>	1203008FN-MS	●	●			7.5	0.08	3	13.706	7	2.8	N	
	120301FN-MS	●	●			7.5	0.1	3	13.706	7	2.8	N	
	120302FN-MS	●	●			7.5	0.2	3	13.706	7	2.8	N	
	120304FN-MS	●	●			7.5	0.4	3	13.706	7	2.8	N	
 <p>Finishing (Ultra high precision) Chamfer type</p>	120300MFR-VP1	●	●			7.94	< 0	3	11.044	7	2.8	R	
	120301MFR-VP1	●	●			7.5	< 0.1	3	11.044	7	2.8	R	
	120302MFR-VP1	●	●			7.5	< 0.2	3	11.044	7	2.8	R	
	120304MFR-VP1	●	●			7.5	< 0.4	3	11.044	7	2.8	R	
	120308MFR-VP1	●	●			7.5	< 0.8	3	11.044	7	2.8	R	



● : Stock item

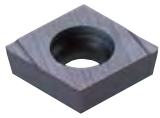
## Applicable insert

Picture	Designation	Coated				Uncoated	Dimensions (mm)						Configuration
		PC5300	PC8105	PC8110	PC8115	H01	IC	RE	S	LE	AN	D1	
 VPGT-KF Finishing (High precision)	080201R-KF	●		●			4.76	0.1	2.38	8.299	11	2.3	R
	080202R-KF	●		●			4.76	0.2	2.38	8.299	11	2.3	R
	1103003R-KF	●		●			6.35	0.03	3.18	11.071	11	2.8	R
	110301R-KF	●		●			6.35	0.1	3.18	11.071	11	2.8	R
	110302R-KF	●		●			6.35	0.2	3.18	11.071	11	2.8	R
	080201L-KF	●		●			4.76	0.1	2.38	8.299	11	2.3	L
	080202L-KF	●		●			4.76	0.2	2.38	8.299	11	2.3	L
	1103003L-KF	●		●			6.35	0.03	3.18	11.071	11	2.8	L
	110301L-KF	●		●			6.35	0.1	3.18	11.071	11	2.8	L
	110302L-KF	●		●			6.35	0.2	3.18	11.071	11	2.8	L
 VPET-KF Finishing (Ultra high precision)	0802005MFR-KF						4.76	< 0.05	2.38	8.299	11	2.3	R
	080201MFR-KF						4.76	< 0.1	2.38	8.299	11	2.3	R
	080202MFR-KF	●		●			4.76	< 0.2	2.38	8.299	11	2.3	R
	0802005MFL-KF			●			4.76	< 0.05	2.38	8.299	11	2.3	L
	080201MFL-KF			●			4.76	< 0.1	2.38	8.299	11	2.3	L
	080202MFL-KF	●		●			4.76	< 0.2	2.38	8.299	11	2.3	L
 VPGT-KM Medium to finishing (High precision)	080201R-KM	●		●			4.76	0.1	2.38	8.299	11	2.3	R
	080202R-KM	●		●			4.76	0.2	2.38	8.299	11	2.3	R
	1103003R-KM	●		●			6.35	0.03	3.18	11.071	11	2.8	R
	110301R-KM	●		●			6.35	0.1	3.18	11.071	11	2.8	R
	110302R-KM	●		●			6.35	0.2	3.18	11.071	11	2.8	R
	080201L-KM	●		●			4.76	0.1	2.38	8.299	11	2.3	L
	080202L-KM	●		●			4.76	0.2	2.38	8.299	11	2.3	L
	1103003L-KM	●		●			6.35	0.03	3.18	11.071	11	2.8	L
	110301L-KM	●		●			6.35	0.1	3.18	11.071	11	2.8	L
	110302L-KM	●		●			6.35	0.2	3.18	11.071	11	2.8	L
 VPET-KM Medium to finishing (Ultra high precision)	0802005MFR-KM						4.76	< 0.05	2.38	8.299	11	2.3	R
	080201MFR-KM						4.76	< 0.1	2.38	8.299	11	2.3	R
	080202MFR-KM	●		●			4.76	< 0.2	2.38	8.299	11	2.3	R
	0802005MFL-KM			●			4.76	< 0.05	2.38	8.299	11	2.3	L
	080201MFL-KM			●			4.76	< 0.1	2.38	8.299	11	2.3	L
	080202MFL-KM	●		●			4.76	< 0.2	2.38	8.299	11	2.3	L
 VPGT-VP1 Medium cutting (High precision)	110301-VP1	●		●			6.35	0.1	3.18	11.071	11	2.8	N
	110302-VP1	●		●			6.35	0.2	3.18	11.071	11	2.8	N
	110304-VP1					●	6.35	0.4	3.18	11.071	11	2.8	N
 VPGT-MFN-VP1 Medium cutting (Ultra high precision)	110301MFN-VP1	●		●			6.35	< 0.1	3.18	11.071	11	2.8	N
	110302MFN-VP1			●			6.35	< 0.2	3.18	11.071	11	2.8	N
	110304MFN-VP1	●		●			6.35	< 0.4	3.18	11.071	11	2.8	N

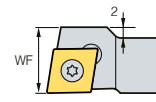
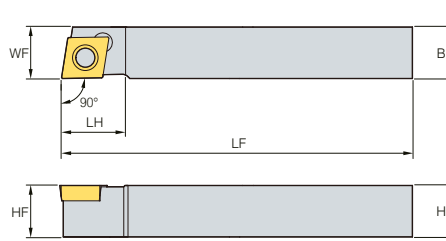


●: Stock item

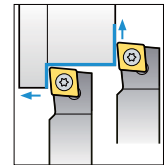
# SCACR/L



CC□T



※ Only SCACR/L1010-X09A is designed as above picture.



90°

• R type holder

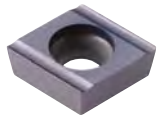
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L										
SCACR/L 0808-X06A	●	●	10	120	8	8	8	8	R/L	CC□ T0602□□	FTKA02565	TW07P
	●	●	10	120	10	10	10	10	R/L			
	●	●	16	120	12	10	10	10	R/L			
1212-X09A	●	●	16	120	12	12	12	12	R/L	CC□ T09T3□□	FTKA0410	TW15P
1616-X09A	●	●	16	120	16	16	16	16	R/L			

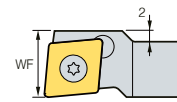
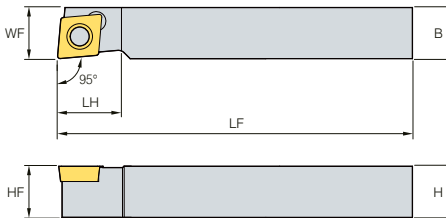
➡ Applicable inserts B44 ~ B48, B75, B162 ~ B163

● : Stock item

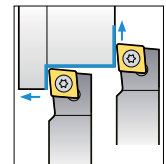
# SCLCR/L



CC□T



※ Only SCLCR/L1010-X09A is designed as above picture.



95°

• R type holder

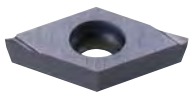
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L										
SCLCR/L 0808-X06A	●	●	10	120	8	8	8	8	R/L	CC□ T0602□□	FTKA02565	TW07P
	●	●	10	120	10	10	10	10	R/L			
	●	●	16	120	12	10	10	10	R/L			
1212-X09A	●	●	16	120	12	12	12	12	R/L	CC□ T09T3□□	FTKA0410	TW15P
1616-X09A	●	●	16	120	16	16	16	16	R/L			

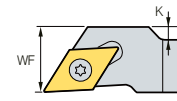
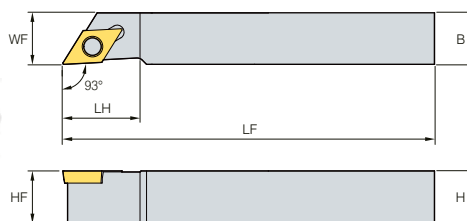
➡ Applicable inserts B44 ~ B48, B75, B162 ~ B163

● : Stock item

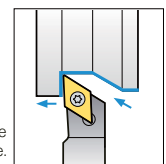
# SDJCR/L



DC□T



※ Only SDJCR/L0808-X07A, 1010-X11A, 1212-X11A are designed as above picture.



93°

• R type holder

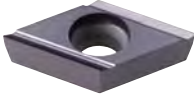
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L										
SDJCR/L 0808-X07A	●	●	18	120	10	8	8	8	R/L	DC□ T0702□□	FTKA02565	TW07P
	●	●	15	120	10	10	10	10	R/L			
	●	●	18	120	14	10	10	10	R/L			
1212-X11A	●	●	18	120	14	12	12	12	R/L	DC□ T11T3□□	FTKA0410	TW15P
1616-X11A	●	●	22	120	16	16	16	16	R/L			

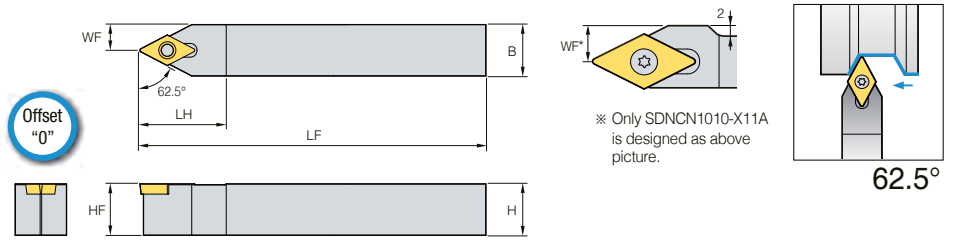
➡ Applicable inserts B50 ~ B53, B76, B163 ~ B165

● : Stock item

## SDNCN



DC□T

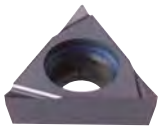


Designation	Stock	LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
SDNCN 0808-X07A	●	20	120	4	8	8	8	N	DC□ T0702□□	FTKA02565	TW07P
1010-X07A	●	20	120	5	10	10	10	N			
1010-X11A	●	24	120	7	10	10	10	N	DC□ T11T3□□	FTKA0410	TW15P
1212-X11A	●	30	120	6	12	12	12	N			
1616-X11A	●	30	120	8	16	16	16	N			

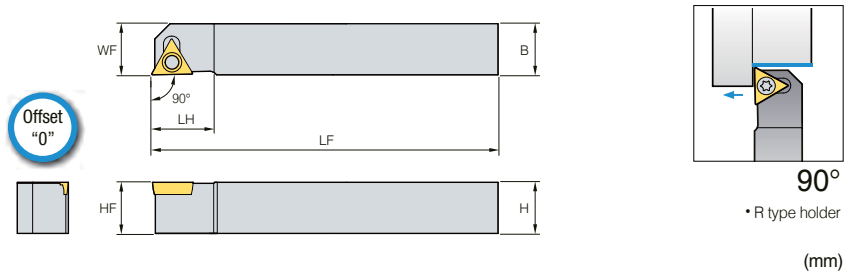
↻ Applicable inserts B50 ~ B53, B76, B163 ~ B165

●: Stock item

## STACR/L



TC□T



Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L										
STACR/L 0808-X08A	●	●	12	120	8	8	8	8	R/L	TC□ T0802□□	FTNA0206	TW06P
1010-X08A	●	●	12	120	10	10	10	10	R/L			

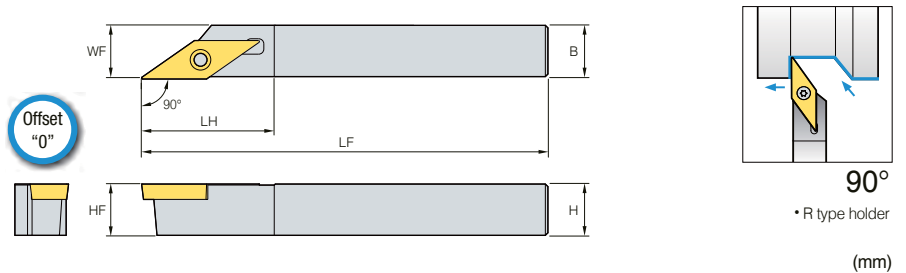
↻ Applicable inserts B165

●: Stock item

## SVACR/L



VC□□



Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L										
SVACR/L 0808-X12A	●	●	26	120	8.468	8	8	8	R/L	VC□ T1203□□	FTKA02565	TW07P
1010-X12A	●	●	26	120	10.468	10	10	10	R/L			
1212-X12A	●	●	26	120	12.468	12	12	12	R/L			
1616-X12A	●	●	26	120	16.468	16	16	16	R/L			
SVACR/L 0808-X12C	●	●	26	120	8.468	8	8	8	R/L	VC□ X1203□□	FTKA02565	TW07P
1010-X12C	●	●	26	120	10.468	10	10	10	R/L			
1212-X12C	●	●	26	120	12.468	12	12	12	R/L			
1616-X12C	●	●	26	120	16.468	16	16	16	R/L			

↻ Applicable inserts B68 ~ B70, B81, B166

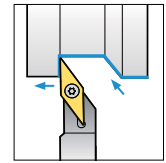
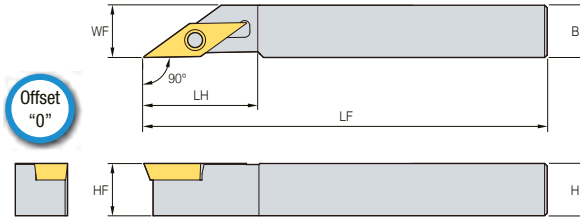
●: Stock item

# SVAPR/L



VP□□

Offset  
"0"



90°

• R type holder

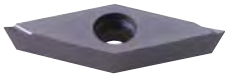
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L										
SVAPR/L 0808-X11A	•	•	22	120	8	8	8	8	R/L	VP□ T1103□□	FTKA02565	TW07P
1010-X11A	•	•	22	120	10	10	10	10	R/L			
1212-X11A	•	•	22	120	12	12	12	12	R/L			
1616-X11A	•	•	24	120	16	16	16	16	R/L			

↻ Applicable inserts B71, B167

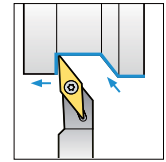
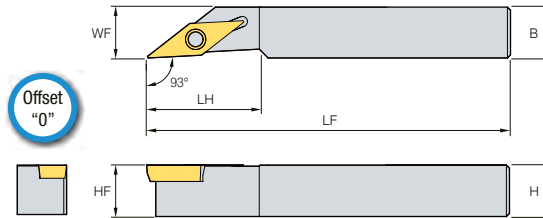
• : Stock item

# SVJBR/L



VB□□

Offset  
"0"



93°

• R type holder

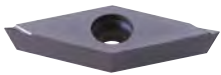
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L										
SVJBR/L 1010-X11A	•	•	22	120	10	10	10	10	R/L	VB□T1103□□	FTKA02565	TW07P
1212-X11A	•	•	22	120	12	12	12	12	R/L			
1616-X11A	•	•	24	120	16	16	16	16	R/L			

↻ Applicable inserts B65 - B67, B80, B165

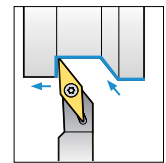
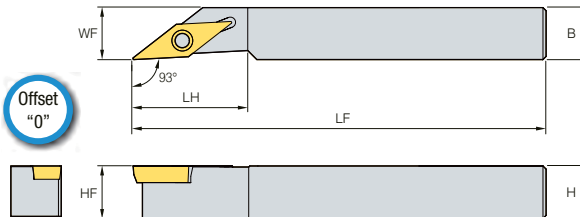
• : Stock item

# SVJCR/L



VC□□

Offset  
"0"



93°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L										
SVJCR/L 1010-X11A	•	•	22	120	10	10	10	10	R/L	VC□T1103□□	FTKA02565	TW07P
1212-X11A	•	•	22	120	12	12	12	12	R/L			
1616-X11A	•	•	24	120	16	16	16	16	R/L			
0810-X12A	•	•	26	120	10	8	10	8	R/L	VC□T1203□□	FTKA02565	TW07P
1010-X12A	•	•	26	120	10	10	10	10	R/L			
1212-X12A	•	•	26	120	12	12	12	12	R/L			
1616-X12A	•	•	26	120	16	16	16	16	R/L			
SVJCR/L 0810-X12C	•	•	13.5	120	10	8	10	8	R/L	VC□X1203□□	FTKA02565	TW07P
1010-X12C	•	•	13.5	120	10	10	10	10	R/L			
1212-X12C	•	•	13.5	120	12	12	12	12	R/L			
1616-X12C	•	•	13.5	120	16	16	16	16	R/L			

↻ Applicable inserts B68 - B70, B165 - B166

• : Stock item

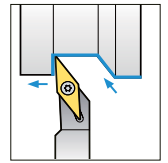
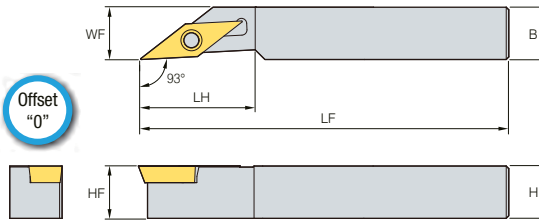
# B Auto Tools (ISO) Holder

## SVJPR/L



VP□T

Offset  
"0"



93°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L										
SVJPR/L 0810-X11A	●	●	22	120	10	8	10	8	R/L	VP□T1103□□	FTKA02565	TW07P
1010-X11A	●	●	22	120	10	10	10	10	R/L			
1212-X11A	●	●	22	120	12	12	12	12	R/L			
1616-X11A		●	24	120	16	16	16	16	R/L			

↻ Applicable inserts **B71, B167**

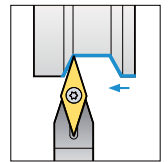
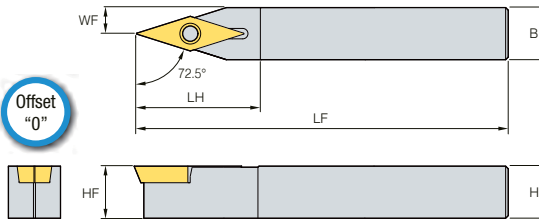
●: Stock item

## SVVPN



VP□T

Offset  
"0"



72.5°

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L										
SVVPN 0808-X11A			24	120	4	8	8	8	N	VP□T1103□□	FTKA02565	TW07P
1010-X11A	●		24	120	5	10	10	10	N			
1212-X11A	●		24	120	6	12	12	12	N			
1616-X11A	●		28	120	8	16	16	16	N			

↻ Applicable inserts **B71, B167**

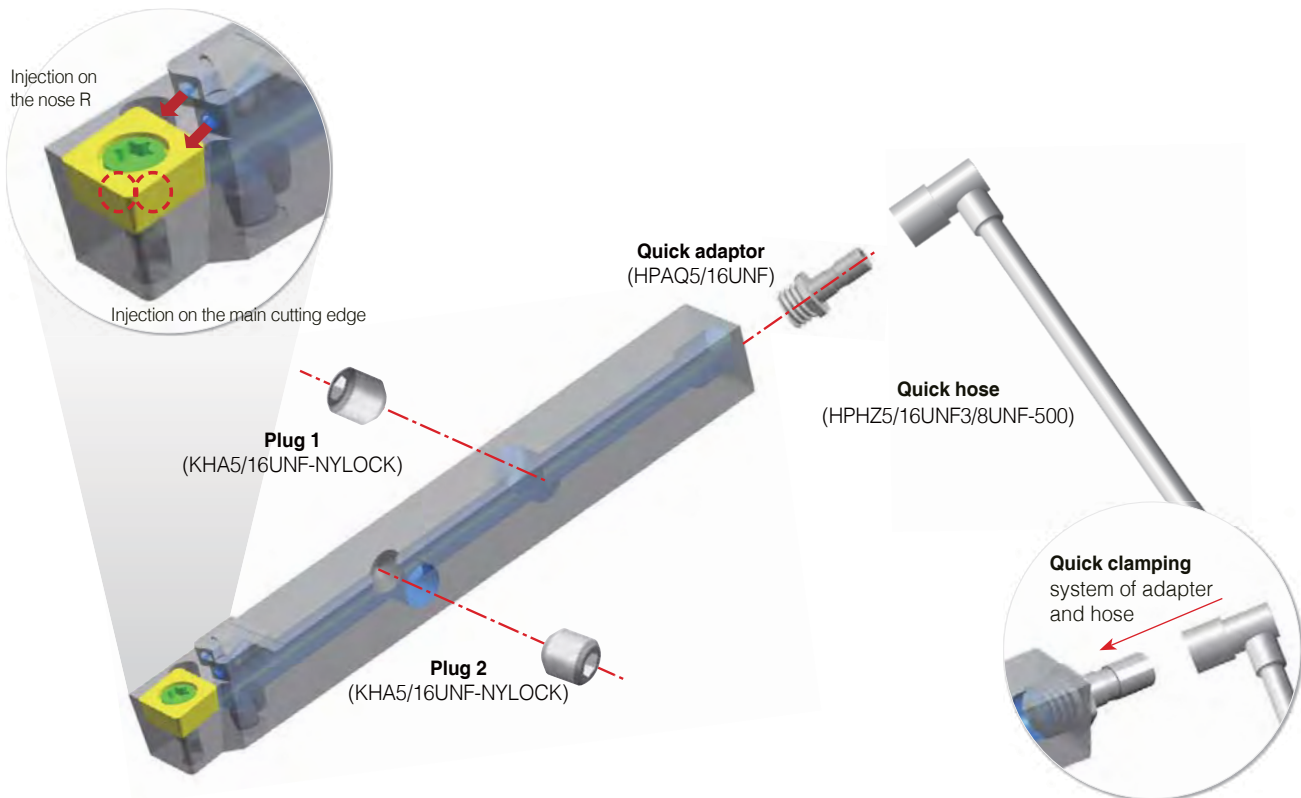
●: Stock item



## Auto Tools (KHP)




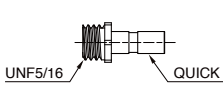
- High pressure coolant holder for high productivity of precise parts machining on automatic lathe
- Improved cooling and chip control due to injecting coolant through two holes to the main cutting edge and nose R concentrically
- Two holes with different injection angles each other increase chip control
- Easy clamping system of quick hose adaptor and quick hose provides convenient using

### Structure of holder



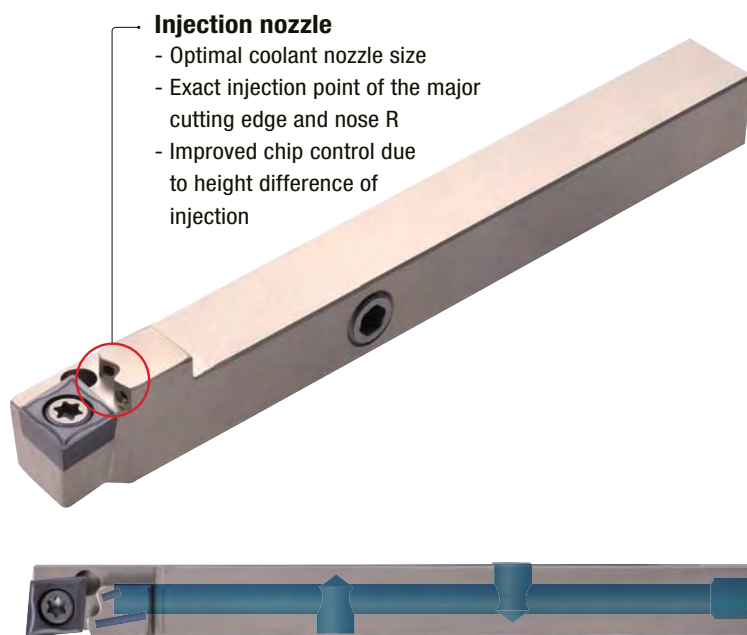
※ Quick adaptor and quick hose are sold separately

### Parts

	Shape	Configuration	Length	Q clamping dimensions	S clamping dimensions
Quick to straight	HPHZ5/16UNF3/8UNF-500 	 UNF3/8 Q QUICK S	500mm	UNF5/16	-
Quick adaptor	HPAQ5/16UNF 	 UNF5/16 QUICK	18.5mm	UNF5/16	

# B Technical Information for Auto Tools (KHP)

## Features



Max 300 bar		
Workpiece	The minimum pressure	The maximum pressure
P	100	300
M	120	
K	110	
N	100	
S	120	

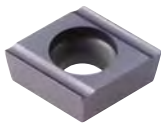
## Parts

Division	Designation	Shape	
Adaptor	HPA3/8UNF1/8PF		
Blank	HPB1/8PF		
Quick adaptor	HPAQ5/16UNF		

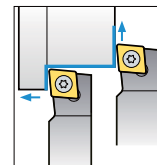
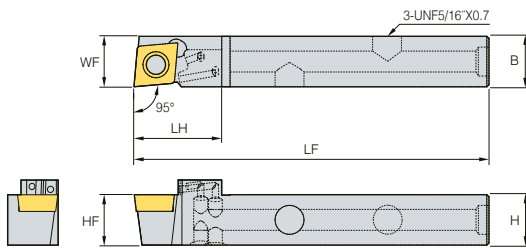
## High pressure hose

Shape	length	Q clamping dimensions	S clamping dimensions
Quick to straight (HPHZ5/16UNF3/8UNF-500)	500mm	UNF5/16	-

# SCLCR/L



CC□T



95°

• R type holder

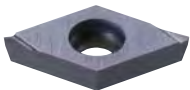
(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Plug	Wrench
	R	L											
SCLCR/L 1212-X09A-KHP	●	●	21	120	12	12	12	12	R/L	CC□T09T3□□	FTKA0410	KHA0404-NYLOCK	TW15P

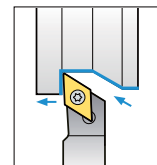
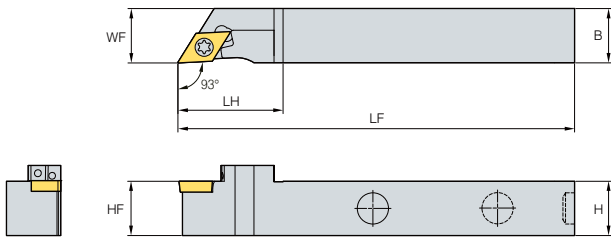
➔ Applicable inserts **B44 - B48**

● : Stock item

# SDJCR/L



DC□T



93°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Plug	Wrench
	R	L											
SDJCR/L 1212-X07A-KHP	●	●	21	120	12	12	12	12	R/L	DC□T0702□□	FTKA02565	KHA0404-NYLOCK	TW07P
1212-X11A-KHP	●	●	21	120	14	12	12	12	R/L	DC□T11T3□□	FTKA0408	KHA0404-NYLOCK	TW15P

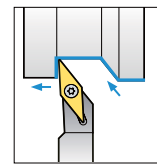
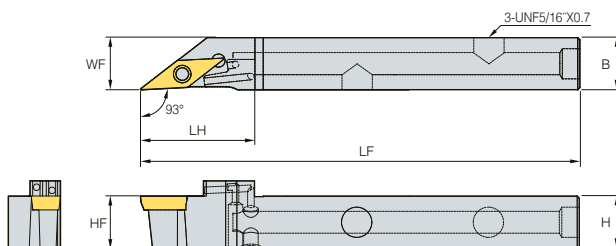
➔ Applicable inserts **B50 - B53**

● : Stock item

# SVJCR/L



VC□□



93°

• R type holder

(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Plug	Wrench
	R	L											
SVJCR/L 1212-X11A-KHP	●	●	26	120	12	12	12	12	R/L	VC□T1103□□	FTKA02565	KHA0404-NYLOCK	TW07P
1212-X12A-KHP	●	●	26	120	12	12	12	12	R/L	VC□□1203□□	FTKA02565	KHA0404-NYLOCK	TW07P

➔ Applicable inserts **B68 - B70**

● : Stock item

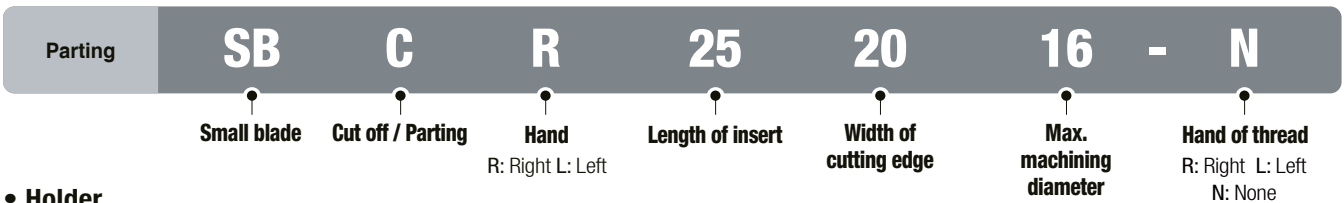
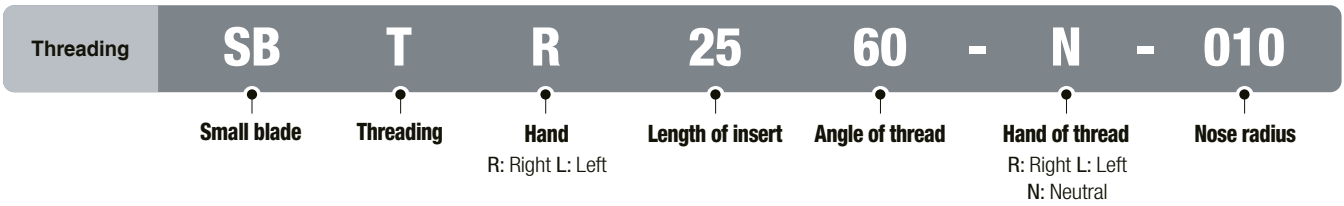
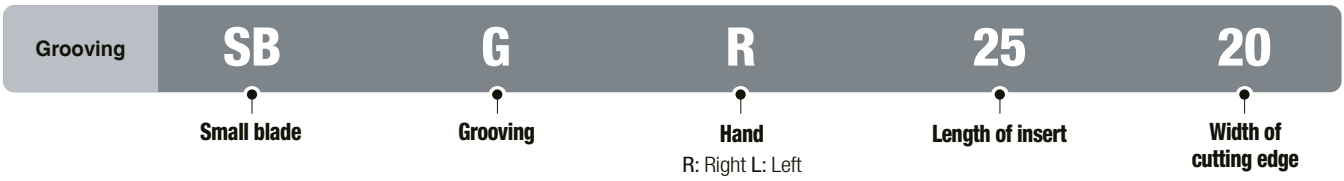
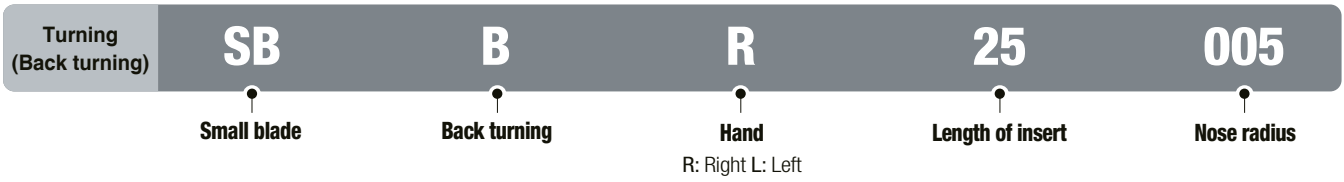
# B Technical Information for Auto Tools (Blade)

## Auto Tools (Blade)

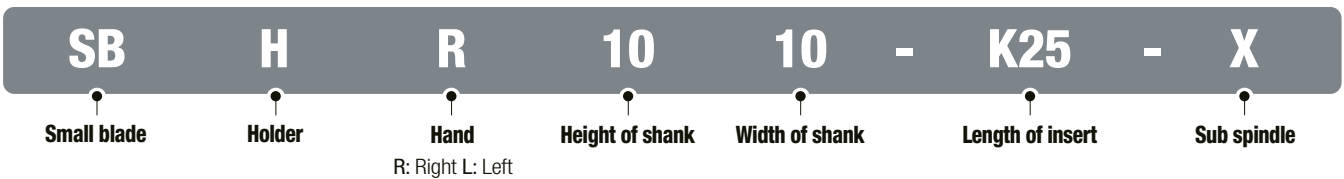
- Blade insert for automatic lathes
- For external machining of precise small parts
- 4 types - SSB (for back turning), SGB (for grooving), SBT (for threading), SBC (for parting off)
- Convenient use of one holder to all blade inserts
- Exclusive holder for close cutting action to the sub spindle

### Code system

#### • Insert



#### • Holder



### Types of blade insert

Possible to apply various types of blade inserts to one holder



**SBB** : For back turning

- Approach angle: 59°
- Max. cutting depth: 4 mm
- Nose R: 0.05, 0.1, 0.2 mm



**SGB** : For grooving

- Width: 0.5~2.5 mm
- Nose R: 0.05 mm



**SBT** : For threading


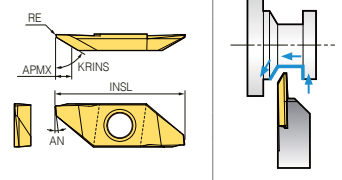

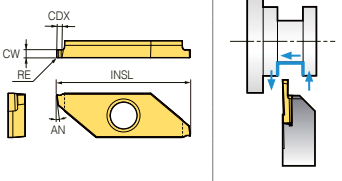

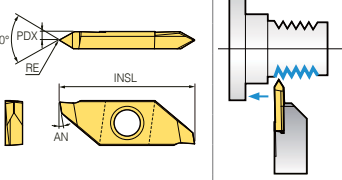

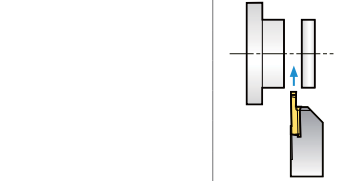
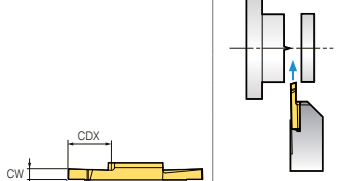
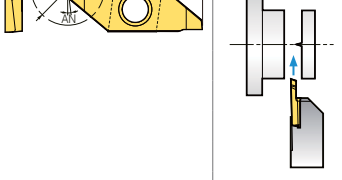
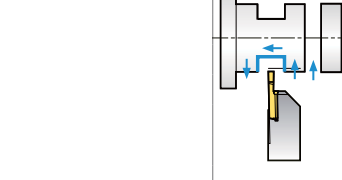
- V profile: 60°
- Pitch: 0.2~1.0 mm
- Nose R: 0.05 mm



**SBC** : For cut off/Parting

- Cutting width: 0.7~2.0
- DMax.: 16 mm
- Nose R: 0.05 mm

## Applicable insert

Application	Picture	Designation	Coated				Dimensions (mm)							Configuration	Feed direction	
			PC8110		PC5300		PDX	APMX	CW	RE	KRINS	INSL	AN			HAND
			R	L	R	L										
Back turning		<b>SBBR/L 25005</b>	●	●	●	●	-	4	0.55	0.05	59	25	6	R/L		
		<b>25010</b>	●	●	●	●	-	4	0.55	0.1	59	25	6	R/L		
		<b>25020</b>	●	●	●	●	-	4	0.55	0.2	59	25	6	R/L		
Grooving		<b>SBGR/L 2505</b>	●	●	●	●	-	1.35	0.5	0.05	-	25	6	R/L		
		<b>2510</b>	●	●	●	●	-	2.75	1	0.05	-	25	6	R/L		
		<b>2515</b>	●	●	●	●	-	3.75	1.5	0.05	-	25	6	R/L		
		<b>2520</b>	●	●	●	●	-	3.75	2	0.05	-	25	6	R/L		
		<b>2525</b>	●	●	●	●	-	3.75	2.5	0.05	-	25	6	R/L		
Threading		<b>SBTR/L 2560-N-005</b>	●	●	●	●	1.59	-	-	0.05	-	25	9.5	R/L		
		<b>2560-N-010</b>	●	●	●	●	1.59	-	-	0.1	-	25	9.5	R/L		
		<b>2560-R-005</b>	●	●	●	●	0.6	-	-	0.05	-	25	9.5	R/L		
		<b>2560-R-010</b>	●	●	●	●	0.6	-	-	0.1	-	25	9.5	R/L		
		<b>2560-L-005</b>	●	●	●	●	0.6	-	-	0.05	-	25	9.5	R/L		
		<b>2560-L-010</b>	●	●	●	●	0.6	-	-	0.1	-	25	9.5	R/L		
Parting off		<b>SBCR/L 250708-N</b>	●	●	●	●	-	8	0.7	0.05	0	25	6	R/L		
		<b>251012-N</b>	●	●	●	●	-	12	1	0.05	0	25	6	R/L		
		<b>251512-N</b>	●	●	●	●	-	12	1.5	0.05	0	25	6	R/L		
		<b>252016-N</b>	●	●	●	●	-	16	2	0.05	0	25	6	R/L		
		<b>250708-R</b>	●	●	●	●	-	8	0.7	0.05	15	25	6	R/L		
		<b>251012-R</b>	●	●	●	●	-	12	1	0.05	15	25	6	R/L		
		<b>251512-R</b>	●	●	●	●	-	12	1.5	0.05	15	25	6	R/L		
		<b>252016-R</b>	●	●	●	●	-	16	2	0.05	15	25	6	R/L		
		<b>250708-L</b>	●	●	●	●	-	8	0.7	0.05	15	25	6	R/L		
		<b>251012-L</b>	●	●	●	●	-	12	1	0.05	15	25	6	R/L		
		<b>251512-L</b>	●	●	●	●	-	12	1.5	0.05	15	25	6	R/L		
		<b>252016-L</b>	●	●	●	●	-	16	2	0.05	15	25	6	R/L		
		<b>251012-T</b>	●	●	●	●	-	12	1	0.05	0	25	6	R/L		
		<b>251512-T</b>	●	●	●	●	-	12	1.5	0.05	0	25	6	R/L		
<b>252016-T</b>	●	●	●	●	-	16	2	0.05	0	25	6	R/L				

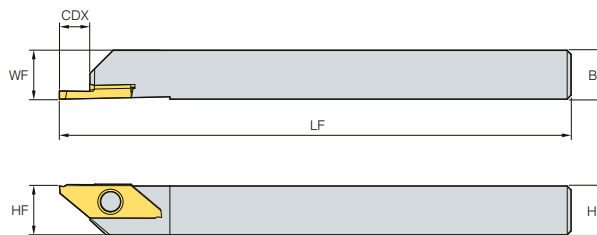
● : Stock item

# B Auto Tools (Blade)



## SBHR/L



SBBR SBGR  
SBTR SBCR



(mm)

Designation	Stock		CDX	LF	WF	HF	B	H	HAND	Applicable insert	Screw 	Wrench 
	R	L										
SBHR/L 1010-K25	●	●	7.5	125	10	10	10	10	R/L	SB□R/L25	FTKA0409S	TW09P
1212-K25	●	●	7.5	125	12	12	12	12	R/L			
1616-K25	●	●	7.5	125	16	16	16	16	R/L			

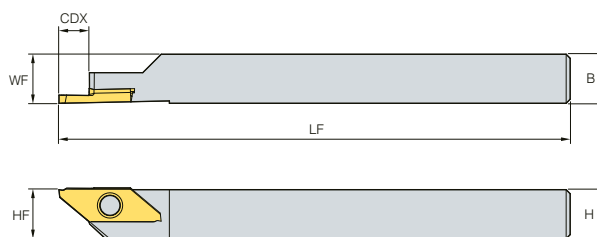
Applicable inserts B176

●: Stock item



## SBHR/L-X (Sub spindle)



SBBR SBGR  
SBTR SBCR



(mm)

Designation	Stock		CDX	LF	WF	HF	B	H	HAND	Applicable insert	Screw 	Wrench 
	R	L										
SBHR/L 1010-K25-X	●	●	7.5	80	10	12.15	10	10	R/L	SB□R/L25	FTKA0407S	TW09P
1212-K25-X	●	●	7.5	125	12	12	12	12	R/L			

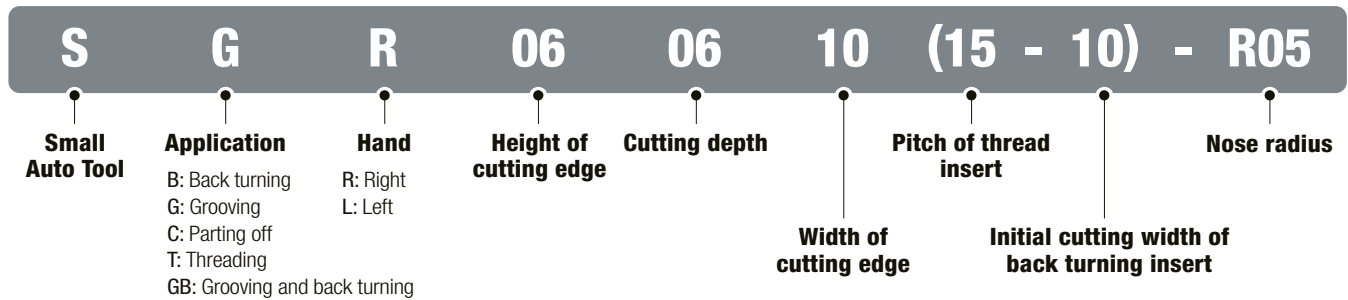
Applicable inserts B176

●: Stock item

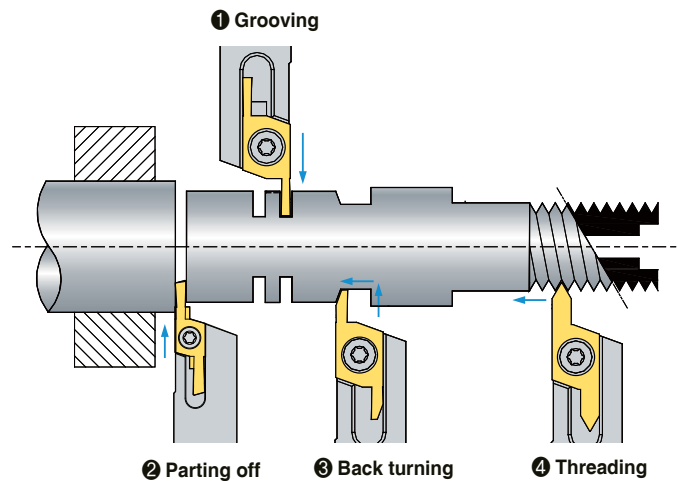
## Auto Tools (Multi utility)

- Multifunctional insert for automatic lathes
- For external machining of precise small parts
- 5 types - SB (for back turning), SG (for grooving), ST (for threading), SC (for parting off), SGB (for grooving and back turning)
- Convenient use of one holder to all inserts
- Offset "0" to all ISO type holders

### Code system



### Application example

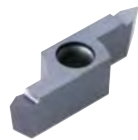


### Types of multifunctional insert

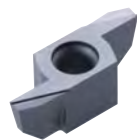
Possible to apply various types of blade inserts to one holder (Ex: All designations of 06 size inserts can be applied to one 06 size holder.)



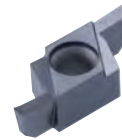
**SG : Grooving**



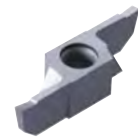
**ST: Threading**



**SB: Back turning**



**SGB: Grooving and back turning**



**SC: PARTING OFF**

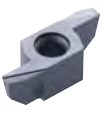
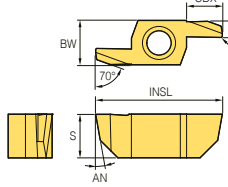
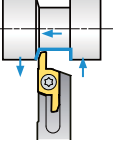

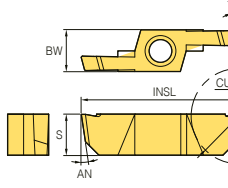
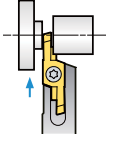

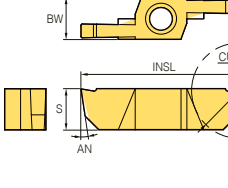
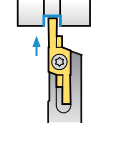
### Recommended cutting conditions

Workpiece	Turning		Grooving		Parting off		Back turning	
	Cutting speed, vc (m/min)	Feed, fn (mm/rev)	Cutting speed, vc (m/min)	Feed, fn (mm/rev)	Cutting speed, vc (m/min)	Feed, fn (mm/rev)	Cutting speed, vc (m/min)	Feed, fn (mm/rev)
<b>P</b> Carbon steel	50~150	0.01~0.25	50~150	0.02~0.08	50~150	0.01~0.08	50~150	0.01~0.25
Free cutting steel	30~150	0.02~0.25	30~150	0.02~0.08	30~150	0.01~0.08	30~150	0.01~0.25
<b>M</b> Stainless steel	50~120	0.02~0.20	30~120	0.02~0.05	30~120	0.02~0.05	30~120	0.02~0.20
<b>N</b> Non-ferrous metal	70~200	0.03~0.25	70~200	0.03~0.10	70~200	0.03~0.10	70~200	0.03~0.30



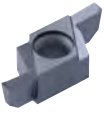
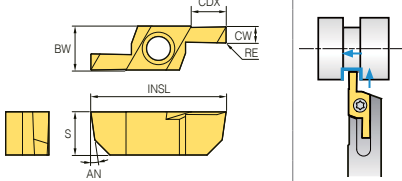
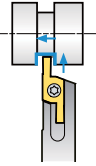

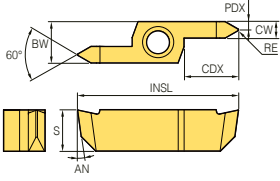
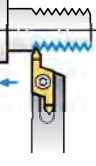
# B Auto Tools (multi utility)

## Applicable insert

Application	Picture	Designation	Coated		Dimensions (mm)										Configuration	Feed direction
			PC9030		SSC	CDX	CUTDIA	CW	RE	BW	S	INSL	AN			
			R	L												
Back turning		SBR/L	060520-10-R00		60	5.5	-	1	0	8	6	22	10			
			060520-10-R05		60	5.5	-	1	0.05	8	6	22	10			
			060520-10-R10		60	6.5	-	1	0.1	8	6	22	10			
			060630-20-R00		60	6.5	-	2	0	8	6	24	10			
			060630-20-R05		60	6.5	-	2	0.05	8	6	24	10			
			060630-20-R10		60	6.5	-	2	0.1	8	6	24	10			
			080630-20-R00		80	6.5	-	2	0	8	8	23	10			
			080630-20-R05		80	6.5	-	2	0.05	8	8	23	10			
			080630-20-R10		80	6.5	-	2	0.1	8	8	23	10			
			080840-20-R00		80	8.5	-	2	0	8	8	27	10			
			080840-20-R05		80	8.5	-	2	0.05	8	8	27	10			
080840-20-R10		80	8.5	-	2	0.1	8	8	27	10						
Parting off		SCR/L	060610-R00		60	-	11	1	0	8	6	24	8			
			060610-R05	●	60	-	11	1	0.05	8	6	24	8			
			060610-R10	●	60	-	11	1	0.1	8	6	24	8			
			060615-R00		60	-	11	1.5	0	8	6	24	8			
			060615-R05	●	60	-	11	1.5	0.05	8	6	24	8			
			060615-R10	●	60	-	11	1.5	0.1	8	6	24	8			
			060620-R00		60	-	11	2	0	8	6	24	8			
			060620-R05	●	60	-	11	2	0.05	8	6	24	8			
			060620-R10	●	60	-	11	2	0.1	8	6	24	8			
			081015-R00		80	-	18	1.5	0	8	8	31	8			
			081015-R05		80	-	18	1.5	0.05	8	8	31	8			
			081015-R10		80	-	18	1.5	0.1	8	8	31	8			
			081020-R00		80	-	18	2	0	8	8	31	8			
			081020-R05		80	-	18	2	0.05	8	8	31	8			
			081020-R10	●	80	-	18	2	0.1	8	8	31	8			
			081025-R00		80	-	18	2.5	0	8	8	31	8			
			081025-R05	●	80	-	18	2.5	0.05	8	8	31	8			
			081025-R10	●	80	-	18	2.5	0.1	8	8	31	8			
			081030-R00		80	-	18	3	0	8	8	31	8			
081030-R05		80	-	18	3	0.05	8	8	31	8						
081030-R10		80	-	18	3	0.1	8	8	31	8						
Grooving		SGR/L	060610-R00		60	11	-	1	0	8	6	24	8	R		
			060610-R05	●	60	11	-	1	0.05	8	6	24	8	R		
			060610-R10	●	60	11	-	1	0.1	8	6	24	8	R		
			060615-R00		60	11	-	1.5	0	8	6	24	8	R		
			060615-R05	●	60	11	-	1.5	0.05	8	6	24	8	R		
			060615-R10	●	60	11	-	1.5	0.1	8	6	24	8	R		
			060620-R00		60	11	-	2	0	8	6	24	8	R		
			060620-R05	●	60	11	-	2	0.05	8	6	24	8	R		
			060620-R10		60	11	-	2	0.1	8	6	24	8	R		
			081015-R00		80	18	-	1.5	0	8	8	31	8	R		
			081015-R05		80	18	-	1.5	0.05	8	8	31	8	R		
			081015-R10		80	18	-	1.5	0.1	8	8	31	8	R		
			081020-R00		80	18	-	2	0	8	8	31	8	R		
			081020-R05	●	80	18	-	2	0.05	8	8	31	8	R		
			081020-R10		80	18	-	2	0.1	8	8	31	8	R		
			081025-R00		80	18	-	2.5	0	8	8	31	8	R		
			081025-R05		80	18	-	2.5	0.05	8	8	31	8	R		
			081025-R10		80	18	-	2.5	0.1	8	8	31	8	R		
			081030-R00		80	18	-	3	0	8	8	31	8	R		
081030-R05		80	18	-	3	0.05	8	8	31	8	R					
081030-R10		80	18	-	3	0.1	8	8	31	8	R					

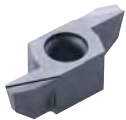
●: Stock item

**Applicable insert**

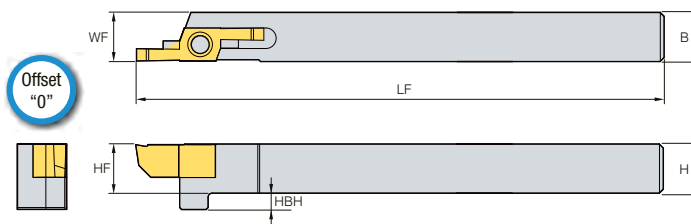
Application	Picture	Designation	Coated		Dimensions (mm)										Configuration	Feed direction
			PC9030		SSC	CDX	CUT-DIA	CW	RE	BW	S	INSL	AN	HAND		
			R	L												
Grooving and back turning		<b>SGBR/L 0604520-R00</b>			60	-	4.5	2	0	8	6	22	8	R/L		
		<b>0604520-R05</b>			60	-	4.5	2	0.05	8	6	22	8	R/L		
		<b>0604520-R10</b>			60	-	4.5	2	0.1	8	6	22	8	R/L		
		<b>0604525-R00</b>			60	-	4.5	2.5	0	8	6	22	8	R/L		
		<b>0604525-R05</b>			60	-	4.5	2.5	0.05	8	6	22	8	R/L		
		<b>0604525-R10</b>			60	-	4.5	2.5	0.1	8	6	22	8	R/L		
		<b>0605530-R00</b>			60	-	5.5	3	0	8	6	24	8	R/L		
		<b>0605530-R05</b>			60	-	5.5	3	0.05	8	6	24	8	R/L		
		<b>0605530-R10</b>			60	-	5.5	3	0.1	8	6	24	8	R/L		
		<b>0805525-R00</b>			80	-	5.5	2.5	0	8	8	24	8	R/L		
		<b>0805525-R05</b>			80	-	5.5	2.5	0.05	8	8	24	8	R/L		
		<b>0805525-R10</b>			80	-	5.5	2.5	0.1	8	8	24	8	R/L		
		<b>0806530-R00</b>			80	-	6.5	3	0	8	8	26	8	R/L		
		<b>0806530-R05</b>			80	-	6.5	3	0.05	8	8	26	8	R/L		
<b>0806530-R10</b>			80	-	6.5	3	0.1	8	8	26	8	R/L				
Threading		<b>STR/L 06073215</b>			60	-	7	3.2	0.06	8	6	25	8	R/L		
		<b>06073230</b>			60	-	7	3.2	0.19	8	6	25	8	R/L		
		<b>08103215</b>			80	-	10.5	3.2	0.06	8	8	31	8	R/L		
		<b>08103230</b>			80	-	10.5	3.2	0.19	8	8	31	8	R/L		

● : Stock item

# SXGNR/L



SBR, SGBR  
SCR, STR, SGR



Designation	Stock		LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L									
<b>SXGNR/L 1010-X06A</b>	●		125	9.85	9.85	10	10	R/L	S□R/L 06	FTNA 0408	TW 15P
	●		125	11.85	11.85	12	12	R/L			
	●		125	15.85	15.85	16	16	R/L			
	●		125	19.85	19.85	20	20	R/L			
<b>1212-X08A</b>	●		130	11.85	11.85	12	12	R/L	S□R/L 08	FTNA 0411	TW 15P
	●		130	15.85	15.85	16	16	R/L			
	●		130	19.85	19.85	20	20	R/L			

● : Stock item

## Auto Tools (KGT/MGT)

- Grooving insert for automatic lathes
- Exclusive holder for automatic lathes
- Economic double sided insert
- Strong clamping system secures stable machining and precision.
- A wide selection of chip breakers according to various cutting conditions such as low/high feed, continuous/interrupted machining, etc.

### Code system

#### • Insert



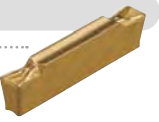
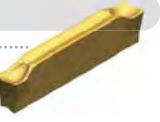

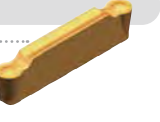
<b>KG</b>	<b>M</b>	<b>N</b>	<b>300</b>	<b>-</b>	<b>04</b>	<b>-</b>	<b>T</b>
<b>System code</b> KG SYSTEM (KORLOY Grooving) MG SYSTEM (Multi Grooving)	<b>Tolerance</b> M: Pressed class G: Ground class	<b>Hand</b> N: Neutral R: Right L: Left I: Internal	<b>Width of cutting edge</b> 2.0~8.0 mm		<b>Corner nose radius of insert</b> 0.2mm 0.3mm 0.4mm		<b>Chip breaker</b> L / R / T / C LP / RP

#### • Holder



<b>KG</b>	<b>E</b>	<b>H</b>	<b>R/L</b>	<b>1212</b>	<b>-</b>	<b>3</b>	<b>D25A</b>
<b>System code</b> KG SYSTEM (KORLOY Grooving) MG SYSTEM (Multi Grooving)	<b>Application</b> E: External machining I: Internal machining	<b>Holder type</b> H: Horizontal type V: Vertical type U: Undercut type	<b>Hand</b> R: Right L: Left	<b>Shank size</b> Height 12 mm, Width 12mm (For internal machining: Min. machining diameter)		<b>Cutting width</b> 2.0~8.0mm	<b>Max. cutting diameter</b> Ø15~Ø32mm

### Chip breaker line-up


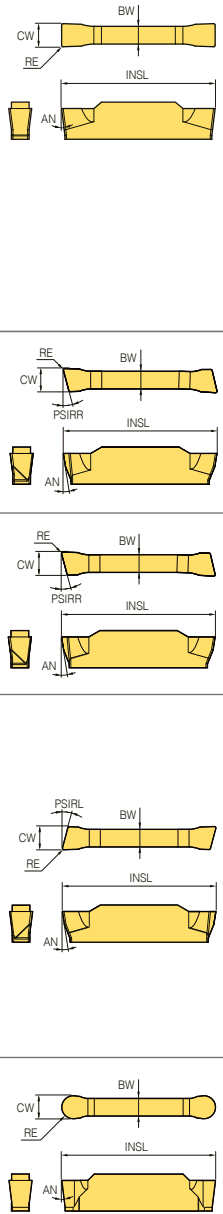







#### • KGT Type

<b>KG MN-L</b>		<b>KG MN-R</b>	
• Sharp cutting edge • For small diameter parts	• For low feed machining	• Reinforced cutting edge • For interrupted cutting	• For high feed machining
<b>KG MN-T</b>		<b>KG MR/L-LP</b>	
• Sharp cutting edge • For turning and grooving	• Stronger chip control	• Sharp cutting edge • Small diameter component	• For low feed machining • Right/Left handed
<b>KG MR/L-RP</b>		<b>KG MN-C</b>	
• Strong cutting edge • For interrupted cutting	• For interrupted cutting • Right/Left handed	• Improved chip control • Relief • Carbon steel	• Copying • Cast iron • Alloy steel • Stainless

#### • MGT Type

<b>MGM(G)N-M</b>		<b>MGMN-G</b>	
• Easier chip control by narrowing chip width with the use of chip breaker on rake surface center • Smooth chip flow by small dots in external machining • Available for both external machining and grooving		• Specially designed chip breaker allows narrower chips to promote better chip flow with the use of center dots • Exclusive chip breaker for grooving	

**KGT Applicable insert**

Application	Picture	Designation	Coated						Dimensions (mm)						Configuration	
			NC3120	NC3225	NC5330	NC6315	PC3035	PC5300	PC9030	SSC	CW	RE	BW	INSL		AN
Grooving		KGML 200-02-L	•	•	•	•	•	•	20	2	0.2	1.7	20	7	N	
		300-02-L	•	•	•	•	•	•	30	3	0.2	2.3	20	7	N	
Grooving, Parting off		KGML 200-02-R	•	•	•	•	•	•	20	2	0.2	1.7	20	7	N	
		300-02-R	•	•	•	•	•	•	30	3	0.2	2.3	20	7	N	
Grooving, turning		KGML 200-02-T	•	•	•	•	•	•	20	2	0.2	1.7	20	7	N	
		300-02-T	•	•	•	•	•	•	30	3	0.2	2.3	20	7	N	
		300-04-T	•	•	•	•	•	•	30	3	0.4	2.3	20	7	N	
Parting off (Right handed)		KGMR 200-6D-LP	•	•	•	•	•	•	20	2	0.2	1.7	20	7	R	
		200-15D-LP	•	•	•	•	•	•	20	2	0.2	1.7	20	7	R	
		300-6D-LP	•	•	•	•	•	•	30	3	0.2	2.3	20	7	R	
		300-15D-LP	•	•	•	•	•	•	30	3	0.2	2.3	20	7	R	
Parting off (Right handed)		KGMR 200-6D-RP	•	•	•	•	•	•	20	2	0.2	1.7	20	7	R	
		200-15D-RP	•	•	•	•	•	•	20	2	0.2	1.7	20	7	R	
		300-6D-RP	•	•	•	•	•	•	30	3	0.2	2.3	20	7	R	
		300-15D-RP	•	•	•	•	•	•	30	3	0.2	2.3	20	7	R	
Parting off (Left handed)		KGML 200-6D-LP	•	•	•	•	•	•	20	2	0.2	1.7	20	7	L	
		200-15D-LP	•	•	•	•	•	•	20	2	0.2	1.7	20	7	L	
		300-6D-LP	•	•	•	•	•	•	30	3	0.2	2.3	20	7	L	
		300-15D-LP	•	•	•	•	•	•	30	3	0.2	2.3	20	7	L	
Parting off (Left handed)		KGML 200-6D-RP	•	•	•	•	•	•	20	2	0.2	1.7	20	7	L	
		200-15D-RP	•	•	•	•	•	•	20	2	0.2	1.7	20	7	L	
		300-6D-RP	•	•	•	•	•	•	30	3	0.2	2.3	20	7	L	
		300-15D-RP	•	•	•	•	•	•	30	3	0.2	2.3	20	7	L	
Copying		KRMN 200-C	•	•	•	•	•	•	20	2	1	1.7	20	5	N	
		300-C	•	•	•	•	•	•	30	3	1.5	2.2	20	7	N	

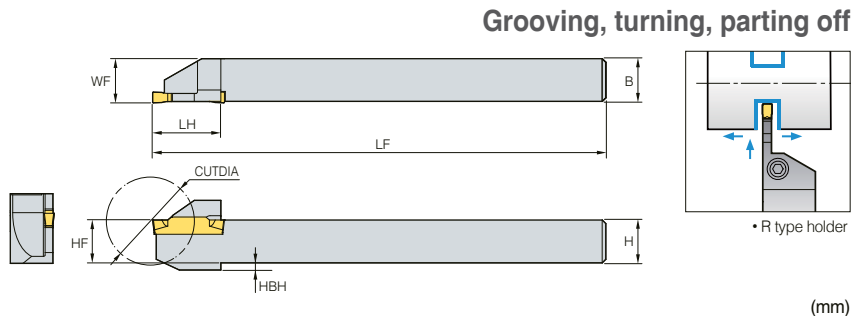
• : Stock item

## KGEHR/L-D00A

Compact type



KGGN KGMN KGMR/L  
KRGN KRMN



(mm)

Designation	Stock		Dimensions (mm)							Applicable insert	Screw	Wrench
	R	L	LF	WF	HF	B	H	HBH	HAND			
KGEHR/L 1010-2-D20A	•	•	125	10.2	10	10	10	2	R/L	KGMN200-□-□ KGMR/L200-□-□ KRMN200-C	ETNA0412	TW15L
	•	•	125	12.2	12	12	12	2	R/L			
	•	•	125	14.2	14	14	14	-	R/L			
	•	•	125	16.2	16	16	16	-	R/L			
KGEHR/L 1212-3-D25A	•	•	125	12.4	12	12	12	2	R/L	KGMN300-□-□ KGMR/L300-□-□ KRMN300-C	ETNA0412	TW15L
	•	•	125	16.4	16	16	16	-	R/L			

Applicable inserts **B182**

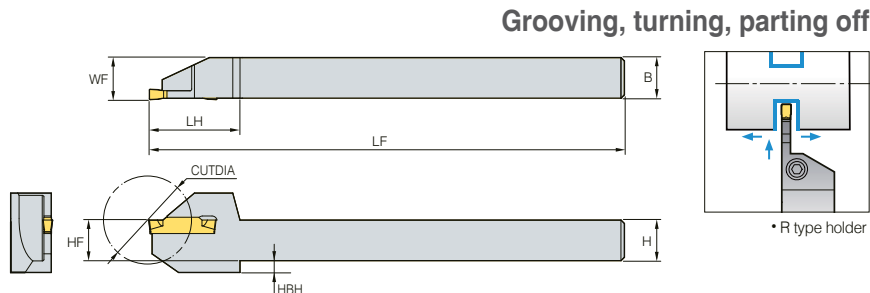
•: Stock item

## KGEHR/L-D00B

High rigidity type



KGGN KGMN KGMR/L  
KRGN KRMN




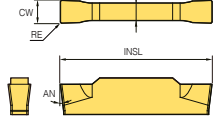

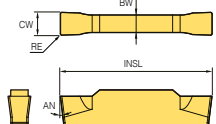
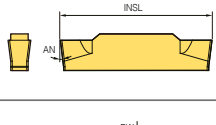
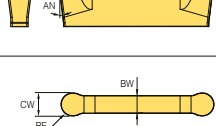

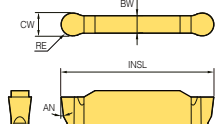

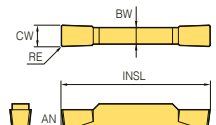
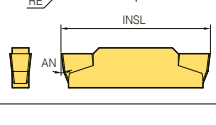
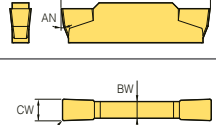

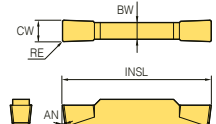
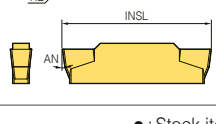
(mm)

Designation	Stock		Dimensions (mm)							Applicable insert	Screw	Wrench
	R	L	LF	WF	HF	B	H	HBH	HAND			
KGEHR/L 1010-2-D30B	•	•	140	10.2	10	10	10	6.6	R/L	KGMN200-□-□ KGMR/L200-□-□ KRMN200-C	MHA0512	HW40L
	•	•	140	12.2	12	12	12	3.5	R/L			
	•	•	140	12.2	12	12	12	3.5	R/L			
	•	•	140	16.2	16	16	16	-	R/L			
KGEHR/L 1212-3-D25B	•	•	140	12.4	12	12	12	3.5	R/L	KGMN300-□-□ KGMR/L300-□-□ KRMN300-C	MHA0512	HW40L
	•	•	140	12.4	12	12	12	3.5	R/L			
KGEHR/L 1616-3-D32B	•	•	140	16.4	16	16	16	-	R/L	KGMN300-□-□ KGMR/L300-□-□ KRMN300-C	MHA0512	HW40L
	•	•	140	16.4	16	16	16	-	R/L			

Applicable inserts **B182**

•: Stock item

**MGT Plus / MGT Applicable inserts**

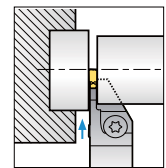
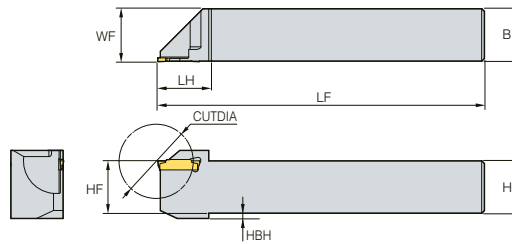
Application	Picture	Designation	Coated						Uncoated			Dimensions (mm)							Configuration							
			NC3120	NC3225	NC3030	NC3235	NC5330	NC6315	PC3035	PC5300	PC9030	H01	G10	ST30A	SSC	CW	RE	BW		INSL	AN	HAND				
Grooving · Turning		PGMN 200-02-MM	●	●				●	●						2.00	0.2	1.6	16								
Grooving		PGMN 150-015-GM	●	●				●	●	●				1.50	0.15	1.2	16									
		200-02-GM	●	●				●	●	●				2.00	0.2	1.6	16									
		250-02-GM	●	●				●	●	●				2.50	0.2	2.0	18.5									
Reliefing Profiling		PRMN 200-RM	●	●				●	●	●				2.00	1.0	1.6	16									
Grooving		MGMN 150-G	●	●				●	●	●				15	1.5	0.15	1.2	16	7	N						
		200-G	●	●				●	●	●				20	2	0.2	1.6	16	7	N						
		250-G	●	●				●	●	●				25	2.5	0.2	2	18.5	7	N						
Grooving · Turning		MGMN 200-M	●	●	●			●	●	●				20	2	0.2	1.6	16	7	N						
		250-M	●	●	●			●	●	●				25	2.5	0.2	2	18.5	7	N						

● : Stock item

**MGEHR/L**



PGMN PRMN MGMN



• R type holder

(mm)

Designation	Stock		LF	WF	HF	B	H	HBH	HAND	Applicable insert	Screw	Wrench
	R	L										
MGEHR/L	●		125	10.2	10	10	10	2	R/L	PGMN150-□-□ MGMN150-G	ETNA 0412	TW 15L
	●		125	12.2	12	12	12	2	R/L			
	●		125	10.25	10	10	10	2	R/L	PGMN200-□-□ PRMN200-□ MGMN200-M	ETNA 0412	TW 15L
	●		125	12.25	12	12	12	2	R/L	MGMN200-G		
			125	16.25	16	16	16	2	R/L			
			125	10.3	10	10	10	2	R/L	PGMN250-□-□ MGMN250-M	ETNA 0412	TW 15L
	●		125	12.3	12	12	12	2	R/L	MGMN250-G		
			125	16.3	16	16	16	2	R/L			

● : Stock item

## MSB Plus

The premium solid boring tool

- Applicable for various cutting types : Boring, grooving, threading, and face grooving etc.
- Suitable for high precision cutting due to internal coolant and precise strong clamping system

### Code system

#### • Insert

M	BC	R	4	30	L22	(C)	-	R015
<b>MSB Plus</b>	<b>Use</b>	<b>Handed</b> R: Right handed L: Left handed	<b>Shank Dia.</b> 4: 4.0mm 5: 5.0mm 6: 6.0mm 7: 7.0mm	<b>Min. Machining Dia.</b> 10: 1.0mm 22: 2.2mm 30: 3.0mm 42: 4.2mm 59: 5.9mm	<b>Max. Machining Depth</b> 10: 10mm 22: 22mm 30: 30mm 42: 42mm 59: 59mm	<b>Coolant</b> C: High Pressure Coolant		<b>Radius / Width</b> R015: 0.15mm R100: 1.00mm R150: 1.50mm W015: 0.15mm W100: 1.00mm W150: 1.50mm

BC: Boring  
 BCB: Boring (chip breaker)  
 BCF: Boring (chip former)  
 CBLF: Boring & Profiling (chip breaker)  
 CL: Boring & Profiling  
 FG: Face grooving internal  
 FP: Face grooving external  
 FGR: Round face grooving internal  
 GS: Square grooving  
 PP: Pre-part off

#### • Holder

MH	R	N	C	4	-22	(-4)	(-2F)
<b>MSB Plus Holder</b>	<b>Use</b> R: MSB Plus Round shank holder	<b>Shank type</b> N: Neck type R: Round type S: Shrink holder	<b>Coolant</b> C: Coolant	<b>Bore size (1)</b> 4: Ø4.0mm 5: Ø5.0mm 6: Ø6.0mm 7: Ø7.0mm	<b>Shank size</b> 22: Ø22.0mm	<b>Bore size (2)</b> 4: Ø4.0mm 5: Ø5.0mm 6: Ø6.0mm 7: Ø7.0mm	<b>No. of flat side</b> 2F: 2 flat sides 4F: 4 flat sides

### Features

**Improved clamping system**

- With its easy to clamp structure, strong clamping is fulfilled with a single screw

**Stop pin**

- Precise position control while clamping an insert

**Enhanced coolant system**

- Cooling the cutting edge and removing chips through the coolant hole

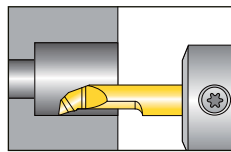
**Rake design**

- Better precision by rake side of the insert

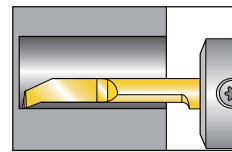


➤ Application range

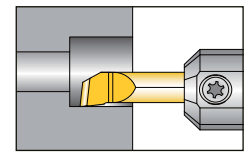
» Boring



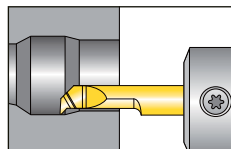
Boring



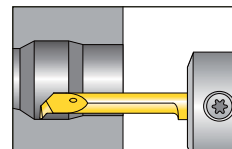
Boring (chip breaker)



Boring (chip former)

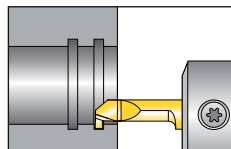
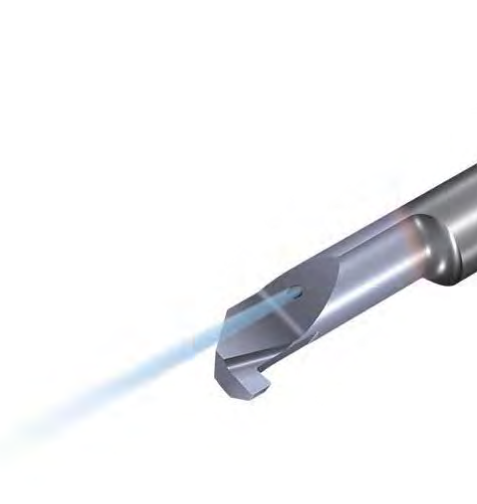


Boring & Profiling (CL)

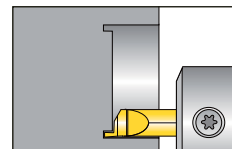


Boring & Profiling  
(CBLF chip breaker)

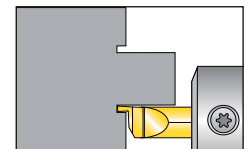
» Grooving



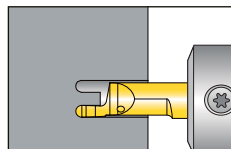
Square grooving



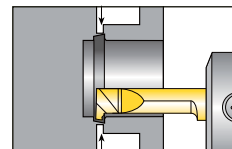
Face grooving internal



Face grooving external

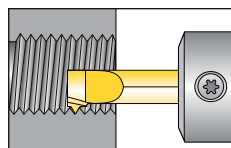
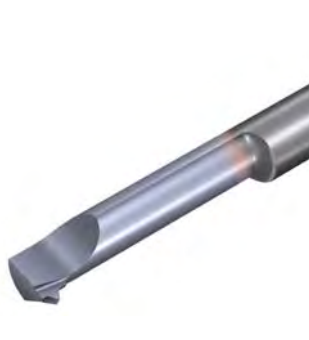


Round face grooving  
internal



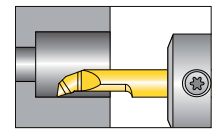
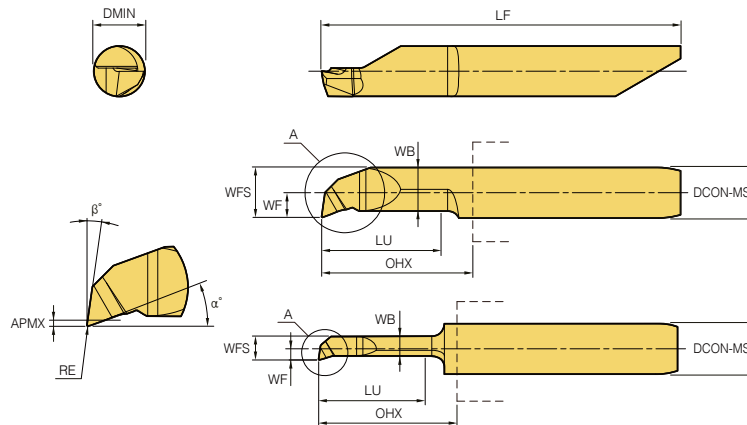
Pre-part off

» Threading



Threading

## Boring

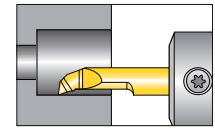
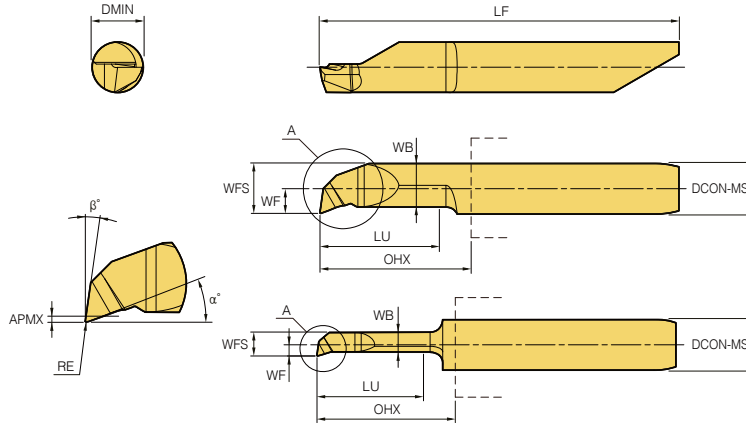


For internal cutting

Designation	DMIN	Dimensions (mm)										DCON-MS
		LU	RE	WF	APMX	WFS	WB	$\alpha^\circ$	$\beta^\circ$	OHX	LF	
MBCR/L 410L04-R005	1.0	4	0.05	0.48	0.10	0.96	0.71	16.4	8	8.80	25.75	4.0
		4	0.10	0.48	0.10	0.96	0.71	17.0	8	8.80	25.75	
		6	0.05	0.48	0.15	0.96	0.71	16.4	8	8.80	25.75	
		6	0.10	0.48	0.15	0.96	0.81	17.0	8	8.80	25.75	
MBCR 415L04-R005	1.5	4	0.05	0.74	0.15	2.74	1.15	16.0	8	11.50	28.50	
MBCR/L 415L09-R010	1.5	9	0.10	0.74	0.15	1.45	1.22	16.0	8	11.50	28.50	
MBCR/L 417L06-R005	1.7	6	0.05	0.62	0.20	1.43	1.02	16.0	8	11.50	28.50	
		6	0.10	0.77	0.20	1.58	1.18	16.0	8	11.50	28.50	
		9	0.05	0.62	0.20	1.43	1.04	16.0	8	11.50	28.50	
		9	0.10	0.82	0.20	1.63	1.30	16.0	8	11.50	28.50	
MBCR/L 419L06-R005	1.9	6	0.05	0.72	0.20	1.62	1.20	16.0	8	11.50	28.50	
		9	0.05	0.72	0.20	1.62	1.20	16.0	8	11.50	28.50	
MBCR/L 422L06-R005	2.2	6	0.05	0.88	0.20	1.88	1.55	17.7	8	11.50	28.50	
		6	0.10	0.93	0.20	1.93	1.55	17.7	8	11.50	28.50	
		9	0.05	0.88	0.20	1.88	1.55	17.7	8	11.50	28.50	
		9	0.05	0.1	0.20	2.06	1.76	17.7	8	11.50	28.50	
		14	0.10	1.04	0.20	2.04	1.76	17.7	8	18.20	35.20	
MBCR/L 422L14-R010	2.2	14	0.10	1.04	0.20	2.04	1.76	17.7	8	18.20	35.20	
MBCR/L 427L10-R005	2.7	10	0.10	0.05	0.20	2.47	2.06	17.5	8	11.50	28.50	
10		0.15	1.19	0.20	2.41	2.06	17.5	8	11.50	28.50		
15		0.15	1.23	0.20	2.48	2.06	17.5	8	18.20	35.20		
15		0.15	1.23	0.20	2.48	2.06	17.5	8	18.20	35.20		
MBCR/L 427L15-R015	2.7	15	0.05	1.22	0.20	2.47	2.06	17.5	8	18.20	35.20	
MBCR/L 427L16-R005	2.7	16	0.05	1.22	0.20	2.47	2.06	17.5	8	18.20	35.20	
MBCR 430L10-R005	3.0	10	0.05	1.33	0.20	2.70	2.25	17.5	8	11.50	28.70	
16		0.05	1.33	0.20	2.70	2.25	17.5	8	18.20	35.20		
20		0.15	1.36	0.20	2.70	2.36	17.5	8	22.80	39.80		
26		0.05	1.33	0.20	2.70	2.25	17.5	8	28.70	45.70		
MBCR/L 430L16-R005	3.0	16	0.05	1.33	0.20	2.70	2.25	17.5	8	18.20	35.20	
MBCR/L 430L20-R015	3.0	20	0.15	1.36	0.20	2.70	2.36	17.5	8	22.80	39.80	
MBCR/L 430L26-R005	3.0	26	0.05	1.33	0.20	2.70	2.25	17.5	8	28.70	45.70	

●: Stock item

# Boring

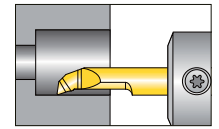
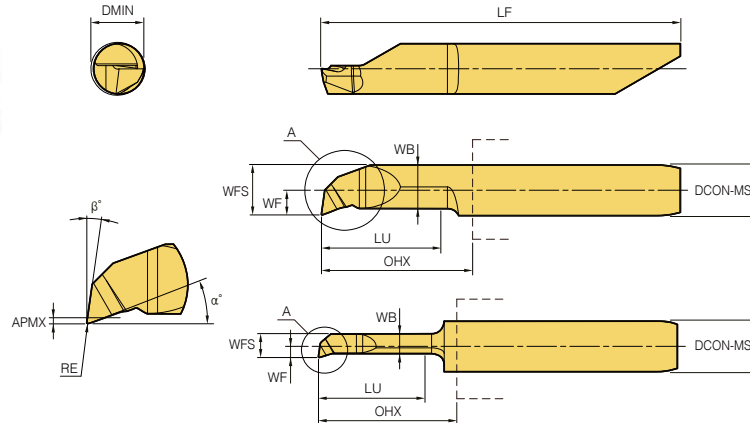


For internal cutting

Designation	DMIN	Dimensions (mm)										DCON-MS
		LU	RE	WF	APMX	WFS	WB	$\alpha^\circ$	$\beta^\circ$	OHX	LF	
MBCR/L 432L10-R005	3.2	10	0.05	1.43	0.20	2.90	2.45	17.5	8	11.50	28.50	4.0
432L10-R015		10	0.15	1.44	0.20	2.90	2.50	17.5	8	11.50	28.50	
432L16-R005		16	0.05	1.43	0.20	2.90	2.45	17.5	8	18.20	35.20	
MBER 432L16-R005		16	0.05	1.43	0.20	2.90	2.45	17.5	8	18.20	35.20	
MBCR/L 432L16-R015		16	0.15	1.44	0.20	2.87	2.50	17.5	8	18.20	35.20	
MBER 432L16-R015		16	0.15	1.44	0.20	2.87	2.50	17.5	8	18.20	35.20	
MBCR/L 432L20-R005		20	0.05	1.43	0.20	2.90	2.45	17.5	8	22.80	39.80	
MBER 432L20-R005		20	0.05	1.43	0.20	2.90	2.45	17.5	8	22.80	39.80	
MBCR/L 432L20-R015		20	0.15	1.40	0.20	2.87	2.45	17.5	8	22.80	39.80	
MBER 432L20-R015		20	0.15	1.40	0.20	2.87	2.45	17.5	8	22.80	39.80	
432L23-R010		23	0.10	1.43	0.20	2.90	2.45	17.5	8	22.80	45.70	
MBCR 437L10-R005		3.7	10	0.05	1.78	0.20	3.48	3.05	17.5	8	11.50	
MBCR/L 437L10-R015	10		0.15	1.74	0.20	3.44	3.05	17.5	8	11.50	28.50	
437L15-R015	15		0.15	1.74	0.20	3.44	3.05	17.5	8	18.20	35.20	
MBER 437L15-R015	15		0.15	1.74	0.20	3.44	3.05	17.5	8	18.20	35.20	
MBCR/L 437L20-R015	20		0.15	1.74	0.20	3.44	3.05	17.5	8	22.80	39.80	
MBER 437L20-R015	20		0.15	1.74	0.20	3.44	3.05	17.5	8	22.80	39.80	
MBCR 437L26-R005	4.2	26	0.05	1.78	0.20	3.48	3.05	17.5	8	28.70	45.70	
442L10-R003		10	0.03	1.98	0.30	3.98	3.13	19.0	8	11.50	28.50	
442L10-R005		10	0.05	1.95	0.30	3.95	3.45	21.0	8	11.50	28.50	
MBCR/L 442L10-R015		10	0.15	1.93	0.30	3.93	3.13	19.0	8	11.50	28.50	
442L16-R005		16	0.05	1.95	0.30	3.95	3.45	21.0	8	18.20	35.20	
MBER 442L16-R005		16	0.05	1.95	0.30	3.95	3.45	21.0	8	18.20	35.20	
MBCR 442L15-R003		15	0.03	1.98	0.30	3.98	3.13	19.0	8	18.20	35.20	
MBCR/L 442L16-R015		16	0.15	1.93	0.30	3.93	3.13	19.0	8	18.20	35.20	
MBER 442L16-R015		16	0.15	1.93	0.30	3.93	3.13	19.0	8	18.20	35.20	
MBCR/L 442L21-R005		21	0.05	1.95	0.30	3.95	3.45	21.0	8	22.80	39.80	
MBER 442L21-R005		21	0.05	1.95	0.30	3.95	3.45	21.0	8	22.80	39.80	
MBCR/L 442L21-R015		21	0.15	1.93	0.30	3.93	3.13	19.0	8	22.80	39.80	
MBER 442L21-R015		21	0.15	1.98	0.30	3.98	3.13	19.0	8	24.70	41.70	
MBCR 442L25-R003		25	0.03	1.98	0.30	3.98	3.13	19.0	8	28.70	45.70	
MBCR/L 442L26-R005		26	0.05	1.95	0.30	3.95	3.45	21.0	8	28.70	45.70	
442L26-R015		26	0.15	1.93	0.30	3.93	3.13	19.0	8	28.70	45.70	
MBCR 442L30-R005		30	0.05	1.95	0.30	3.95	3.45	21.0	8	33.70	50.70	

● : Stock item

## Boring



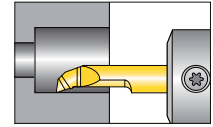
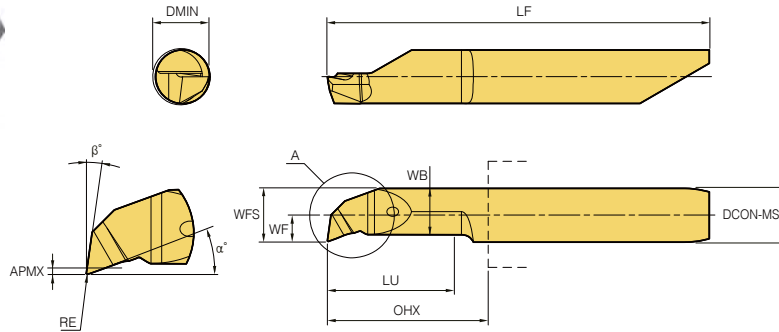
For internal cutting

Designation	DMIN	Dimensions (mm)										DCON-MS		
		LU	RE	WF	APMX	WFS	WB	$\alpha^\circ$	$\beta^\circ$	OHX	LF			
MBCR 552L10-R005	5.2	10	0.05	2.43	0.50	4.93	4.24	19.0	8	12.15	35.00	5.0		
MBCR/L 552L10-R020		10	0.20	2.44	0.50	4.94	4.04	21.0	8	12.15	35.00			
MBCR 552L15-R003		15	0.03	2.44	0.50	4.94	4.24	21.0	8	18.15	41.00			
MBCR/L 552L16-R020		16	0.20	2.44	0.50	4.94	4.04	21.0	8	18.15	41.00			
MBCR 552L20-R005		20	0.05	2.43	0.50	4.93	4.24	21.0	8	23.15	46.00			
552L20-R020		20	0.20	2.44	0.50	4.94	4.04	21.0	8	23.15	46.00			
MBCR/L 552L21-R020		21	0.20	2.44	0.50	4.94	4.04	21.0	8	23.15	46.00			
MBCR 552L21-R020		21	0.20	2.44	0.50	4.94	4.04	21.0	8	23.15	46.00			
MBCR/L 552L26-R020		26	0.20	2.44	0.50	4.94	4.04	21.0	8	28.15	51.00			
MBCR 552L26-R020		26	0.20	2.44	0.50	4.94	4.04	21.0	8	28.15	51.00			
MBCR 552L30-R005		30	0.05	2.42	0.50	4.92	4.24	21.0	8	32.15	55.00			
MBCR/L 552L30-R020		30	0.20	2.44	0.50	4.94	4.04	21.0	8	32.15	55.00			
552L35-R020		35	0.20	2.44	0.50	4.94	4.04	21.0	8	37.15	60.00			
662L16-R020		6.2	16	0.20	2.93	0.50	5.93	4.73	22.0	8	18.30		42.00	6.0
MBCR 662L20-R005			20	0.05	2.93	0.50	5.93	4.73	22.0	8	23.30		47.00	
MBCR/L 662L21-R020			21	0.20	2.93	0.50	5.93	4.73	22.0	8	23.30		47.00	
662L26-R020	26		0.20	2.93	0.50	5.93	4.73	22.0	8	28.30	52.00			
MBCR 662L30-R005	30		0.05	2.93	0.50	5.93	4.73	22.0	8	32.30	56.00			
MBCR/L 662L30-R020	30		0.20	2.93	0.50	5.93	4.73	22.0	8	32.30	56.00			
MBCR 662L30-R020	30		0.20	2.93	0.50	5.93	4.73	22.0	8	32.30	56.00			
MBCR/L 662L35-R020	35		0.20	2.93	0.50	5.93	4.73	22.0	8	37.30	61.00			
MBCR 662L35-R020	35		0.20	2.93	0.50	5.93	4.73	22.0	8	37.30	61.00			
MBCR/L 662L40-R020	40		0.20	2.93	0.50	5.93	4.73	22.0	8	42.30	66.00			
MBCR 772L15-R010	7.2	15	0.10	3.44	0.50	6.94	5.74	22.0	8	16.40	41.00	7.0		
MBCR/L 772L15-R020		15	0.20	3.44	0.50	6.94	5.74	22.0	8	16.40	41.00			
772L25-R020		25	0.20	3.44	0.50	6.94	5.74	22.0	8	26.40	51.00			
MBCR 772L30-R020		30	0.20	3.44	0.50	6.94	5.74	22.0	8	31.40	56.00			
MBCR/L 772L35-R020		35	0.20	3.44	0.50	6.94	5.74	22.0	8	36.40	61.00			
772L40-R020		40	0.20	3.44	0.50	6.94	5.74	22.0	8	41.40	66.00			
MBCR 772L40-R020		40	0.20	3.44	0.50	6.94	5.74	22.0	8	41.40	66.00			
MBCR/L 772L45-R020		45	0.20	3.44	0.50	6.94	5.74	22.0	8	46.40	71.00			
MBCR 772L45-R020		45	0.20	3.44	0.50	6.94	5.74	22.0	8	46.40	71.00			
MBCR/L 772L50-R020		50	0.20	3.44	0.50	6.94	5.74	22.0	8	51.40	76.00			

● : Stock item

# Boring HPC

※ HPC: High pressure coolant

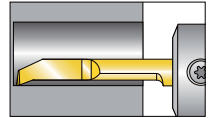


Designation	DMIN	Dimensions (mm)										DCON-MS		
		LU	RE	WF	APMX	WFS	WB	$\alpha^\circ$	$\beta^\circ$	OHX	LF			
MBCR	430L20C-R015	3.0	20	0.15	1.36	0.20	2.70	2.36	17.5	8	22.80	39.80	4.0	
	432L10C-R015	3.2	10	0.15	1.44	0.20	2.90	2.50	17.5	8	11.50	28.50		
	432L20C-R015		20	0.15	1.40	0.20	2.87	2.45	17.5	8	22.80	39.80		
	440L10C-R020	4.0	10	0.20	1.90	0.25	3.74	3.35	17.5	8	11.50	28.50		
	442L10C-R015	4.2	10	0.15	1.93	0.30	3.93	3.13	19.0	8	11.50	28.50		
	442L10C-R020		10	0.20	1.98	0.30	3.98	3.13	19.0	8	11.50	28.50		
	442L21C-R015		21	0.15	1.93	0.30	3.93	3.13	19.0	8	22.80	39.80		
	552L10C-R020	5.2	10	0.20	2.44	0.50	4.94	4.04	21.0	8	12.15	35.00		5.0
	552L15C-R020		15	0.20	2.44	0.50	4.94	4.24	21.0	8	18.15	41.00		
	552L21C-R020		21	0.20	2.44	0.50	4.94	4.04	21.0	8	23.15	46.00		
552L30C-R020	30		0.20	2.44	0.50	4.94	4.04	21.0	8	32.15	55.00			
552L35C-R020	35		0.20	2.44	0.50	4.94	4.04	21.0	8	37.15	60.00			

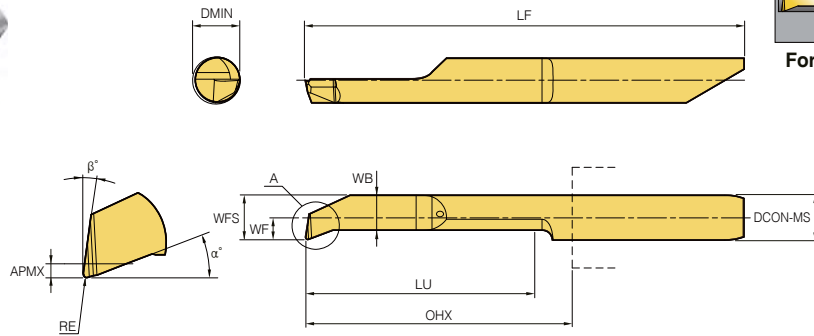
● : Stock item

# Boring chip breaker HPC

※ HPC: High pressure coolant



For internal cutting

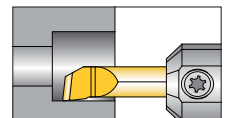


Designation	DMIN	Dimensions (mm)										DCON-MS
		LU	RE	WF	APMX	WFS	WB	$\alpha^\circ$	$\beta^\circ$	OHX	LF	
MBCBR 442L20C-R015	4.2	20	0.15	1.95	0.30	3.95	3.13	21	8	22.80	39.80	4.0
552L15C-R020	5.2	15	0.20	2.44	0.50	4.94	4.04	21	8	18.15	41.00	5.0
552L25C-R020		25	0.20	2.44	0.50	4.94	4.04	21	8	28.15	51.00	
662L30C-R020	6.2	30	0.20	2.93	0.50	5.93	4.73	22	8	32.30	56.00	6.0

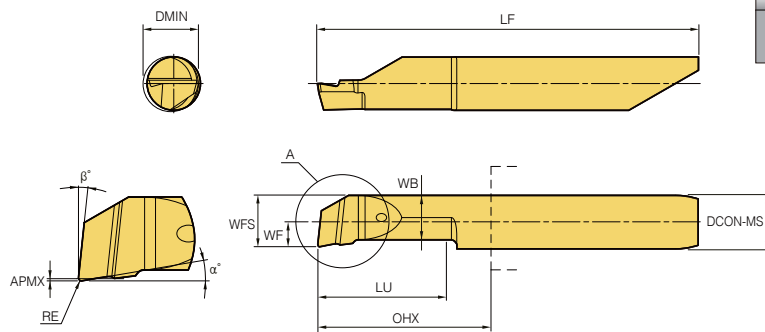
●: Stock item

# Boring chip former HPC

※ HPC: High pressure coolant



For internal cutting

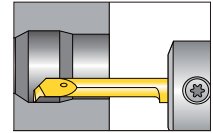
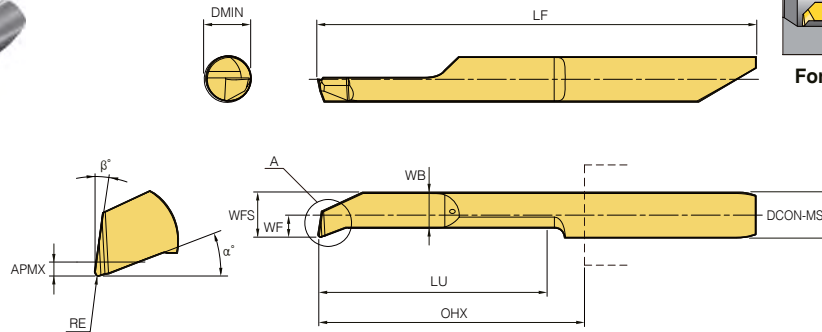


Designation	DMIN	Dimensions (mm)										DCON-MS
		LU	RE	WF	APMX	WFS	WB	$\alpha^\circ$	$\beta^\circ$	OHX	LF	
MBCFR 442L10C-R015	4.2	10	0.15	1.85	0.05	3.85	3.35	7.5	6	11.50	28.50	4.0

●: Stock item

# Boring & Profiling (CBLF) HPC

※ HPC: High pressure coolant



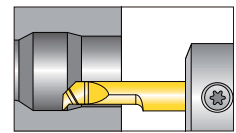
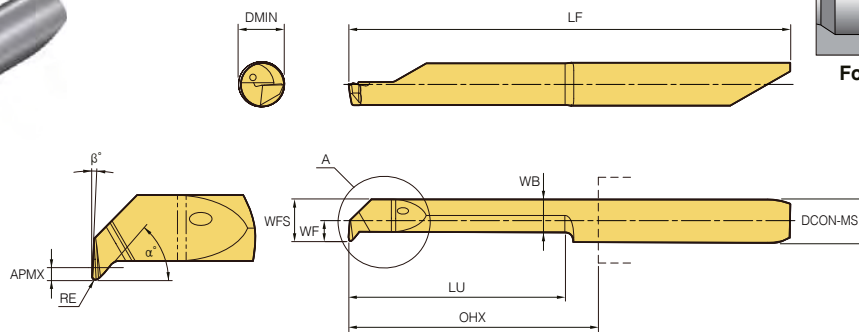
For internal cutting

Designation	DMIN	Dimensions (mm)										DCON-MS
		LU	RE	WF	APMX	WFS	WB	$\alpha^\circ$	$\beta^\circ$	OHX	LF	
MCBLFR/L 442L10C-R015	4.2	10	0.15	1.90	0.70	3.90	3.10	47	3	11.50	28.50	4.0
		16	0.15	1.90	0.70	3.90	3.10	47	3	18.20	35.20	
		21	0.15	1.90	0.70	3.90	3.10	47	3	22.80	39.80	
552L16C-R020	5.2	16	0.20	2.40	0.95	4.90	3.80	49	3	18.15	41.00	5.0
		25	0.20	2.40	0.95	4.90	3.80	49	3	28.15	51.00	
662L16C-R020	6.2	16	0.20	2.78	1.75	5.80	3.90	49	3	18.30	42.00	6.0
		21	0.20	2.78	1.75	5.80	3.90	49	3	23.30	47.00	
		30	0.20	2.78	1.75	5.80	3.90	49	3	32.30	56.00	

● : Stock item

# Boring & Profiling (CL) HPC

※ HPC: High pressure coolant



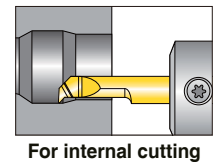
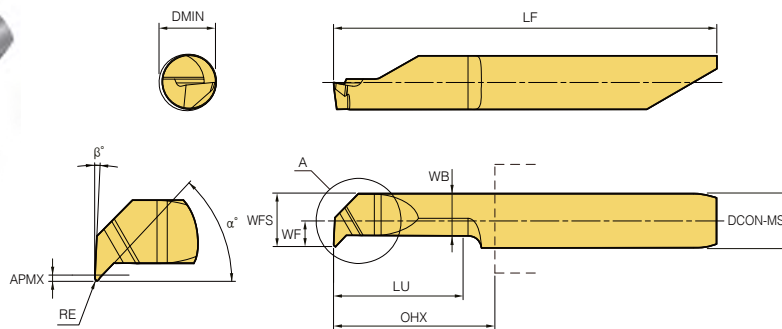
For internal cutting

Designation	DMIN	Dimensions (mm)										DCON-MS
		LU	RE	WF	APMX	WFS	WB	$\alpha^\circ$	$\beta^\circ$	OHX	LF	
MCLR 442L10C-R015	4.2	10	0.15	1.90	0.70	3.90	3.10	47	3	11.50	28.50	4.0
		21	0.15	1.90	0.70	3.90	3.10	47	3	18.20	35.20	
552L25C-R020	5.2	25	0.20	2.40	0.95	4.90	3.80	49	3	28.15	51.00	5.0

● : Stock item



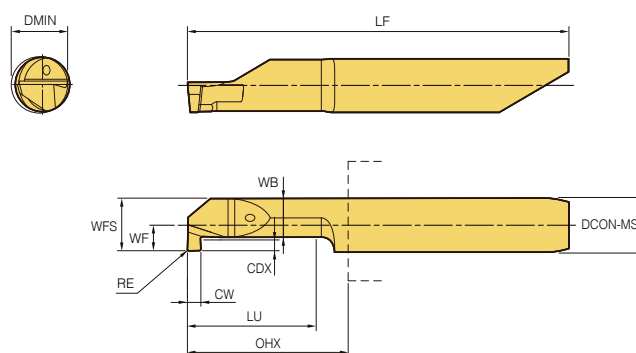
## Boring & Profiling (CL)



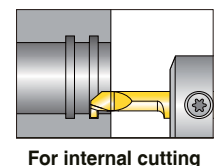
Designation	DMIN	Dimensions (mm)										DCON-MS
		LU	RE	WF	APMX	WFS	WB	α°	β°	OHX	LF	
MCLR 442L10-R010	4.2	10	0.10	1.90	0.70	3.90	3.10	47	3	11.50	28.50	4.0
MCLR/L 442L10-R015		10	0.15	1.90	0.70	3.90	3.10	47	3	11.50	28.50	
442L16-R015		16	0.15	1.90	0.70	3.90	3.10	47	3	18.20	35.20	
442L21-R015		21	0.15	1.90	0.70	3.90	3.10	47	3	22.80	39.80	
MCLR 552L07-R007	5.2	7	0.07	2.40	0.95	4.90	3.75	49	3	18.20	35.20	5.0
MCLR/L 552L16-R020		16	0.20	2.40	0.95	4.90	3.80	49	3	18.15	41.00	
552L25-R020		25	0.20	2.40	0.95	4.90	3.80	49	3	28.15	51.00	
MCLR 662L16-R010	6.2	16	0.10	2.78	1.75	5.78	3.90	49	3	18.30	42.00	6.0
MCLR/L 662L16-R020		16	0.20	2.78	1.75	5.78	3.90	49	3	18.30	42.00	
662L21-R020		21	0.20	2.78	1.75	5.78	3.90	49	3	23.30	47.00	
662L30-R020		30	0.20	2.78	1.75	5.78	3.90	49	3	32.30	56.00	

●: Stock item

## Square grooving HPC



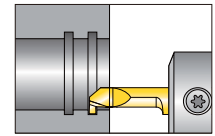
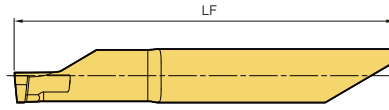
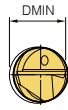
※ HPC: High pressure coolant



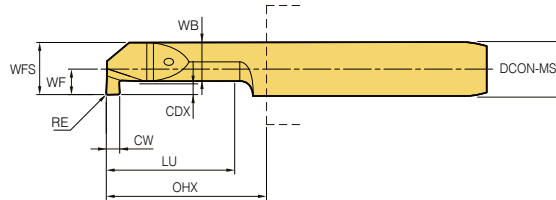
Designation	DMIN	Dimensions (mm)									DCON-MS
		CW±0.025	CDX	LU	WF	RE	WFS	WB	OHX	LF	
MGSR 442L10C-W100	4.2	1.00	0.80	10	1.90	0.10	3.90	2.90	11.50	28.50	4.0
442L15C-W100		1.00	0.80	15	1.90	0.10	3.90	2.90	18.20	35.20	
442L20C-W100		1.00	0.80	20	1.90	0.10	3.90	2.90	22.80	39.80	
552L10C-W100	5.2	1.00	1.00	10	2.40	0.10	4.90	3.70	12.15	35.00	5.0
552L15C-W100		1.00	1.00	15	2.40	0.10	4.90	3.70	18.15	41.00	
552L15C-W150		1.50	1.00	15	2.40	0.10	4.90	3.70	18.15	41.00	
552L20C-W150		1.50	1.00	20	2.40	0.10	4.90	3.70	23.15	46.00	

●: Stock item

# Square grooving



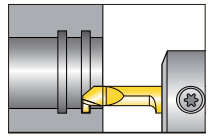
For internal cutting



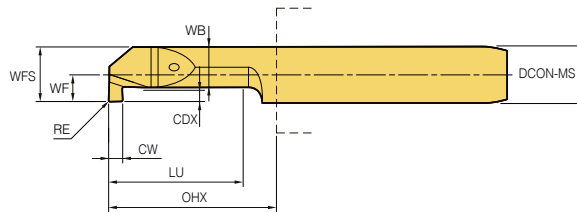
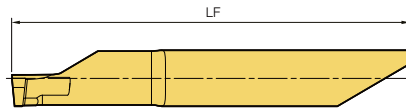
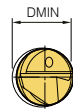
Designation	DMIN	Dimensions (mm)										DCON-MS	
		CW±0.025	CDX	LU	WF	RE	WFS	WB	OHX	LF			
MGSR 430L16-W070	3.0	0.70	0.62	16	1.40	0.10	2.70	1.75	11.50	39.80			
440L10-W100	4.0	1.00	1.00	10	1.90	0.00	3.90	2.50	18.20	35.20			
MGSR/L 442L10-W079	4.2	0.79	0.80	10	1.96	0.10	3.96	2.90	11.50	28.50	4.0		
442L10-W100		1.00	0.80	10	1.90	0.10	3.90	2.90	11.50	28.50			
MGSR 442L10-W150		1.50	0.80	10	1.90	0.10	2.90	2.90	18.20	35.20			
MGSR/L 442L15-W079		0.79	0.80	15	1.96	0.10	3.96	2.90	18.20	35.20			
442L15-W100		1.00	0.80	15	1.90	0.10	3.90	2.90	18.20	35.20			
442L20-W100		1.00	0.80	15	20.00	0.10	3.90	2.90	22.80	39.80			
442L25-W079		0.79	0.80	25	1.96	0.10	3.96	2.90	28.70	45.70			
MGSL 552L06-W070		5.2	0.70	1.00	6	2.40	0.10	4.90	3.70	12.15		32.00	5.0
MGSR/L 552L10-W100	1.00		1.00	10	2.40	0.10	4.90	3.70	12.15	35.00			
MGSR 552L10-W179	1.79		1.35	10	2.40	0.10	4.90	3.70	12.15	35.00			
552L10-W150	1.50		1.00	10	2.40	0.10	4.90	3.70	12.15	35.00			
552L10-W200	2.00		1.00	10	2.40	0.10	4.90	3.70	12.15	35.00			
MGSR/L 552L15-W100	1.00		1.00	15	2.40	0.10	4.90	3.70	18.15	41.00			
552L15-W150	1.50		1.00	15	2.40	0.10	4.90	3.70	18.15	41.00			
MGSR 552L15-W200	2.00		1.00	15	2.40	0.10	4.90	3.70	18.15	41.00			
MGSR/L 552L20-W100	1.00		1.00	20	2.40	0.10	4.90	3.70	23.15	46.00			
552L20-W150	1.50		1.00	20	2.40	0.10	4.90	3.70	23.15	46.00			
MGSR 552L20-W200	2.00		1.00	20	2.40	0.10	4.90	3.70	23.15	46.00			
552L21-W050	0.50		1.00	21	2.40	0.10	4.90	3.70	23.15	46.00			
652L10-W160	5.2		1.60	1.80	10	2.20	0.10	5.20	2.90	12.30	36.00		
662L06-W150	6.2		1.50	1.80	6	0.40	0.10	3.40	1.70	12.30	40.00	6.0	
662L09-W080			0.80	1.80	9	2.96	0.10	5.96	4.00	11.30	35.00		
662L10-W079			0.79	1.80	10	2.90	0.10	5.90	4.00	12.30	36.00		
MGSR/L 662L10-W100		1.00	1.80	10	2.90	0.10	5.90	4.00	12.30	36.00			
MGSR 662L10-W117		1.17	1.80	10	2.90	0.10	5.90	4.00	12.30	36.00			
MGSR/L 662L10-W150		1.50	1.80	10	2.90	0.10	5.90	4.00	12.30	36.00			
MGSR 662L10-W157		1.57	1.80	10	2.90	0.10	5.94	4.00	12.30	36.00			
662L10-W198		1.98	1.80	10	2.90	0.10	5.94	4.00	12.30	36.00			
MGSR/L 662L10-W200		2.00	1.80	10	2.90	0.10	5.90	4.00	12.30	36.00			
MGSR 662L15-W079		0.79	1.80	15	2.90	0.10	5.94	4.00	18.30	42.00			
MGSR/L 662L15-W100		1.00	1.80	15	2.90	0.10	5.90	4.00	18.30	42.00			

● : Stock item

## Square grooving



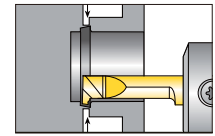
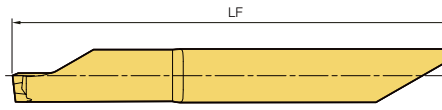
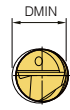
For internal cutting



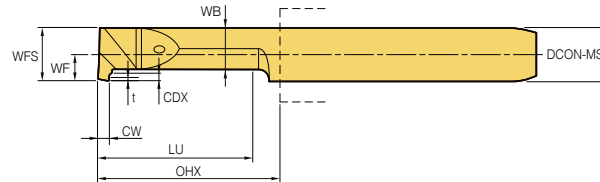
Designation	DMIN	Dimensions (mm)									DCON-MS
		CW±0.025	CDX	LU	WF	RE	WFS	WB	OHX	LF	
MBGR 662L15-W117	6.2	1.17	1.80	15	2.96	0.10	5.96	4.00	18.30	42.00	6.0
MGSR/L 662L15-W150		1.50	1.80	15	2.90	0.10	5.90	4.00	18.30	42.00	
MGSR 662L15-W157		1.57	1.80	15	2.96	0.10	5.96	4.00	18.30	42.00	
662L15-W198		1.98	1.80	15	2.96	0.10	5.96	4.00	18.30	42.00	
MGSR/L 662L15-W200		2.00	1.80	15	2.90	0.10	5.90	4.00	18.30	42.00	
662L20-W100		1.00	1.80	20	2.90	0.10	5.90	4.00	23.30	47.00	
662L20-W150		1.50	1.80	20	2.90	0.10	5.90	4.00	23.30	47.00	
662L20-W200		2.00	1.80	20	2.90	0.10	5.90	4.00	23.30	47.00	
MGSR 662L25-W079		0.79	1.80	25	2.96	0.10	5.96	4.00	28.30	52.00	
662L25-W100		1.00	1.80	25	2.90	0.10	5.90	3.10	28.30	56.00	
662L25-W117		1.17	1.80	25	2.96	0.10	5.96	4.00	28.30	52.00	
662L25-W157		1.57	1.80	25	2.96	0.10	5.96	4.00	28.30	52.00	
662L25-W198		1.98	1.80	25	2.96	0.10	5.96	4.00	28.30	52.00	
662L25-W200		2.00	1.80	25	2.90	0.10	5.90	3.20	28.30	56.00	
662L25-W350		3.50	1.80	25	2.96	0.10	5.96	4.00	28.30	52.00	
MGSR/L 662L30-W100		1.00	1.80	30	2.90	0.10	5.90	4.00	32.30	56.00	
662L30-W150		1.50	1.80	30	2.90	0.10	5.90	4.00	32.30	56.00	
662L30-W200		2.00	1.80	30	2.90	0.10	5.90	4.00	32.30	56.00	
MGSR 662L35-W079		0.79	1.80	35	2.96	0.10	5.96	4.00	37.30	61.00	
662L35-W117		1.17	1.80	35	2.96	0.10	5.96	4.00	37.30	61.00	
662L35-W150		1.50	1.80	35	2.96	0.10	5.90	3.95	37.30	59.85	
662L35-W157		1.57	1.80	35	2.96	0.10	5.96	4.00	37.30	61.00	
772L15-W250		2.50	2.50	15	3.40	0.10	6.90	4.10	18.30	42.00	
772L10-W079		0.79	2.50	10	3.46	0.10	6.96	4.10	11.40	36.00	
MGSR/L 772L10-W100	1.00	2.50	10	3.40	0.10	6.90	4.10	11.40	36.00		
772L10-W150	1.50	2.50	10	3.40	0.10	6.90	4.10	11.40	36.00		
772L10-W200	2.00	2.50	10	3.40	0.10	6.90	4.10	11.40	36.00		
MGSR 772L10-W600	6.00	2.50	10	3.20	0.10	6.90	4.10	11.40	36.00		
772L15-W079	0.79	2.50	15	3.46	0.10	6.96	4.10	16.40	41.00		
772L15-W100	1.00	2.50	15	3.40	0.10	6.90	4.10	16.40	41.00		
772L15-W117	1.17	2.50	15	3.46	0.10	6.96	4.10	16.40	41.00		
MGSR/L 772L15-W150	1.50	2.50	15	3.40	0.10	6.90	4.10	16.40	41.00		
MGSR 772L15-W157	1.57	2.50	15	3.46	0.10	6.96	4.10	16.40	41.00		
772L15-W198	1.98	2.50	15	3.46	0.10	6.90	4.10	16.40	41.00		
MGSR/L 772L15-W200	2.00	2.50	15	3.40	0.10	6.90	4.10	16.40	41.00		
MGSR 772L16-W150	1.50	2.50	16	3.40	0.10	6.90	4.10	17.40	42.00		
772L20-W079	0.79	2.50	20	3.46	0.10	6.96	4.10	26.40	51.00		
772L20-W117	1.17	2.50	20	3.46	0.10	6.96	4.10	26.40	51.00		
772L20-W157	1.57	2.50	20	3.46	0.10	6.96	4.10	26.40	51.00		
772L20-W198	1.98	2.50	20	3.46	0.10	6.96	4.10	26.40	51.00		
772L20-W150	1.50	2.50	20	3.40	0.10	6.90	4.10	26.40	46.00		
772L25-W100	1.00	2.50	25	3.40	0.10	6.90	4.10	26.40	51.00		
MGSR/L 772L25-W150	1.50	2.50	25	3.40	0.10	6.90	4.10	26.40	51.00		
772L25-W200	2.00	2.50	25	3.40	0.10	6.90	4.10	26.40	51.00		
MGSR 772L35-W100	1.00	2.50	35	3.40	0.10	6.90	4.10	36.40	61.00		
MGSR/L 772L35-W150	1.50	2.50	35	3.40	0.10	6.90	4.10	36.40	61.00		
772L35-W200	2.00	2.50	35	3.40	0.10	6.90	4.10	36.40	61.00		

● : Stock item

# Pre-part off



For internal cutting

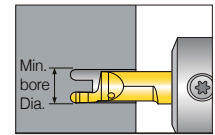
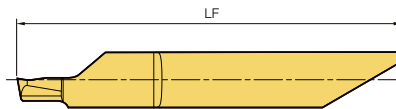
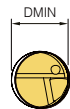


Designation	DMIN	Dimensions (mm)										DCON-MS
		CW±0.025	CDX	LU	WF	RE	WFS	WB	OHX	LF		
MPPR/L 552L15-W100	5.2	1.00	0.70	15	2.44	0.30	4.94	3.88	18.15	41.00	5.0	
552L20-W100		1.00	0.70	20	2.44	0.30	4.94	3.88	23.15	46.00		
MPPR 552L20C-W100		1.00	0.70	20	2.44	0.30	4.94	3.88	23.15	46.00		
MPPR/L 552L25-W100		1.00	0.70	25	2.44	0.30	4.94	3.88	28.15	51.00		
MPPR 552L30-W100		1.00	0.70	30	2.44	0.30	4.94	3.88	32.15	55.00		

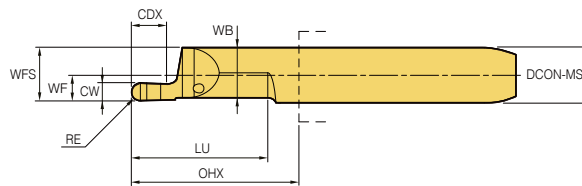
● : Stock item

# Round face grooving internal HPC

※ HPC: High pressure coolant



For internal cutting

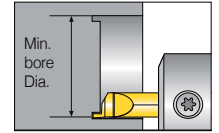
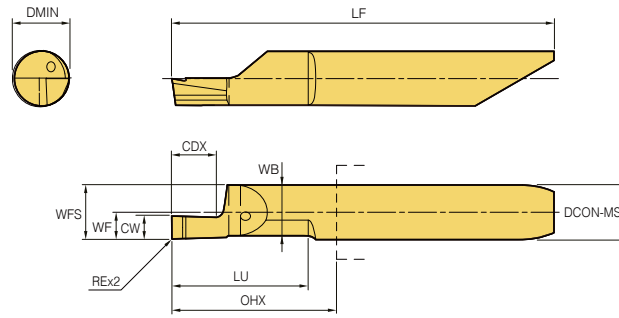


Designation	DMIN	Dimensions (mm)										DCON-MS
		CW±0.025	CDX	LU	WF	RE	WFS	WB	OHX	LF		
MFGRR/L 662L15C-R050	6.2	1.00	2.00	15	2.80	0.50	5.80	5.55	18.30	42.00	6.0	
662L15C-R080		1.60	3.00	15	2.80	0.80	5.80	5.45	18.30	42.00		
662L15C-R100		2.00	4.00	15	2.80	1.00	5.80	5.45	18.30	42.00		
662L15C-R125		2.50	5.00	15	2.80	1.25	5.80	5.45	18.30	42.00		
662L15C-R150		3.00	6.00	15	2.80	1.50	5.80	5.45	18.30	42.00		

● : Stock item

## Face grooving HPC

※ HPC: High pressure coolant



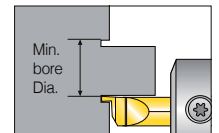
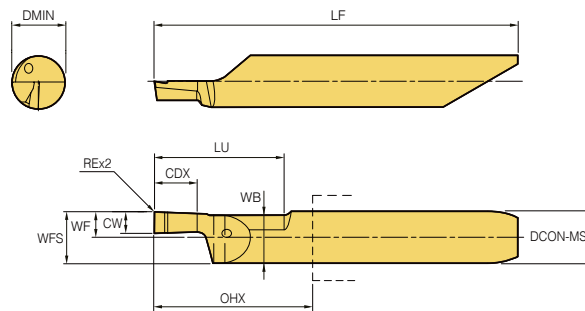
For internal cutting

Designation	DMIN	Dimensions (mm)									DCON-MS
		CW±0.025	CDX	LU	WF	RE	WFS	WB	OHX	LF	
MFGR/L 680L15C-W100	8.0	1.00	2.00	15	2.80	0.10	5.80	5.55	18.30	42.00	6.0
680L15C-W117		1.17	2.00	15	2.80	0.15	5.80	5.55	18.30	42.00	
680L15C-W150		1.50	3.00	15	2.80	0.10	5.80	5.55	18.30	42.00	
680L15C-W157		1.57	3.00	15	2.80	0.15	5.80	5.55	18.30	42.00	
680L15C-W198		1.98	4.00	15	2.80	0.15	5.80	5.55	18.30	42.00	
680L15C-W200		2.00	4.00	15	2.80	0.10	5.80	5.55	18.30	42.00	
680L15C-W239		2.39	5.00	15	2.80	0.15	5.80	5.55	18.30	42.00	
680L15C-W250		2.50	5.00	15	2.80	0.10	5.80	5.55	18.30	42.00	
680L15C-W300		3.00	6.00	15	2.80	0.10	5.80	5.55	18.30	42.00	
680L15C-W318		3.18	6.00	15	2.80	0.15	5.80	5.55	18.30	42.00	

●: Stock item

## Face grooving HPC

※ HPC: High pressure coolant

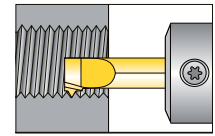


For internal cutting

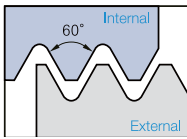
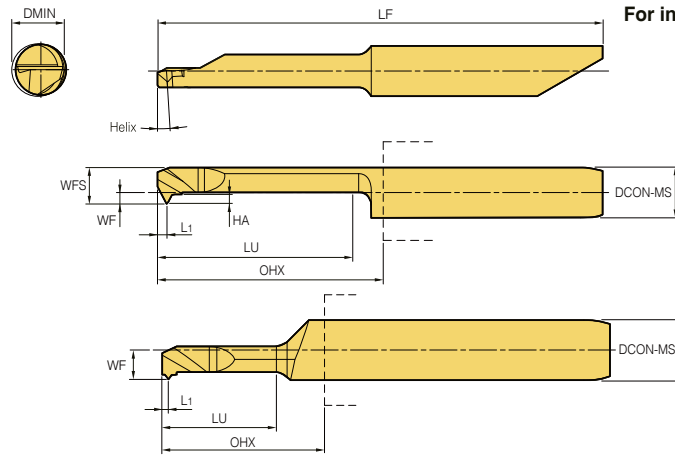
Designation	DMIN	Dimensions (mm)									DCON-MS
		CW±0.025	CDX	LU	WF	RE	WFS	WB	OHX	LF	
MFPR/L 680L15C-W100	8.0	1.00	2.00	15	2.80	0.10	5.80	5.55	18.30	42.00	6.0
680L15C-W117		1.17	2.00	15	2.80	0.15	5.80	5.55	18.30	42.00	
680L15C-W150		1.50	3.00	15	2.80	0.10	5.80	5.55	18.30	42.00	
680L15C-W157		1.57	3.00	15	2.80	0.15	5.80	5.55	18.30	42.00	
680L15C-W198		1.98	4.00	15	2.80	0.15	5.80	5.55	18.30	42.00	
680L15C-W200		2.00	4.00	15	2.80	0.10	5.80	5.55	18.30	42.00	
680L15C-W239		2.39	5.00	15	2.80	0.15	5.80	5.55	18.30	42.00	
680L15C-W250		2.50	5.00	15	2.80	0.10	5.80	5.55	18.30	42.00	
680L15C-W300		3.00	6.00	15	2.80	0.10	5.80	5.55	18.30	42.00	
680L15C-W318		3.18	6.00	15	2.80	0.15	5.80	5.55	18.30	42.00	

●: Stock item

# Threading



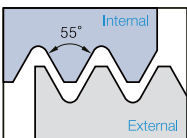
For internal cutting



Partial profile 60°

Thread	DCON-MS	DMIN	Pitch		Designation	Dimensions (mm)							
			(mm)	(tpi)		LU	WFS	WF	L1	HA	OHX	LF	FHA
M1-M2x0.25	4.0	0.73	0.25	-	<b>MTHR 407L02P60-0.25</b>	2.5	0.65	1.95	0.14	0.29	13.00	29.80	4.9
M1.6-M3x0.35		1.22	0.35	-	<b>412L04P60-0.35</b>	4.0	1.10	1.95	0.18	0.29	13.00	29.80	3.8
M2x0.4		1.57	0.40	-	<b>416L05P60-0.4</b>	5.0	1.45	1.95	0.20	0.41	13.00	29.80	4.2
M2.2-M2.5x0.45		1.71	0.45	-	<b>417L06P60-0.45</b>	6.0	1.54	1.95	0.22	0.46	13.00	29.80	4.0
-	4.0	3.20	0.5-1.0	48-24	<b>MTHR/L 429L16F60</b>	16.0	2.90	0.90	0.90	-	18.40	35.40	3.5
		4.20	0.5-1.0	48-24	<b>439L16F60</b>	16.0	3.89	1.90	0.90	-	18.40	35.40	3.5
	6.0	6.20	0.5-1.5	48-16	<b>MTHR 659L06A60</b>	6.0	5.89	2.90	0.90	-	8.50	36.20	3.5
		6.20	0.5-1.5	48-16	<b>MTHR/L 659L16A60</b>	16.0	5.89	2.90	0.90	-	18.50	42.20	3.5

● : Stock item

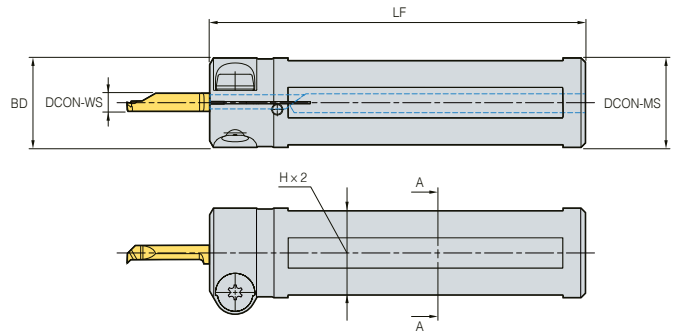
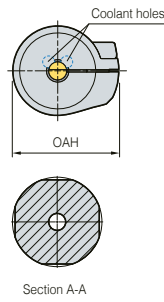




Partial profile 55°

DCON-MS	DMIN	Pitch		Designation	Dimensions (mm)							
		(mm)	(tpi)		LU	WFS	WF	L1	HA	OHX	LF	FHA
4.0	3.2	0.5-1.0	48-24	<b>MTHR/L 429L16F55</b>	16	2.90	0.90	0.75	18.40	35.40	3.5	4.9
	4.2	0.5-1.0	48-24	<b>439L16F55</b>	16	2.90	1.90	0.75	18.40	35.40	3.5	3.8
6.0	6.2	0.5-1.5	48-16	<b>659L16A55</b>	16	5.89	2.90	0.90	18.50	42.20	3.5	4.2

● : Stock item

## MHRSC (Shrink tool holder)

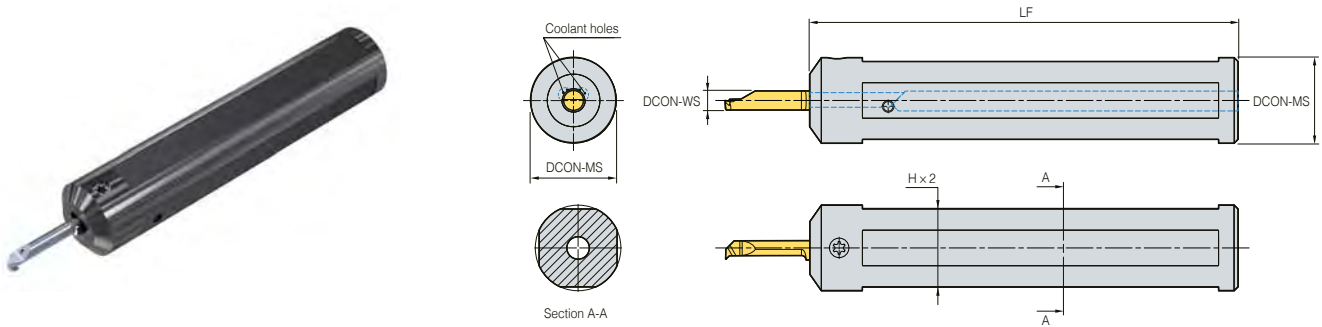




Designation	DCON-WS	Dimensions (mm)					Screw 	Wrench 
		DCON-MS	OAH	BD	H	LF		
<b>MHRSC</b> 4-10-4F	4.0	10	19.7	13.3	8.8	65	MTS10-15X2	MTL15/MTLX15
		12	19.7	13.8	10.8	70		
		16	21.7	16.0	14.8	75		
		20	23.7	20.0	18.8	84		
4-22-4F	22	24.7	22.0	20.0	110			
5-16-4F	5.0	16	21.7	16.0	14.8	75		
5-20-4F		20	23.7	20.0	18.8	84		
6-12-4F	6.0	12	19.7	13.8	10.8	70		
6-16-4F		16	21.7	16.0	14.8	75		
6-20-4F		20	23.7	20.0	18.8	84		
6-22-4F		22	24.7	22.0	20.0	110		
7-16-4F	7.0	16	21.7	16.0	14.8	75		
7-20-4F		20	23.7	20.0	18.8	84		

● : Stock item



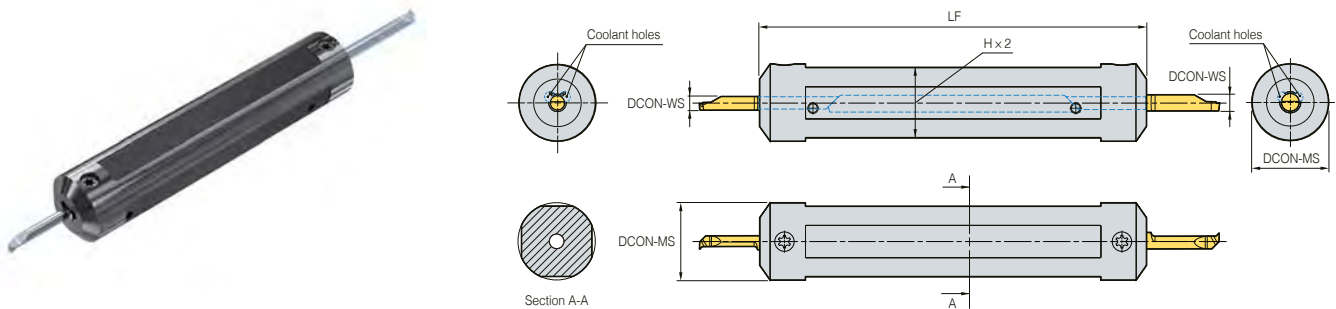
## MHRRC (Round holder)





Designation	DCON-WS	Dimensions (mm)			Screw 	Wrench 
		DCON-MS	H	LF		
MHRRC 4-20-4F	4.0	20.00	18.8	83.5	MTDBT15	MTF15
		22.00	20.0	110.0		
5-20-4F	5.0	20.00	18.8	83.5		
		22.00	20.0	110.0		
6-20-4F	6.0	20.00	18.8	83.5		
		22.00	20.0	110.0		
7-25-4F	7.0	25.00	20.0	110.0		

● : Stock item

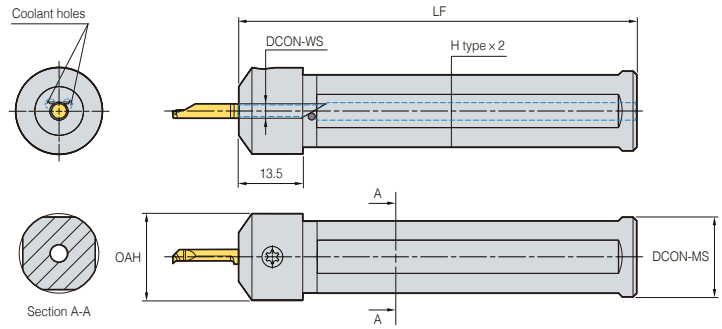
## MHRRC (Double-sided round holder)





Designation	DCON-WS	Dimensions (mm)			Screw 	Wrench 
		DCON-MS	H	LF		
MHRRC 4-075-5-4F	4.0 ~ 5.0	19.05	17.8	83.5	MTDBT15	MTF15
		20.00	18.8	83.5		
		22.00	20.0	110.0		
		25.00	23.0	110.0		
6-20-7-4F	6.0 ~ 7.0	20.00	18.8	83.5		
		25.00	23.0	110.0		

● : Stock item

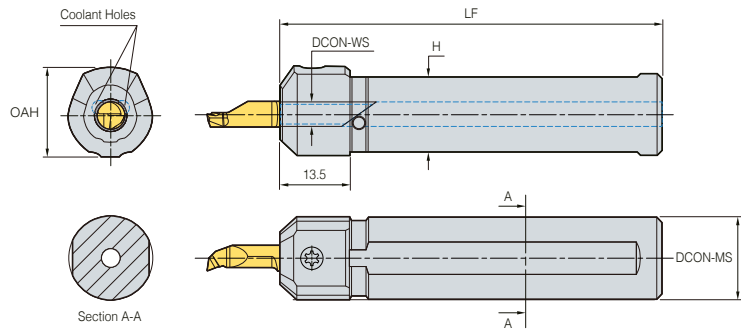
## MHRNC-4F (Round shank holder)





Designation	DCON-WS	Dimensions (mm)				Screw 	Wrench 
		DCON-MS	OAH	H	LF		
<b>MHRNC 4-20-4F</b>	4.0	20	22	18.8	83.5	MTDT15 or MTDBT15	MTKT15 or MTF15
		22	24	20.0	110.0		
		23	25	21.0	110.0		
		25	27	23.0	110.0		
		28	30	26.0	110.0		
<b>5-20-4F</b>	5.0	20	22	18.8	83.5		
		22	24	20.0	110.0		
		23	25	21.0	110.0		
		25	27	23.0	110.0		
		28	30	26.0	110.0		
<b>6-20-4F</b>	6.0	20	22	18.8	83.5		
		22	24	20.0	110.0		
		23	25	21.0	110.0		
		25	27	23.0	110.0		
		28	30	26.0	110.0		
<b>7-22-4F</b>	7.0	22	24	20.0	110.0		
		23	25	21.0	110.0		
		25	27	23.0	110.0		
		28	30	26.0	110.0		

● : Stock item

# MHRNC-2F (Round shank holder)



Designation	DCON-WS	Dimensions (mm)				Screw 	Wrench 
		DCON-MS	OAH	H	LF		
<b>MHRNC 4-10-2F</b>	4.0	10.00	14.0	8.8	65.0	MTDT15 or MTDBT15	MTKT15 or MTF15
		12.00	16.0	10.8	70.0		
		16.00	17.6	14.8	75.0		
		20.00	22.0	18.8	84.0		
<b>5-10-2F</b>	5.0	10.00	14.0	8.8	65.0		
		12.00	16.0	10.8	70.0		
		16.00	18.6	14.8	75.0		
		20.00	22.0	18.8	84.0		
<b>6-12-2F</b>	6.0	12.00	16.0	10.8	70.0		
		16.00	18.6	14.8	75.0		
		20.00	22.0	18.8	84.0		
<b>7-16-2F</b>	7.0	16.00	18.6	14.8	75.0		
		20.00	22.0	18.8	84.0		

● : Stock item

# B Technical Information for Auto Tools (MSB Tool)

## Auto Tools (MSB Tool)

- High hardness grade guarantees longer tool life
- Various kinds of machining (fitting, valve, medical parts, automobile component, and semiconductor) are available
- Various types of MSB tools (Boring, Grooving, Threading)

### Code system

<b>M</b>	<b>G</b>	<b>R</b>	<b>06</b>	<b>20</b>	$\frac{1.5}{\diamond 60}$	<b>-</b>	<b>1</b>																					
<b>Type</b> M: Micro	<b>Application</b> B : Boring BC : Copying BB : Back Boring BF : Chamfering G : Square Grooving GR : Round Grooving GF : Face Grooving T : Threading	<b>Hand</b> R: Right L: Left	<b>Shank Dia.</b> 03 : 3.0 04 : 4.0 06 : 6.0 08 : 8.0 10 : 10.0	<b>Max. aspect ratio</b> 10 : 10.0 15 : 15.0 20 : 20.0 25 : 25.0 35 : 35.0	<b>Machining size</b>																							
					<table border="1"> <tr> <td>Boring</td> <td colspan="2">No Code</td> </tr> <tr> <td>Copying</td> <td colspan="2">Width of Groove</td> </tr> <tr> <td rowspan="2">Threading</td> <td>60°</td> <td>55°</td> </tr> <tr> <td>Pitch</td> <td>tpi</td> </tr> <tr> <td rowspan="3">◇</td> <td>F</td> <td>0.25~1.0</td> <td>72~24</td> </tr> <tr> <td>A</td> <td>0.5~1.5</td> <td>48~16</td> </tr> <tr> <td>AG</td> <td>0.5~3.0</td> <td>48~8</td> </tr> </table>			Boring	No Code		Copying	Width of Groove		Threading	60°	55°	Pitch	tpi	◇	F	0.25~1.0	72~24	A	0.5~1.5	48~16	AG	0.5~3.0	48~8
Boring	No Code																											
Copying	Width of Groove																											
Threading	60°	55°																										
	Pitch	tpi																										
◇	F	0.25~1.0	72~24																									
	A	0.5~1.5	48~16																									
	AG	0.5~3.0	48~8																									
<table border="1"> <tr> <td style="text-align: center;"><b>1</b></td> <td colspan="7" style="text-align: center;"><b>Cutting edge</b></td> </tr> <tr> <td colspan="8" style="text-align: center;">1: Single ended None: Double ended</td> </tr> </table>								<b>1</b>	<b>Cutting edge</b>							1: Single ended None: Double ended												
<b>1</b>	<b>Cutting edge</b>																											
1: Single ended None: Double ended																												

### MSB tool code system

Type	Application	Designation
01 02 03 04	Boring	Boring
		Copying
		Back Boring
		Chamfering
05 06 07	Grooving	Square Grooving
		Round Grooving
		Face Grooving
08	Threading	Partial
		60°
		55°

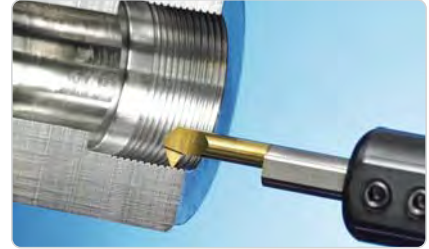
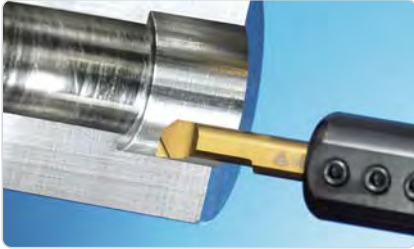
### Details

<b>Mark</b>	○○	Shank Dia.			
	☆☆	Max. depth of boring			
	□□	Width of groove			
	◇	Pitch / tpi	F	0.25~1.0	72~24
	A		0.5~1.5	48~16	
AG	0.5~3.0		48~8		

## Grades

Grades	Coating	Application and features
Z12M	Carbide	Ultra fine grain substrate ensures superior wear resistance and toughness Application: Cast iron, aluminum and non-ferrous metals machining
PC30M	TiN coating	TiN coated ultra fine grain substrate ensures longer tool life Application: Stainless steel, heat-resistant alloy alloy and hard-to-cut material machining

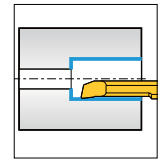
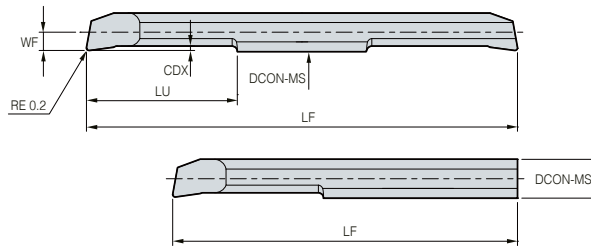
## Machining types



## Types

<b>Boring</b>	<p><b>Boring</b> Min. dia. of machining: Ø3.2</p>	<p><b>Copying</b> Min. dia. of machining: Ø4.2</p>	<p><b>Back Boring</b> Min. dia. of machining: Ø3.2</p>	<p><b>Chamfering</b> Min. dia. of machining: Ø4.2</p>
	<p><b>Square Grooving</b> Min. dia. of machining: Ø3.2</p>	<p><b>Round Grooving</b> Min. dia. of machining: Ø3.2</p>	<p><b>Face Grooving</b> Min. dia. of machining: Ø6.0</p>	
	<p><b>Threading</b> Min. dia. of machining: Ø3.3</p>			

## Boring

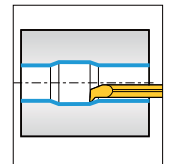
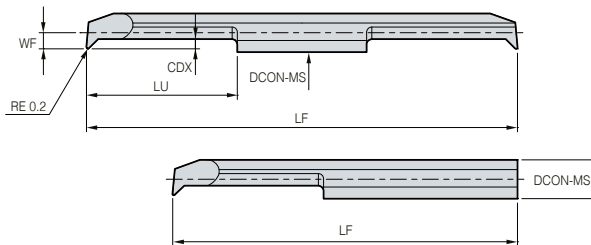


(mm)

Twin Edge			Single Edge			DCON-MS	DCN	LU	Overall length		Detailed cutting edge		
Designation	Coated	Uncoated	Designation	Coated	Uncoated				LF		CDX	WF	
	PC30M	Z12M		PC30M	Z12M				Double ended	Single ended			
MBR	0310	●	MBR	0310-1		3.0	3.2	10	40	35	0.5	1.4	
	0315	●		0315-1					15	50			45
	0410	●		0410-1		4.0	4.2	10	40	35	0.6	1.9	
	0415	●		0415-1					15	50			45
	0420	●		0420-1					20	60			50
	0610	●			0610-1		6.0	6.2	10	45	40	0.75	2.9
	0615	●		0615-1		15				55	45		
	0620	●		0620-1		20				65	50		
	0810	●			0810-1		8.0	8.2	10	50	45	0.8	3.9
	0820	●		0820-1		20				70	60		
	0830			0830-1		30				80	70		
	1015	●			1015-1		10.0	10.2	15	60	60	1.0	4.9
	1025	●		1025-1		25				80	70		
1035	●	1035-1		35	100	80							

●: Stock item

## Copying

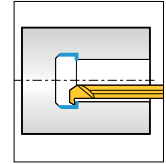
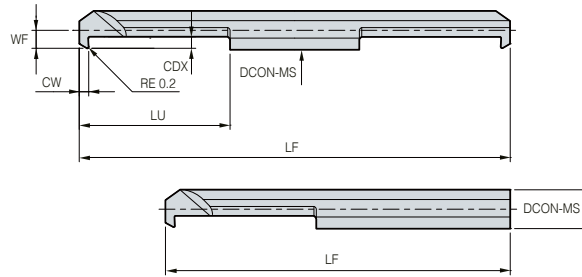


(mm)

Twin Edge			Single Edge			DCON-MS	DCN	LU	Overall length		Detailed cutting edge		
Designation	Coated	Uncoated	Designation	Coated	Uncoated				LF		CDX	WF	
	PC30M	Z12M		PC30M	Z12M				Double ended	Single ended			
MBCR	0410	●	MBCR	0410-1		4.0	4.2	10	40	35	1.0	1.9	
	0415	●		0415-1					15	50			45
	0420	●		0420-1					20	60			50
	0610	●		0610-1		6.0	6.2	10	45	40	1.3	2.9	
	0615	●		0615-1					15	55			45
	0620	●		0620-1					20	60			50

●: Stock item

# Back Boring

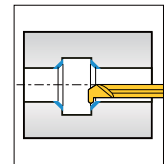
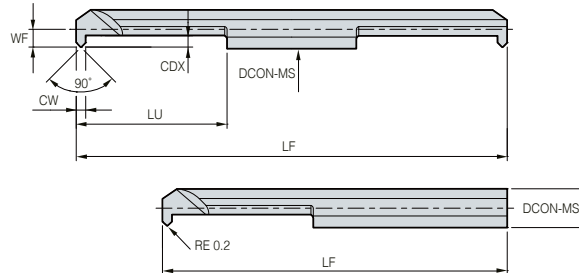


(mm)

Twin Edge			Single Edge			DCON-MS	DCN	LU	Overall length		Detailed cutting edge			
Designation	Coated	Uncoated	Designation	Coated	Uncoated				LF		CW	CDX	WF	
	PC30M	Z12M		PC30M	Z12M				Double ended	Single ended				
MBBR	0310	●	MBBR	0310-1		3.0	3.2	10	40	35	1.5	0.8	1.4	
	0315	●		0315-1					15	50				45
	0410	●		0410-1		4.0	4.2	10	40	35	2.0	1.3	1.9	
	0415	●		0415-1					15	50				45
	0420	●		0420-1					20	60				50
	0610	●		0610-1		6.0	6.2	10	45	40	2.0	1.9	2.9	
	0615	●		0615-1					15	55				45
	0620	●		0620-1					20	65				50

● : Stock item

# Chamfering



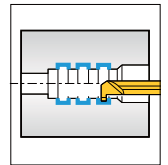
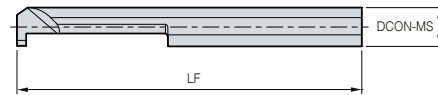
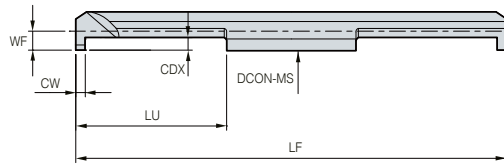
(mm)

Twin Edge			Single Edge			DCON-MS	DCN	LU	Overall length		Detailed cutting edge			
Designation	Coated	Uncoated	Designation	Coated	Uncoated				LF		CW	CDX	WF	
	PC30M	Z12M		PC30M	Z12M				Double ended	Single ended				
MBFR	0410	●	MBFR	0410-1		4.0	4.2	10	40	35	0.8	1.0	1.9	
	0415	●		0415-1					15	50				45
	0420	●		0420-1					20	60				50
	0610	●		0610-1		6.0	6.2	10	45	40	1.4	1.2	2.9	
	0615	●		0615-1					15	55				45
	0620	●		0620-1					20	65				50

● : Stock item



# Square Grooving

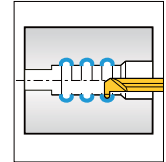
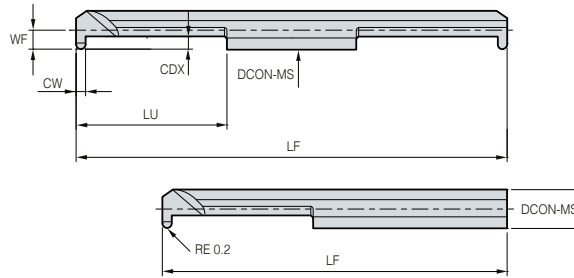


(mm)

Twin Edge			Single Edge			DCON-MS	DCN	LU	Overall length		Detailed cutting edge						
Designation	Coated	Uncoated	Designation	Coated	Uncoated				LF		CW	CDX	WF				
	PC30M	Z12M		PC30M	Z12M				Double ended	Single ended							
MGR	0310-1.0	•	MGR	0310-1.0-1		3.0	3.2	10	40	35	1.0	0.8	1.4				
	0315-1.0	•		0315-1.0-1				15	50	45							
	0310-1.5	•		0310-1.5-1				10	40	35				1.5			
	0315-1.5	•		0315-1.5-1				15	50	45							
	0410-1.0	•		0410-1.0-1				4.0	4.2	10	40			35	1.0	1.4	1.9
	0420-1.0			0420-1.0-1						20	60			50			
	0410-1.5			0410-1.5-1		10	40			35	1.5						
	0420-1.5			0420-1.5-1		20	60			50							
	0410-2.0	•		0410-2.0-1		10	40			35	2.0						
	0420-2.0			0420-2.0-1		20	60			50							
	0610-1.0	•		0610-1.0-1		6.0	6.2	10	45	40	1.0	1.8	2.9				
	0620-1.0	•		0620-1.0-1				20	65	50							
	0610-1.5	•		0610-1.5-1				10	45	40	1.5						
	0620-1.5	•		0620-1.5-1				20	65	50							
	0610-2.0	•		0610-2.0-1				10	45	40	2.0						
	0620-2.0	•		0620-2.0-1				20	65	50							
	0610-2.5	•		0610-2.5-1		10	45	40	2.5	2.0							
	0620-2.5	•		0620-2.5-1		20	65	50									
	0820-1.5	•		0820-1.5-1		8.0	8.2	20	70	60	1.5	2.5	3.9				
	0820-2.0	•		0820-2.0-1							2.0						
0820-2.5	•	0820-2.5-1		2.5													
0820-3.0	•	0820-3.0-1		3.0	3.5												
1025-1.5	•	1025-1.5-1		10.0	10.2	25	80	70	1.5	2.5	4.9						
1025-2.0	•	1025-2.0-1							2.0								
1025-2.5	•	1025-2.5-1							2.5								
1025-3.0	•	1025-3.0-1							3.0	3.5							

• : Stock item

# Round Grooving

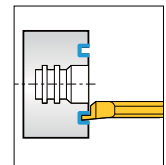
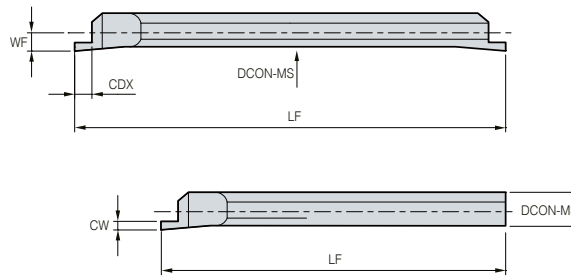
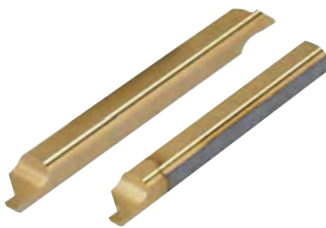


(mm)

Twin Edge			Single Edge			DCON-MS	DCN	LU	Overall length		Detailed cutting edge					
Designation	Coated	Uncoated	Designation	Coated	Uncoated				LF		CW	CDX	WF			
	PC30M	Z12M		PC30M	Z12M				Double ended	Single ended						
MGRR	0310-0.8	●	MGRR	0310-0.8-1		3.0	3.2	10	40	35	0.8	0.8	1.4			
	0315-0.8	●		0315-0.8-1					15	50				45		
	0410-1.0	●		0410-1.0-1		4.0	4.2	10	40	35	1.0	1.0	1.9			
	0420-1.0	●		0420-1.0-1					20	60				50		
	0610-1.0	●		0610-1.0-1		6.0	6.2	10	45	40	1.0	2.0	2.9			
	0620-1.0	●		0620-1.0-1					20	65				50		
	0610-1.5	●		0610-1.5-1					10	45	40					
	0620-1.5	●		0620-1.5-1					20	65	50					
	0610-2.0	●		0610-2.0-1		10.0	10.2	20	45	40	2.0	2.3	3.9			
	0620-2.0	●		0620-2.0-1					20	65				50		
	0820-1.0	●		0820-1.0-1					8.0	8.2				20	70	60
	0820-1.5	●		0820-1.5-1		1.5										
	0820-2.0	●		0820-2.0-1		2.0										
	1025-1.0	●		1025-1.0-1		10.0	10.2	25	80	70	1.0	2.0	1.0	1.5	2.8	4.9
	1025-1.5	●		1025-1.5-1							1.5					
1025-2.0	●	1025-2.0-1		2.0												

● : Stock item

# Face Grooving

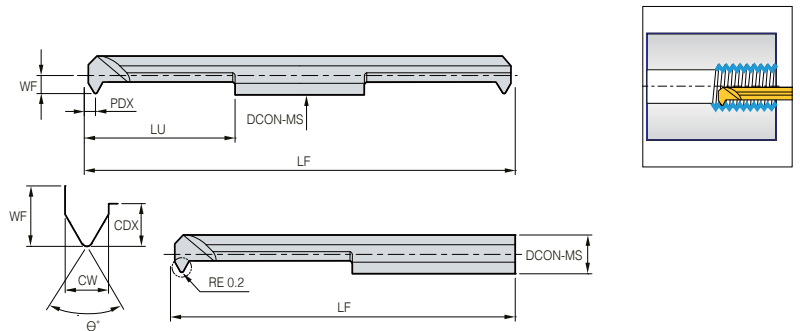


(mm)

Twin Edge			Single Edge			DCON-MS	DCN	Overall length		Detailed cutting edge		
Designation	Coated	Uncoated	Designation	Coated	Uncoated			LF		CW	CDX	WF
	PC30M	Z12M		PC30M	Z12M			Double ended	Single ended			
MGFR	0400-1.0	●	MGFR	0400-1.0-1		4.0	6.0	50	45	1.0	1.5	1.8
	0400-1.5	●		0400-1.5-1						1.5	2.0	
	0600-1.0	●		0600-1.0-1		6.0	8.5	50	45	1.0	1.5	2.9
	0600-1.5	●		0600-1.5-1						1.5	2.0	
	0600-2.0	●		0600-2.0-1		8.0	10.4	70	60	2.0	2.5	3.9
	0800-1.0	●		0800-1.0-1						1.0	1.5	
	0800-1.5	●		0800-1.5-1						1.5	2.0	
	0800-2.0	●		0800-2.0-1						2.0	2.5	
	0800-2.5	●		0800-2.5-1		10.0	12.4	80	70	2.5	3.0	4.9
	0800-3.0	●		0800-3.0-1						3.0	3.5	
	1000-2.0	●		1000-2.0-1						3.5	4.0	
	1000-2.5	●		1000-2.5-1		10.0	12.4	80	70	2.0	2.5	4.9
	1000-3.0	●		1000-3.0-1						2.5	3.0	
	1000-3.5	●		1000-3.5-1						3.0	3.5	
	1000-4.0	●		1000-4.0-1						3.5	4.0	
1000-4.5	●	1000-4.5-1						4.0	4.5			
									4.5	5.0		

● : Stock item

## Threading



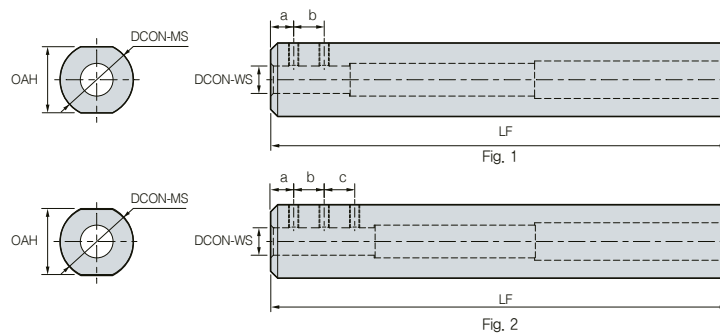
(mm)

Twin Edge			Single Edge					Threading			Detailed cutting edge		
Designation	Coated	Uncoated	Designation	Coated	Uncoated	DCON-MS	DCN	CW	Pitch / tpi	θ°	WF	CDX	CW
	PC30M	Z12M		PC30M	Z12M								
MTR	0315-F60		MTR	0315-F60-1		3.0	3.3	1.2	0.5~1.0	60°	1.45	1.2	0.6
	0415-F60	●		0415-F60-1		4.0	4.3						
	0615-A60	●		0615-A60-1		6.0	6.2				2.0		
	0315-F55	●		0315-F55-1		3.0	3.3	1.2	48~24	55°	1.45	1.2	0.6
	0415-F55	●		0415-F55-1		4.0	4.3						
	0615-A55	●		0615-A55-1		6.0	6.2				2.0		

●: Stock item

## Sleeve

### SL (Sleeve)



(mm)

Designation	Stock	DCON-MS	a	b	c	DCON-WS	OAH	LF	Screw	Wrench	Fig.
SL1603	●	3	5	-	-	16	14	100	M3	HW15L	1
SL1604	●	4	5	6	-	16	14	100	M4	HW20L	
SL1605	●	5	5	8	-	16	14	100	M4	HW20L	
SL1606	●	6	5	6	6	16	14	100	M4	HW20L	2
SL1607	●	7	5	6	8	16	14	100	M4	HW20L	
SL2008	●	8	5	10	10	20	18	100	M4	HW20L	2
SL2010	●	10	5	10	10	20	18	100	M5	HW20L	

※ Fine tolerance and surface roughness

●: Stock item

# Bearing Solutions

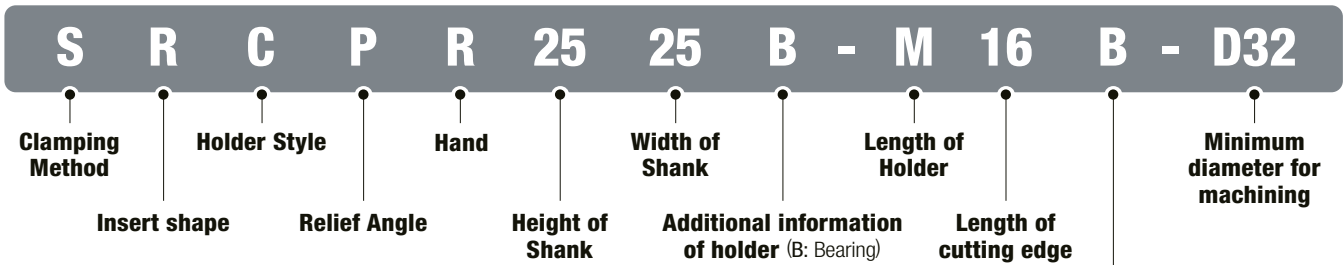
**Code system**

• **Insert**

※ For machining raceways and bearing shields



• **Holder**



**Application**

- B: Internal machining
- E: External machining
- F: Face machining
- RW: Raceway
- BS: Bearing Shield



## Applicable insert

Application	Picture	Designation	Cermet	Dimensions (mm)					Configuration
			CN2500	RE	$\theta^\circ$	CDX	IC	S	
R-Chamfering		MC0906		0.6	12	1.8	9.525	3.18	
		MC0910		1	12	2.4	9.525	3.18	
		MC1206		0.6	18	1.8	12.7	4.76	
		MC1210		1	18	2.4	12.7	4.76	
		MC1212		1.2	18	2.2	12.7	4.76	
		MC1215		1.5	18	3	12.7	4.76	
		MC1220		2	18	3.8	12.7	4.76	
		MC1225		2.5	18	3.8	12.7	4.76	
		MC1525		2.5	18	4	15.875	5.56	
		MC1530		3	18	4.7	15.875	5.56	
	MC1540		4	20	4.7	15.875	5.56		
		MC1206-BR		0.6	18	1.8	12.7	4.76	
		MC1210-BR		1	18	2.4	12.7	4.76	
		MC1212-BR		1.2	18	2.2	12.7	4.76	
		MC1215-BR		1.5	18	3	12.7	4.76	
		MC1220-BR		2	18	3.2	12.7	4.76	
		MC1230-BR		3	18	3.7	12.7	4.76	
		MC1235-BR		3.5	18	3.9	12.7	4.76	

●: Stock item

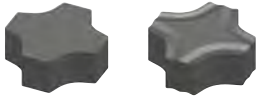
Application	Picture	Designation	Cermet	Dimensions (mm)			Configuration
			CN2500	RE	IC	S	
R-Chamfering		RPGT0802M0		-	8	2.38	
		RPGT1203M0		-	12	3.18	
		RPGT1604M0		-	16	4.76	
		RPGT2004M0		-	20	4.76	
		SPGR120440L		4	12.7	4.76	
		SPGH090330L		3	9.525	3.18	

●: Stock item

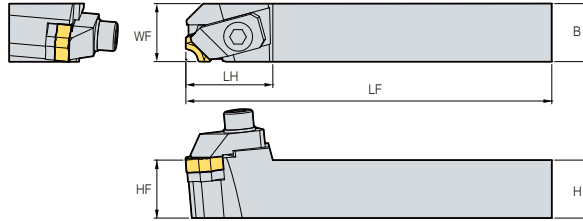
## Special order-form

	Designation	CN2500	RE	$\theta^\circ$	CDX	IC	S	Configuration
		MC...						

## CMSN...F Type



MC12□□ MC12□□-BR  
MC15□□



(mm)

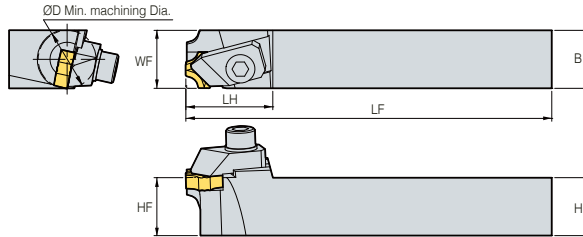
Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Wrench
	R	L													
CMSNR/L 2020B-L12F			33	140	21	20	20	20	R/L	MC12□□	CH6R/L1B	BHA0620	SX42CB	SS0308	HW50L
			33	140	24	20	23	20	R/L	MC12□□-BR					
			33	140	26	25	25	25	R/L	MC15□□	CH6R/L1B	BHA0620	SX52CB	SS0408	HW50L

● : Stock item

## CMSN...B Type



MC12□□ MC12□□-BR



(mm)

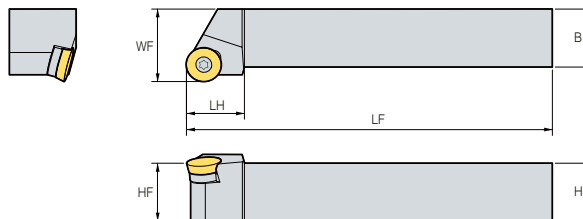
Designation	Stock		DMIN	LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Wrench
	R	L														
CMSNR/L 2020B-L12B-D28			28	33	140	21	20	20	20	R/L	MC12□□	CH6R/L1B	BHA0620	SX42CB	SS0308	HW50L
			28	33	140	26	25	25	25	R/L	MC12□□	CH6R/L1B	BHA0620	SX42CB	SS0308	HW50L
			20	32	140	18	16	20	16	R/L	MC12□□-BR	CH6R/L1B	BHA0620	-	-	HW50L
			28	33	140	24	20	23	20	R/L	MC12□□-BR	CH6R/L1B	BHA0620	SX42CB	SS0308	HW50L

● : Stock item

## SRGP...E Type



RPGT



(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SRGPR/L 2020B-L12E			20	140	25	20	20	20	R/L	RPGT1203M0	FTKA0410	SR1203S	SHXN0609F	TW15P
			20	140	25	20	20	20	R/L	RPGT1604M0	FTNA0513	SR16T3S	SHXN0712F	TW20P
			30	140	32	25	25	25	R/L	RPGT2004M0	FTNA0513	SR20T3S	SHXN0712F	TW20P

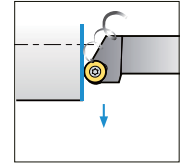
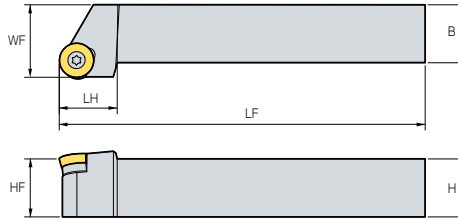
● : Stock item

# B Bearing Solutions

## SRGP...F Type



RPGT1203M0  
RPGT1604M0  
RPGT2004M0



• R type holder

(mm)

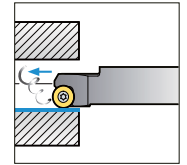
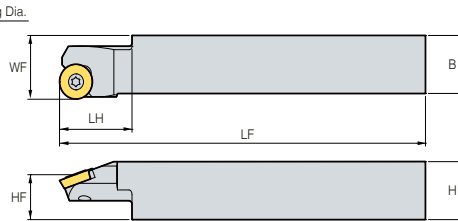
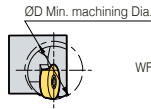
Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Shim	Shim Screw	Wrench
	R	L												
SRGPR/L 2020B-L12F			20	140	25	20	20	20	R/L	RPGT1203M0	FTKA0410	SR1203S	SHXN0609F	TW15P
			20	140	25	20	20	20	R/L	RPGT1604M0	FTNA0513	SR16T3S	SHXN0712F	TW20P
			30	140	32	25	25	25	R/L	RPGT2004M0	FTNA0513	SR20T3S	SHXN0712F	TW20P

•: Stock item

## SRCP...B Type



RPGT0802M0  
RPGT1203M0  
RPGT1604M0



• R type holder

(mm)

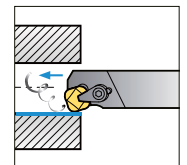
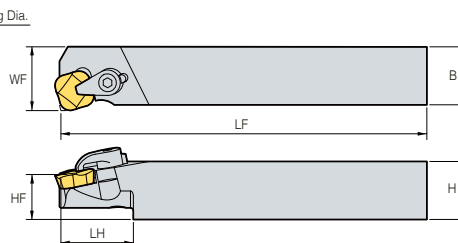
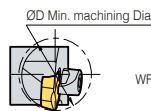
Designation	Stock		DMIN	LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L											
SRCPR/L 2020B-L08B-D12			12	25	140	21.5	15.5	20	20	R/L	RPGT0802M0	FTKA0305	TW09P
			15	25	140	21	16	19	19	R/L	RPGT1203M0	FTNA0408	TW15P
			20	25	140	22	15.5	20	20	R/L	RPGT1203M0	FTNA0408	TW15P
			32	30	140	27	20	25	25	R/L	RPGT1604M0	FTKA0510	TW20P

•: Stock item

## CSKP...B Type



SPGR120440L



• R type holder

(mm)

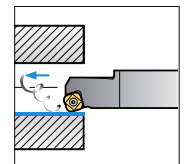
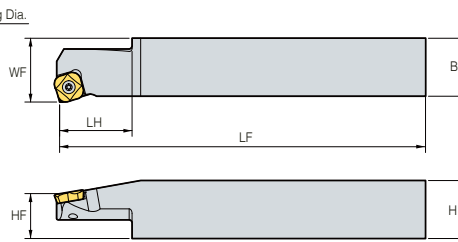
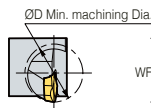
Designation	Stock		DMIN	LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Wrench
	R	L												
CSKPR/L 2022B-L12B-D30			30	37	140	27	20	22	20	R/L	SPGR120440R/L	CH5R1	CHX0510	HW30L

•: Stock item

## SSKP...B Type



SPGH090330L



• R type holder

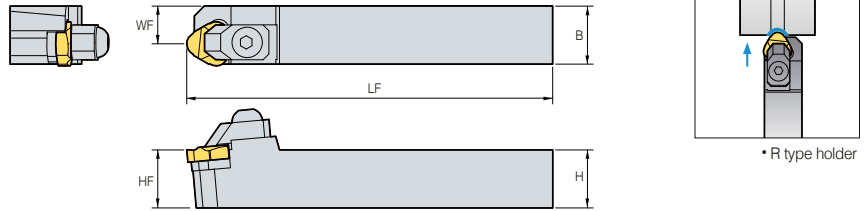
(mm)

Designation	Stock		DMIN	LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L											
SSKPR/L 2020B-L09B-D12			12	20	140	21.7	19	20	20	R/L	SPGH090330R/L	FTNA0307	TW09P
			13	20	140	21.7	19	20	20	R/L			
			20	20	140	21.7	19	20	20	R/L			

•: Stock item



# CKFN...RW Type

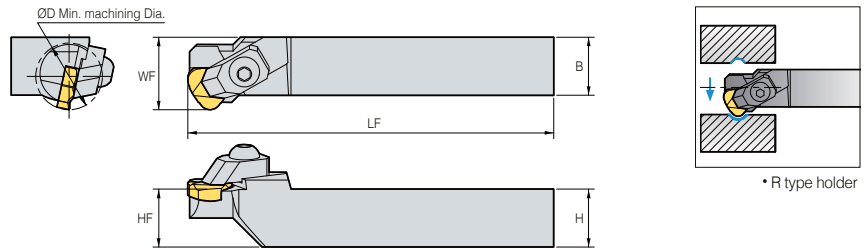


(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Wrench
	R	L													
CKFNR/L 2020B-L22RW			-	140	12.5	20	20	20	R/L	KORIC2204R/L	CH6N1B	BHA0620	ST42CB	SS0408	HW50L
2022B-L27RW			-	140	13	20	22	20	R/L	KORIC2704R/L	CH8R/L1B	BHA0820	ST52CB	SS0408	HW60L
2025B-L33RW			-	140	16	20	25	20	R/L	KORIC3306R/L	CH8R/L1B	BHA0820	ST62CB	SS0408	HW60L
2533B-L44RW			-	140	21	25	33	25	R/L	KORIC4408R/L	CH8R/L1B	BHA0820	ST82CB	SS0408	HW60L

● : Stock item

# CKGN...RW Type

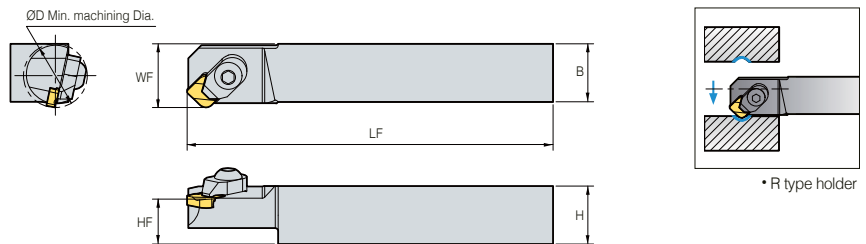


(mm)

Designation	Stock		DMIN	LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Wrench
	R	L														
CKGNR/L 2022B-L22RW-D23			23	-	140	30	20	22	20	R/L	KORIC2204R/L	CH6R/L3B	BHA0620	ST42CB	SS0408	HW50L
2022B-L27RW-D29			29	-	140	34	20	22	20	R/L	KORIC2704R/L	CH6R/L7B	BHA0620	ST52CB	SS0408	HW50L
2025B-L33RW-D38			38	-	140	33	20	25	20	R/L	KORIC3306R/L	CH6R/L5B	BHA0620	ST62CB	SS0408	HW50L
2528B-L38RW-D50			50	-	140	46	25	28	25	R/L	KORIC3806R/L	CH8R/L2B	BHA0820	ST72CB	SS0408	HW60L
2528B-L44RW-D52			52	-	140	50	25	28	25	R/L	KORIC4408R/L	CH8R/L2B	BHA0820	ST82CB	SS0408	HW60L

● : Stock item

# CSGN...RW Type

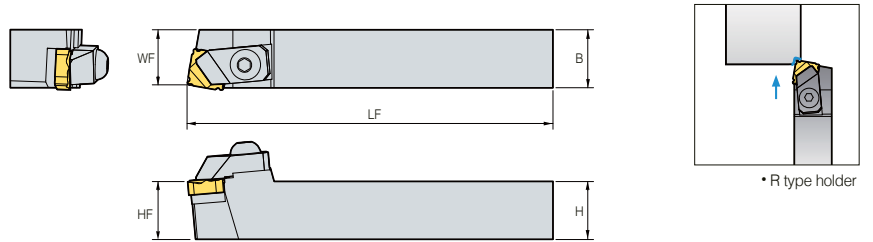


(mm)

Designation	Stock		DMIN	LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Wrench
	R	L												
CSGNR/L 2020B-L09RW-D17			17	-	140	22	20	20	20	R/L	SNGN0903WR/L	CH5R1	CHX0510	HW30L
2020B-L09RW-D22			22	-	140	22	20	20	20	R/L	SNGN0903WR/L	CH5R1	CHX0510	HW30L

● : Stock item

## CSBN...BS Type

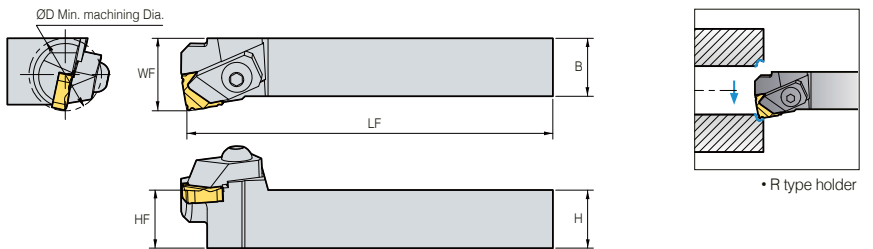


(mm)

Designation	Stock		LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Wrench
	R	L													
CSBNR/L 2023B-L12BS			-	140	21	20	23	20	R/L	SNGN1204SR/L	CH6N1B	BHA0620	SS42CB	SS0308	HW50L
2525B-L15BS			-	140	23	25	25	25	R/L	SNGN1504SR/L	CH6N1B	BHA0620	SS52CB	SS0408	HW50L

•: Stock item

## CSKN...BS Type

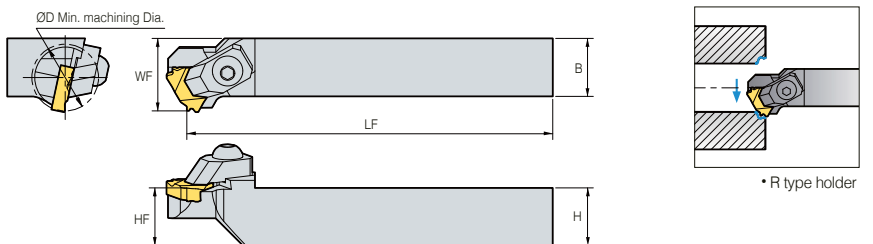


(mm)

Designation	Stock		DMIN	LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Wrench
	R	L														
CSKNR/L 1622B-L09BS-D14			14	-	140	16	16	22	16	R/L	SNGN0903SR/L	CH6R/L2B	BHA0620	-	-	HW50L
2022B-L12BS-D26			25	-	140	27	20	22	20	R/L	SNGN1204SR/L	CH6R/L1B	BHA0620	SS42CB	SS0308	HW50L
2525B-L15BS-D35			35	-	140	31	25	25	25	R/L	SNGN1504SR/L	CH6R/L3B	BHA0620	SS52CB	SS0408	HW50L

•: Stock item

## CTGN...BS Type



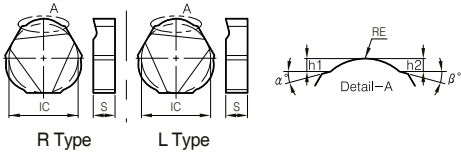
(mm)

Designation	Stock		DMIN	LH	LF	WF	HF	B	H	HAND	Applicable insert	Clamp	Clamp Screw	Shim	Shim Screw	Wrench
	R	L														
CTGNR/L 2021B-K22BS-D25			25	-	140	30	20	21	20	R/L	TNGN2204SR/L	CH6R/L7B	BHA0620	ST42CB	SS0408	HW50L

•: Stock item

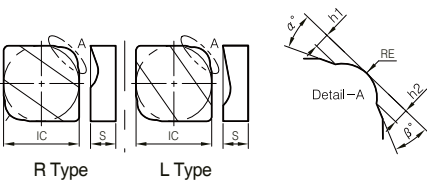
### Machining Race-way

#### KORIC... R/L Type



		IC	S	RE	h <sub>1</sub>	h <sub>2</sub>	α°	β°
KORIC	2204R/L	12.7	4.76					
	2704R/L	15.875	4.76					
	3306R/L	19.05	6.0					
	3806R/L	22.225	6.0					
	4408R/L	25.4	8.0					

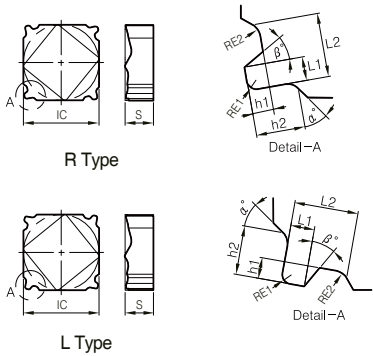
#### SNGN... WR/L Type



		IC	S	RE	h <sub>1</sub>	h <sub>2</sub>	α°	β°
SNGN	0903WR/L	9.525	3.18					
	1504WR/L	15.875	4.76					
	1905WR/L	19.05	5.56					

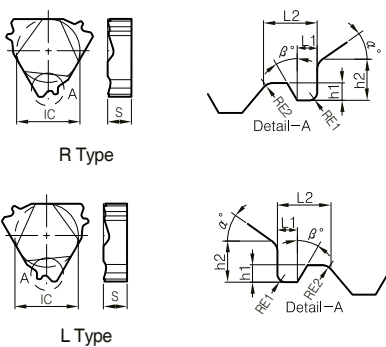
### Machining for Bearing shield

#### KORIC... R/L Type



		IC	S	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	RE <sub>1</sub>	RE <sub>2</sub>	α°	β°
SNGN	0903SR/L	9.525	3.18								
	1204SR/L	12.7	4.76								
	1504SR/L	15.875	4.76								

#### TNGN...SR/L Type



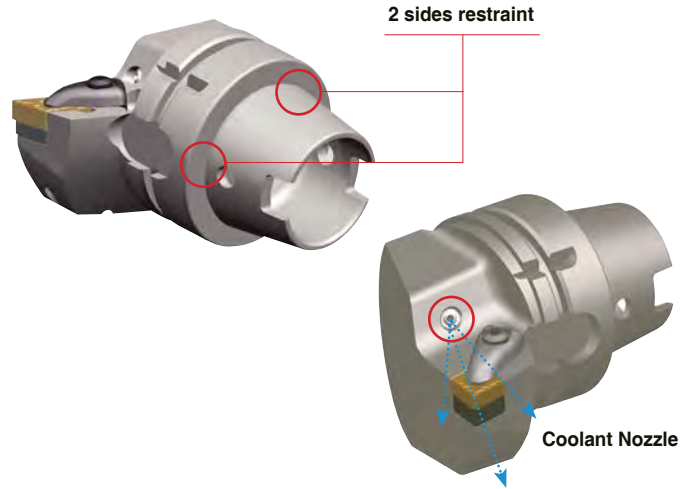
		IC	S	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	RE <sub>1</sub>	RE <sub>2</sub>	α°	β°
TNGN	02204SR/L	12.7	4.76								

# B Technical Information for HSK Tooling System

## 2 sides restraint - side and taper part

# HSK Tooling System (For Multi-task Machines)

- 2 sides restraint - side and taper part
- Toughness guaranteed for static and dynamic movements
- Precision guaranteed on shaft and repeat directions
- Suitable at high speeds
- Suitable for small work pieces
- Coolant Nozzle is easily adjustable



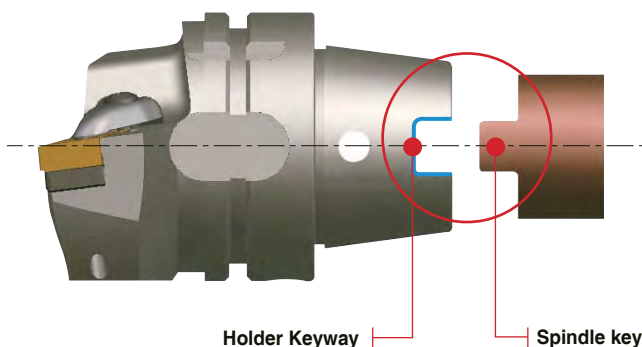
## Code system

<b>H63T</b>	<b>D</b>	<b>C</b>	<b>L</b>	<b>N</b>	<b>R</b>	<b>DX</b>	<b>-</b>	<b>12</b>
<b>Taper design &amp; size</b>	<b>Clamping Type</b>	<b>Insert Shape</b>		<b>Clearance angle of insert</b>	<b>Hand</b>	<b>Length of tool holder</b>		
	D: Double Clamp M: Multi Clamp P: Lever Lock S: Screw On W: Wedge Clamp	C: 80° Diamond D: 55° Diamond S: 90° Square T: 60° Triangle V: 35° Diamond W: 80° Hexagon		N = 0° B = 5°	R: Right L: Left N: Neutral	DX : 65 H : 100 LE : 140		
			<b>Holder Style</b>				<b>Cutting edge Length</b>	

## ICTM (Interface committee for turning mill)

- As an interface for Multi-task Machines in turning tools which is a tooling system based on the ICTM standard established by major 17 Japanese makers.
- It is compatible with the HSK-A type and can be used with tools in Multi-task Machines and MCT both.

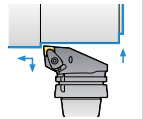
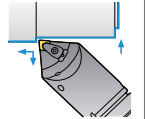
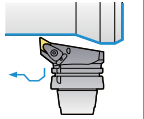
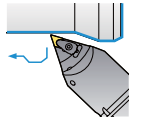
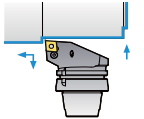
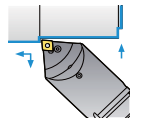
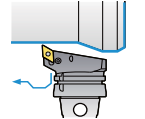
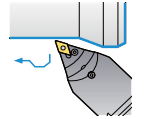
## Tolerance of keyway has been improved: HSK-T63

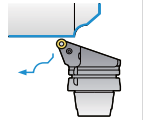
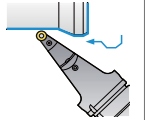
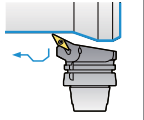
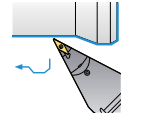
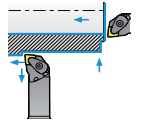
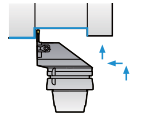
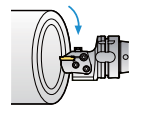


## Tolerance comparison (Example)

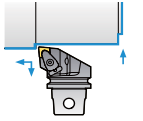
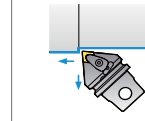

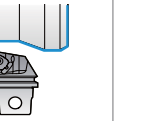
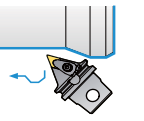
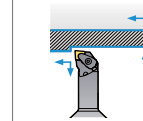

Remarks	Maximum Tolerance	Minimum Tolerance
ICTM STANDARD HSK-T63	0.075	0.035
ISO STANDARD HSK-A63	0.33	0.08

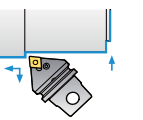
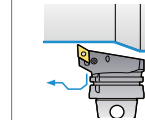

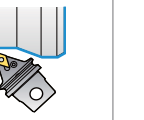
### Index for HSK Tooling System

<b>Cutting Shape</b>								
<b>Designation</b>	H63T-DCLNR/L-DX12	H63T-DCMNN-H/L12	H63T-DDJNR/L-DX15	H63T-DDNNN-H/L15	H63T-PCLNR/L-DX12	H63T-PCMNN-H/L12	H63T-PDJNR/L-DX15	H63T-PDNNN-H/L15
<b>Tool cutting edge angle</b>	95°	95°	93°	107.5°	95°	95°	93°	107.5°
<b>Page</b>	B219	B219	B219	B219	B220	B220	B220	B220
Turning	●	●	●	●	●	●	●	●
Copying			●	●			●	●
Facing	●	●	●	●	●	●	●	●
Back turning	●	●	●	●	●	●	●	●
Internal turning								

<b>Cutting Shape</b>								
<b>Designation</b>	H63T-PRGCR-DX12	H63T-PRDCN-H/L12	H63T-SVPBR/L-DX16	H63T-SVVBH-H/L16	H63T-A25K/A32L-DCLNR/L-12	H63T-MCFR/L	H63T-MCHR/L	
<b>Tool cutting edge angle</b>	-	-	117.5°	117.5°	95°	-	-	
<b>Page</b>	B221	B221	B221	B221	B222	B222	B222	
Turning	●	●	●	●	●	●		
Copying	●	●	●	●	●	●		
Facing	●	●	●	●	●	●	●	
Back turning	●	●	●	●	●			
Internal turning					●			

### Index for KM Tooling System

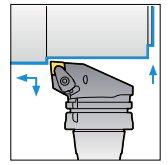
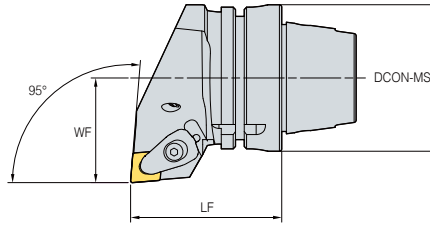
<b>Cutting Shape</b>							
<b>Designation</b>	KM50-DCLNR/L-C12 KM63UT-DCLNR/L-D12	KM50-DCMNN-C12 KM63UT-DCMNN-D12	KM50-DDJNR/L-C15(-3) KM63UT-DCJNR/L-D15(-3)	KM50-DDNNN-C15(-3) KM63UT-DDNNN-D15(-3)	KM50-A25K-DCLNR/L-12 KM50-A32K-DCLNR/L-12 KM63UT-A25K-DCLNR/L-12 KM63UT-A32L-DCLNR/L-12	KM50-PCLNR/L-C12 KM63UT-PCLNR/L-D12	
<b>Tool cutting edge angle</b>	95°	95°	93°	107.5°	95°	95°	
<b>Page</b>	B226	B226	B226	B227	B229	B227	
Turning	●	●	●	●	●	●	
Copying			●	●			
Facing	●	●	●	●	●	●	
Back turning	●	●	●	●	●	●	
Internal turning					●		

<b>Cutting Shape</b>						
<b>Designation</b>	KM50-PCMNN-C12 KM63UT-PCMNN-D12	KM50-PDJNR/L-C15(-3) KM63UT-PDJNR/L-D15(-3)	KM50-PDNNN-C15(-3) KM63UT-PDNNN-D15(-3)	KM50-MCHR/L KM63UT-MCHR/L		
<b>Tool cutting edge angle</b>	95°	93°	107.5°	-		
<b>Page</b>	B227	B228	B228	B228		
Turning	●	●	●	●		
Copying		●	●	●		
Facing	●	●	●			
Back turning	●	●	●	●		
Internal turning						

## DCLNR/L



CN□□



95°

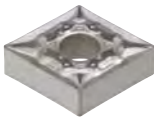
• R type holder

(mm)

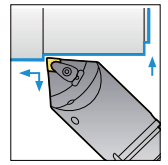
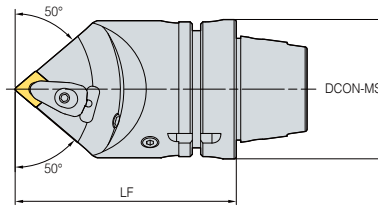
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Clamp	Screw	Shim	Shim Screw	Spring	Nozzle	Plug	Wrench	Coolant Pipe
H63T-DCLNR/L-DX12	65	45	63	R/L	CN□□1204□□	CVH4	CHX0518	SC44V	FTKA0410	SPR0714	CN0605	-	HW30P	CP63T

↻ Applicable inserts B5 ~ B11

## DCMNN



CN□□



95°

(mm)

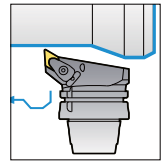
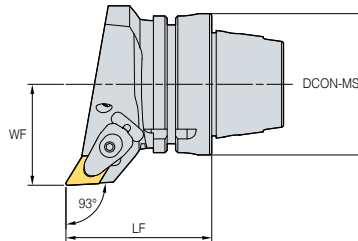
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Clamp	Screw	Shim	Shim Screw	Spring	Nozzle	Plug	Wrench	Coolant Pipe
H63T-DCMNN-H12	100	-	63	N	CN□□1204□□	CVH4	CHX0518	SC44V	FTKA0410	SPR0714	CN0605	KHA0808	HW30P	CP63T
H63T-DCMNN-L12	140	-	63	N										

↻ Applicable inserts B5 ~ B11

## DDJNR/L



DN□□



93°

• R type holder

(mm)

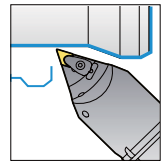
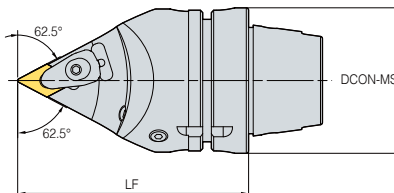
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Clamp	Screw	Shim	Shim Screw	Spring	Nozzle	Plug	Wrench	Coolant Pipe
H63T-DDJNR/L-DX15	65	45	63	R/L	DN□□1506□□	CVH4	CHX0518	SD43V	FTKA0410	SPR0714	CN0605	-	HW30P	CP63T
H63T-DDJNR/L-DX15-3	65	45	63	R/L	DN□□1504□□									

↻ Applicable inserts B13 ~ B18

## DDNNN



DN□□



107.5°

(mm)

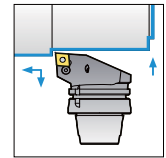
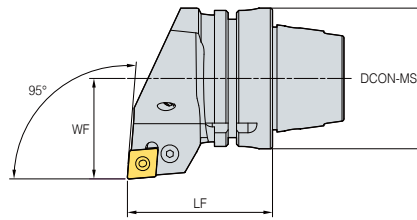
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Clamp	Screw	Shim	Shim Screw	Spring	Nozzle	Plug	Wrench	Coolant Pipe
H63T-DDNNN-H15	100	-	63	N	DN□□1506□□	CVH4	CHX0518	SD43V	FTKA0410	SPR0714	CN0605	KHA0808	HW30P	CP63T
H63T-DDNNN-L15	140	-	63	N										
H63T-DDNNN-H15-3	100	-	63	N	DN□□1504□□	CVH4	CHX0518	SD44V	FTKA0410	SPR0714	CN0605	KHA0808	HW30P	CP63T
H63T-DDNNN-L15-3	100	-	63	N										

↻ Applicable inserts B13 ~ B18

## PCLNR/L



CN□□



95°

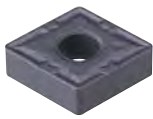
• R type holder

(mm)

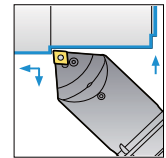
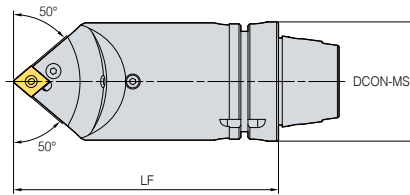
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Punching	Nozzle	Plug	Wrench	Coolant Pipe
H63T-PCLNR/L-DX12	65	45	63	R/L	CN□□1204□□	LV4N	VHX0820N	SC42N	SP4N	LSPS4	CN0605	-	HW30L	CP63T

↻ Applicable inserts **B5 ~ B11**

## PCMNN



CN□□



95°

(mm)

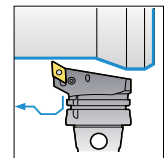
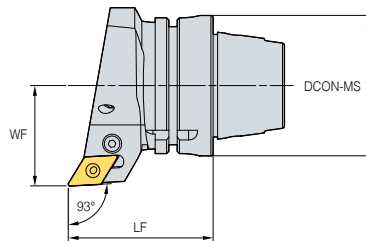
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Punching	Nozzle	Plug	Wrench	Coolant Pipe
H63T-PCMNN-H12	100	-	63	N	CN□□1204□□	LV4N	VHX0820N	SC42N	SP4N	LSPS4	CN0605	KHA0808	HW30L	CP63T
H63T-PCMNN-L12	140	-	63	N										

↻ Applicable inserts **B5 ~ B11**

## PDJNR/L



DN□□



93°

• R type holder

(mm)

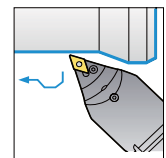
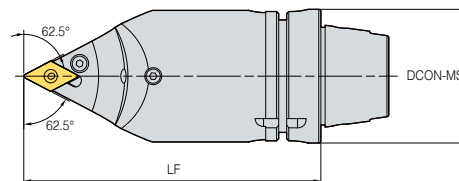
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Punching	Nozzle	Plug	Wrench	Coolant Pipe
H63T-PDJNR/L-DX15	65	45	63	R/L	DN□□1506□□	LV4BN	VHX0821N	SD42N	SP4N	LSPS4	CN0605	-	HW30L	CP63T
H63T-PDJNR/L-DX15-3	65	45	63	R/L	DN□□1504□□			SD43N						

↻ Applicable inserts **B13 ~ B18**

## PDNNN



DN□□



107.5°

(mm)

Designation	LF	WF	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Punching	Nozzle	Plug	Wrench	Coolant Pipe
H63T-PDNNN-H15	100	-	63	N	DN□□1506□□	LV4BN	VHX0821N	SD42N	SP4N	LSPS4	CN0605	KHA0808	HW30L	CP63T
H63T-PDNNN-L15	140	-	63	N										
H63T-PDNNN-H15-3	100	-	63	N	DN□□1504□□	LV4BN	VHX0821N	SD43N	SP4N	LSPS4	CN0605	KHA0808	HW30L	CP63T
H63T-PDNNN-L15-3	140	-	63	N										

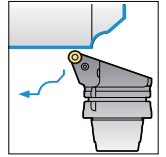
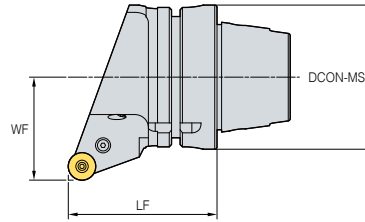
↻ Applicable inserts **B13 ~ B18**



## PRGCR/L



RCMX1204M0



• R type holder

(mm)

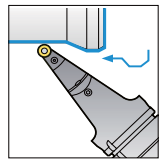
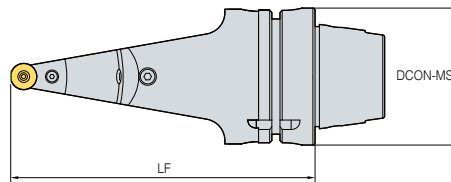
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Punching	Nozzle	Plug	Wrench	Coolant Pipe
H63T-PRGCR/L-DX12	65	45	63	R/L	RCMX1204M0	LR12	VHX0617	SR12	SP3	LSPS3	CN0605	-	HW25L	CP63T

↻ Applicable inserts **B54**

## PRDCN



RCMX1204M0



(mm)

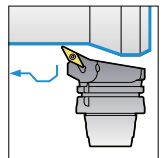
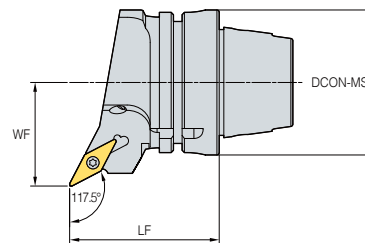
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Punching	Nozzle	Plug	Wrench	Coolant Pipe
H63T-PRDCN-H12	100	-	63	N	RCMX1204M0	LR12	VHX0617	SR12	SP3	LSPS3	CN0605	-	HW25L	CP63T
H63T-PRDCN-L12	140	-	63	N										

↻ Applicable inserts **B54**

## SVPBR/L



VB□T



117.5°

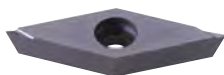
• R type holder

(mm)

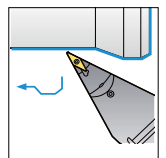
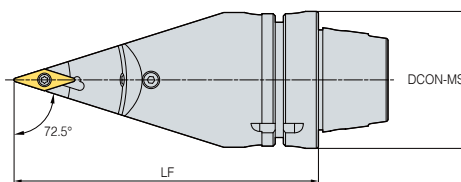
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Screw	Shim Screw	Shim	Nozzle	Plug	Wrench	Wrench	Coolant Pipe
H63T-SVPBR/L-DX16	65	45	63	R/L	VB□T1604□□	FTGA03512	SHXN0509F	SV32S	CN0605	-	TW15P	HW32L	CP63T

↻ Applicable inserts **B65 ~ B66**

## SVVBN



VB□T



117.5°

(mm)

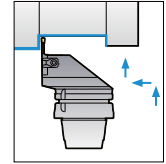
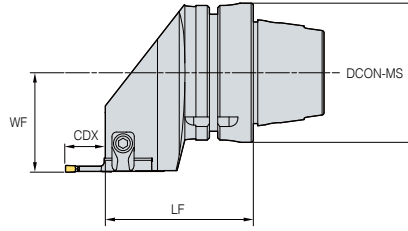
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Screw	Shim Screw	Shim	Nozzle	Plug	Wrench	Wrench	Coolant Pipe
H63T-SVVBN-H16	100	-	63	N	VB□T1604□□	FTGA03512	SHXN0509F	SV32S	CN0605	KHA0808	TW15P	HW32L	CP63T
H63T-SVVBN-L16	140	-	63	N									

↻ Applicable inserts **B65 ~ B66**

# MCHR/L



MGMN / MGMR/L  
MGGN / MRMN



• R type holder

(mm)

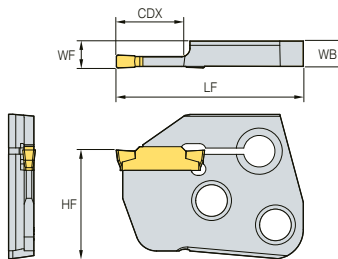
Designation	CDX	WF	LPR	DCON-MS	Applicable insert	Applicable Cartridge	Clamp	Clamp Screw	Hinge Screw	Screw	Nozzle	Plug	Wrench	Coolant Pipe
H63T-MCHR/L	16	45	67	63	MGMN MGMR/L	MCER/L3-T16 MCER/L4-T16	CHX8N	DHA0818F	RHA0613	FHGA0618	CN0605	-	HW40L	CP63T
	20	45	67	63	MGGN MRMN	MCER/L5-T20 MCER/L6-T20								

➔ Applicable inserts **C43 ~ C45**

# MCER/L (Cartridge)



MGMN / MGMR/L  
MGGN / MRMN



• R type holder  
(mm)

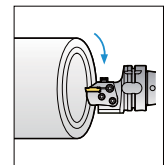
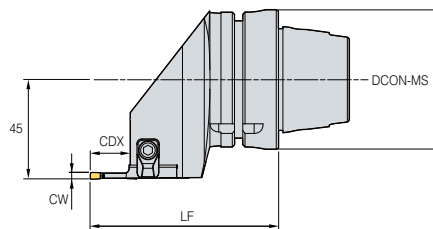
Designation	CDX	WB	LF	HF	WF	HAND	Applicable insert		Tool holders	
							CW	Designation		
MCER/L	3-T16	16	6	44.5	25.83	6.35	R/L	3	MGMN MGMR/L MGGN MGMN	H63T-MCHR/L
	4-T16	16	5.97	44.5	25.83	6.35	R/L	4		
	5-T20	20	5.87	44.5	25.83	6.35	R/L	5		
	6-T20	20	5.82	44.5	25.83	6.35	R/L	6		

➔ Applicable inserts **C43 ~ C45**

# MCHR/L



MFMN300  
MGMN400



• R type holder

(mm)

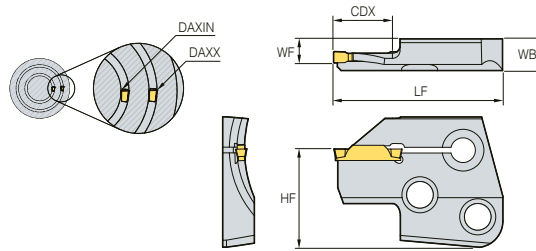
Designation	CW	CDX	LF	DCON-MS	Applicable insert	Applicable Cartridge	Clamp	Clamp Screw	Hinge Screw	Screw	Nozzle	Plug	Wrench	Coolant Pipe
H63T-MCHR/L	3	16	85	63	MFMN300	MCFR/L3-24/35-T16 MCFR/L3-29/40-T16 MCFR/L3-34/50-T16 MCFR/L3-44/70-T16 MCFR/L3-64/99-T16	CHX8N	DHA0818F	RHA0613	FHGA0618	CN0605	-	HW40L	
						MCFR/L4-44/60-T16 MCFR/L4-60/120-T16 MCFR/L4-112/200-T16								

➔ Applicable inserts **C43 ~ C45**

## MCFR/L (Cartridge)



MFMN300  
MGMN400



• R type holder  
(mm)

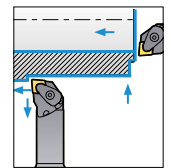
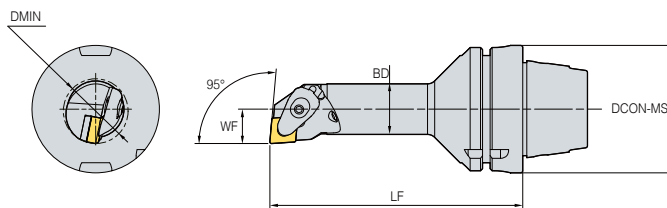
Designation	CDX	DAXIN	DAXX	WB	LF	HF	HAND	Applicable insert		Tool holders
								CW	Designation	
MCFR/L3- 24/35-T16 29/40-T16 34/50-T16 44/70-T16 64/99-T16	16	24	35	8	44.5	25.83	R/L	3	MFMN300	H63T-MCHR/L
	16	29	40	8	44.5	25.83	R/L	3		
	16	34	50	8	44.5	25.83	R/L	3		
	16	44	70	8	44.5	25.83	R/L	3		
	16	67	99	8	44.5	25.83	R/L	3		
MCFR/L4- 44/60-T16 60/120-T16 112/200-T16	16	44	60	7.97	44.5	25.83	R/L	4	MGMN400	H63T-MCHR/L
	16	60	120	7.97	44.5	25.83	R/L	4		
	16	112	200	7.97	44.5	25.83	R/L	4		

↻ Applicable inserts C43 ~ C45

## DCLNR/L



CN□□



95°

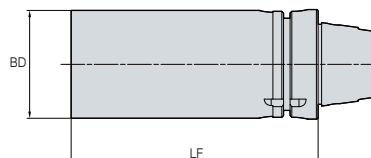
• R type holder

(mm)

Designation	DMIN	BD	LF	WF	DCON-MS	Applicable insert	Clamp	Screw	Shim	Shim Screw	Spring	Nozzle	Plug	Wrench	Coolant Pipe
H63T-A25K-DCLNR/L-12	32	25	125	17	63	CN□□1204□□	CVH4	CHX0518	SC42V	FTKA0410	SPR0714	CN0605	-	HW30P	CP63T
H63T-A32L-DCLNR/L-12	40	32	140	22	63										

↻ Applicable inserts B5 ~ B11

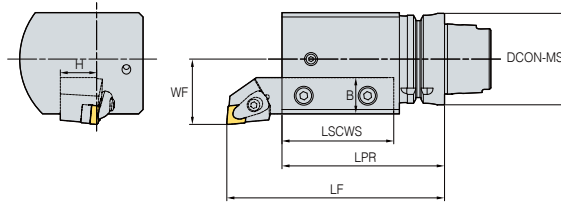
## Blank Tool



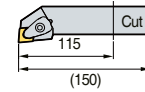
(mm)

Designation	BD	LF	Coolant Pipe
HSK-T63-BL62-102	62	102	 CP63T
HSK-T63-BL62-142	62	142	
HSK-T63-BL100-67	100	67	
HSK-T63-BL120-70	120	70	

## EV2525R/L-112



- **Holder information**
- Holder size: 25 x 25
- Before setting the holder, please cut the holder length to 115 mm.



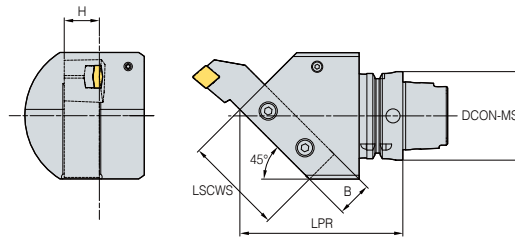
**Holder information**

- Holder size: 25 x 25
- Before setting the holder, please cut the holder length to 115 mm.

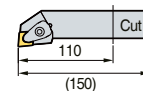
• R type holder (mm)

Designation	LF	WF	DCON-MS	DCON-WS	BD	LPR	B	H	LSCWS	HAND	Screw	Plug	Nozzle	Wrench	Coolant Pipe
EV2525R/L-112	150	45	63	-	-	112	25	25	77	R/L	KHA1231	KHA0808	CN0605	HW50L	CP63T

## EV2525R/L-115



- **Holder information**
- Holder size: 25 x 25
- Before setting the holder, please cut the holder length to 110 mm.



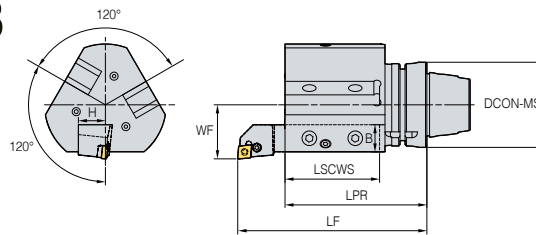
**Holder information**

- Holder size: 25 x 25
- Before setting the holder, please cut the holder length to 110 mm.

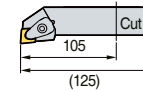
• R type holder (mm)

Designation	LF	WF	DCON-MS	DCON-WS	BD	LPR	B	H	LSCWS	HAND	Screw	Plug	Nozzle	Wrench	Coolant Pipe
EV2525R/L-115	-	-	63	-	-	115	25	25	70	R/L	KHA1231	KHA0808	CN0605	HW50L	CP63T

## EV2020R/L-105-3



- **Holder information**
- Holder size: 20 x 20
- Before setting the holder, please cut the holder length to 105 mm.



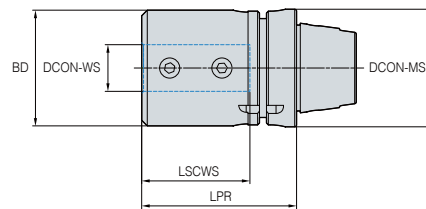
**Holder information**

- Holder size: 20 x 20
- Before setting the holder, please cut the holder length to 105 mm.

• R type holder (mm)

Designation	LF	WF	DCON-MS	DCON-WS	BD	LPR	B	H	LSCWS	HAND	Screw	Plug	Nozzle	Wrench	Coolant Pipe
EV2020R/L-105-3	140	40	63	-	-	105	20	20	70	R/L	KHA1231	KHA0808	CN0605	HW50L	CP63T

## B○○-○○



(mm)

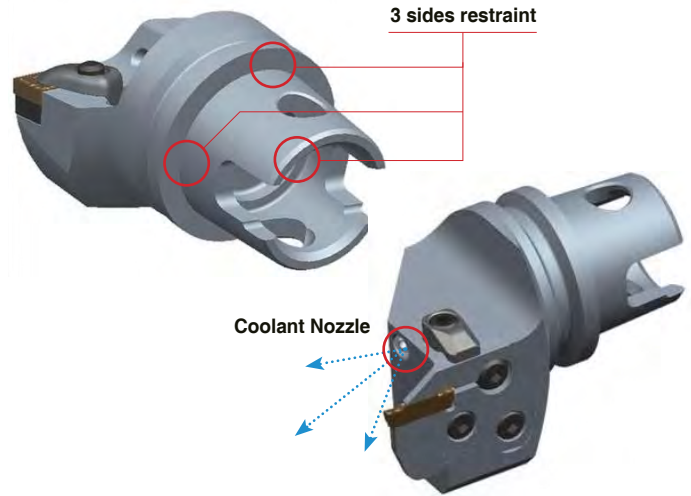
Designation	DCON-MS	DCON-WS	BD	LPR	H	LSCWS	HAND	Screw	Wrench	Coolant Pipe
B08-65	63	8	28	65	40	40	N	KHA1218	HW50L	CP63T
B10-70	63	10	35	70	45	45	N			
B12-70	63	12	42	70	45	45	N			
B16-75	63	16	48	75	50	50	N			
B20-75	63	20	52	75	50	50	N			
B25-83	63	25	62	83	58	58	N			
B32-87	63	32	62	87	62	62	N			
B40-97	63	40	65	97	72	72	N			

# B Technical Information for KM Tooling System

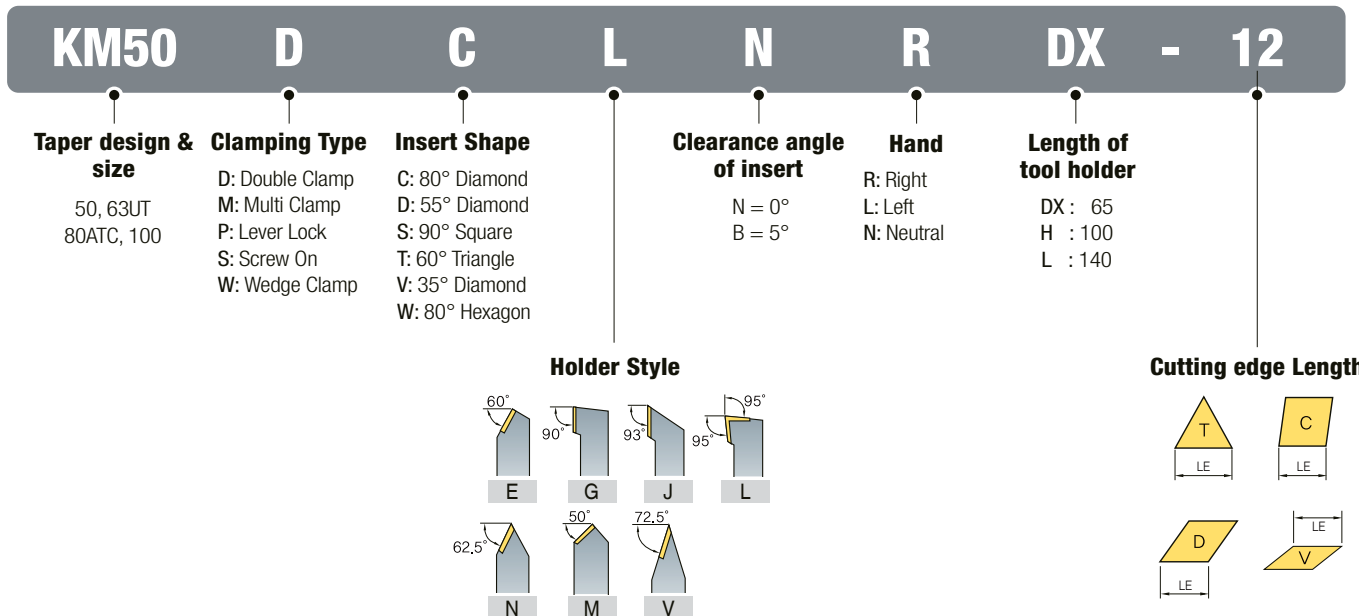
## 3 Face Binding - Superior precision

# KM Tooling System (For Multi-task Machines)

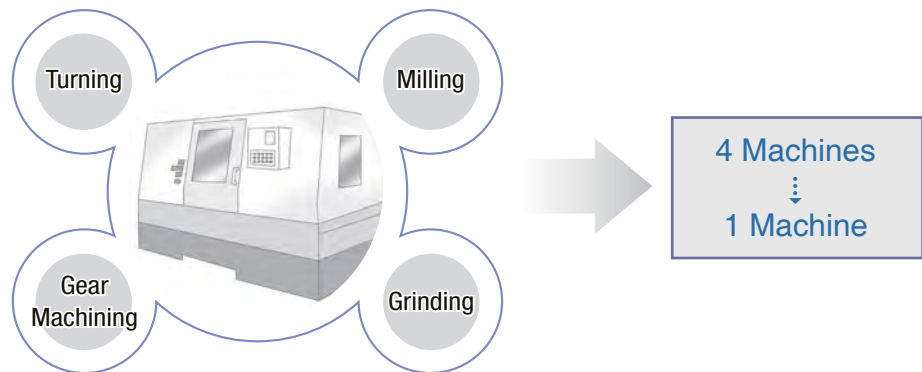
- 3 Face binding/Superior precision
- Flexible clamping system/Superior rigidity
- Various size & style
- Appropriate for turning & milling
- Adjustable coolant direction with coolant nozzle



## Code system



## Multi-tasking machine



» KM Tooling system is superior for wide application.

External Process

Internal Process

Grooving Process

Drill Process

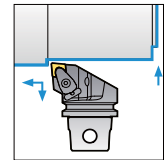
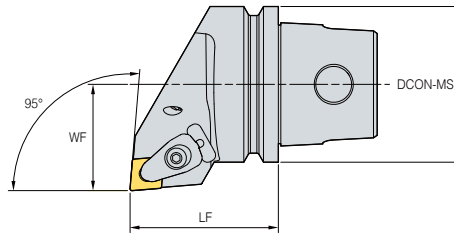
Parting-off Process

KM50, KM63UT, KM80, KM100 Standard and Special type can be produced.

# DCLNR/L



CN□□



95°

• R type holder

(mm)

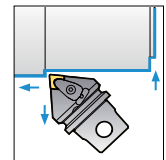
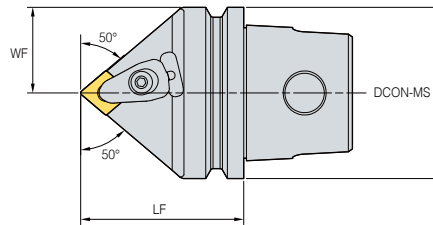
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Clamp	Screw	Shim	Shim Screw	Spring	Nozzle	Plug	Wrench
KM50-DCLNR/L-C12	50	35	50	R/L	CN□□1204□□	CVH4	CHX0518	SC44V	FTKA0410	SPR0714	CN0605	-	HW30P
KM63UT-DCLNR/L-D12	60	43	63	R/L	CN□□1204□□	CVH4	CHX0518	SC44V	FTKA0410	SPR0714	CN0605	-	HW30P

➔ Applicable inserts B5 ~ B11

# DCMNN



CN□□



95°

(mm)

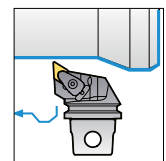
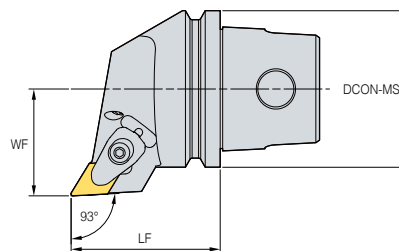
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Clamp	Screw	Shim	Shim Screw	Spring	Nozzle	Plug	Wrench
KM50-DCMNN-C12	50	-	50	N	CN□□1204□□	CVH4	CHX0518	SC44V	FTKA0410	SPR0714	CN0605	KHA0808	HW30P
KM63UT-DCMNN-D12	60	-	63	N	CN□□1204□□	CVH4	CHX0518	SC44V	FTKA0410	SPR0714	CN0605	KHA0808	HW30P

➔ Applicable inserts B5 ~ B11

# DDJNR/L



DN□□



93°

• R type holder

(mm)

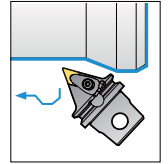
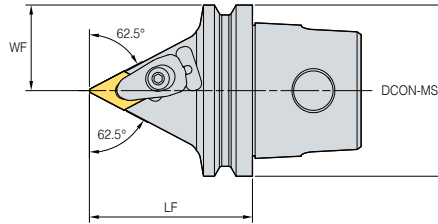
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Clamp	Screw	Shim	Shim Screw	Spring	Nozzle	Plug	Wrench
KM50-DDJNR/L-C15	50	35	50	R/L	DN□□1506□□	CVH4	CHX0518	SD43V	FTKA0410	SPR0714	CN0605	-	HW30P
KM50-DDJNR/L-C15-3	50	35	50	R/L	DN□□1504□□	CVH4	CHX0518	SD44V	FTKA0410	SPR0714	CN0605	-	HW30P
KM63UT-DDJNR/L-D15	60	43	63	R/L	DN□□1506□□	CVH4	CHX0518	SD43V	FTKA0410	SPR0714	CN0605	-	HW30P
KM63UT-DDJNR/L-D15-3	60	43	63	R/L	DN□□1504□□	CVH4	CHX0518	SD44V	FTKA0410	SPR0714	CN0605	-	HW30P

➔ Applicable inserts B13 ~ B18

## DDNNN



DN□□



117.5°

(mm)

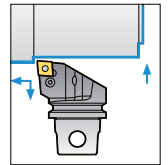
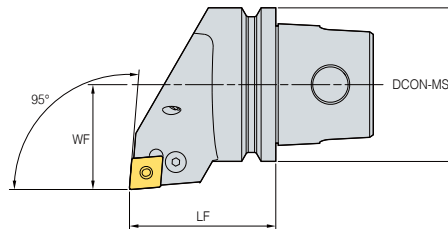
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Clamp	Screw	Shim	Shim Screw	Spring	Nozzle	Plug	Wrench
KM50-DDNNN-C15	50	25	50	N	DN□□1506□□	CVH4	CHX0518	SD43V	FTKA0410	SPR0714	CN0605	KHA0808	HW30P
KM50-DDNNN-C15-3	50	25	50	N	DN□□1504□□	CVH4	CHX0518	SD44V	FTKA0410	SPR0714	CN0605	KHA0808	HW30P
KM63UT-DDNNN-D15	60	31.5	63	N	DN□□1506□□	CVH4	CHX0518	SD43V	FTKA0410	SPR0714	CN0605	KHA0808	HW30P
KM63UT-DDNNN-D15-3	60	31.5	63	N	DN□□1504□□	CVH4	CHX0518	SD44V	FTKA0410	SPR0714	CN0605	KHA0808	HW30P

↻ Applicable inserts B13 ~ B18

## PCLNR/L



CN□□



95°

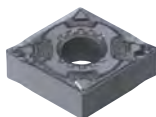
• R type holder

(mm)

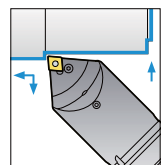
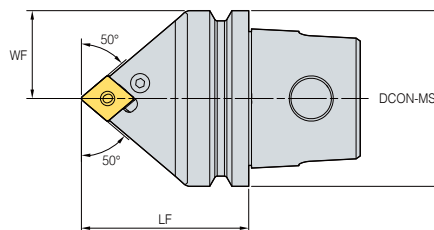
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Punching	Nozzle	Plug	Wrench
KM50-PCLNR/L-C12	50	35	50	R/L	CN□□1204□□	LV4N	VHX0820N	SC42N	SP4N	LSPS4	CN0605	-	HW30L
KM63UT-PCLNR/L-D12	60	43	63	R/L	CN□□1204□□	LV4N	VHX0820N	SC42N	SP4N	LSPS4	CN0605	-	HW30L

↻ Applicable inserts B5 ~ B11

## PCMNN



CN□□



95°

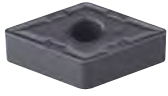
(mm)

Designation	LF	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Punching	Nozzle	Plug	Wrench
KM50-PCMNN-C12	50	50	N	CN□□1204□□	LV4N	VHX0820N	SC42N	SP4N	LSPS4	CN0605	KHA0808	HW30L
KM63UT-PCMNN-D12	60	63	N	CN□□1204□□	LV4N	VHX0820N	SC42N	SP4N	LSPS4	CN0605	KHA0808	HW30L

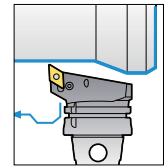
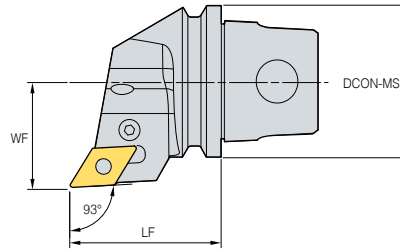
↻ Applicable inserts B5 ~ B11



# PDJNR/L



DN□□



93°

• R type holder

(mm)

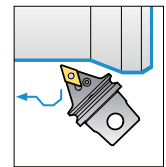
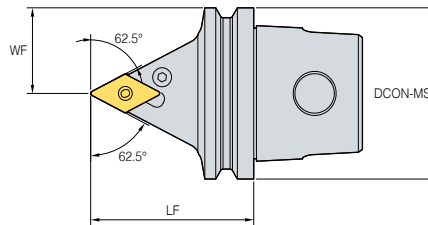
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Punching	Nozzle	Plug	Wrench
KM50-PDJNR/L-C15	50	35	50	R/L	DN□□1506□□	LV4BN	VHX0821N	SD42N	SP4N	LS4N	CN0605	-	HW30L
KM50-PDJNR/L-C15-3	50	35	50	R/L	DN□□1504□□	LV4BN	VHX0821N	SD43N	SP4N	LS4N	CN0605	-	HW30L
KM63UT-PDJNR/L-D15	60	43	63	R/L	DN□□1506□□	LV4BN	VHX0821N	SD42N	SP4N	LS4N	CN0605	-	HW30L
KM63UT-PDJNR/L-D15-3	60	43	63	R/L	DN□□1504□□	LV4BN	VHX0821N	SD43N	SP4N	LS4N	CN0605	-	HW30L

↻ Applicable inserts **B13 ~ B18**

# PDNNN



DN□□



107.5°

(mm)

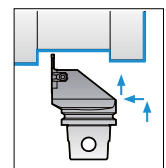
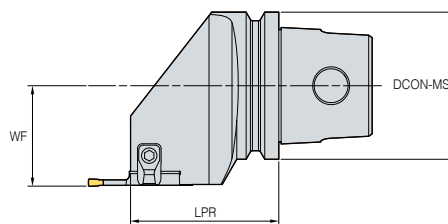
Designation	LF	WF	DCON-MS	HAND	Applicable insert	Lever	Screw	Shim	Shim Pin	Punching	Nozzle	Plug	Wrench
KM50-PDNNN-C15	50	-	50	N	DN□□1506□□	LV4BN	VHX0821N	SD42N	SP4N	LS4N	CN0605	KHA0808	HW30L
KM50-PDNNN-C15-3	50	-	50	N	DN□□1504□□	LV4BN	VHX0821N	SD43N	SP4N	LS4N	CN0605	KHA0808	HW30L
KM63UT-PDNNN-D15	60	-	63	N	DN□□1506□□	LV4BN	VHX0821N	SD42N	SP4N	LS4N	CN0605	KHA0808	HW30L
KM63UT-PDNNN-D15-3	60	-	63	N	DN□□1504□□	LV4BN	VHX0821N	SD43N	SP4N	LS4N	CN0605	KHA0808	HW30L

↻ Applicable inserts **B13 ~ B18**

# MCHR/L



MGMN / MGMR/L  
MGGN / MRMN



• R type holder

(mm)

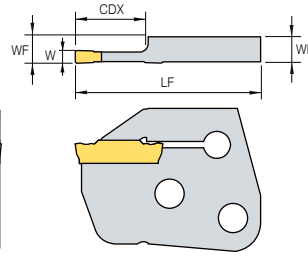
Designation	WF	DCON-MS	LPR	HAND	Applicable insert	Applicable Cartridge	Clamp	Clamp Screw	Hinge Screw	Screw	Nozzle	Plug	Wrench
KM50-MCHR/L	43	50	56.5	R/L	MGMN MGMR/L	MCER/L3-T16	CHX8N	DHA0818F	RHA0613	FHGA0618	CN0605	-	HW40L
						MCER/L4-T16							
						MCER/L5-T20							
						MCER/L6-T20							
KM63UT-MCHR/L	43	63	56.5	R/L	MGGN MRMN	MCER/L3-T16	CHX8N	DHA0818F	RHA0613	FHGA0618	CN0605	-	HW40L
						MCER/L4-T16							
						MCER/L5-T20							
						MCER/L6-T20							

↻ Applicable inserts **C43 ~ C45**

## MCER/L (Cartridge)



MGMN / MGMR/L  
MGGN / MRMN



• R type holder  
(mm)

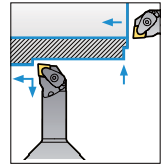
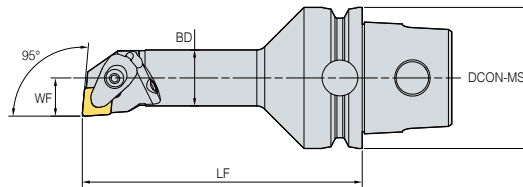
Designation	CDX	WB	LF	WF	HAND	Applicable insert		Tool holders	
						W	Designation		
MCER/L	3-T16	16	6	44.5	6.35	R/L	3	MGMN MGMR/L MGGN MRMN	H-63T-MCHR/L
	4-T16	16	5.97	44.5	6.35	R/L	4		
	5-T20	20	5.87	48.5	6.35	R/L	5		
	6-T20	20	5.82	48.5	6.35	R/L	6		

➤ Applicable inserts C43 ~ C45

## KM○○-DCLNR/L



CN□□



95°

• R type holder

(mm)

Designation	LF	WF	BD	DCON-MS	HAND	Applicable insert	Clamp	Screw	Shim	Shim Screw	Spring	Nozzle	Plug	Wrench
KM50-A25K-DCLNR/L-12	125	17	32	50	R/L	CN□□1204□□								
KM50-A32L-DCLNR/L-12	140	22	40	50	R/L									
KM63UT-A25K-DCLNR/L-12	125	17	32	63	R/L									
KM63UT-A32L-DCLNR/L-12	140	22	40	63	R/L									

➤ Applicable inserts B5 ~ B11

## Blank Tool

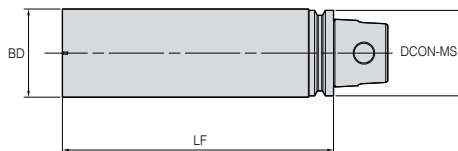


Fig. 1

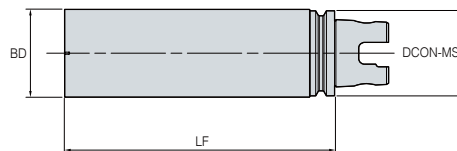


Fig. 2

(mm)

Designation	LF	BD	DCON-MS	Fig.
KM50-BL7562	62	45	50	1
KM50-BL10562	62	105	50	2
KM63UT-BL65200	200	65	63	1
KM63UT-BL115150	150	115	63	2

S T F C R 12 C A - 16

1

Clamping system

2

Insert Shape

3

Holder Style

4

Relief Angle of Insert

5

Hand

6

Height of Cutting Edge

7

Cartridge Code

8

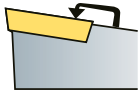
Type of Cartridge

9

Length of Cutting Edge

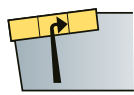
**1 Clamping system**

S T F C R 12 C A - 16



Top Clamping

C



Hole Clamping

P



Screw on

S

**2 Insert Shape**

S T F C R 12 C A - 16



C



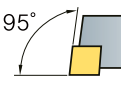
S



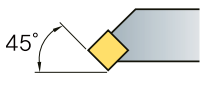
T

**3 Holder Style**

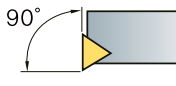
S T F C R 12 C A - 16



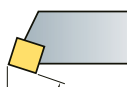
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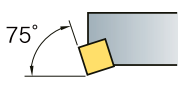
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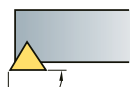
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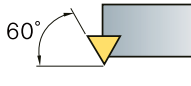
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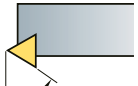
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G



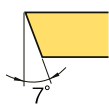
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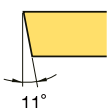
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**4 Relief Angle of Insert**

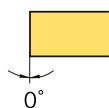
S T F C R 12 C A - 16



C



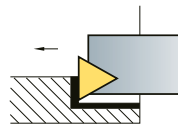
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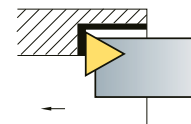
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**5 Hand**

S T F C R 12 C A - 16



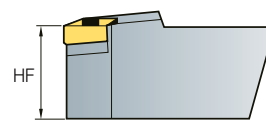
R



L

**6 Height of Cutting Edge**

S T F C R 12 C A - 16



**7 Cartridge Code**

S T F C R 12 C A - 16

C (Cartridge)

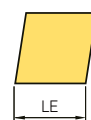
**8 Type of Cartridge**

S T F C R 12 C A - 16

A (ISO5611)

**9 Length of Cutting Edge**

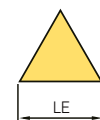
S T F C R 12 C A - 16



LE

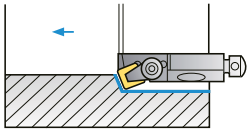
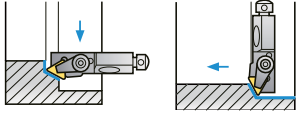
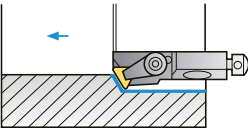
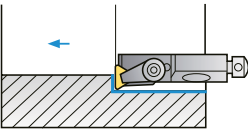
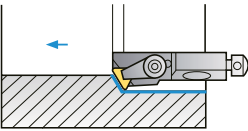
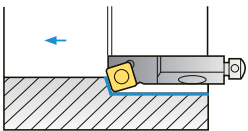
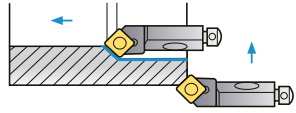
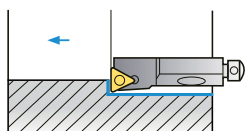
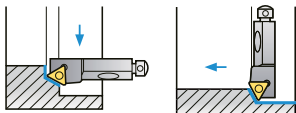
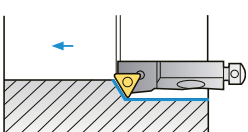


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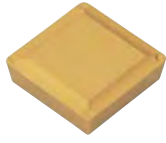


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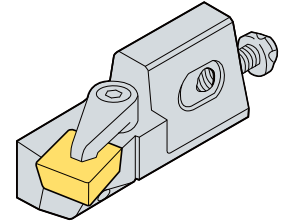
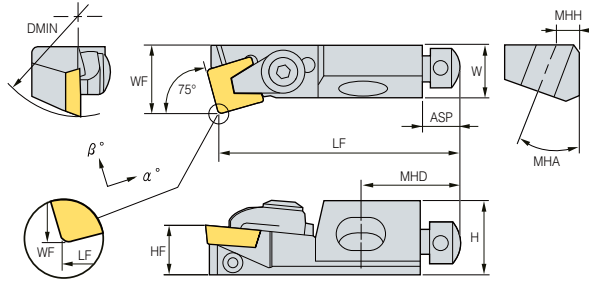
# B Index for Cartridges

	Cutting Shape	Turning	Copying	Facing	Chamfering	Applicable inserts	Page	
Clamp on System	<b>CSKPR/L</b> 	10CA-09 12CA-12	●				SP□R0903□□ SP□R1203□□	B232
	<b>CTTPR/L</b> 	10CA-11 12CA-16	●				TP□R1103□□ TP□R1603□□	B233
	<b>CTWPR/L</b> 	10CA-11 12CA-16	●				TP□R1103□□ TP□R1603□□	B234
	<b>CTFPR/L</b> 	10CA-11 12CA-16	●		●		TP□R1103□□ TP□R1603□□	B232
	<b>CTSPR/L</b> 	10CA-11 12CA-16	●				TP□R1103□□ TP□R1603□□	B233
Screw on System	<b>SSKCR/L</b> 	10CA-09 12CA-12	●				SC□T09T3□□ SC□T1204□□	B234
	<b>SSSCR/L</b> 	10CA-09 12CA-12	●		●		SC□T09T3□□ SC□T1204□□	B235
	<b>STFCR/L</b> 	10CA-11 12CA-16	●		●		TC□T1102□□ TC□T16T3□□	B235
	<b>STTCR/L</b> 	10CA-11 12CA-16	●		●		TC□T1102□□ TC□T16T3□□	B236
	<b>STWCR/L</b> 	10CA-11 12CA-16	●				TC□T1102□□ TC□T16T3□□	B236

# CSKPR/L



SP□R



• R type holder (mm)

Designation	Stock		DMIN	H	W	LF	WF	HF	ASP	$\alpha^\circ$	$\beta^\circ$	MHD	MHH	MHA	Applicable insert
	R	L													
CSKPR/L 10CA-09			40	15	11	50	14	10	8	6	0	20	5	20	SP□R0903□□
12CA-12	•		50	20	15	55	20	12	8	6	0	20	6	20	SP□R1203□□

• Applicable inserts **B56 ~ B57**

• a base Insert :  $r = 0.4 (l = 11) r = 0.8 (l = 16)$  Dmin =  $\varnothing$ D Min. machining Dia

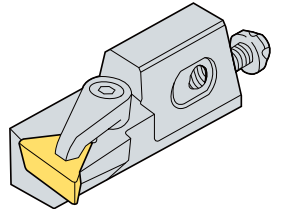
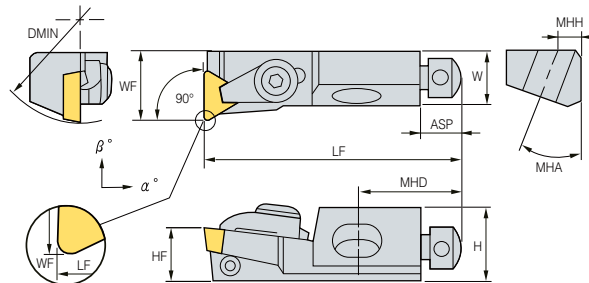
• Stock item

Parts	Clamp	Axial Adjust Screw	Radial Adjust Screw	Mounting Screw	Washer	Wrench	Wrench
CSKPR/L 10CA-09	CA05R	AZ0508F	KHA0408	RHA0620	WA0602	TW 15P	HW20L
12CA-12	CA06R	AZ0508F	KHA0412	RHA0625	WA0602	TW 15P	HW20L

# CTFPR/L



TP□R



• R type holder (mm)

Designation	Stock		DMIN	H	W	LF	WF	HF	ASP	$\alpha^\circ$	$\beta^\circ$	MHD	MHH	MHA	Applicable insert
	R	L													
CTFPR/L 10CA-11			40	15	11	50	14	10	8	6	0	20	5	20	TP□R1103□□
12CA-16			50	20	15	55	20	12	8	6	0	20	6	20	TP□R1603□□

• Applicable inserts **B62 ~ B63**

• a base Insert :  $r = 0.8$  Dmin =  $\varnothing$ D Min. machining Dia.

• Stock item

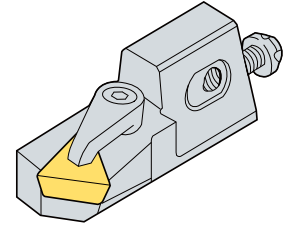
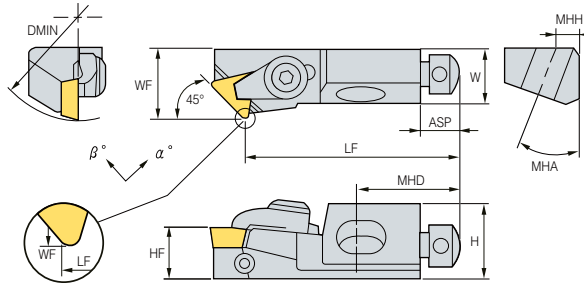
Parts	Clamp	Axial Adjust Screw	Radial Adjust Screw	Mounting Screw	Washer	Wrench	Wrench
CTFPR/L 10CA-11	CA05R	AZ0508F	KHA0408	RHA0620	WA0602	TW25L	HW20L
12CA-16	CA06R	AZ0508F	KHA0412	RHA0625	WA0602	TW30L	HW20L

# B Clamp on System

## CTSPR/L



TP□R



• R type holder (mm)

Designation	Stock		DMIN	H	W	LF	WF	HF	ASP	$\alpha^\circ$	$\beta^\circ$	MHD	MHH	MHA	Applicable insert
	R	L													
CTSPR/L 10CA-11	•		40	15	11	44	14	10	8	4	0	20	5	20	TP□R1103□□
12CA-16			50	20	15	47	20	12	8	5	0	20	6	20	TP□R1603□□

↻ Applicable inserts B62 ~ B63

• a base Insert :  $r = 0.4$  ( $l = 11$ )  $r = 0.8$  ( $l = 16$ ) Dmin =  $\varnothing$ D Min. machining Dia.

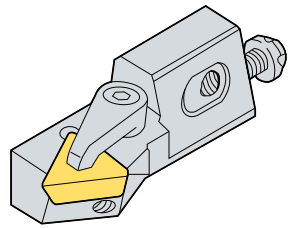
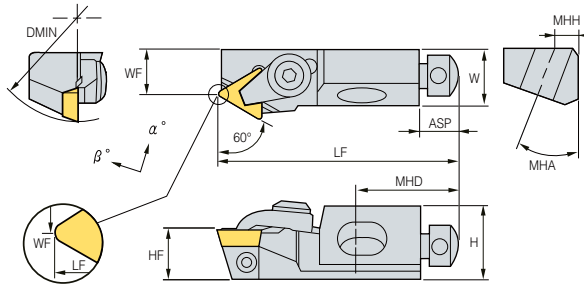
• : Stock item

Parts	Clamp	Axial Adjust Screw	Radial Adjust Screw	Mounting Screw	Washer	Wrench	Wrench
CTSPR/L 10CA-11	CA05R	AZ0508F	KHA0408	RHA0620	WA0602	TW25L	HW20L
12CA-16	CA06R	AZ0508F	KHA0412	RHA0625	WA0602	TW30L	HW20L

## CTTPR/L



TP□R



• R type holder (mm)

Designation	Stock		DMIN	H	W	LF	WF	HF	ASP	$\alpha^\circ$	$\beta^\circ$	MHD	MHH	MHA	Applicable insert
	R	L													
CTTPR/L 10CA-11			40	15	11	50	9	10	8	5	0	20	5	20	TP□R1103□□
12CA-16			50	20	15	55	20	12	8	5	0	20	6	20	TP□R1603□□

↻ Applicable inserts B62 ~ B63

• a base Insert :  $r = 0.8$  Dmin =  $\varnothing$ D Min. machining Dia.

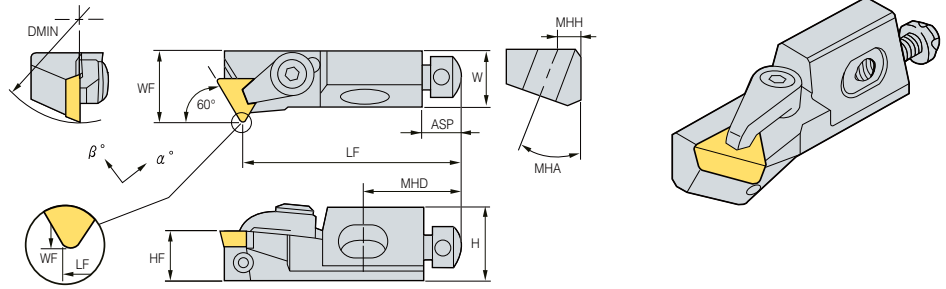
• : Stock item

Parts	Clamp	Axial Adjust Screw	Radial Adjust Screw	Mounting Screw	Washer	Wrench	Wrench
CTTPR/L 10CA-11	CA05R	AZ0508F	KHA0408	RHA0620	WA0602	TW25L	HW20L
12CA-16	CA06R	AZ0508F	KHA0412	RHA0625	WA0602	TW30L	HW20L

# CTWPR/L



TP□R



• R type holder (mm)

Designation	Stock		DMIN	H	W	LF	WF	HF	ASP	$\alpha^\circ$	$\beta^\circ$	MHD	MHH	MHA	Applicable insert
	R	L													
CTWPR/L 10CA-11			40	15	11	44	14	10	8	5	0	20	5	20	TP□R1103□□
12CA-16			50	20	15	47	20	12	8	5	0	20	6	20	TP□R1603□□

• Applicable inserts **B62 ~ B63**

• a base Insert : r = 0.8 Dmin = ØD Min. machining Dia.

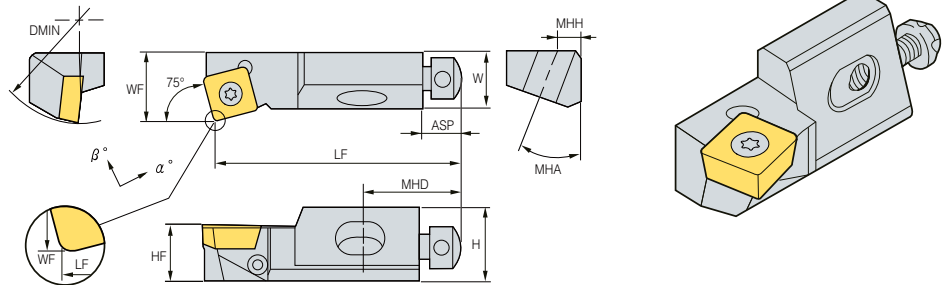
• Stock item

Parts	Clamp	Axial Adjust Screw	Radial Adjust Screw	Mounting Screw	Washer	Wrench	Wrench
CTWPR/L 10CA-11	CA05R	AZ0508F	KHA0408	RHA0620	WA0602	TW25L	HW20L
12CA-16	CA06R	AZ0508F	KHA0412	RHA0625	WA0602	TW30L	HW20L

# SSKCR/L



SC□T



• R type holder (mm)

Designation	Stock		DMIN	H	W	LF	WF	HF	ASP	$\alpha^\circ$	$\beta^\circ$	MHD	MHH	MHA	Applicable insert
	R	L													
SSKCR/L 10CA-09			40	15	11	50	14	10	8	0	-4	20	5	20	SC□T09T3□□
12CA-12			50	20	15	55	20	12	8	0	-4	20	6	20	SC□T1204□□

• Applicable inserts **B55**

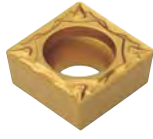
• a base Insert : r = 0.8 Dmin = ØD Min. machining Dia.

• Stock item

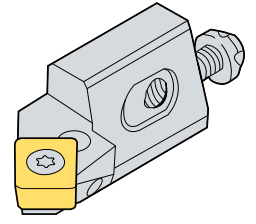
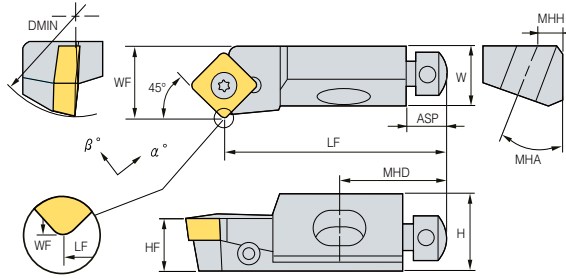
Parts	Screw	Axial Adjust Screw	Radial Adjust Screw	Mounting Screw	Washer	Wrench	Wrench
SSKCR/L 10CA-09	FTGA03508	AZ0508F	KHA0408	RHA0620	WA0602	TW 15P	HW20L
12CA-12	FTGA0411F	AZ0508F	KHA0412	RHA0625	WA0602	TW 15P	HW20L



## SSSCR/L



SC□T



• R type holder (mm)

Designation	Stock		DMIN	H	W	LF	WF	HF	ASP	α°	β°	MHD	MHH	MHA	Applicable insert
	R	L													
SSSCR/L 10CA-09			40	15	11	44	14	10	8	-5	0	20	5	20	SC□T09T3□□
12CA-12			50	20	15	47	20	12	8	-5	0	20	6	20	SC□T1204□□

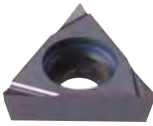
↻ Applicable inserts **B55**

• a base Insert : r = 0.8 Dmin = ØD Min. machining Dia.

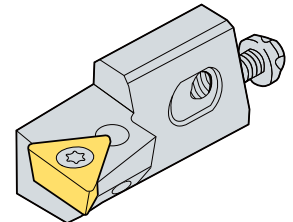
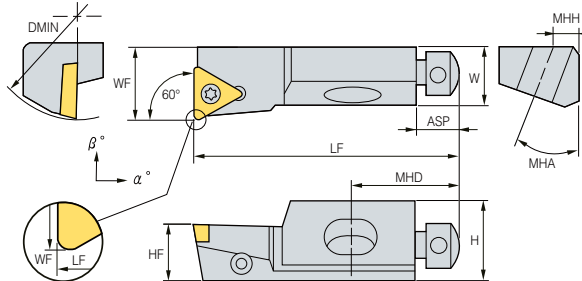
● : Stock item

Parts	Screw	Axial Adjust Screw	Radial Adjust Screw	Mounting Screw	Washer	Wrench	Wrench
SSSCR/L 10CA-09	FTGA03508	AZ0508F	KHA0408	RHA0620	WA0602	TW 15P	HW20L
12CA-12	FTGA0411F	AZ0508F	KHA0412	RHA0625	WA0602	TW 15P	HW20L

## STFCR/L



TC□T



• R type holder (mm)

Designation	Stock		DMIN	H	W	LF	WF	HF	ASP	α°	β°	MHD	MHH	MHA	Applicable insert
	R	L													
STFCR/L 10CA-11	●		40	15	11	50	14	10	8	0	-3	20	5	20	TC□T1102□□
12CA-16	●		50	20	15	55	20	12	8	0	-3	20	6	20	TC□T16T3□□

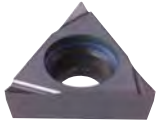
↻ Applicable inserts **B59 ~ B60**

• a base Insert : r = 0.4 (l = 11) r = 0.8 (l = 16) Dmin = Min. machining Dia.

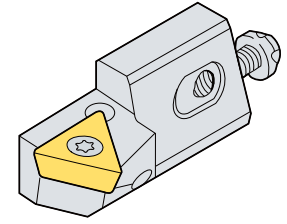
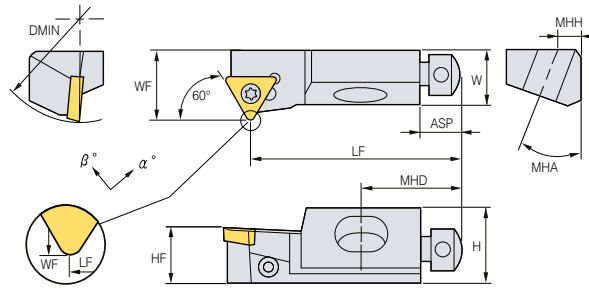
● : Stock item

Parts	Screw	Axial Adjust Screw	Radial Adjust Screw	Mounting Screw	Washer	Wrench	Wrench
STFCR/L 10CA-11	FTKA02565	AZ0508F	KHA0408	RHA0620	WA0602	TW 15P	HW20L
12CA-16	FTKA03508	AZ0508F	KHA0412	RHA0625	WA0602	TW 15P	HW20L

# STTCR/L



TC□T



• R type holder (mm)

Designation	Stock		DMIN	H	W	LF	WF	HF	ASP	$\alpha^\circ$	$\beta^\circ$	MHD	MHH	MHA	Applicable insert
	R	L													
STTCR/L 10CA-11			40	15	11	50	9	10	8	-5	0	20	5	20	TC□T1102□□
12CA-16			50	20	15	47	20	12	8	-3	0	20	6	20	TC□T16T3□□

⊕ Applicable inserts **B59 ~ B60**

• a base Insert :  $r = 0.4$  (l=11)  $r = 0.8$  (l=16) Dmin = Min. machining Dia..

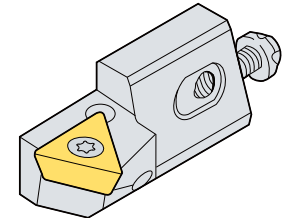
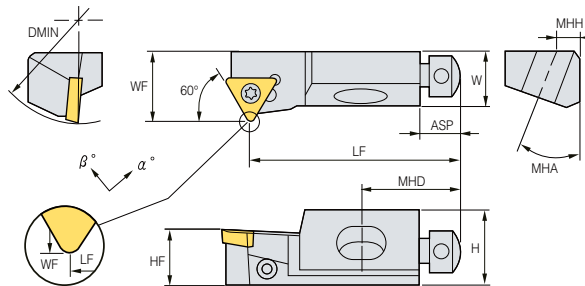
• Stock item

Parts	Screw	Axial Adjust Screw	Radial Adjust Screw	Mounting Screw	Washer	Wrench	Wrench
STTCR/L 10CA-11	FTKA02565	AZ0508F	KHA0408	RHA0620	WA0602	TW 07P	HW20L
12CA-16	FTKA03508	AZ0508F	KHA0412	RHA0625	WA0602	TW 15P	HW20L

# STWCR/L



TC□T



• R type holder (mm)

Designation	Stock		DMIN	H	W	LF	WF	HF	ASP	$\alpha^\circ$	$\beta^\circ$	MHD	MHH	MHA	Applicable insert
	R	L													
STWCR/L 10CA-11			40	15	11	44	14	10	8	0	-4	20	5	20	SC□T09T3□□
12CA-16			50	20	15	47	20	12	8	-5	0	20	6	20	SC□T1204□□

⊕ Applicable inserts **B55**

• a base Insert :  $r = 0.4$  (l=11)  $r = 0.8$  (l=16) Dmin = Min. machining Dia..

• Stock item

Parts	Screw	Axial Adjust Screw	Radial Adjust Screw	Mounting Screw	Washer	Wrench	Wrench
STWCR/L 10CA-11	FTKA02565	AZ0508F	KHA0408	RHA0620	WA0602	TW 15P	HW20L
12CA-16	FTKA03508	AZ0508F	KHA0412	RHA0625	WA0602	TW 15P	HW20L



# MULTI FUNCTIONAL TOOLS

Korloy Multi-functional tools can be used for machining in grooving, parting-off, facing and forming applications. Its design ensures superior machinability and productivity.

## Technical information for MULTI FUNCTIONAL TOOLS

### Application Example

**C2** Application Example

### Saw Man-X

**C4** Technical Information for Saw Man-X

**C6** Saw Man-X

### Saw Man

**C9** Technical Information for Saw Man

**C10** Saw Man

### Fine Tools

**C13** Technical Information for Fine Tools

**C14** Fine Tools

### K-Notch

**C16** Technical Information for K-Notch

**C18** K-Notch

### KGT

**C21** Technical Information for KGT

**C28** KGT

**C40** KGT Parting off Blades

### MGT Plus / MGT

**C41** Technical Information for MGT Plus / MGT

**C47** MGT Plus / MGT

### KGT/MGT Cartridges

**C56** Technical Information for KGT/MGT Cartridges

**C57** KGT/MGT Cartridges

### MGT for Aluminum Wheel

**C60** Technical Information for MGT Aluminum Wheel

**C61** MGT for Aluminum Wheel

### TB/TB-M

**C64** Technical Information for TB/TB-M

**C68** TB/TB-M

### Hexa Blade

**C72** Technical Information for Hexa Blade

**C74** Hexa Blade

### Grooving Tools

**C75** FGHH

**C76** FGVH

**C77** IGH

**C78** DBH

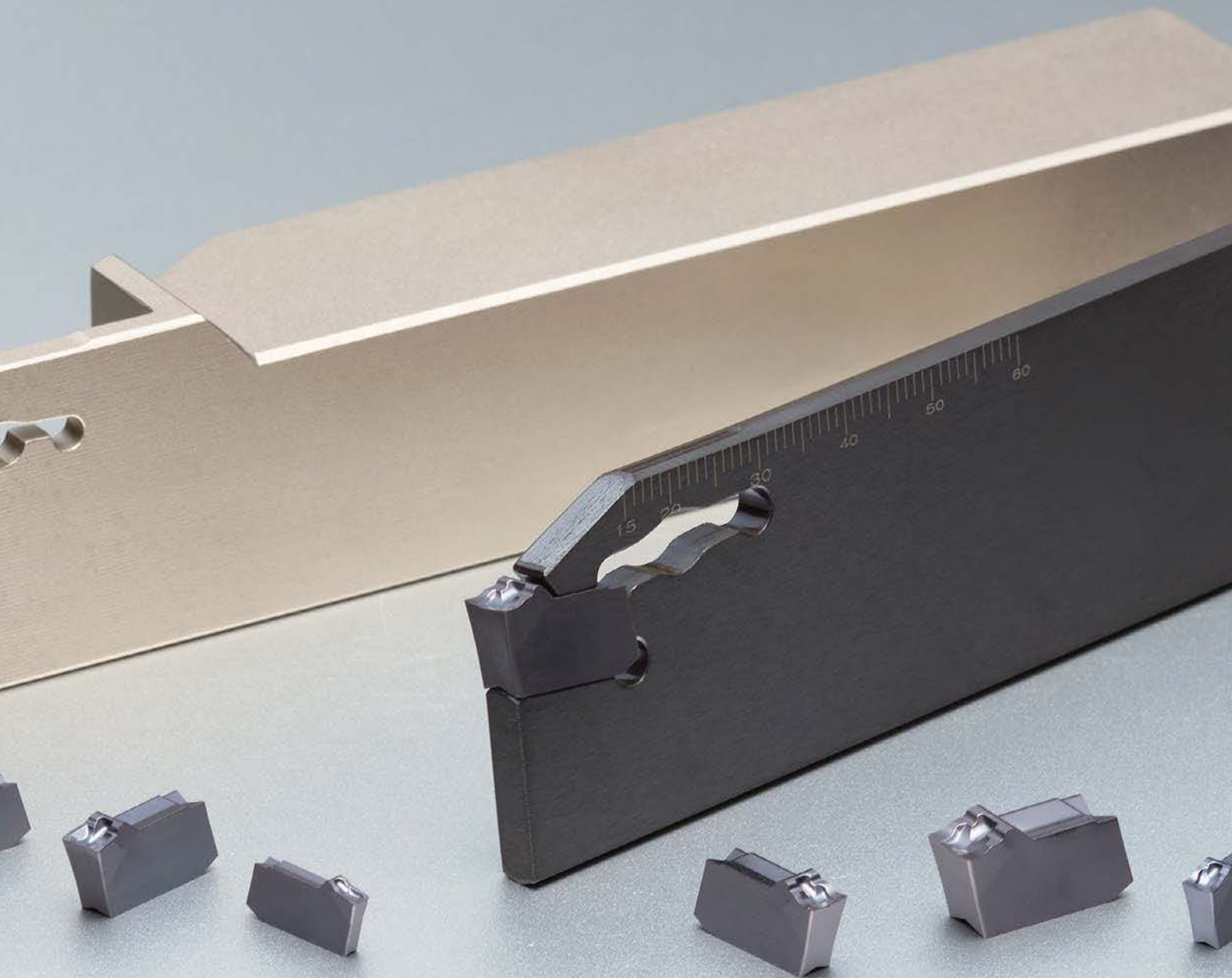
**C79** GFIP

### Special Order Form

**C80** Special Order Form for MGT

**C81** Special Order Form for V-Pulley Inserts

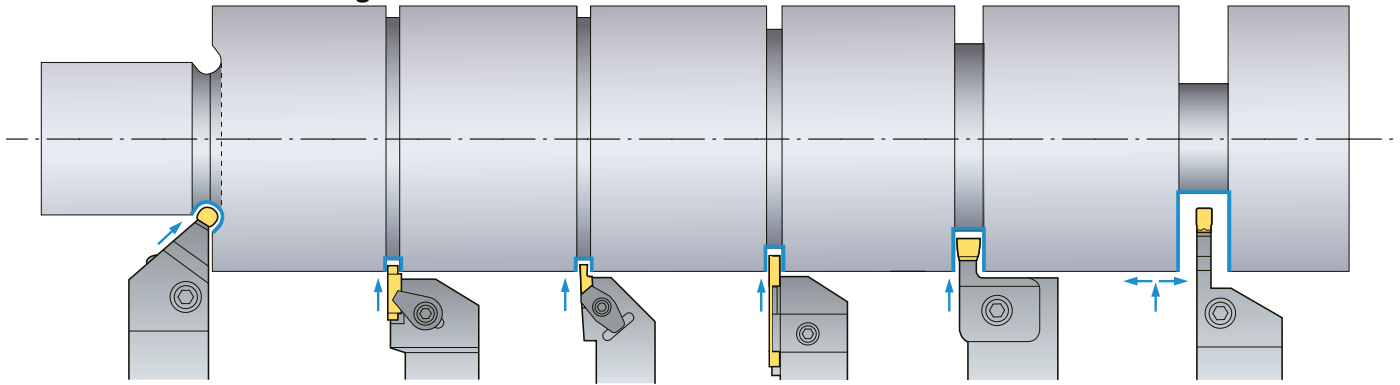

































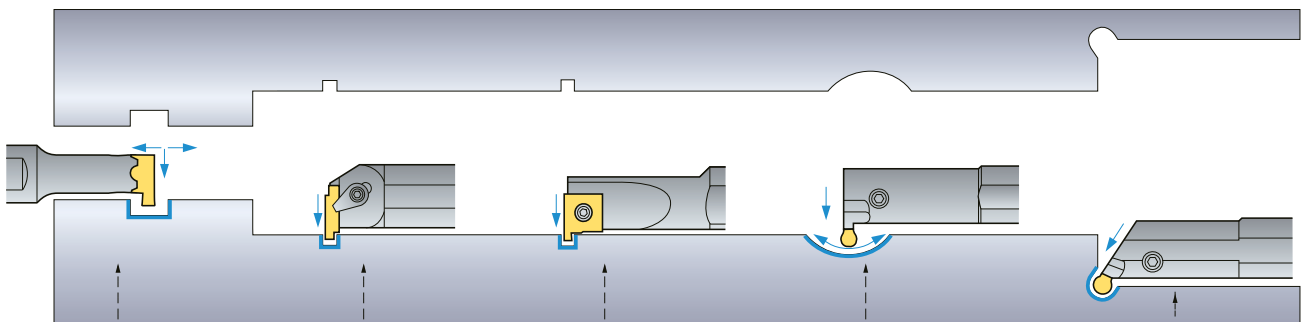
# C Application Example



















## For external machining



KGEUR/L	MGEUR/L	TBH	KNSR	HBH	DBH	KGEHR/L	MGEHR/L
Width: 2-8 CDX: 2.8-3.3	Width: 2-8 CDX: 3-5	Width: 0.5-4.5 CDX: 1-6.5	Width: 0.79-6.35 CDX: 0-6.5	Width: 1.78-4 CDX: 2-5	Width: 3-8 CDX: 14	Width: 1.5-8 CDX: 8-36	Width: 1.5-8 CDX: 10-28
 <b>KRMN</b>  <b>KRGN</b>	 <b>PRMN</b>  <b>MRMN</b>  <b>MRGN</b>	 <b>TB</b>  <b>TB-M</b>	 <b>KNG</b>  <b>KNGP</b>  <b>KNR</b>  <b>KNRP</b>  <b>KNB</b>	 <b>HB</b>	 <b>DC</b>  <b>DB</b>	 <b>KGGN</b>  <b>KGMN</b>  <b>KGMR/L</b>  <b>KRGN</b>  <b>KRMN</b>	 <b>PGMN</b>  <b>PRMN</b>  <b>MGGN</b>  <b>MGMN</b>  <b>MGMR</b>  <b>MRGN</b>  <b>MRMN</b>

## For internal machining



NFTIH	GFIP	IGH	KGIVR/L	MGIVR/L	KGIUR/L	MGIUR/L
Width: 0.75-4.02 CDX: 1.3-4.6	Width: 1.1-8 CDX: 2.1-9	Width: 1.25-2.8 CDX: 1.5-2.3	Width: 1.5-8 CDX: 4-8.5	Width: 1.5-8 CDX: 4-10	Width: 3-8 CDX: 3.5-8.5	Width: 3-8 CDX: 3.5-6.5
 <b>NFTG</b>  <b>NFTF</b>  <b>NFTT</b>	 <b>GW</b>  <b>BF</b>	 <b>IG</b>	 <b>KGMN</b>  <b>KRMN</b>  <b>KGGN</b>	 <b>PGMN</b>  <b>PRMN</b>  <b>MRMN</b>  <b>MGGN</b>  <b>MRGN</b>	 <b>KRMN</b>  <b>KRGN</b>	 <b>PRMN</b>  <b>MRMN</b>

➤ For face grooving

KGEVR/L	MGEVR/L	MGEVR/L
Width:1.5~8 CDX:3~8	Width:1.5~8 CDX:3~9	Width:1.5~8 CDX:3~9
<b>KGMN</b>	<b>PGMN</b>	<b>MGMN</b>
<b>KGGN</b>	<b>PRMN</b>	<b>MGGN</b>
<b>KRMN</b>		<b>MRMN</b>
<b>KRGN</b>		<b>MRGN</b>

FGHH/FGVH	MGFHR/L, MGFVR/L	KGFHR/L, KGFVR/L
Width:3~5 CDX:12~25	Width:3~4 CDX:10~15	Width:3~6 CDX:10~25
<b>FGD</b>	<b>PGMN</b>	<b>KGMN</b>
<b>FGM</b>	<b>PRMN</b>	<b>KRMN</b>
<b>FMM</b>	<b>MGMN</b>	<b>KGGN</b>
	<b>MFMN</b>	<b>KRGN</b>

➤ For parting off

KGEHR/L	MGEHR/L	KSPB	SPB-(S)	KGTB
Width:1.5~8 CDX: 8~36	Width:1.5~8 CDX:10~28	Width:2~6 CUTDIA :120	Width :2~6 CUTDIA:120	Width:1.5~8 CUTDIA:26~120
<b>KGMR/L</b>	<b>MGMR/L</b>	<b>KSP</b>	<b>SP</b>	<b>KGMN</b>
				<b>KGGN-S-R</b>

A solution for Parting and deep Grooving

## Saw Man-X

- Stability in machining when deep grooving by applying strong three-way V-Rail clamping system
- Improved clamping precision and convenience replacing "of" and "with" using the exclusive wrench

### Code system

#### • Insert (Basic)

<b>KSP</b>	<b>300</b>	-	<b>020</b>	-	<b>N</b>
<b>KORLOY Saw Man-X Parting</b>	<b>Cutting width</b> 200 : 2mm 300 : 3mm 400 : 4mm		<b>Nose r</b> 020 : 0.2mm 030 : 0.3mm		<b>Chip breaker</b> N : Steel, Cast iron S : Stainless steel, Heat resistant alloy

#### • Insert (Lead angle type)

<b>KSP</b>	<b>300</b>	<b>R</b>	-	<b>6D</b>	-	<b>N</b>
<b>KORLOY Saw Man-X Parting</b>	<b>Cutting width</b> 200 : 2mm 300 : 3mm 400 : 4mm	<b>Hand</b> R : Right handed L : Left handed		<b>Lead angle</b> 4D : 4° 6D : 6°		<b>Chip breaker</b> N : Steel, Cast iron S : Stainless steel, Heat resistant alloy

#### • Shank

<b>KSPH</b>	<b>3</b>	<b>25</b>	<b>R</b>
<b>KORLOY Saw Man-X Parting Holder</b>	<b>Cutting edge width</b> 2 : 2mm 3 : 3mm 4 : 4mm	<b>Shank size</b> 16 : 1616 20 : 2020 25 : 2525	<b>Hand</b> R : Right handed L : Left handed

#### • Blade

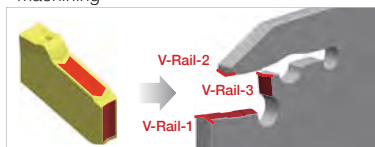
<b>KSPB</b>	<b>30</b>	<b>26</b>	-	<b>(KHP)</b>
<b>KORLOY Saw Man-X Parting Blade</b>	<b>Cutting edge width</b> 20 : 2mm 30 : 3mm 40 : 4mm	<b>Blade height</b> 26 : 26mm 32 : 32mm		<b>Oil hole</b> None : Without oil hole KHP : High pressure coolant

### Features

- Three-way V-Rail - More stable clamping system
- Superior chip breaker - Better chip control
- Exclusive wrench - More convenient clamping system
- 2 channel spraying through high pressure coolant - More efficient cooling

#### Three-way V-Rail

- Tightly clamped insert in the tip seat
- Increased stability by minimized vibration during the machining
- Available for stable high speed, high feed and high depth of cut machining

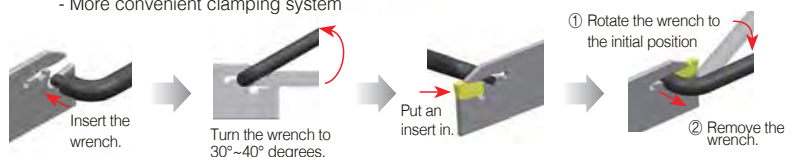


#### 2-channel High-pressure Internal Coolant Spraying

- Enhances cooling efficiency through direct coolant spraying to the cutting edge
- Longer tool life in HRSA cutting  
(\*Exclusive blades and blocks are required for high-pressure coolant)







#### Exclusive wrench

- The exclusive wrench having the principle of CAM for the Saw Man-X
- More convenient clamping system










Chip breaker features


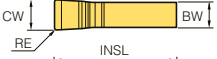



Type	Shape	Cutting edge	Features
N Chip breaker			<ul style="list-style-type: none"> <li>• 1<sup>st</sup> recommended in steel and cast iron cutting</li> <li>• Negative land cutting edge</li> <li>• For interrupted and high feed cutting</li> </ul>
S Chip breaker			<ul style="list-style-type: none"> <li>• 1<sup>st</sup> recommended in Stainless steel and HRSA cutting</li> <li>• Sharp cutting edge</li> <li>• For high speed and continuous cutting</li> </ul>
N Chip breaker (Lead angle type)			<ul style="list-style-type: none"> <li>• Optimal for pipe and round bar cutting</li> <li>• Negative land cutting edge applying lead angle</li> <li>• Minimized burr and size of PIP</li> </ul>

Cutting width and cutting depth by tools

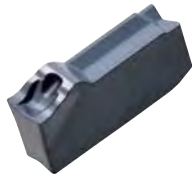
⊙: 1<sup>st</sup> recommendation ○: 2<sup>nd</sup> recommendation

Inserts	Cutting width (mm)	No. of edges	Machining				Features	
			2	4	6	8		
			5	10	20	60		
Cutting depth maximum (mm)								
			External	Internal	Facing	Parting		
Saw Man-X	 2.0 6.0	60.0	1	○			⊙	<ul style="list-style-type: none"> <li>• Various lead angles</li> <li>• Minimizing burr</li> </ul>
Hexa Blade	 1.78 4.0	5.0	6	⊙			○	<ul style="list-style-type: none"> <li>• Precision type</li> <li>• High cost efficient cutting</li> </ul>
TB	 1.25 6.0	6.5	3	⊙			○	<ul style="list-style-type: none"> <li>• Precision type</li> <li>• Optimal for automated machining</li> </ul>
KGT	 1.5 8.0	28.0	2	⊙	○	○	⊙	<ul style="list-style-type: none"> <li>• For various kinds of cutting</li> <li>• For general cutting range</li> </ul>
K Notch	 0.75 6.3	6.5	2	⊙				<ul style="list-style-type: none"> <li>• Precision type</li> <li>• Strong clamping system</li> </ul>

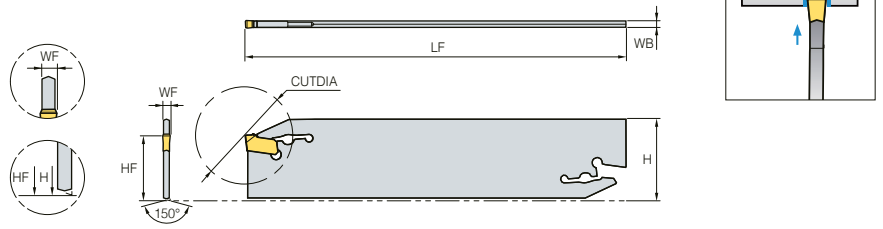
Applicable insert

Picture	Designation	Coated			Dimensions (mm)							Configuration		
		PC3035	PC5300	PC8110	SSC	CW	PSIRL	PSIRR	RE	BW	INSL		HAND	
	KSP	200-020-N	●	●	●	20	2	-	-	0.2	1.6	11.1	N	
		300-020-N	●	●	●	30	3	-	-	0.2	2.5	12.1	N	
		400-025-N	●	●	●	40	4	-	-	0.25	3.3	12.6	N	
		500-025-N	●	●	●	50	5	-	-	0.25	4.3	13.5	N	
		600-035-N	●	●	●	60	6	-	-	0.35	5.3	14.5	N	
	KSP	200-020-S	●	●	●	20	2	-	-	0.2	1.6	11.1	N	
		300-020-S	●	●	●	30	3	-	-	0.2	2.5	12.1	N	
		400-025-S	●	●	●	40	4	-	-	0.25	3.3	12.6	N	
		500-025-S	●	●	●	50	5	-	-	0.25	4.3	13.5	N	
		600-035-S	●	●	●	60	6	-	-	0.3	5.3	14.5	N	
	KSP	200R-6D-N	●	●	●	20	2	-	6	0.2	1.6	11.18	R	
		200L-6D-N	●	●	●	20	2	6	-	0.2	1.6	11.18	L	
		300R-6D-N	●	●	●	30	3	-	6	0.2	2.5	12.1	R	
		300L-6D-N	●	●	●	30	3	6	-	0.2	2.5	12.1	L	
		400R-4D-N	●	●	●	40	4	-	4	0.25	3.3	12.68	R	
		400L-4D-N	●	●	●	40	4	4	-	0.25	3.3	12.68	L	

# KSPB (Blade)



KSP



(mm)

Designation		Stock	Cutting width (CW)	CUTDIA	H	WF	WB	HF	LF	HAND	Wrench
KSPB	2026	●	2	50	26	1.8	1.6	21.61	110.7	N	CW08
	2032	●	2	52	32	1.8	1.6	25.32	150.7	N	
	3026	●	3	72	26	2.7	2.4	21.71	110.7	N	
	3032	●	3	120	32	2.7	2.4	25.42	150.7	N	
	4026	●	4	72	26	3.6	3.2	21.82	110.9	N	
	4032	●	4	120	32	3.6	3.2	25.53	150.9	N	
KSPB	5026		5	80	26	4.5	4	21.92	111	N	CW10
	5032	●	5	120	32	4.5	4	25.63	151	N	
	6026		6	120	26	5.6	5.2	22.08	111	N	
	6032	●	6	120	32	5.6	5.2	25.79	151	N	

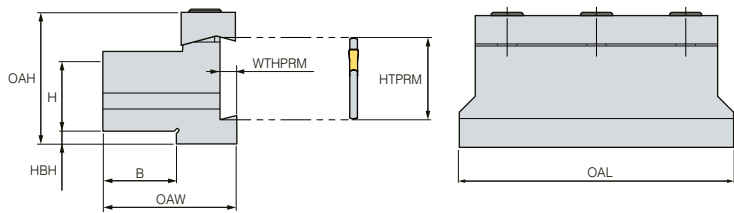
Applicable inserts **C5**

●: Stock item

# SMBB (Block)



KSPB□□□□  
 SPB□□□(-S)  
 KGTB□□□□(S)



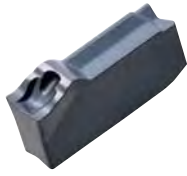
(mm)

Designation		Stock	H	B	HTPRM	OAL	OAH	HBH	OAW	WTHPRM	Screw	Wrench
SMBB	1626	●	16	12	26	86	43	13	30	5.3	BHA0620	HW50L
	2026	●	20	19	26	86	43	9	38	5.3		
	2032	●	20	19	32	86	50	13	38	5.3		
	2526	●	25	23	26	86	43	4	42	5.3		
	2532	●	25	23	32	110	50	8	42	5.3		
	3232	●	32	30	32	110	54	5	48	5.3		

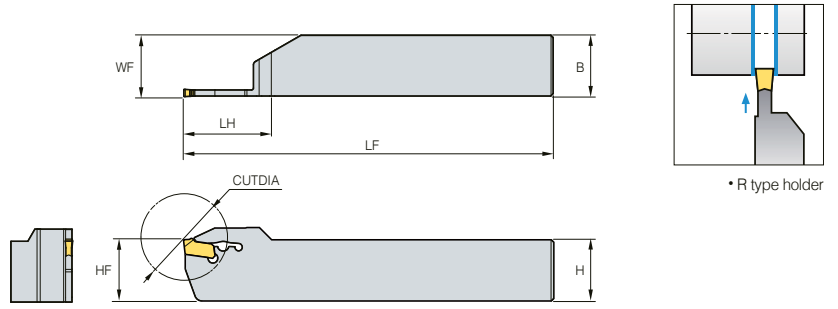
Applicable inserts **C5**

●: Stock item

# KSPH (Shank-Self grip)




KSP



• R type holder

(mm)

Designation	Stock		Cutting width (CW)	CUTDIA	LH	LF	WF	HF	B	H	HAND	Wrench 
	R	L										
KSPH	216R/L		2	46	31	100	16.2	16	16	16	R/L	CW08
	220R/L		2	48	32	120	20.2	20	20	20	R/L	
	225R/L	•	2	50	33.25	150	25.2	25	25	25	R/L	
	316R/L		3	52	34	100	16.24	16	16	16	R/L	
	320R/L	•	3	54	35	120	20.24	20	20	20	R/L	
	325R/L	•	3	56	36	150	25.24	25	25	25	R/L	
	420R/L	•	4	64	40	120	20.4	20	20	20	R/L	
	425R/L	•	4	66	41	150	25.4	25	25	25	R/L	
	520R/L		5	74	45	120	20.35	20	20	20	R/L	
	525R/L	•	5	76	46	150	25.35	25	25	25	R/L	
625R/L	•	6	76	46	150	25.4	25	25	25	R/L	CW10	

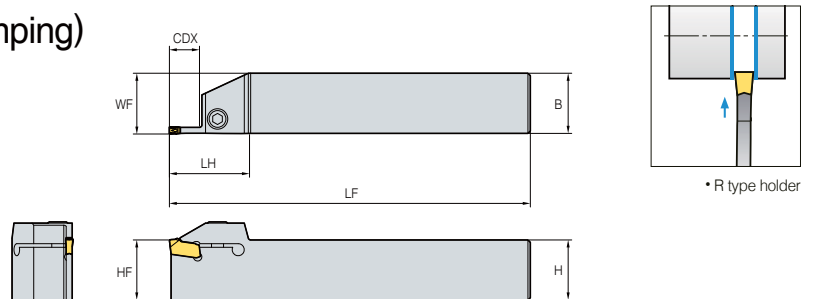
 Applicable inserts C5

• : Stock item

# KSEHR/L (Shank-Screw clamping)






KSP



• R type holder

(mm)

Designation	Stock		Cutting width (CW)	H=(HF)	LH	LF	WF	CDX	B	Screw 	Wrench 
	R	L									
KSEHR/L	2020-2-T12		2	20	28	125	20.2	12	20	MHA0512	HW40L
	2525-2-T12	•	2	25	28	150	25.2	12	25		
	2020-2-T20		2	20	36	125	20.2	20	20		
	2525-2-T20	•	2	25	36	150	25.2	20	25		
	2020-3-T12		3	20	28	125	20.25	12	20		
	2525-3-T12	•	3	25	28	150	25.25	12	25		
	2020-3-T25		3	20	41	125	20.25	25	20		
	2525-3-T25	•	3	25	41	150	25.25	25	25		
	2020-4-T15		4	20	36	125	20.4	15	20	BHA0616	HW50L
	2525-4-T15	•	4	25	36	150	25.4	15	25		
	2020-4-T25		4	20	41	125	20.4	25	20		
	2525-4-T25	•	4	25	41	150	25.4	25	25		
	2525-5-T25		5	25	41	150	25.5	25	25		
	2525-6-T25		6	25	41	150	25.5	25	25		

 Applicable inserts C5

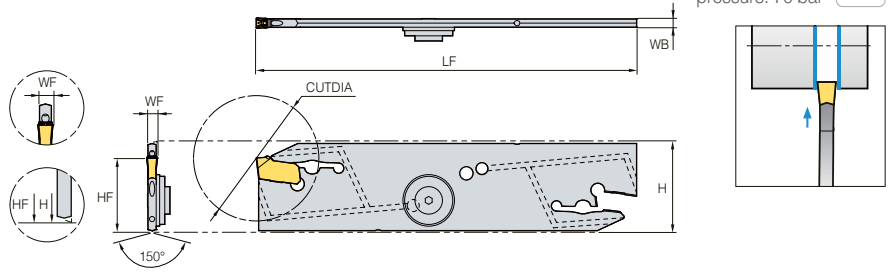
• : Stock item

# KSPB-KHP (Blade)





High pressure coolant



KSP



(mm)

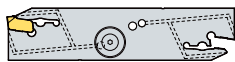
Designation	Stock	Cutting width (CW)	CUTDIA	H	WF	WB	LF	HF	HAND	Wrench	Copper washer	Sealing plate	Sealing screw
KSPB 3026-KHP	●	3	72	26	2.75	2.5	110	21	N				
4026-KHP	●	4	72	26	3.7	3.4	110	21	N				

 Applicable inserts C5

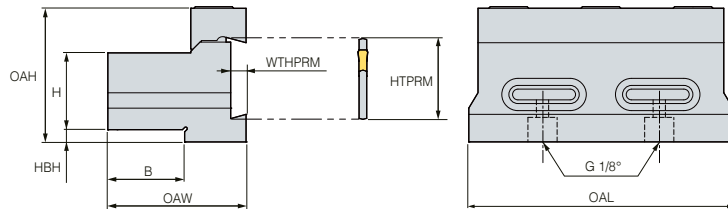
●: Stock item


# SMBB-KHP (Block)

High pressure coolant






KSPB□□□□-KHP



Recommended pressure: 70 bar 

(mm)

Designation	Stock	H	B	HTPRM	OAL	OAH	HBH	OAW	WTHPRM	Screw	Wrench	O-ring
SMBB 2026-KHP	●	20	20	26	86	43.5	9	38	5			
2526-KHP	●	25	25	26	86	43.5	4	45	5			

 Applicable inserts C5

●: Stock item

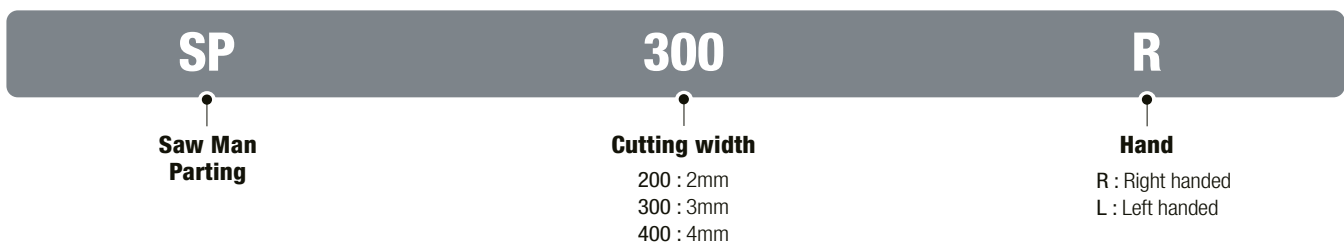
For deep hole grooving/parting off

# Saw Man

- Possible to machine a wide range of workpieces such as steel, cast iron, stainless steel, etc.
- Extended tool life due to low resistance rake angle
- Minimized burr due to minimal Nose R
- Various lead angle available
- Narrow chip curl due to dots on rake surface of insert

## Code system

### • Insert



### • Shank




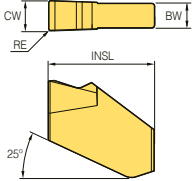
### • Blade



## Recommended cutting conditions

Workpiece	Cutting Speed (vc = m/min)						Feed (fn = mm/rev)				
	CVD			PVD		Uncoated	Cutting width (mm)				
	NC3120	NC3030	NC5330	PC8110	PC5300	ST30A	2	3	4	5	6
SM□□C	80~180		80~180		80~180		0.02~0.15	0.03~0.20	0.08~0.30	0.10~0.4	0.12~0.50
SCM	70~150	70~150	70~150		70~150		0.02~0.15	0.03~0.20	0.08~0.30	0.10~0.4	0.12~0.50
GC/GCD			50~100			50~100	0.05~0.12	0.10~0.25	0.10~0.30	0.10~0.35	0.10~0.40
STS			50~120	50~120	60~140		0.02~0.10	0.03~0.15	0.08~0.25	0.10~0.35	0.12~0.40
Non-ferrous metal (Al, Copper)						200~450	0.05~0.10	0.05~0.20	0.05~0.25	0.05~0.30	0.05~0.35

**Applicable insert**

Application	Picture	Designation	Coated							Uncoated	Dimensions (mm)						Configuration			
			NC3120	NC3225	NC3030	NCM325	NC5330	PC3035	PC8105		PC8110	PC5300	PC9030	ST30A	SSC	CW		RE	BW	INSL
Parting tools		SP 160											16	1.6	0.16	1.3	7.5	N		
		180											18	1.8	0.16	1.4	9	N		
		200		•			•			•	•	•		20	2.2	0.2	1.75	9		N
		200R			•							•		20	2.2	0.2	1.75	9		R
		200L										•		20	2.2	0.2	1.75	9		L
		300	•	•	•		•			•	•	•	•	30	3.1	0.2	2.55	10.8		N
		300R		•	•						•	•		30	3.1	0.2	2.55	10.8		R
		300L			•									30	3.1	0.2	2.55	10.8		L
		400	•	•	•		•			•	•	•		40	4.1	0.25	3.45	10.8		N
		400R			•					•				40	4.1	0.25	3.45	10.8		R
		400L			•									40	4.1	0.25	3.45	10.8		L
		500		•		•				•	•			50	5.1	0.3	4.35	11		N
		500R												50	5.1	0.3	4.35	11		R
		500L												50	5.1	0.3	4.35	11		L
		600			•		•					•		60	6.4	0.35	5.55	11		N
		600R												60	6.4	0.35	5.55	11		R
		600L												60	6.4	0.35	5.55	11		L
		800												80	8	0.4	7.2	13.5		N
		900												90	9.6	0.45	8.4	13.5		N

• : Stock item

# SPB/SPB-S (Blade)



SP

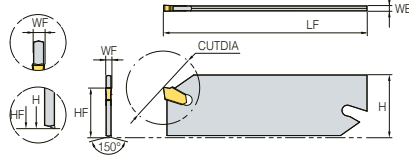


Fig. 1

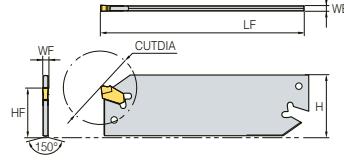
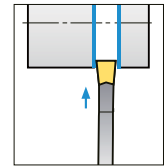


Fig. 2



Designation		Stock	CUTDIA	H	WF	WB	HF	LF	HAND	Applicable inserts	Wrench	Fig.
SPB	226	●	50	26	1.9	1.6	21.61	111.8	N	SP200, 200R/L	SW50L	1
	232	●	52	32	1.9	1.6	25.32	151.8	N	SP200, 200R/L		
	326	●	72	26	2.75	2.4	21.71	111.8	N	SP300, 300R/L		
	332	●	120	32	2.75	2.4	25.42	151.8	N	SP300, 300R/L		
	426	●	72	26	3.65	3.2	21.82	111.8	N	SP400, 400R/L		
	432	●	120	32	3.65	3.2	25.53	151.8	N	SP400, 400R/L		
	526	●	80	26	4.55	4	21.92	111.8	N	SP500, 500R/L		
	532	●	120	32	4.55	4	25.63	151.8	N	SP500, 500R/L		
	626	●	120	26	5.8	5.2	22.08	111.8	N	SP600, 600R/L		
632	●	120	32	5.8	5.2	25.79	151.8	N	SP600, 600R/L			
SPB-S	226-S	●	50	26	1.9	1.6	21.61	111.5	N	SP200, 200R/L	SW15S (Separately ordered)	2
	232-S	●	52	32	1.9	1.6	25.32	151.5	N	SP200, 200R/L		
	326-S	●	72	26	2.75	2.4	21.71	111.5	N	SP300, 300R/L		
	332-S	●	120	32	2.75	2.4	25.42	151.5	N	SP300, 300R/L		
	426-S	●	72	26	3.65	3.2	21.82	111.5	N	SP400, 400R/L		
	432-S	●	120	32	3.65	3.2	25.53	151.5	N	SP400, 400R/L		
	526-S	●	80	26	4.55	4	21.92	111.5	N	SP500, 500R/L		
	532-S	●	120	32	4.55	4	25.63	151.5	N	SP500, 500R/L		
	626-S	●	120	26	5.8	5.2	22.08	111.5	N	SP600, 600R/L		
	632-S	●	120	32	5.8	5.2	25.79	151.5	N	SP600, 600R/L		
	832-S	●	120	32	7.4	6.8	26.82	151.5	N	SP800		
	932-S	●	120	32	8.8	8	27.14	151.5	N	SP900		
	8526-S	●	120	52.6	7.4	6.8	46.82	191.5	N	SP800		
9526-S	●	120	52.6	8.8	8	47.14	191.5	N	SP900			

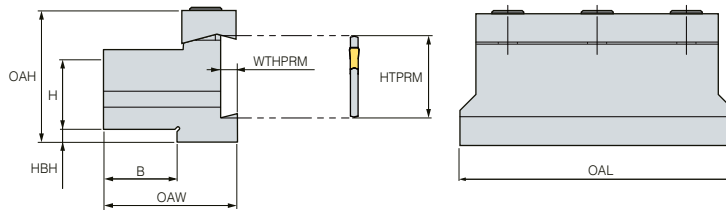
➔ Applicable inserts C10

● : Stock item

# SMBB (Block)



KSPB□□□□  
SPB□□□(-S)  
KGTB□□□□(S)



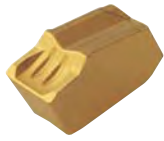
Designation		Stock	H	B	HTPRM	OAL	OAH	HBH	OAW	WTHPRM	Screw	Wrench
SMBB	1626	●	16	12	26	86	43	13	30	5.3	BHA0620	HW50L
	2026	●	20	19	26	86	43	9	38	5.3		
	2032	●	20	19	32	86	50	13	38	5.3		
	2526	●	25	23	26	86	43	4	42	5.3		
	2532	●	25	23	32	110	50	8	42	5.3		
	3232	●	32	30	32	110	54	5	48	5.3		

➔ Applicable inserts C10

● : Stock item



# SPH/SPH-S (Holder)



SP

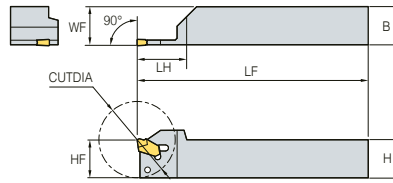


Fig. 1

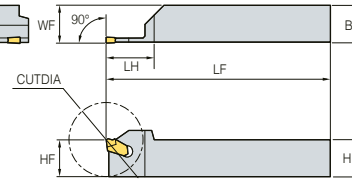
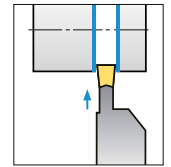





Fig. 2



• R type holder

(mm)

Designation	Stock		CUTDIA	LH	LF	WF	HF	B	H	HAND	Applicable inserts	Wrench		Fig.
	R	L												
<b>SPH</b>	<b>316R/L</b>		32	23.8	100	16.35	16	16	16	R	SP300, 300R/L	SW50L	-	1
	<b>320R/L</b>	●	40	26	120	20.35	20	20	20	R	SP300, 300R/L			
	<b>325R/L</b>	●	50	31	150	25.35	25	25	25	R	SP300, 300R/L			
	<b>420R/L</b>	●	50	31	120	20.45	20	20	20	R	SP400, 400R/L			
	<b>425R/L</b>	●	60	36	150	25.45	25	25	25	R	SP400, 400R/L			
	<b>520R/L</b>		60	36	120	20.55	20	20	20	R	SP500, 500R/L			
	<b>525R/L</b>	●	70	41	150	25.55	25	25	25	R	SP500, 500R/L			
<b>SPH-S</b>	<b>316R/L-S</b>	●	32	23.8	100	16.35	16	16	16	R	SP300, 300R/L	-	SW15S (Separately ordered)	2
	<b>320R/L-S</b>	●	40	26	120	20.35	20	20	20	R	SP300, 300R/L			
	<b>325R/L-S</b>	●	50	31	150	25.35	25	25	25	R	SP300, 300R/L			
	<b>420R/L-S</b>	●	50	31	120	20.45	20	20	20	R	SP400, 400R/L			
	<b>425R/L-S</b>	●	60	36	150	25.45	25	25	25	R	SP400, 400R/L			
	<b>520R/L-S</b>		60	36	120	20.55	20	20	20	R	SP500, 500R/L			
	<b>525R/L-S</b>	●	70	41	150	25.55	25	25	25	R	SP500, 500R/L			

 Applicable inserts **C10**

● : Stock item

Six kinds of inserts can be used in one holder for various operations

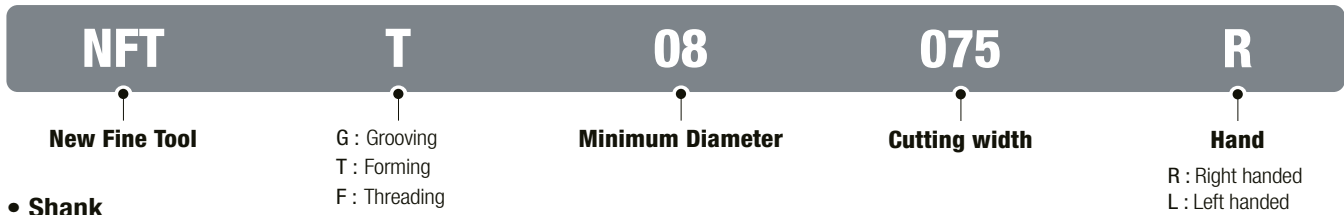
# Fine Tools

- Strong clamping system and specially designed insert are suitable for small diameter machining
- Six kinds of inserts can be clamped in one holder for various operations
- Guaranteed long tool life due to good toughness substrate with new TiAlN
- High accuracy ground insert ensures high precision machining

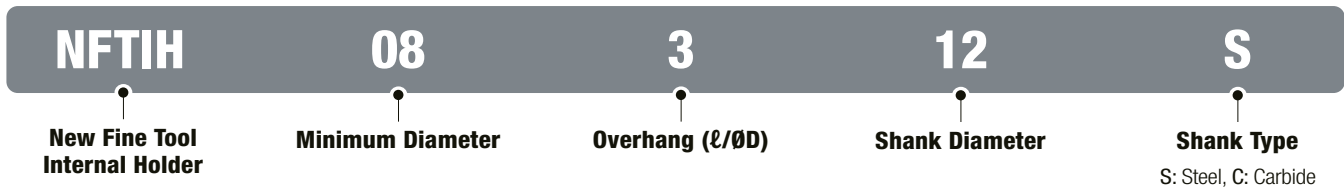


## Code system

### • Insert



### • Shank

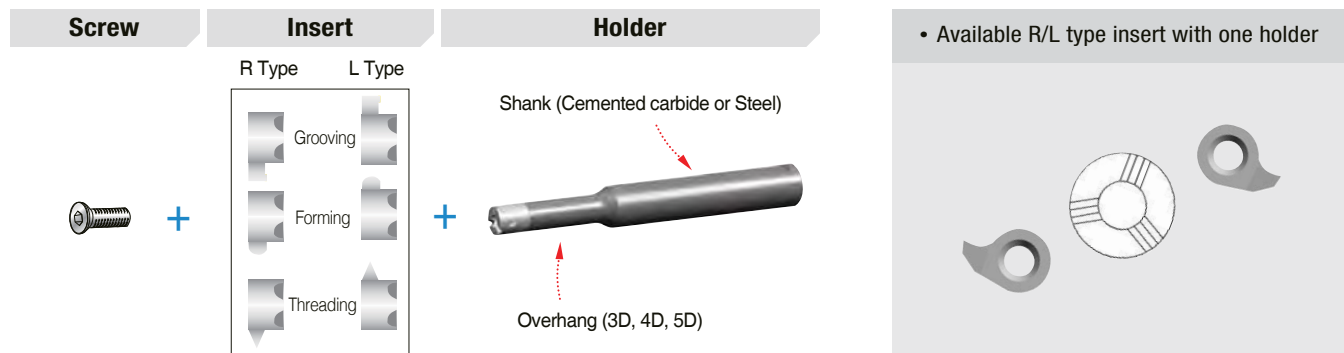


## Recommended cutting conditions

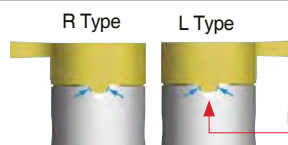
Workpiece	Grade (PC130)	Cutting Conditions				
		Min. machining Dia. (ØDmin)				
			Ø8	Ø11	Ø14	Ø16
Carbon steel	◎	vc (m/min)	70~120	70~120	70~120	70~120
		fn (mm/rev)	0.01~0.04	0.01~0.05	0.02~0.05	0.02~0.06
Alloy steel	◎	vc (m/min)	70~120	70~120	70~120	70~120
		fn (mm/rev)	0.01~0.02	0.01~0.04	0.02~0.04	0.02~0.05
Cast iron	○	vc (m/min)	60~100	60~100	60~100	60~100
		fn (mm/rev)	0.01~0.05	0.01~0.05	0.02~0.05	0.02~0.05
Non-ferrous alloy	○	vc (m/min)	100~180	100~180	100~180	100~180
		fn (mm/rev)	0.02~0.06	0.02~0.06	0.02~0.06	0.02~0.06

**Note** - In case of chattering, reduce the cutting speed and feed  
 - To find the optimal cutting conditions, advise to gradually increase from the lowest cutting condition of the above recommendation  
 - In case of the unilateral grooving depth over 1 mm, work to the step feed rate

## Clamping system




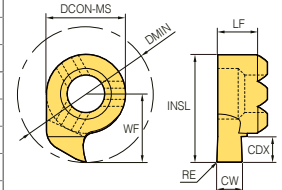
Stable clamping according to the tripod structure




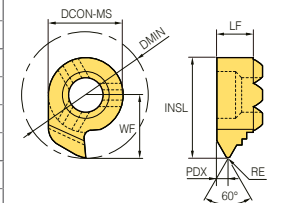
No-Spin-System design for strong clamping

## Insert

Application	Picture	Designation	Coated		Dimensions (mm)										Configuration
			PC5300		SSC	DMIN	CDX	CW	RE	LF	WF	INSL	DCON-MS	HAND	
			R	L											
Internal grooving		NFTG 08075R/L	●		8	8	1.3	0.75	0.06	3.15	4.8	7.75	5.9	R/L	
		08085R/L	●		8	8	1.3	0.85	0.06	3.15	4.8	7.75	5.9	R/L	
		08095R/L	●		8	8	1.3	0.95	0.06	3.15	4.8	7.75	5.9	R/L	
		08121R/L	●		8	8	1.3	1.21	0.06	3.15	4.8	7.75	5.9	R/L	
		08141R/L	●		8	8	1.3	1.41	0.06	3.15	4.8	7.75	5.9	R/L	
		08152R/L	●		8	8	1.3	1.52	0.06	3.15	4.8	7.75	5.9	R/L	
		08171R/L	●		8	8	1.3	1.71	0.06	3.15	4.8	7.75	5.9	R/L	
		08202R/L	●		8	8	1.3	2.02	0.06	3.15	4.8	7.75	5.9	R/L	
		11075R/L	●		11	11	1.8	0.75	0.06	3.9	6.7	10.7	8	R/L	
		11085R/L	●		11	11	1.8	0.85	0.06	3.9	6.7	10.7	8	R/L	
		11095R/L	●		11	11	1.8	0.95	0.06	3.9	6.7	10.7	8	R/L	
		11121R/L	●		11	11	2.6	1.21	0.06	3.9	6.7	10.7	8	R/L	
		11141R/L	●		11	11	2.6	1.41	0.06	3.9	6.7	10.7	8	R/L	
		11152 R/L	●		11	11	2.6	1.52	0.06	3.9	6.7	10.7	8	R/L	
		11171R/L	●		11	11	2.6	1.71	0.06	3.9	6.7	10.7	8	R/L	
		11202R/L	●		11	11	2.6	2.02	0.06	3.9	6.7	10.7	8	R/L	
		11202R/L-02	●		11	11	2.6	2.02	0.2	3.9	6.7	10.7	8	R/L	
		11252R/L	●		11	11	2.6	2.52	0.06	3.9	6.7	10.7	8	R/L	
		11302R/L	●		11	11	2.6	3.02	0.06	3.9	6.7	10.7	8	R/L	
		14075R/L	●		14	14	1.8	0.75	0.06	4.85	9	13.5	9	R/L	
		14085R/L	●		14	14	1.8	0.85	0.06	4.85	9	13.5	9	R/L	
		14095R/L	●		14	14	1.8	0.95	0.06	4.85	9	13.5	9	R/L	
		14121R/L	●		14	14	4.3	1.21	0.06	4.85	9	13.5	9	R/L	
		14141R/L	●		14	14	4.3	1.41	0.06	4.85	9	13.5	9	R/L	
		14152R/L	●		14	14	4.3	1.52	0.06	4.85	9	13.5	9	R/L	
		14171R/L	●		14	14	4.3	1.71	0.06	4.85	9	13.5	9	R/L	
		14202R/L	●		14	14	4.3	2.02	0.06	4.85	9	13.5	9	R/L	
		14252R/L	●		14	14	4.3	2.52	0.06	4.85	9	13.5	9	R/L	
		14302R/L	●		14	14	4.3	3.02	0.06	4.85	9	13.5	9	R/L	
		16075R/L	●		16	16	1.8	0.75	0.06	4.8	10.2	15.7	11	R/L	
		16085R/L	●		16	16	1.8	0.85	0.06	4.8	10.2	15.7	11	R/L	
		16095R/L	●		16	16	1.8	0.95	0.06	4.8	10.2	15.7	11	R/L	
		16121R/L	●		16	16	4.6	1.21	0.06	4.8	10.2	15.7	11	R/L	
		16141R/L	●		16	16	4.6	1.41	0.06	4.8	10.2	15.7	11	R/L	
		16171R/L	●		16	16	4.6	1.71	0.06	4.8	10.2	15.7	11	R/L	
		16202R/L	●		16	16	4.6	2.02	0.06	4.8	10.2	15.7	11	R/L	
		16252R/L	●		16	16	4.6	2.52	0.06	4.8	10.2	15.7	11	R/L	
		16302R/L	●		16	16	4.6	3.02	0.06	4.8	10.2	15.7	11	R/L	
16352R/L	●		16	16	4.6	3.52	0.06	4.8	10.2	15.7	11	R/L			
16402R/L	●		16	16	4.6	4.02	0.06	4.8	10.2	15.7	11	R/L			


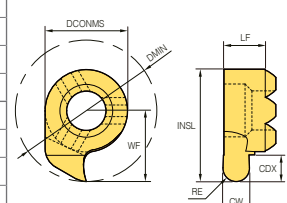


Application	Picture	Designation	Coated		Dimensions (mm)										Configuration
			PC5300		SSC	DMIN	PDX	PDY	LF	WF	INSL	DCON-MS	HAND		
			R	L											
Threading		NFTT 0805MR/L	●		8	8	1	4.8	3.15	4.8	7.75	5.9	R/L		
		0810MR/L	●		8	8	1	4.8	3.15	4.8	7.75	5.9	R/L		
		0815MR/L	●		8	8	1.2	4.8	3.15	4.8	7.75	8	R/L		
		1110MR/L	●		11	11	1.2	6.7	3.9	6.7	10.7	8	R/L		
		1115MR/L	●		11	11	1.2	6.7	3.9	6.7	10.7	8	R/L		
		1120MR/L	●		11	11	1.2	6.7	3.9	6.7	10.7	8	R/L		
		1125MR/L	●		11	11	1.2	6.7	3.9	6.7	10.7	9	R/L		
		1410MR/L			14	14	1.2	9	4.85	9	13.5	9	R/L		
		1415MR/L	●		14	14	1.2	9	4.85	9	13.5	9	R/L		
		1420MR/L			14	14	1.2	9	4.85	9	13.5	9	R/L		
		1425MR/L	●		14	14	1.2	9	4.85	9	13.5	11	R/L		
		1610MR/L			16	16	1.2	10.2	4.8	10.2	15.7	11	R/L		
		1615MR/L	●		16	16	1.2	10.2	4.8	10.2	15.7	11	R/L		
		1620MR/L	●		16	16	1.2	10.2	4.8	10.2	15.7	11	R/L		
		1625MR/L	●		16	16	1.2	10.2	4.8	10.2	15.7	11	R/L		
		1630MR/L			16	16	1.5	10.2	4.8	10.2	15.7	11	R/L		
		1635MR/L			16	16	1.6	10.2	4.8	10.2	15.7	11	R/L		
1640MR/L	●		16	16	1.8	10.2	4.8	10.2	15.7	5.9	R/L				



●: Stock item

**Applicable inserts**

Application	Picture	Designation	Coated		Dimensions (mm)										Configuration
			PC5300		SSC	DMIN	CDX	CW	RE	LF	WF	INSL	DCON-MS	HAND	
			R	L											
Profiling		NFTF 08082R/L	●		8	8	1.3	0.82	0.41	3.15	4.8	7.75	5.9	R/L	
		08122R/L	●		8	8	1.3	1.22	0.61	3.15	4.8	7.75	5.9	R/L	
		08182R/L	●		8	8	1.3	1.82	0.91	3.15	4.8	7.75	5.9	R/L	
		11082R/L	●		11	11	2.6	0.82	0.41	3.9	6.7	10.7	8	R/L	
		11122R/L	●		11	11	2.6	1.22	0.61	3.9	6.7	10.7	8	R/L	
		11182R/L	●		11	11	2.6	1.82	0.91	3.9	6.7	10.7	8	R/L	
		11202R/L	●		11	11	2.6	2.02	1.01	3.9	6.7	10.7	8	R/L	
		11302R/L	●		11	11	2.6	3.02	1.51	3.9	6.7	10.7	8	R/L	
		14122R/L	●		14	14	4.3	1.22	0.61	4.85	9	13.5	9	R/L	
		14182R/L	●		14	14	4.3	1.82	0.91	4.85	9	13.5	9	R/L	
		14202R/L	●		14	14	4.3	2.02	1.01	4.85	9	13.5	9	R/L	
		14222R/L	●		14	14	4.3	2.22	1.11	4.85	9	13.5	9	R/L	
		14302R/L	●		14	14	4.3	3.02	1.51	4.85	9	13.5	9	R/L	
		16182R/L	●		16	16	4.6	1.82	0.91	4.8	10.2	15.7	11	R/L	
		16222R/L	●		16	16	4.6	2.22	1.11	4.8	10.2	15.7	11	R/L	
		16302R/L	●		16	16	4.6	3.02	1.51	4.8	10.2	15.7	11	R/L	
16402R/L	●		16	16	4.6	4.02	2.01	4.8	10.2	15.7	11	R/L			

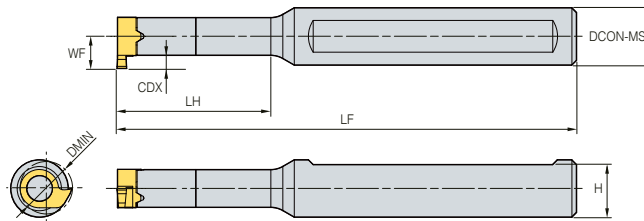
● : Stock item

**NFTIH**



- For NFTIH14 type



NFTF  
NFTT  
NFTG



• R type holder (mm)

Designation	Stock	CDX	DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable inserts	Screw	Wrench
										NFTG: Grooving NFTT: Threading NFTF: Forming		
NFTIH 08206C	●	1	8	13.4	65	4.8	4	6	N	NFTG08□□□R/L NFTT08□□□R/L NFTF08□□□R/L	PTKA02508	TW08P
08212C	●	1	8	16	70	4.8	10	12	N			
08312C	●	1	8	24	80	4.8	10	12	N			
08312S	●	1	8	24	80	4.8	10	12	N			
08412C	●	1	8	32	90	4.8	10	12	N			
08512C	●	1	8	40	100	4.8	10	12	N			
11208C	●	2.3	11	16.7	80	6.7	7	8	N	NFTG11□□□R/L NFTT11□□□R/L NFTF11□□□R/L	PTKA03510	TW15P
11212C	●	2.3	11	22	75	6.7	11	12	N			
11312C	●	2.3	11	33	95	6.7	11	12	N			
11312S	●	2.3	11	33	95	6.7	11	12	N			
11412C	●	2.3	11	44	110	6.7	11	12	N			
11512C	●	2.3	11	55	120	6.7	11	12	N			
14012C	●	4	14	20	75	9	11	12	N	NFTG14□□□R/L NFTT14□□□R/L NFTF14□□□R/L	PTKA0412	TW15P
14016C	●	4	14	20	75	9	15	16	N			
14112C	●	4	14	34	100	9	11	12	N			
14116C	●	4	14	34	100	9	15	16	N			
14212C	●	4	14	45	110	9	11	12	N			
14216C	●	4	14	45	110	9	15	16	N			
14312C	●	4	14	64	130	9	11	12	N			
14316C	●	4	14	64	130	9	15	16	N			
16312C	●	4.3	16	48	130	10.2	11	12	N			
16312S	●	4.3	16	48	130	10.2	11	12	N			
16412C	●	4.3	16	64	130	10.2	11	12	N	NFTG16□□□R/L NFTT16□□□R/L NFTF16□□□R/L	PTKA0512	TW20P
16512C	●	4.3	16	80	150	10.2	11	12	N			
16316C	●	4.3	16	48	130	10.2	15	16	N			
16416C	●	4.3	16	64	130	10.2	15	16	N			
16516C	●	4.3	16	80	150	10.2	15	16	N			

● : Stock item

# C Technical Information for K-Notch

The Solution for High-Precision Grooving

## K-Notch

### KORLOY Grooving Tool

- KORLOY clamping system offers high rigidity for high precision machining
- High-quality cutting edge ensuring long tool life and excellent machinability
- Provides various cutting edge widths for a wide range of selection

#### Code system

##### • Insert

<b>KN</b>	<b>G</b>	<b>P</b>	<b>3</b>	<b>M</b>	<b>200</b>	<b>R</b>
<b>K-Notch</b>	<b>Insert type</b> B : Blank G : Grooving R : Full Radius T : Threading	<b>Additional information</b> P: Positive None: Flat	<b>Insert size</b> 2, 3, 4	<b>Unit</b> M: Metric None: Inch	<b>Insert Width</b> 200 : 2.00 mm	<b>Hand</b> L: Left handed R: Right handed

##### • Holder

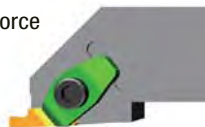
<b>KN</b>	<b>S</b>	<b>R</b>	<b>25</b>	<b>25</b>	<b>M</b>	<b>3</b>
<b>K-Notch</b>	<b>Clamping position</b> S : Side	<b>Hand</b> L: Left handed R: Right handed	<b>Shank size</b> Height: 25 mm Width: 25 mm		<b>Holder length</b> E : 70 mm F : 80 mm H : 100 mm K : 125 mm M : 150 mm P : 170 mm	<b>Insert size</b> 2, 3, 4

#### Features of holder

##### Clamp

- Rigid binding force relative to the clamping force
- User-oriented convenient shape

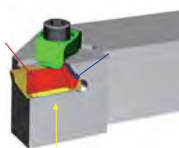
Clamped view



##### Insert clamping

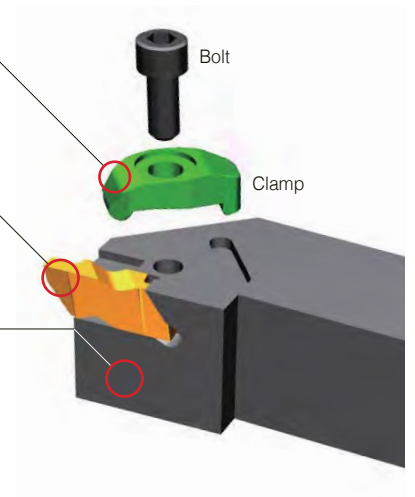
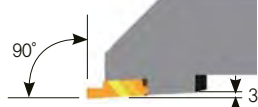
- Provides excellent clamping stability due to the 3-face (bottom, side, and rear face) binding

3-face clamping

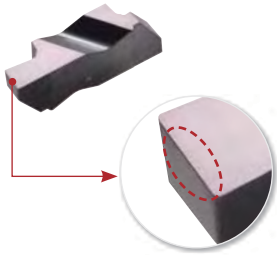


##### Relief angle

- The relief angle of a flank surface when clamping an insert: 3°



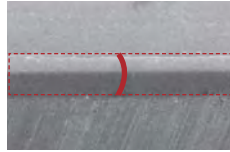
## Features of insert



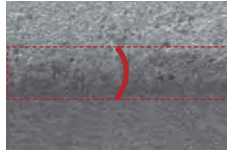
[ Edge preparation ]

### High-quality edge preparation

- Cutting edges in uniform quality
- Long tool life



[ K Notch ]



[ Competitor ]

### Mirror-like rake surface

- Improved resistance to welding and chipping
- Improved surface finish of workpieces



[ K Notch ]

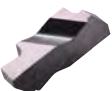
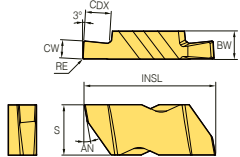

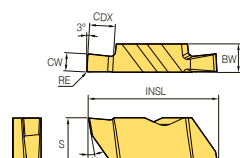

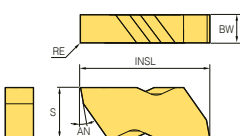
## Recommended feed per insert type

Type		KNG	KNGP	KNR	KNRP	KNB
Insert shape						
Cutting-edge						
Application		General grooving	General grooving	Turning profiling	Turning profiling	Blank
Recommended workpiece	1 <sup>st</sup>	P, K	M, N, S	P, K	M, N, S	-
	2 <sup>nd</sup>	M, N, S	P, K	M, N, S	P, K	-
Recommended feed, $f_n$ (mm/rev)	P	0.10 - 0.28	0.08 - 0.25	0.10 - 0.28	0.08 - 0.25	-
	M	0.10 - 0.25	0.08 - 0.25	0.10 - 0.25	0.08 - 0.25	-
	K	0.10 - 0.28	0.08 - 0.25	0.10 - 0.28	0.08 - 0.25	-
	N	0.01 - 0.30	0.01 - 0.30	0.01 - 0.30	0.01 - 0.30	-
	S	0.05 - 0.15	0.05 - 0.15	0.05 - 0.15	0.05 - 0.15	-

## Recommended cutting speed per grade


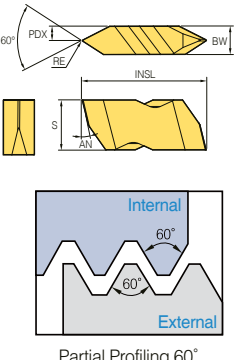
Workpiece	Grade	Recommended cutting speed, $v_c$ (m/min)				
		50	100	200	300	600
P	Steel		80	200		
	Alloy steel		60	160		
M	Stainless steel		80	130		
			80	160		
K	Cast iron		90	200		
N	Non-ferrous metal			150		600
S	Heat-resistant alloy	35	65			

## Applicable inserts (Metric)

Application	Picture	Designation	Coated			Dimensions (mm)									Configuration
			PC5300	PC8110	H05	SSC	CDX	CW	RE	BW	INSL	S	AN	HAND	
Flat Top		KNG 2M 150R				20	2.79	1.5	0.19	3.84	13.03	5.56	10	R	
						20	2.79	2	0.19	3.84	13.03	5.56	10	R	
						20	2.79	2.5	0.19	3.84	13.03	5.56	10	R	
					20	2.79	3	0.19	3.84	13.03	5.56	10	R		
		3M 150R	●		30	1.91	1.5	0.19	4.95	22.709	8.74	10	R		
			●		30	2.79	2	0.19	4.95	22.709	8.74	10	R		
			● ●		30	3.81	2.5	0.19	4.95	22.709	8.74	10	R		
					30	3.81	3	0.19	4.95	22.709	8.74	10	R		
					30	3.81	4	0.32	4.95	22.709	8.74	10	R		
		4M 500R			40	6.35	5	0.2	6.48	28.663	11.51	10	R		
					40	6.35	6	0.2	6.48	28.663	11.51	10	R		
					40	6.35	6	0.2	6.48	28.663	11.51	10	R		
C/B Ground		KNGP 2M 150R				20	2.79	1.5	0.19	3.84	13.03	5.56	10	R	
						20	2.79	2	0.19	3.84	13.03	5.56	10	R	
						20	2.79	2.5	0.19	3.84	13.03	5.56	10	R	
					20	2.79	3	0.19	3.84	13.03	5.56	10	R		
		3M 150R	●		30	1.91	1.5	0.19	4.95	22.709	8.74	10	R		
			● ●		30	2.79	2	0.19	4.95	22.709	8.74	10	R		
			● ●		30	3.81	2.5	0.19	4.95	22.709	8.74	10	R		
					30	3.81	3	0.19	4.95	22.709	8.74	10	R		
					30	3.81	4	0.32	4.95	22.709	8.74	10	R		
		4M 500R			40	6.35	5	0.2	6.48	28.663	11.51	10	R		
					40	6.35	6	0.2	6.48	28.663	11.51	10	R		
					40	6.35	6	0.2	6.48	28.663	11.51	10	R		
Blank		KNB 2R				20	-	3.81	-	3.84	13.03	5.56	10	R	
						30	-	4.95	-	4.95	22.709	8.74	10	R	
						40	-	6.48	-	6.48	28.663	11.51	10	R	

●: Stock item


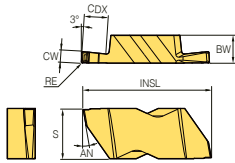

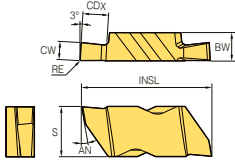

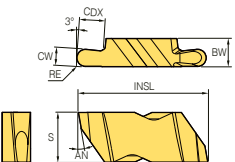

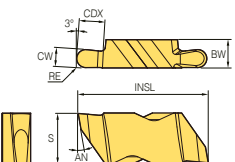
## Applicable inserts (Threading)

Application	Picture	Designation	Coated		Dimensions (mm)									Pitch (External)		Configuration
			PC5300	PC8110	SSC	PDX	RE	S	INSL	BW	AN	HAND	mm	tpi		
Partial Profiling 60°		KNT 2R			20	1.9	0.1	5.56	13.03	3.84	13.5	R	0.70-3.00	8-36		
					30	2.49	0.17	8.74	22.709	4.95	13.5	R	1.25-4.00	6-20		
					40	3.25	0.17	11.51	28.663	6.48	13.5	R	1.25-6.25	4-20		

●: Stock item

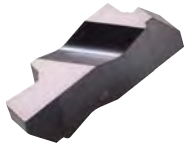


Applicable inserts (Inch)

Application	Picture	Designation	Coated		Dimensions (mm)									Configuration
			PC5300	PC8110	SSC	CDX	CW	RE	S	BW	INSL	AN	HAND	
Flat Top		<b>KNG</b> 2031R			20	1.27	0.79	0.09	5.56	3.84	13.03	10	R	
		2041R			20	1.27	1.04	0.09	5.56	3.84	13.03	10	R	
		2047R			20	1.27	1.19	0.09	5.56	3.84	13.03	10	R	
		2058R			20	1.27	1.47	0.19	5.56	3.84	13.03	10	R	
		2062R			20	2.79	1.57	0.19	5.56	3.84	13.03	10	R	
		2094R			20	2.79	2.39	0.19	5.56	3.84	13.03	10	R	
		2125R			20	2.79	3.18	0.19	5.56	3.84	13.03	10	R	
		3047R			30	1.91	1.19	0.19	8.74	4.95	22.709	10	R	
		3062R	● ●		30	2.39	1.57	0.19	8.74	4.95	22.709	10	R	
		3072R			30	2.39	1.83	0.19	8.74	4.95	22.709	10	R	
		3078R	●		30	2.39	1.98	0.19	8.74	4.95	22.709	10	R	
		3088R			30	2.39	2.24	0.19	8.74	4.95	22.709	10	R	
		3094R			30	3.81	2.39	0.19	8.74	4.95	22.709	10	R	
		3097R	●		30	3.81	2.46	0.32	8.74	4.95	22.709	10	R	
		3105R			30	3.81	2.67	0.19	8.74	4.95	22.709	10	R	
		3110R			30	3.81	2.79	0.32	8.74	4.95	22.709	10	R	
		3122R			30	3.81	3.1	0.19	8.74	4.95	22.709	10	R	
		3125R	● ●		30	3.81	3.18	0.19	8.74	4.95	22.709	10	R	
		3142R			30	3.81	3.61	0.32	8.74	4.95	22.709	10	R	
		3156R			30	3.81	3.96	0.19	8.74	4.95	22.709	10	R	
		3178R			30	3.81	4.52	0.19	8.74	4.95	22.709	10	R	
		3185R			30	3.81	4.7	0.57	8.74	4.95	22.709	10	R	
		3189R	●		30	3.81	4.8	0.57	8.74	4.95	22.709	10	R	
		4125R			40	3.81	3.18	0.19	11.51	6.48	28.663	10	R	
		4189R			40	6.35	4.8	0.57	11.51	6.48	28.663	10	R	
4213R			40	6.35	5.41	0.19	11.51	6.48	28.663	10	R			
4219R			40	6.35	5.56	0.57	11.51	6.48	28.663	10	R			
4250R			40	6.35	6.35	0.57	11.51	6.48	28.663	10	R			
C/B Ground		<b>KNGP</b> 2031R			20	1.27	0.79	0.09	5.56	3.84	13.03	10	R	
		2062R			20	2.79	1.57	0.19	5.56	3.84	13.03	10	R	
		2125R			20	2.79	3.18	0.19	5.56	3.84	13.03	10	R	
		3088R			30	2.39	2.24	0.19	8.74	4.95	22.709	10	R	
		3125R	● ●		30	3.81	3.18	0.19	8.74	4.95	22.709	10	R	
		3156R			30	3.81	3.96	0.19	8.74	4.95	22.709	10	R	
		3189R			30	3.81	4.8	0.57	8.74	4.95	22.709	10	R	
		4189R			40	6.35	4.8	0.57	11.51	6.48	28.663	10	R	
		4250R			40	6.35	6.35	0.57	11.51	6.48	28.663	10	R	
Round Flat Top		<b>KNR</b> 2031R			20	2.79	1.57	0.79	5.56	3.84	13.03	10	R	
		2047R			20	2.79	2.39	1.19	5.56	3.84	13.03	10	R	
		3031R	●		30	2.39	1.58	0.79	8.74	4.95	22.709	10	R	
		3047R	●		30	3.81	2.38	1.19	8.74	4.95	22.709	10	R	
		3062R	●		30	3.81	3.18	1.59	8.74	4.95	22.709	10	R	
		3078R			30	3.81	3.96	1.98	8.74	4.95	22.709	10	R	
		3094R			30	3.81	4.78	2.39	8.74	4.95	22.709	10	R	
		4125R			40	6.35	6.35	3.18	11.51	6.48	28.663	10	R	
Round C/B Ground		<b>KNRP</b> 2031R			20	2.79	1.57	0.79	5.56	3.84	13.03	10	R	
		2047R			20	2.79	2.39	1.19	5.56	3.84	13.03	10	R	
		3031R	●		30	2.39	1.58	0.79	8.74	4.95	22.709	10	R	
		3047R	● ●		30	3.81	2.38	1.19	8.74	4.95	22.709	10	R	
		3062R	● ●		30	3.81	3.18	1.59	8.74	4.95	22.709	10	R	
		3078R	●		30	3.81	3.96	1.98	8.74	4.95	22.709	10	R	
		3094R	●		30	3.81	4.78	2.39	8.74	4.95	22.709	10	R	
		4125R			40	6.35	6.35	3.18	11.51	6.48	28.663	10	R	

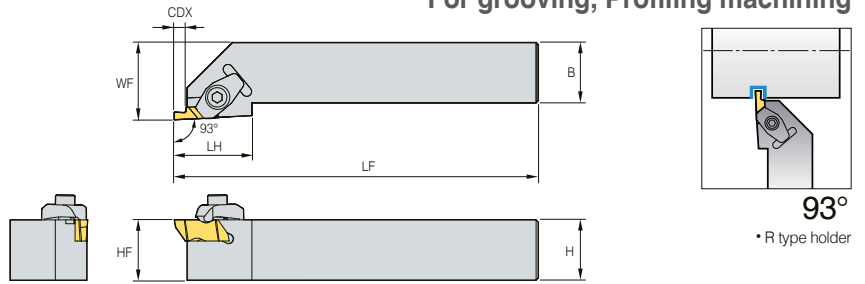
● : Stock item

## KNSR



KNG KNGP KNT  
KNR KNRP KNB

For grooving, Profiling machining



(mm)

Designation	Stock	CDX	LH	LF	WF	B	H	HF	HAND	Applicable inserts	Clamp	Screw	Wrench
KNSR	1010E2		2.79	19	70	14	10	10	R	KNG2□ KNGP2□ KNR2□ KNB2R KNT2R	CM74	MHB3010	HW25L
	1212F2		2.79	19	80	16	12	12	R				
	1616H2		2.79	19	100	20	16	16	R				
	2020K2		2.79	19	125	25	20	20	R				
	2525M2		2.79	19	150	32	25	25	R				
	2020K3	●	3.81	32	125	25	20	20	R	KNG3□ KNGP3□ KNR3□ KNRP3□ KNB3R KNT3R	CM72LP	MHA0512	HW40L
	2525M3	●	3.81	32	150	32	25	25	R				
	3225P3		3.81	32	170	32	25	32	R				
	3232P3	●	3.81	32	170	40	32	32	R				
	2525M4		6.35	35	150	32	25	25	R	KNG4□ KNGP4□ KNR4□ KNB4R KNT4R	CM72LP	MHA0512	HW40L
	3225P4		6.35	35	170	32	25	32	R				
	3232P4		6.35	35	170	40	32	32	R				

↻ Applicable inserts C18 ~ C19

●: Stock item

Multi-functional machining with strong clamping system and new technology

# KGT

- Double-sided inserts of KGT reduces machining cost
- Strong clamping system ensures stable and accurate machining
- New grade and new technology provide superior tool life
- Various tooling solutions of the KGT improve productivity
- Cutting edges on the front and side faces of the KGT enable multi-functional grooving, achieving high productivity
- Three-dimensional chip breaker ensures excellent chip control in various applications
- The KGT inserts with various chip breakers are available for wide application range
- Special cutting edges are available for quotation

## Code system

### • Insert

<b>KG</b>	<b>M</b>	<b>N</b>	<b>300</b>	<b>(s)</b>	<b>-</b>	<b>04</b>	<b>-</b>	<b>T</b>
<b>System Code</b> KG : KORLOY Grooving KR : KORLOY Grooving Round	<b>Tolerance</b> M: Pressed G: Ground	<b>Hand</b> N: Neutral R: Right L: Left I: Internal	<b>Width of cutting edge</b> 2.0~8.0 mm	<b>1 corner</b>		<b>Nose Radius</b> 0.2 mm 0.3 mm 0.4 mm 0.8 mm		<b>Chip Breaker</b> L / R / T / C / LP / RP / B / A TL / CM

### • Holder

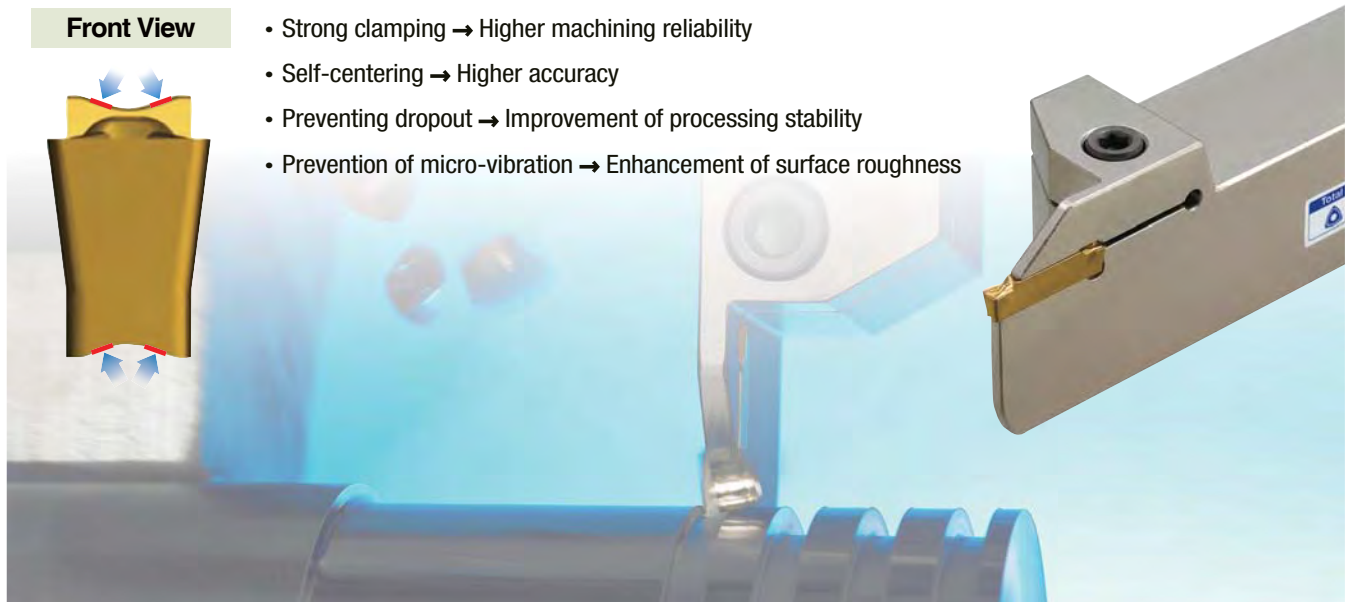
<b>KG</b>	<b>E</b>	<b>H</b>	<b>R/L</b>	<b>2525</b>	<b>-</b>	<b>3</b>	<b>T20</b>
<b>System Code</b> KG SYSTEM (KORLOY Grooving)	<b>Working Style</b> E: External Process I: Internal Process F: Facing Process	<b>Holder Style</b> H: Horizontal V: Vertical U: Undercut	<b>Hand</b> R: Right L: Left	<b>Shank standard</b> Height 25 mm Width 25 mm (For Internal machining : Minimum diameter for machining)		<b>Cutting Width</b> 2.0~8.0 mm	<b>Maximum Depth</b> 8~36 mm

## Features





























### Front View



- Strong clamping → Higher machining reliability
- Self-centering → Higher accuracy
- Preventing dropout → Improvement of processing stability
- Prevention of micro-vibration → Enhancement of surface roughness



## Recommended Insert

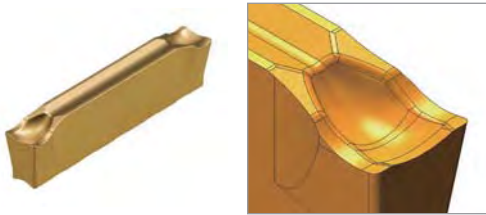
Type	Chip breaker	Cross section type	Recommended workpiece					Recommended cutting													
			P	M	K	N	S	External					Internal				Facing		Special		
								Grooving	Parting	Turning	Copying	Relief	Grooving	Turning	Copying	Relief	Grooving	Turning			
KGMN	L 		⊙	○				⊙	○					○					○		
	TL 		○	○			⊙	⊙	○	○				○	○				⊙	○	
	T 		⊙	○	○			⊙	○	⊙				○	○				⊙	⊙	
	R 		⊙	○	⊙			⊙	○					○					○		
KGGN	B 		⊙		○			⊙													⊙
	A 						⊙	⊙	○	○				○							
	R 		⊙	○	⊙			⊙	○					○					○		
KGMI	T 		⊙	○	○									⊙	⊙						
KGMR/L	LP 		⊙	○					⊙												
	RP 		⊙		○				⊙												
KRMN	C 		⊙	○	○							⊙	⊙			○	○				
KRGN	A 						⊙					⊙	⊙			○	○				
	CM 		○	○			⊙					⊙	⊙			○	○				
KRMI	C 		⊙	○	○											⊙	⊙				

⊙: 1st recommendation ○: 2nd recommendation

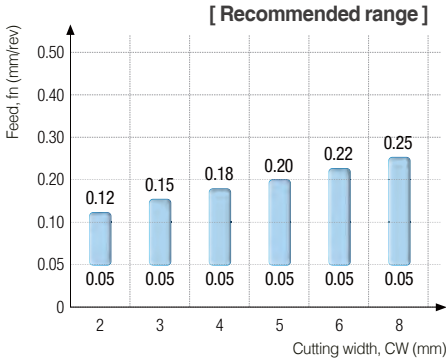
**Features of Chip breaker**

⊙: 1st recommendation ○: 2nd recommendation

**L Light grooving**



- For Grooving and Parting
- Concave cutting edge
- Concave rake surface
- Low hardness workpiece
- Small diameter part cutting

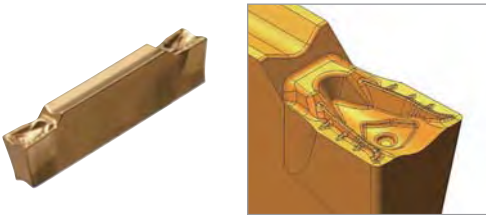


Recommended cutting											
External					Internal				Facing		Special
Grooving	Parting	Turning	Copying	Relief	Grooving	Turning	Copying	Relief	Grooving	Turning	
⊙	○				○					○	

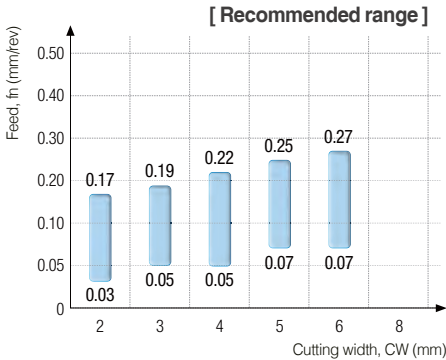
Recommended workpiece

<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>
○	○			⊙

**TL Turning and grooving in Low feed**



- For Grooving, Cutting and Parting
- Concave cutting edge
- Concave bump
- For HRSA cutting
- Good chip control

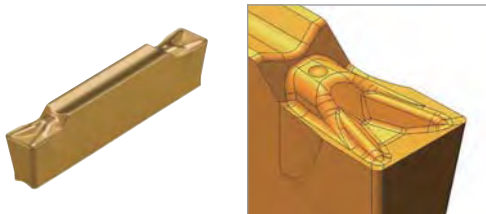


Recommended cutting											
External					Internal				Facing		Special
Grooving	Parting	Turning	Copying	Relief	Grooving	Turning	Copying	Relief	Grooving	Turning	
⊙	○	○			○	○			⊙	○	

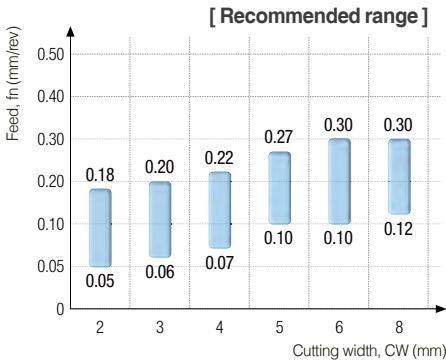
Recommended workpiece

<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>
⊙	○			

**T Turning and grooving**



- For Grooving, Cutting and Parting
- Straight cutting edge
- Concave bump
- For various workpiece cutting
- Good chip control



Recommended cutting											
External					Internal				Facing		Special
Grooving	Parting	Turning	Copying	Relief	Grooving	Turning	Copying	Relief	Grooving	Turning	
⊙	○	⊙			○	○			⊙	⊙	

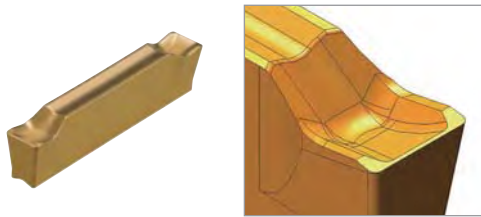
Recommended workpiece

<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>
⊙	○	○		

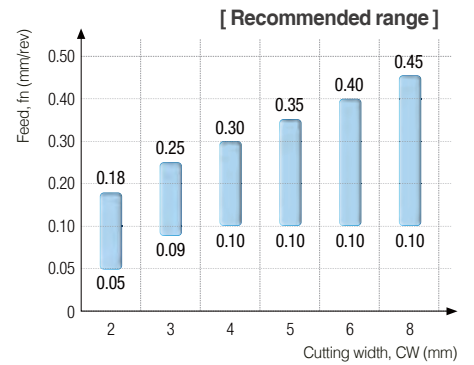
## Features of Chip breaker

⊙: 1st recommendation ○: 2nd recommendation

### R Rough grooving



- For Grooving and Parting
- Straight cutting edge
- Hard cutting edge
- High hardness workpiece
- For high feed cutting

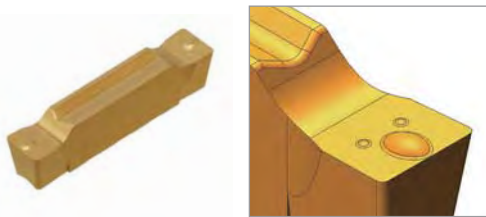


Recommended cutting											
External					Internal				Facing		Special
Grooving	Parting	Turning	Copying	Relief	Grooving	Turning	Copying	Relief	Grooving	Turning	
⊙	○					○				○	

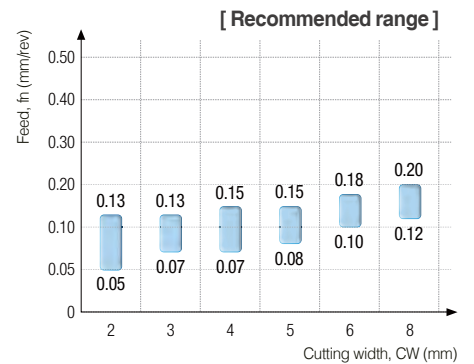
**Recommended workpiece**

<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>
⊙	○	⊙		

### B Blank for precision grooving



- For Grooving
- Straight cutting edge
- Special shape
- Good surface finish of workpiece

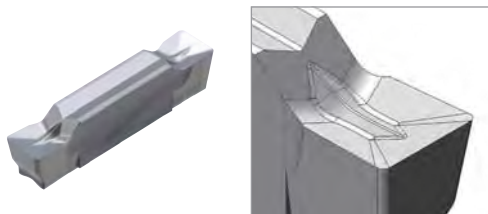


Recommended cutting											
External					Internal				Facing		Special
Grooving	Parting	Turning	Copying	Relief	Grooving	Turning	Copying	Relief	Grooving	Turning	
⊙											⊙

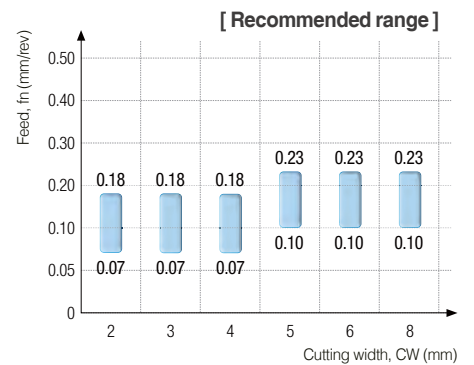
**Recommended workpiece**

<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>
⊙		○		

### A Aluminum grooving



- For Grooving, Parting and Turning
- Straight cutting edge
- Aluminum workpiece
- Good surface finish of workpiece



Recommended cutting											
External					Internal				Facing		Special
Grooving	Parting	Turning	Copying	Relief	Grooving	Turning	Copying	Relief	Grooving	Turning	
⊙	○	○				○					

**Recommended workpiece**

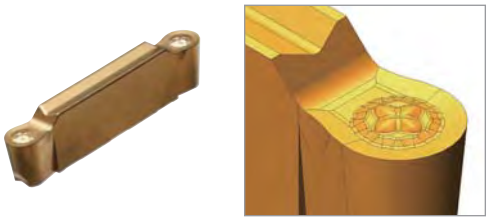
<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>
			⊙	



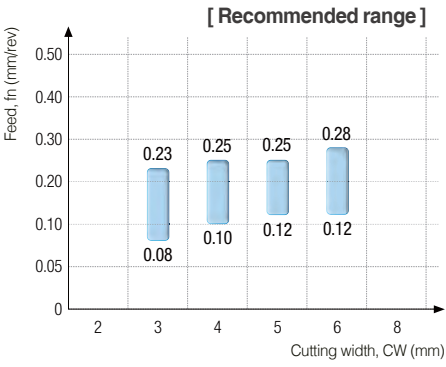
**Features of Chip breaker**

⊙: 1st recommendation ○: 2nd recommendation

**CM Copying and relief in Medium feed**



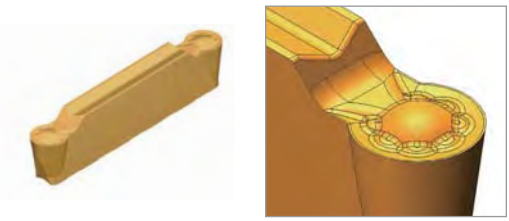
- For Copying and Relief
- Round cutting edge
- Bump on rake surface
- For HRSA cutting
- Good surface finish of workpiece



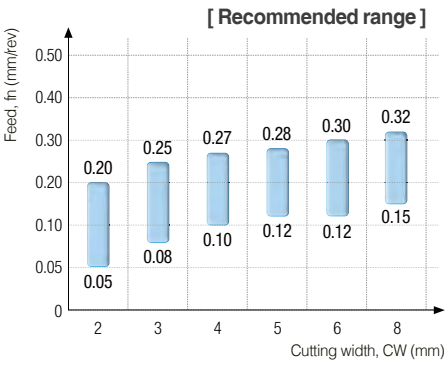
Recommended cutting											
External					Internal				Facing		Special
Grooving	Parting	Turning	Copying	Relief	Grooving	Turning	Copying	Relief	Grooving	Turning	
			⊙	⊙			○	○			

Recommended workpiece				
P	M	K	N	S
○	○			⊙

**C Copying and relief**



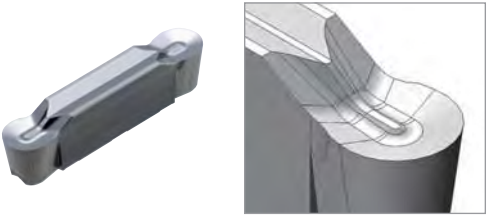
- For Copying and Relief
- Round cutting edge
- Bump on rake surface
- Good surface finish of workpiece



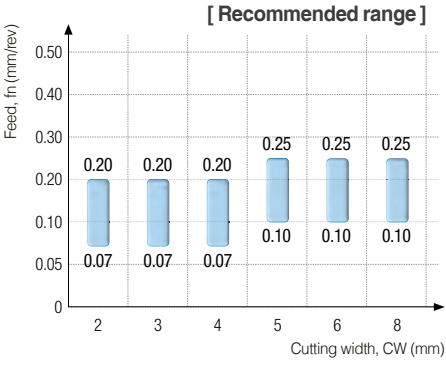
Recommended cutting											
External					Internal				Facing		Special
Grooving	Parting	Turning	Copying	Relief	Grooving	Turning	Copying	Relief	Grooving	Turning	
			⊙	⊙			○	○			

Recommended workpiece				
P	M	K	N	S
⊙	○	○		

**A Aluminum grooving**



- For Copying and Relief
- Round cutting edge
- Aluminum workpiece
- Good surface finish of workpiece



Recommended cutting											
External					Internal				Facing		Special
Grooving	Parting	Turning	Copying	Relief	Grooving	Turning	Copying	Relief	Grooving	Turning	
			⊙	⊙			○	○			

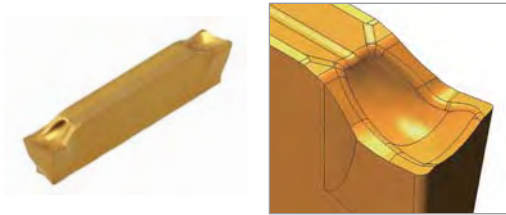
Recommended workpiece				
P	M	K	N	S
			⊙	



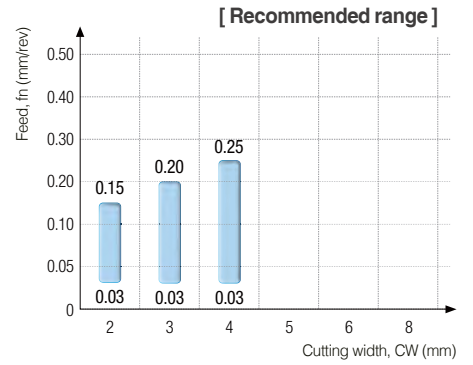
## Features of Chip breaker

⊙: 1st recommendation ○: 2nd recommendation

### LP Light Parting



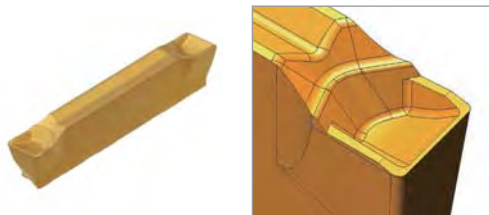
- For Parting
- Lead angle cutting edge
- Concave rake surface
- Low hardness workpiece
- Small diameter part cutting



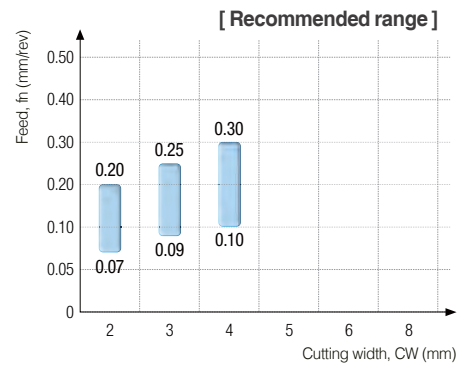
Recommended cutting											
External					Internal				Facing		Special
Grooving	Parting	Turning	Copying	Relief	Grooving	Turning	Copying	Relief	Grooving	Turning	
	⊙										

Recommended workpiece				
P	M	K	N	S
⊙	○			

### RP Rough Parting



- For Parting
- Lead angle cutting edge
- Hard cutting edge
- High hardness workpiece
- Good for high feed cutting




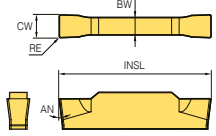






Recommended cutting											
External					Internal				Facing		Special
Grooving	Parting	Turning	Copying	Relief	Grooving	Turning	Copying	Relief	Grooving	Turning	
	⊙										

Recommended workpiece				
P	M	K	N	S
⊙		○		

**Recommended cutting conditions**


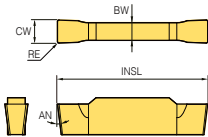

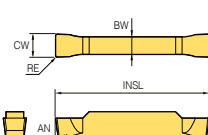

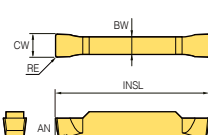

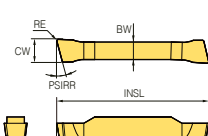

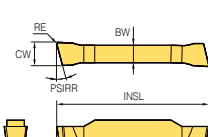
Workpiece					Grade						Chip breaker											
ISO	Workpiece material	KS	ISO	Brinell hardness (HB)	CVD			PVD			Grooving					Turning						
					NC3225	NC5330	NC6315	PC3035	PC5300	PC9030	L	TL	T	R	C	CM	TL	T	C	CM		
					vc (m/min)						fn (mm/rev)					fn (mm/rev)						
<b>P</b>	Carbon	C = 0.10 ~0.25%	SM25C	C25	125	210	160	-	100	110	-	0.15	0.12	0.15	0.25	0.20	0.16	0.19	0.20	0.25	0.23	
						230	170	-	140	140	-	0.10	0.10	0.11	0.17	0.15	0.13	0.17	0.16	0.20	0.18	
						240	190	-	180	170	-	0.05	0.08	0.07	0.09	0.10	0.10	0.15	0.12	0.15	0.13	
		C = 0.25 ~0.55%	SM35C	C35	160	200	140	-	95	100	-	0.15	0.12	0.15	0.25	0.20	0.16	0.19	0.20	0.25	0.23	
						210	160	-	130	130	-	0.10	0.10	0.11	0.17	0.15	0.13	0.17	0.16	0.20	0.18	
						220	170	-	180	160	-	0.05	0.08	0.07	0.09	0.10	0.10	0.15	0.12	0.15	0.13	
		C = 0.55 ~0.80%	SM55C	C55	229	180	130	-	90	90	-	0.15	0.12	0.15	0.25	0.20	0.16	0.19	0.2	0.25	0.23	
						200	150	-	130	120	-	0.10	0.10	0.11	0.17	0.15	0.13	0.17	0.16	0.20	0.18	
						210	160	-	170	150	-	0.05	0.08	0.07	0.09	0.10	0.10	0.15	0.12	0.15	0.13	
		Low alloy steel ≤ 5%	Nonhardened	SCM440	42CrMo4	180	150	110	-	60	70	-	0.13	0.11	0.13	0.21	0.18	0.14	0.17	0.18	0.23	0.20
	160						120	-	100	100	-	0.09	0.09	0.10	0.15	0.13	0.11	0.15	0.14	0.18	0.15	
	170		130	-	140	130	-	0.05	0.07	0.07	0.09	0.08	0.08	0.13	0.10	0.13	0.10					
			Hardened and tempered	SCM445	-	350	85	60	-	40	50	-	0.13	0.11	0.13	0.21	0.18	0.14	0.17	0.18	0.23	0.20
	90	70					-	65	60	-	0.09	0.09	0.10	0.15	0.13	0.11	0.15	0.14	0.18	0.15		
	100	80					-	90	70	-	0.05	0.07	0.07	0.09	0.08	0.08	0.13	0.10	0.13	0.10		
	High alloy steel > 5%	Annealed	STD11	-	200	110	80	-	50	55	-	0.13	0.11	0.13	0.21	0.18	0.14	0.17	0.18	0.23	0.20	
120						90	-	80	75	-	0.09	0.09	0.10	0.15	0.13	0.11	0.15	0.14	0.18	0.15		
130		100	-	120	95	-	0.05	0.07	0.07	0.09	0.08	0.08	0.13	0.10	0.13	0.10						
		Hardened tool steel	STD61	X40CrMoV5-1	352	90	65	-	40	40	-	0.13	0.11	0.13	0.21	0.18	0.14	0.17	0.18	0.23	0.20	
100	70					-	65	60	-	0.09	0.09	0.10	0.15	0.13	0.11	0.15	0.14	0.18	0.15			
110	80					-	90	80	-	0.05	0.07	0.07	0.09	0.08	0.08	0.13	0.10	0.13	0.10			
<b>M</b>	Austenite series	STS304	X5CrNi18-9	160 ~ 180	-	85	-	-	60	50	0.13	0.11	0.13	0.21	0.18	0.14	0.17	0.18	0.23	0.20		
					-	90	-	-	80	70	0.09	0.09	0.10	0.15	0.13	0.11	0.15	0.14	0.18	0.15		
					-	100	-	-	100	90	0.05	0.07	0.07	0.09	0.08	0.08	0.13	0.10	0.13	0.10		
			STS316	X5CrNiMo17-12-2	160 ~ 180	-	85	-	-	60	50	0.13	0.11	0.13	0.21	0.18	0.14	0.17	0.18	0.23	0.20	
		-				90	-	-	80	70	0.09	0.09	0.10	0.15	0.13	0.11	0.15	0.14	0.18	0.15		
		-				100	-	-	100	90	0.05	0.07	0.07	0.09	0.08	0.08	0.13	0.10	0.13	0.10		
<b>K</b>	Gray cast iron	Low tensile strength	GC150	150	≤ 212	-	105	150	-	80	-	-	-	0.13	0.21	0.18	-	0.17	0.18	0.23	0.20	
						-	110	160	-	100	-	-	-	0.10	0.15	0.13	-	0.15	0.14	0.18	0.15	
						-	120	170	-	120	-	-	-	0.07	0.09	0.08	-	0.13	0.10	0.13	0.10	
		High tensile strength	GC250 GC350	250 350	≤ 248 ≤ 277	-	85	120	-	80	-	-	-	0.13	0.21	0.18	-	0.17	0.18	0.23	0.20	
	-					90	130	-	100	-	-	-	0.10	0.15	0.13	-	0.15	0.14	0.18	0.15		
	-					100	140	-	120	-	-	-	0.07	0.09	0.08	-	0.13	0.10	0.13	0.10		
		Ductile cast iron	GCD500-7	500-7	170 ~ 241	-	65	95	-	70	-	-	-	0.15	0.25	0.20	-	0.19	0.20	0.25	0.23	
	-					70	100	-	85	-	-	-	0.11	0.17	0.15	-	0.17	0.16	0.20	0.18		
	-					80	110	-	100	-	-	-	0.07	0.09	0.10	-	0.15	0.12	0.15	0.13		
				GCD600-3	600-3	192 ~ 269	-	55	85	-	70	-	-	-	0.15	0.25	0.20	-	0.19	0.20	0.25	0.23
	-		60				90	-	85	-	-	-	0.11	0.17	0.15	-	0.17	0.16	0.20	0.18		
	-		70				100	-	100	-	-	-	0.07	0.09	0.10	-	0.15	0.12	0.15	0.13		
		GCD700-2	700-2	229 ~ 302	-	55	85	-	70	-	-	-	0.15	0.25	0.20	-	0.19	0.20	0.25	0.23		
-	60				90	-	85	-	-	-	0.11	0.17	0.15	-	0.17	0.16	0.20	0.18				
-	70				100	-	100	-	-	-	0.07	0.09	0.10	-	0.15	0.12	0.15	0.13				
<b>S</b>	Inconel	Inconel909	-	200	-	-	-	-	30	-	-	0.09	0.10	-	0.12	0.10	0.15	0.13	0.16	0.14		
					-	-	-	-	40	-	-	0.07	0.08	-	0.10	0.08	0.13	0.11	0.14	0.12		
					-	-	-	-	50	-	-	0.05	0.06	-	0.08	0.06	0.11	0.09	0.12	0.10		
			Inconel718	-	350	-	-	-	-	20	-	-	0.09	0.10	-	0.12	0.10	0.15	0.13	0.16	0.14	
		-				-	-	-	30	-	-	0.07	0.08	-	0.10	0.08	0.13	0.11	0.14	0.12		
		-				-	-	-	40	-	-	0.05	0.06	-	0.08	0.06	0.11	0.09	0.12	0.10		
		Titanium alloy	Pure titanium	-	70	-	-	-	-	40	-	-	0.11	0.13	-	0.18	0.14	0.17	0.18	0.20	0.20	
	-					-	-	-	50	-	-	0.09	0.10	-	0.13	0.11	0.15	0.14	0.18	0.15		
	-		-	-	-	60	-	-	0.07	0.07	-	0.08	0.08	0.13	0.10	0.16	0.10					
				Ti-6Al-4V	-	334	-	-	-	-	40	-	-	0.11	0.13	-	0.18	0.14	0.17	0.18	0.20	0.20
-	-	-	-				50	-	-	0.09	0.10	-	0.13	0.11	0.15	0.14	0.18	0.15				
-	-	-	-	60	-	-	0.07	0.07	-	0.08	0.08	0.13	0.10	0.16	0.10							

**Applicable inserts**

Application	Picture	Designation	Coated						Uncoated		Dimensions (mm)							Configuration	
			NC3225	NC5330	NC6315	PC3035	PC5300	PC9030	H01	H05	SSC	CW	RE	BW	INSL	AN	HAND		
Grooving		KGMN	200-02-L	•	•		•	•	•			20	2	0.2	1.7	20	7	N	
			300-02-L	•	•		•	•	•			30	3	0.2	2.3	20	7	N	
			400-02-L	•	•		•	•	•			40	4	0.2	3.3	20	7	N	
			500-03-L	•	•		•	•				50	5	0.3	4.1	25	7	N	
			600-03-L					•				60	6	0.3	5.1	25	7	N	
Grooving · Turning		KGMN	300-02-TL									30	3	0.2	2.3	20	7	N	
			300-04-TL									30	3	0.4	2.3	20	7	N	
			400-04-TL									40	4	0.4	3.3	20	7	N	
			500-04-TL									50	5	0.4	4.1	25	7	N	
			500-08-TL									50	5	0.8	4.1	25	7	N	
			600-08-TL									60	6	0.8	5.1	25	7	N	
Grooving · Turning		KGMN	150-015-T	•	•			•			15	1.5	0.15	1.2	16	7	N		
			200-02-T	•	•	•	•	•	•			20	2	0.2	1.7	20	7	N	
			250-02-T	•	•			•			25	2.5	0.2	2	20	7	N		
			300-02-T	•	•	•	•	•	•			0	3	0.2	2.3	20	7	N	
			300-04-T	•	•	•	•	•	•			30	3	0.4	2.3	20	7	N	
			400-04-T	•	•	•	•	•	•			40	4	0.4	3.3	20	7	N	
			400-08-T	•	•	•	•	•	•			40	4	0.8	3.3	20	7	N	
			500-04-T	•	•	•	•	•	•			50	5	0.4	4.1	25	7	N	
			500-08-T	•	•	•	•	•	•			50	5	0.8	4.1	25	7	N	
			600-04-T	•	•	•	•	•	•			60	6	0.4	5.1	25	7	N	
			600-08-T	•	•	•	•	•	•			60	6	0.8	5.1	25	7	N	
			800-08-T	•		•	•	•	•			80	8	0.8	6.1	30	7	N	
Rough Grooving		KGMN	150-015-R	•	•			•			15	1.5	0.15	1.2	16	7	N		
			200-02-R	•	•		•	•	•			20	2	0.2	1.7	20	7	N	
			300-02-R	•	•		•	•	•			30	3	0.2	2.3	20	7	N	
			400-03-R	•	•		•	•	•			40	4	0.3	3.3	20	7	N	
			500-03-R		•			•			50	5	0.3	4.1	25	7	N		
			600-03-R		•			•			60	6	0.3	3.4	25	7	N		
			800-04-R		•			•			80	8	0.4	6.1	30	7	N		
Aluminum Grooving (Single insert)		KGGN	200S-02-A									20	2	0.2	1.7	20	7	N	
			300S-02-A									30	3	0.2	2.3	20	7	N	
			400S-04-A									40	4	0.4	3.3	20	7	N	
			500S-04-A									50	5	0.4	4.1	25	7	N	
			600S-04-A									60	6	0.4	5.1	25	7	N	
Grooving · Parting off (Single insert)		KGGN	200S-02-R									20	2	0.2	1.7	20	7	N	
			300S-02-R					•			30	3	0.2	2.3	20	7	N		
			400S-02-R					•			40	4	0.3	3.3	20	7	N		
			500S-02-R					•			50	5	0.3	4.1	25	7	N		
			600S-02-R					•			60	6	0.3	5.1	25	7	N		
			800S-04-R					•			80	8	0.4	6.1	30	7	N		
Aluminum Grooving		KGGN	200-02-A						•			20	2	0.2	1.7	20	7	N	
			300-02-A						•			30	3	0.2	2.3	20	7	N	
			400-04-A						•			40	4	0.4	3.3	20	7	N	
			500-04-A						•			50	5	0.4	4.1	25	7	N	
			600-04-A						•			60	6	0.4	5.1	25	7	N	

• : Stock item


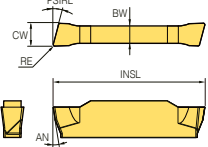

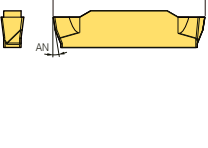

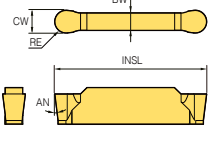

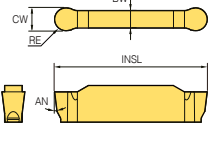

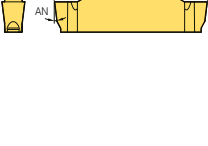

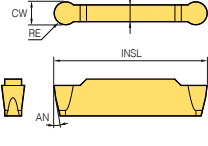
Applicable inserts

Application	Picture	Designation	Coated		Uncoated	Dimensions (mm)										Configuration				
			NC3225	NC5330	NC6315	PC3035	PC5300	PC9030	H01	H05	SSC	CW	PSIRR	PSIRL	RE		BW	INSL	AN	HAND
Grooving (Ground insert)		<b>KGGN</b> 265-015-B								30	2.65	-	-	0.15	2.3	20	7	N		
		300-020-B								30	3	-	-	0.2	2.3	20	7	N		
		300-040-B									30	3	-	-	0.4	2.3	20	7		N
		315-015-B									30	3.15	-	-	0.15	2.3	20	7		N
		400-040-B									40	4	-	-	0.4	3.3	20	7		N
		400-080-B									40	4	-	-	0.8	3.3	20	7		N
		415-015-B									40	4.15	-	-	0.15	3.3	20	7		N
		478-055-B									50	4.78	-	-	0.55	4.1	25	7		N
		500-080-B									50	5	-	-	0.8	4.1	25	7		N
		515-015-B									50	5.15	-	-	0.15	4.1	25	7		N
		600-080-B									60	6	-	-	0.8	5.1	25	7		N
		600-120-B									60	6	-	-	1.2	5.1	25	7		N
800-080-B									80	8	-	-	0.8	6.1	30	7	N			
800-120-B									80	8	-	-	1.2	6.1	30	7	N			
Grooving - Parting off		<b>KGGN</b> 200-02-R								20	2	-	-	0.2	1.7	20	7	N		
		300-02-R								30	3	-	-	0.2	2.3	20	7	N		
		400-03-R									40	4	-	-	0.3	3.3	20	7		N
		500-03-R									50	5	-	-	0.3	4.1	25	7		N
		600-03-R									60	6	-	-	0.3	5.1	25	7		N
		800-04-R									80	8	-	-	0.4	6.1	30	7		N
Grooving - Internal		<b>KGMI</b> 200-02-T								20	2	-	-	0.2	1.7	20	7	N		
		300-04-T								30	3	-	-	0.4	2.3	20	7	N		
		400-04-T									40	4	-	-	0.4	3.3	20	7		N
Light parting		<b>KGMR</b> 200-6D-LP		●						20	2	-	6	0.2	1.7	20	7	R		
		200-8D-LP								20	2	-	8	0.2	1.7	20	7	R		
		200-15D-LP		●							20	2	-	15	0.2	1.7	20	7		R
		300-6D-LP		●							30	3	-	6	0.2	2.3	20	7		R
		300-15D-LP		●							30	3	-	15	0.2	2.3	20	7		R
		400-4D-LP		●							40	4	-	4	0.3	3.3	20	7		R
		400-15D-LP									40	4	-	15	0.3	3.3	20	7		R
		500-4D-LP									50	5	-	4	0.3	4.1	25	7		R
Rough parting		<b>KGMR</b> 200-6D-RP		●						20	2	6	-	0.2	1.7	20	7	R		
		200-8D-RP								20	2	8	-	0.2	1.7	20	7	R		
		200-15D-RP		●							20	2	15	-	0.2	1.7	20	7		R
		300-6D-RP		●							30	3	6	-	0.2	2.3	20	7		R
		300-15D-RP		●							30	3	15	-	0.2	2.3	20	7		R
		400-4D-RP		●							40	4	4	-	0.3	3.3	20	7		R
		400-15D-RP		●							40	4	15	-	0.3	3.3	20	7		R
		500-4D-RP									50	5	4	-	0.3	4.1	25	7		R

• You can grind the chip breaker, 'B' as any shape you want. If you want any special shape of chip breaker, please contact your distributor.

● : Stock item

**Applicable inserts**

Application	Picture	Designation	Coated					Uncoated		Dimensions (mm)							Configuration		
			NC3225	NC5330	NC6315	PC3035	PC5300	PC9030	H01	H05	SSC	CW	PSIRR	PSIRL	RE	BW		INSL	AN
Light parting		KGML 200-6D-LP								20	2	-	6	0.2	1.7	20	7	L	
		200-15D-LP								20	2	-	15	0.2	1.7	20	7	L	
		300-6D-LP								30	3	-	6	0.2	2.3	20	7	L	
		300-15D-LP								30	3	-	15	0.2	2.3	20	7	L	
		400-4D-LP								40	4	-	4	0.3	3.3	20	7	L	
		400-15D-LP								40	4	-	15	0.3	3.3	20	7	L	
Rough parting		KGML 200-6D-RP								20	2	6	-	0.2	1.7	20	7	L	
		200-15D-RP								20	2	15	-	0.2	1.7	20	7	L	
		300-6D-RP								30	3	6	-	0.2	2.3	20	7	L	
		300-15D-RP								30	3	15	-	0.2	2.3	20	7	L	
		400-4D-RP								40	4	4	-	0.3	3.3	20	7	L	
		400-15D-RP								40	4	15	-	0.3	3.3	20	7	L	
Relief Profiling		KRMN 200-C	●	●	●	●	●			20	2	-	-	1	1.7	20	5	N	
		300-C	●	●		●	●			30	3	-	-	1.5	2.2	20	7	N	
		400-C	●	●	●	●	●			40	4	-	-	2	3.3	20	7	N	
		500-C	●	●	●	●	●			50	5	-	-	2.5	4.1	25	7	N	
		600-C	●	●	●	●	●			60	6	-	-	3	5	25	7	N	
		800-C	●	●	●		●			80	8	-	-	4	6	25	7	N	
Aluminum Grooving		KRGN 300-A						●		30	3	-	-	1.5	2.3	20	7	N	
		400-A						●		40	4	-	-	2	3.3	20	7	N	
		500-A						●		50	5	-	-	2.5	4.1	25	7	N	
		600-A						●		60	6	-	-	3	5.1	25	7	N	
		800-A							●		80	8	-	-	4	6.1	30	7	
Relief Profiling		KRGN 300-CM								30	3	-	-	1.5	2.2	20	7	N	
		400-CM								40	4	-	-	2	3.3	20	7	N	
		500-CM								50	5	-	-	2.5	4.1	25	7	N	
Profiling		KRMI 200-C								20	2	-	-	1	1.7	20	7	N	
		300-C								30	3	-	-	1.5	2.2	20	7	N	
		400-C								40	4	-	-	2	3.2	20	7	N	

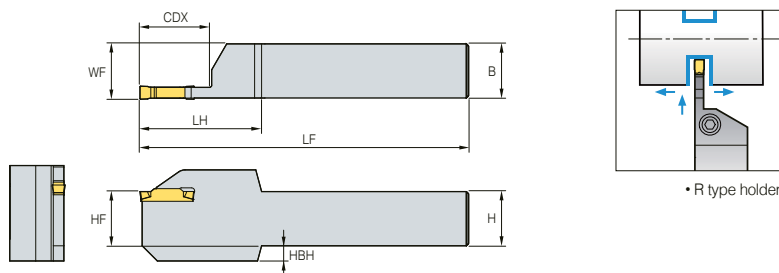
● : Stock item

# KGEHR/L



KGGN      KGMN  
 KGMR/L   KRMN  
 KRGN

For grooving, turning, parting off, and relief machining



• R type holder

(mm)

Designation	Stock		CDX	LH	LF	WF	HF	HBH	B	H	HAND	Applicable insert	Screw	Wrench			
	R	L															
<b>KGEHR/L 1616-1.5-T14</b>	•		14	33	100	16.2	16	-	16	16	R/L	KGMN150-□-□	MHA0512	HW40L			
<b>2020-1.5-T14</b>	•		14	33	125	20.2	20	-	20	20	R/L						
<b>2525-1.5-T14</b>	•		14	33	150	25.2	25	-	25	25	R/L						
<b>1212-2-T08</b>	•		8	33	100	12.2	12	-	12	12	R/L	KGMN200-□-□ KGMR/L200-□-□ KRMN200-C KGGN200-□-□	MHA0512	HW40L			
<b>1616-2-T08</b>	•	•	8	33	100	16.2	16	-	16	16	R/L						
<b>2020-2-T08</b>	•	•	8	33	125	20.2	20	-	20	20	R/L						
<b>2525-2-T08</b>	•	•	8	33	150	25.2	25	-	25	25	R/L						
<b>1616-2-T12</b>	•	•	12	33	100	16.2	16	-	16	16	R/L						
<b>2020-2-T12</b>	•	•	12	33	125	20.2	20	-	20	20	R/L						
<b>2525-2-T12</b>	•	•	12	36	150	25.2	25	-	25	25	R/L						
<b>1616-2-T17</b>	•	•	17	38	100	16.2	16	-	16	16	R/L						
<b>2020-2-T17</b>	•	•	17	38	125	20.2	20	-	20	20	R/L						
<b>2525-2-T17</b>	•	•	17	38	150	25.2	25	-	25	25	R/L						
<b>1616-2.5-T17</b>	•		17	38	100	16.3	16	-	16	16	R/L				KGMN250-□-□	MHA0512	HW40L
<b>2020-2.5-T17</b>	•		17	38	125	20.3	20	-	20	20	R/L						
<b>2525-2.5-T17</b>	•		17	38	150	25.3	25	-	25	25	R/L						
<b>1616-3-T10</b>	•	•	10	33	100	16.4	16	-	16	16	R/L	KGMN300-□-□ KGMR/L300-□-□ KRMN300-C KGGN300-□-□ KRGN300-□	MHA0512	HW40L			
<b>2020-3-T10</b>	•	•	10	33	125	20.4	20	-	20	20	R/L						
<b>2525-3-T10</b>	•	•	10	33	150	25.4	25	-	25	25	R/L						
<b>3232-3-T10</b>	•		10	33	170	32.4	32	-	32	32	R/L						
<b>1616-3-T13</b>	•	•	13	33	100	16.4	16	-	16	16	R/L						
<b>2020-3-T13</b>	•	•	13	33	125	20.4	20	-	20	20	R/L						
<b>2525-3-T13</b>	•	•	13	33	150	25.4	25	-	25	25	R/L						
<b>1616-3-T20</b>	•	•	20	41	100	16.4	16	-	16	16	R/L						
<b>2020-3-T20</b>	•	•	20	41	125	20.4	20	-	20	20	R/L						
<b>2525-3-T20</b>	•	•	20	41	150	25.4	25	-	25	25	R/L						
<b>3232-3-T20</b>	•		20	41	170	32.4	32	-	32	32	R/L						
<b>2525-3-T25</b>	•	•	25	46	150	25.4	25	-	25	25	R/L						
<b>1616-4-T10</b>	•	•	10	33	100	16.4	16	-	16	16	R/L	KGMN400-□-□ KGMR/L400-□-□ KRMN400-C KGGN400-□-□ KRGN400-□	BHA0616	HW50L			
<b>2020-4-T10</b>	•	•	10	33	125	20.4	20	-	20	20	R/L						
<b>2525-4-T10</b>	•	•	10	33	150	25.4	25	-	25	25	R/L						
<b>3232-4-T10</b>	•		10	33	170	32.4	32	-	32	32	R/L						
<b>1616-4-T15</b>	•	•	15	36	100	16.4	16	-	16	16	R/L						
<b>2020-4-T15</b>	•	•	15	36	125	20.4	20	-	20	20	R/L						
<b>2525-4-T15</b>	•	•	15	36	150	25.4	25	-	25	25	R/L						
<b>1616-4-T20</b>	•	•	20	41	100	16.4	16	-	16	16	R/L						
<b>2020-4-T20</b>	•	•	20	41	125	20.4	20	-	20	20	R/L						
<b>2525-4-T20</b>	•	•	20	41	150	25.4	25	-	25	25	R/L						
<b>3232-4-T20</b>	•	•	20	41	170	32.4	32	-	32	32	R/L						
<b>1616-4-T25</b>	•	•	25	46	100	16.4	16	-	16	16	R/L						
<b>2020-4-T25</b>	•	•	25	46	125	20.4	20	-	20	20	R/L						
<b>2525-4-T25</b>	•	•	25	46	150	25.4	25	-	25	25	R/L						

➡ Applicable inserts C28 ~ C30

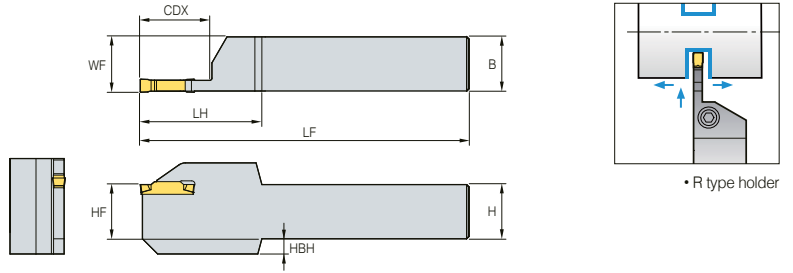
• : Stock item

# KGEHR/L



KGGN KGMN  
KGMR/L KRMN  
KRGV

For grooving, turning, parting off, and relief machining



• R type holder

(mm)

Designation	Stock		CDX	LH	LF	WF	HF	HBH	B	H	HAND	Applicable insert	Screw	Wrench			
	R	L															
<b>KGEHR/L 2020-5-T12</b>	●	●	12	37	125	20.5	20	-	20	20	R/L	KGMN500-□-□ KRMN500-C KGGN500-□-□ KRGV500-□	BHA0616	HW50L			
<b>2525-5-T12</b>	●	●	12	37	150	25.55	25	-	25	25	R/L						
<b>2020-5-T15</b>	●		15	40	125	20.55	20	-	20	20	R/L						
<b>2525-5-T15</b>	●		15	40	150	25.55	25	-	25	25	R/L						
<b>3232-5-T15</b>	●		15	40	170	32.55	32	-	32	32	R/L						
<b>2020-5-T20</b>	●	●	20	41	125	20.55	20	-	20	20	R/L						
<b>2525-5-T20</b>	●	●	20	41.2	150	25.55	25	-	25	25	R/L						
<b>3232-5-T20</b>	●	●	20	41	170	32.55	32	7	32	32	R/L						
<b>2525-5-T32</b>	●	●	32	53	150	25.55	25	-	25	25	R/L						
<b>2020-6-T12</b>	●	●	12	37	125	20.55	20	-	20	20	R/L				KGMN600-□-□ KRMN600-C KGGN600-□-□ KRGV600-□	BHA0616	HW50L
<b>2525-6-T12</b>	●	●	12	37	150	25.55	25	-	25	25	R/L						
<b>2525-6-T15</b>	●		15	40	150	25.55	25	-	25	25	R/L						
<b>3232-6-T15</b>	●		15	40	170	32.55	32	-	32	32	R/L						
<b>2020-6-T20</b>	●	●	20	41	125	20.55	20	-	20	20	R/L						
<b>2525-6-T20</b>	●	●	20	41	150	25.55	25	7	25	25	R/L						
<b>3232-6-T20</b>	●		20	41	170	32.55	32	-	32	32	R/L						
<b>2525-6-T32</b>	●		32	53	150	25.55	25	-	25	25	R/L						
<b>2525-8-T16</b>	●	●	16	46	150	26.05	25	-	25	25	R/L	KGMN800-□-□ KRMN800-C KGGN800-□-□ KRGV800-□	BHA0616	HW50L			
<b>3232-8-T16</b>	●		16	40	170	33.05	32	-	32	32	R/L						
<b>2525-8-T25</b>	●	●	25	46	150	26.05	25	-	25	25	R/L						
<b>3232-8-T25</b>	●		25	46	170	33.05	32	7	32	32	R/L						
<b>2525-8-T36</b>	●		36	58	150	26.05	25	-	25	25	R/L						
<b>3232-8-T36</b>	●	●	36	58	170	33.05	32	-	32	32	R/L						

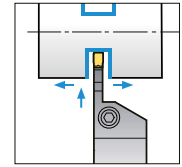
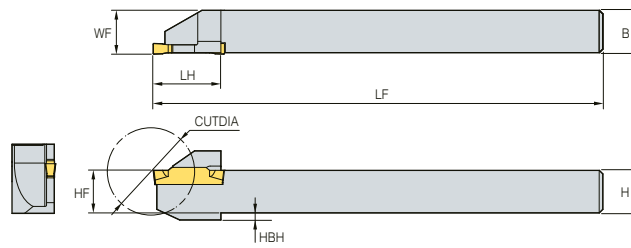
➤ Applicable inserts **C28 ~ C30**

● : Stock item



# KGEHR/L-D00A (Auto Tool)

For grooving, turning, parting off machining



(mm)

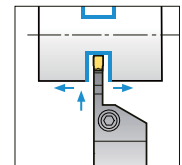
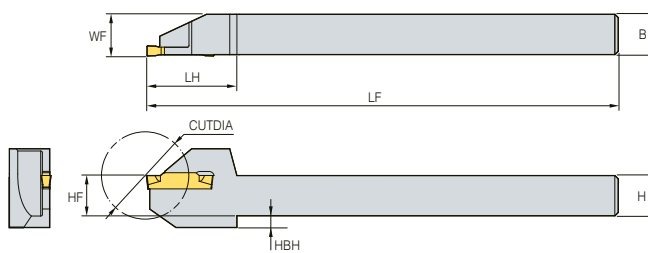
Designation	Stock		CUTDIA	LH	LF	WF	HF	HBH	B	H	HAND	Applicable insert	Screw	Wrench
	R	L												
KGEHR/L 1010-2-D20A	•	•	20	19	125	10.2	10	2	10	10	R/L	KGMN200-□-□ KGMR/L200-□-□ KRMN200-C KGGN200-□-□	ETNA0412	TW15L
	•	•	25	19	125	12.2	12	2	12	12	R/L			
	•	•	25	19	125	14.2	14	-	14	14	R/L			
	•	•	32	25	125	16.2	16	-	16	16	R/L			
1212-3-D25A	•	•	25	19	125	12.4	12	2	12	12	R/L	KGMN300-□-□ KGMR/L300-□-□ KRMN300-C KGGN300-□-□	ETNA0412	TW15L
1616-3-D32A	•	•	32	25	125	16.4	16	-	16	16	R/L			

➔ Applicable inserts C28 ~ C30

• : Stock item

# KGEHR/L-D00B (Auto Tool)

For grooving, turning, parting off machining



(mm)

Designation	Stock		CUTDIA	LH	LF	WF	HF	HBH	B	H	HAND	Applicable insert	Screw	Wrench
	R	L												
KGEHR/L 1010-2-D30B	•	•	30	29.6	140	10.2	10	6.6	10	10	R/L	KGMN200-□-□ KGMR/L200-□-□ KRMN200-C KGGN200-□-□	MHA0512	HW40L
	•	•	25	27.1	140	12.2	12	3.5	12	12	R/L			
	•	•	30	29.6	140	12.2	12	3.5	12	12	R/L			
	•	•	25	27.1	140	16.2	16	-	16	16	R/L			
1616-2-D25B	•	•	25	27.1	140	12.4	12	3.5	12	12	R/L	KGMN300-□-□ KGMR/L300-□-□ KRMN300-C KGGN300-□-□	MHA0512	HW40L
1212-3-D25B	•	•	32	30.6	140	16.2	16	-	16	16	R/L			
1212-3-D32B	•	•	32	30.6	140	12.4	12	3.5	12	12	R/L	KGMN300-□-□ KGMR/L300-□-□ KRMN300-C KGGN300-□-□	MHA0512	HW40L
1616-3-D25B	•	•	25	26.96	140	16.4	16	-	16	16	R/L			
1616-3-D32B	•	•	32	27.1	140	16.4	16	-	16	16	R/L			

➔ Applicable inserts C28 ~ C30

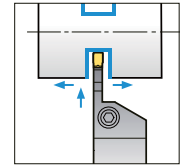
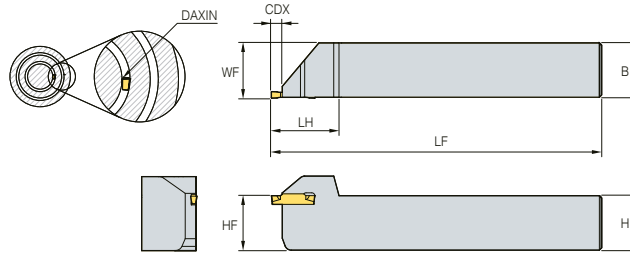
• : Stock item

# KGEHR/L-T00

For grooving, turning, face grooving machining



KGMN KGMN  
KGGN KGGN  
KRMN KRMN  
KRGV KRGV



• R type holder

(mm)

Designation	Stock		CDX	LH	LF	WF	HF	HBH	B	H	DAXIN HAND	Applicable insert	Screw	Wrench
	R	L												
<b>KGEHR/L 1616-3-T00</b>			4.8	31	100	16.4	16	-	16	16	R/L	KGMN300-□-□ KRMN300-C KGGN300-□-□ KRGV300-□	MHA0512	HW40L
<b>2020-3-T00</b>			4.8	31	125	20.4	20	-	20	20	R/L			
<b>2525-3-T00</b>	●	●	4.8	31	150	25.4	25	-	25	25	R/L			
<b>1616-4-T00</b>	●		4.8	31	100	16.4	16	-	16	16	R/L	KGMN400-□-□ KRMN400-C KGGN400-□-□ KRGV400-□	BHA0616	HW50L
<b>2020-4-T00</b>	●		4.8	31	125	20.4	20	-	20	20	R/L			
<b>2525-4-T00</b>	●	●	4.8	31	150	25.4	25	-	25	25	R/L			
<b>2020-6-T00</b>	●		6	36	125	20.55	20	-	20	20	R/L	KGMN600-□-□ KRMN600-C KGGN600-□-□ KRGV600-□	BHA0616	HW50L
<b>2525-6-T00</b>	●		6	36.5	150	25.55	25	-	25	25	R/L			

➤ Applicable inserts **C28 ~ C30**

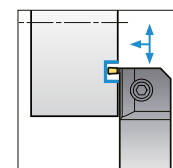
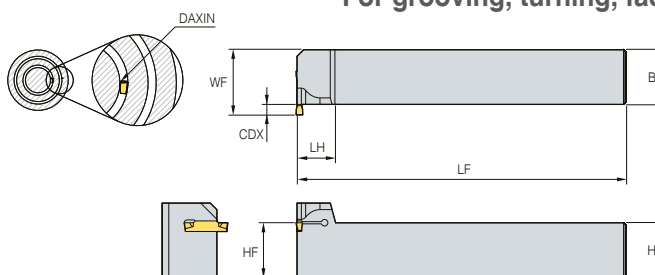
● : Stock item

# KGEVR/L-T00

For grooving, turning, face grooving machining



KGMN KRMN  
KRGV KGGN



• R type holder

(mm)

Designation	Stock		CDX	LH	LF	WF	HF	B	H	DAXIN	HAND	Applicable insert	Screw	Wrench
	R	L												
<b>KGEVR/L 2020-1.5 -T00</b>	●		3	18	125	24	20	20	20	120	R/L	KGMN150-□-□	MHA0512	HW40L
<b>2525-1.5 -T00</b>	●		3	18	150	29	25	25	25	120	R/L			
<b>3232-1.5 -T00</b>	●		3	22	170	36	32	32	32	120	R/L			
<b>2020-2 -T00</b>	●		3	17.75	125	24	20	20	20	120	R/L	KGMN200-□-□ KRMN200-C KGGN200-□-□-□	MHA0512	HW40L
<b>2525-2 -T00</b>			3	17.75	150	29	25	25	25	120	R/L			
<b>3232-2 -T00</b>			3	21.75	170	36	32	32	32	120	R/L			
<b>2020-2.5 -T00</b>	●		4	18	125	25	20	20	20	80	R/L	KGMN250-□□	MHA0512	HW40L
<b>2525-2.5 -T00</b>	●		4	18	150	30	25	25	25	80	R/L			
<b>3232-2.5 -T00</b>	●		4	21.75	170	37	32	32	32	80	R/L			
<b>2020-3-T00</b>	●		4.8	18	125	25	20	20	20	80	R/L	KGMN300-□-□ KRMN300-C KGGN300-□-□ KRGV300-□	MHA0512	HW40L
<b>2525-3-T00</b>	●		4.8	18	150	30	25	25	25	80	R/L			
<b>3232-3 -T00</b>	●		4.8	22	170	37	32	32	32	80	R/L			
<b>2020-4-T00</b>	●		4.8	19.6	125	25	20	20	20	80	R/L	KGMN400-□-□ KRMN400-C KGGN400-□-□ KRGV400-□	BHA0616	HW50L
<b>2525-4-T00</b>	●		4.8	19.6	150	30	25	25	25	80	R/L			
<b>3232-4 -T00</b>	●		4.8	22	170	37	32	32	32	80	R/L			
<b>2020-5 -T00</b>	●		6	20	125	29.5	20	20	20	60	R/L	KGMN500-□-□ KRMN500-C KGGN500-□-□ KRGV500-□	BHA0616	HW50L
<b>2525-5 -T00</b>	●		6	20	150	31.5	25	25	25	60	R/L			
<b>3232-5 -T00</b>	●		6	24	170	38.5	32	32	32	60	R/L			
<b>2020-6 -T00</b>	●		6	22	125	26.5	20	20	20	60	R/L	KGMN600-□-□ KRMN600-C KGGN600-□-□ KRGV600-□	BHA0616	HW50L
<b>2525-6-T00</b>	●		6	22	150	31.5	25	25	25	80	R/L			
<b>3232-6 -T00</b>	●		6	22	170	38.5	32	32	32	60	R/L			
<b>2525-8 -T00</b>	●		8	24	150	33.5	25	25	25	50	R/L	KGMN800-□-□ KRMN800-C KGGN800-□-□ KRGV800-□	BHA0616	HW50L
<b>3232-8 -T00</b>	●		8	24	170	40.5	32	32	32	50	R/L			

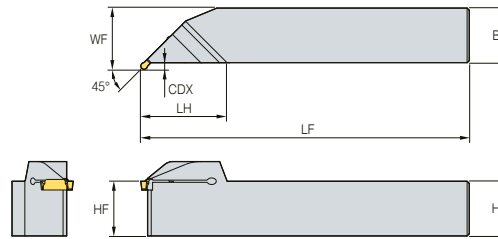
➡ Applicable inserts **C28 ~ C30**

● : Stock item

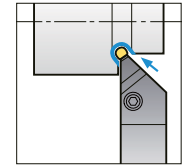
# KGEUR/L



KRMN  
KRGN



For relief machining



45°  
• R type holder

(mm)

Designation	Stock		CDX	LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L											
KGEUR/L 1616-3			2.8	40	100	19	16	16	16	R/L	KRMN300-C KRGN300-□	MHA0512	HW40L
	●		2.8	40	125	23	20	20	20	R/L			
	●		2.8	40	150	28	25	25	25	R/L			
	●		2.8	40	170	35	32	32	32	R/L			
1616-4			2.8	40	100	19	16	16	16	R/L	KRMN400-C KRGN400-□	BHA0616	HW50L
	●		2.8	40	125	23	20	20	20	R/L			
	●		2.8	40	150	28	25	25	25	R/L			
	●		2.8	40	170	35	32	32	32	R/L			
2020-5			3.3	50	125	23.5	20	20	20	R/L	KRMN500-C KRGN500-□	BHA0616	HW50L
	●		3.3	50	150	28.5	25	25	25	R/L			
	●		3.3	50	170	35.5	32	32	32	R/L			
	●		3.3	50	125	23.5	20	20	20	R/L			
2020-6			3.3	50	125	23.5	20	20	20	R/L	KRMN600-C KRGN600-□	BHA0616	HW50L
	●		3.3	50	150	28.5	25	25	25	R/L			
	●		3.3	50	170	35.5	32	32	32	R/L			
	●		3.3	50	125	23.5	20	20	20	R/L			
2025-8			3.3	65	150	30	25	25	25	R/L	KRMN800-C KRGN800-□	BHA0616	HW50L
	●		3.3	65	170	37	32	32	32	R/L			

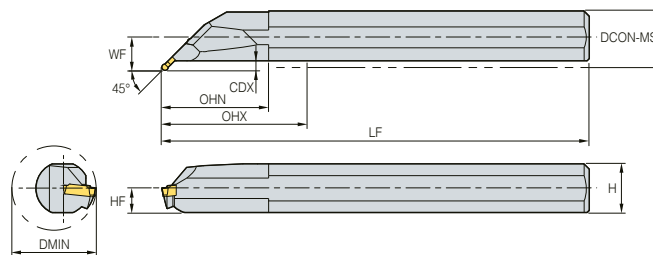
Applicable inserts C28 ~ C30

●: Stock item

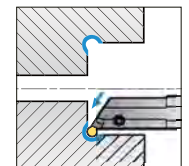
# KGIUR/L



KRMN  
KRGN



For relief machining



45°  
• R type holder

(mm)

Designation	Stock		CDX	DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench
	R	L											
KGIUR/L 3520-3			3.5	35	45	150	13	18	20	R/L	KRMN300-C KRGN300-□	MHA0512	HW40L
	●		3.5	40	50	200	15.5	23	25	R/L			
	●		3.5	50	65	250	19	30	32	R/L			
3520-4			3.5	35	45	150	13	18	20	R/L	KRMN400-C KRGN400-□	MHA0512	HW40L
	●		3.5	40	50	200	15.5	23	25	R/L			
	●		3.5	50	65	250	19	30	32	R/L			
4025-5			3.5	40	50	200	15.5	23	25	R/L	KRMN500-C KRGN500-□	MHA0512	HW40L
	●		3.5	50	65	250	19	30	32	R/L			
	●		3.5	40	50	200	15.5	23	25	R/L			
4025-6			3.5	40	50	200	15.5	23	25	R/L	KRMN600-C KRGN600-□	MHA0512	HW40L
	●		3.5	50	65	250	19	30	32	R/L			
	●		3.5	40	50	200	18.5	23	25	R/L			
5032-8			6.5	40	50	200	18.5	23	25	R/L	KRMN800-C KRGN800-□	MHA0512	HW40L
	●		6.5	50	65	250	22	30	32	R/L			

Applicable inserts C28 ~ C30

●: Stock item

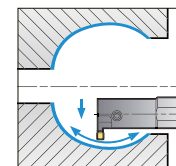
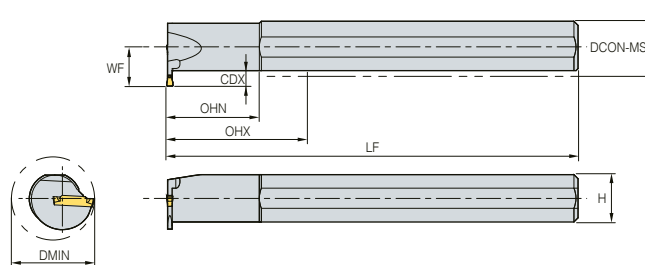
# KGIVR/L

For face grooving machining



KGMI  
KGGN  
KRMN

KGMN  
KRMI



• R type holder

(mm)

Designation	Stock		CDX	DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench
	R	L											
KGIVR/L 2016-1.5	•		4	20	35	125	12	15	16	R/L	KGMN150-□-□	MHB0410	HW30L
		•	6	25	45	150	15.5	18	20	R/L		MHB0410	
3225-1.5	•		7	32	45	200	19	23	25	R/L		MHA0512	HW40L
2516-2	•		6.5	25	35	125	14	15	16	R/L	KGMI200-□-T KRMI200-C	MHB0410	HW30L
2520-2	•		6.5	25	45	150	15	18	20	R/L		MHB0512	HW40L
3225-2	•		7	32	45	200	19	23	25	R/L			
2516-2.5	•		6.5	25	35	125	14	15	16	R/L	KGMN250-□-□	MHB0410	HW30L
2520-2.5	•		6.5	25	45	150	15.5	18	20	R/L		MHA0512	HW40L
3225-2.5	•		7	32	45	200	19	23	25	R/L			
2520-3	•		6.5	25	45	150	15.5	18	20	R/L	KGMI300-□-T KRMI300-C	MHB0410	HW30L
3225-3	•		6.5	32	45	200	19	23	25	R/L		MHA0512	HW40L
4032-3	•		7	40	55	250	22.5	30	32	R/L		BHA0616	HW50L
2520-4	•		6.5	25	45	150	15.5	18	20	R/L	KGMI400-□-T KRMI400-C	MHB0410	HW30L
3225-4	•		7.5	32	45	200	19	23	25	R/L		MHA0512	HW40L
4032-4	•		7.5	40	55	250	22.5	30	32	R/L		BHA0616	HW50L
3225-5	•		7.5	32	45	200	19.5	23	25	R/L	KGMN500-□-□ KRMN500-C	MHA0512	HW40L
4032-5	•		8.5	40	55	250	23.5	30	32	R/L	KGGN500-□-R KGGN500-□-A	BHA0616	HW50L
3225-6	•		7.5	32	45	200	19.5	23	25	R/L	KGMN600-□-□ KRMN600-C	MHA0512	HW40L
4032-6	•		8.5	40	55	250	23.5	30	32	R/L	KGGN600-□-R KGGN600-□-A	BHA0616	HW50L
4032-8	•		8.5	40	55	250	23.5	30	32	R/L	KGMN800-□-□ KRMN800-C	BHA0616	HW50L
4540-8	•		8.5	45	70	300	26.5	37	40	R/L	KGGN800-□-R	BHA0616	HW50L

➡ Applicable inserts **C28 ~ C30**

• In case of using external insert instead of internal insert, please check the available insert for each item.

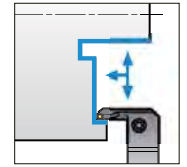
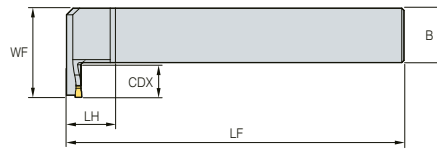
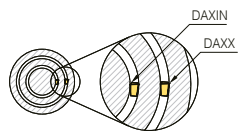
• : Stock item

# KGFVR/L

For face grooving machining



KGMN  
KGGN      KRMN  
KRGN



• R type holder

(mm)

Designation	Stock		CDX	DAXIN	DAXX	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L												
KGFVR/L 325- 34/50-T10	●		10	34	50	150	36	25	25	25	R/L	KGMN300-□-□ KRMN300-C	MHA0512	HW40L
	●		15	44	60	150	41	25	25	25	R/L	KGGN300-□-□ KRGN300-□		
	●		15	54	85	150	41	25	25	25	R/L			
425- 32/50-T15	●		15	32	50	150	41	25	25	25	R/L	KGMN400-□-□ KRMN400-C KGGN400-□-□ KRGN400-□	BHA0616	HW50L
	●		15	42	60	150	41	25	25	25	R/L			
	●		20	44	70	150	46	25	25	25	R/L			
	●		15	52	85	150	41	25	25	25	R/L			
	●		20	60	120	150	46	25	25	25	R/L			
525- 50/80-T20	●		20	50	80	150	46	25	25	25	R/L	KGMN500-□-□ KRMN500-C KGGN500-□-□ KRGN500-□	BHA0616	HW50L
	●		20	70	110	150	46	25	25	25	R/L			
	●		20	100	150	150	46	25	25	25	R/L			
	●		20	140	200	150	46	25	25	25	R/L			
	●		20	200	-	150	46	25	25	25	R/L			
625- 48/85-T20			20	48	85	150	46	25	25	25	R/L	KGMN600-□-□ KRMN600-C KGGN600-□-□ KRGN600-□	BHA0616	HW50L
	●		20	73	150	150	46	25	25	25	R/L			
	●		20	138	250	150	46	25	25	25	R/L			
	●		20	250	-	150	46	25	25	25	R/L			

➡ Applicable inserts C28 ~ C30

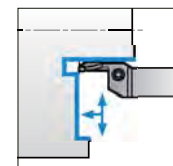
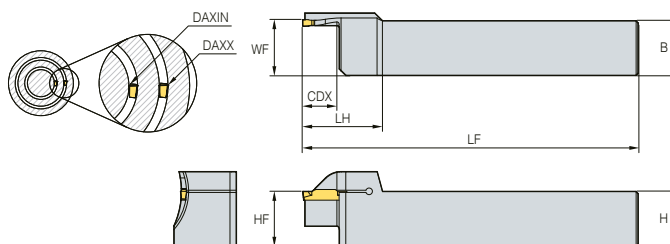
● : Stock item

# KGFHR/L

For face grooving machining



KGMN KGMN  
KGGN KRMN  
KRMN KRGN



• R type holder

(mm)

Designation	Stock		CDX	DAXIN	DAXX	LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L													
KGFHR/L 320-	•		10	34	50	33	150	20.5	20	20	20	R/L	KGMN300-□-□ KRMN300-C KGGN300-□-□ KRGN300-□	MHA0512	HW40L
	•		15	44	70	36	150	20.5	20	20	20	R/L			
	•		15	64	100	36	150	20.5	20	20	20	R/L			
325-	•		10	34	50	33	150	25.6	25	25	25	R/L	KGMN300-□-□ KRMN300-C KGGN300-□-□ KRGN300-□	MHA0512	HW40L
	•		15	44	70	36	150	25.6	25	25	25	R/L			
	•		15	64	100	36	150	25.6	25	25	25	R/L			
420-	•		16	34	50	40	150	20.5	20	20	20	R/L	KGMN400-□-□ KRMN400-C KGGN400-□-□ KRGN400-□	BHA0616	HW50L
	•		16	42	70	40	150	20.5	20	20	20	R/L			
	•		16	62	120	40	150	20.5	20	20	20	R/L			
	•		16	112	200	40	150	20.5	20	20	20	R/L			
425-	•		20	34	50	41	150	25.6	25	25	25	R/L	KGMN400-□-□ KRMN400-C KGGN400-□-□ KRGN400-□	BHA0616	HW50L
	•		10	40	60	33	150	25.6	25	25	25	R/L			
	•		20	44	70	39	150	25.6	25	25	25	R/L			
	•		20	84	92	39	150	25.6	25	25	25	R/L			
	•		20	60	120	39	150	25.6	25	25	25	R/L			
	•		20	112	200	39	150	25.6	25	25	25	R/L			
	•		20	200	-	41	150	25.6	25	25	25	R/L			
525-	•		15	50	80	38	150	25.6	25	25	25	R/L	KGMN500-□-□ KRMN500-C KGGN500-□-□ KRGN500-□	BHA0616	HW50L
	•		25	50	80	44	150	25.6	25	25	25	R/L			
	•		15	70	110	38	150	25.6	25	25	25	R/L			
	•		25	70	110	44	150	25.6	25	25	25	R/L			
	•		25	100	150	44	150	25.6	25	25	25	R/L			
	•		25	140	200	44	150	25.6	25	25	25	R/L			
	•		25	190	220	37	150	25.6	25	25	25	R/L			
625-	•		3.3	170	190	37	150	25	150	25	25	R/L	KGMN600-□-□ KRMN600-C KGGN600-□-□ KRGN600-□	BHA0616	HW50L
	•		10	190	220	37	150	25.6	25	25	25	R/L			
	•		10	190	220	37	150	25.6	25	25	25	R/L			

➔ Applicable inserts C28 ~ C30

• : Stock item



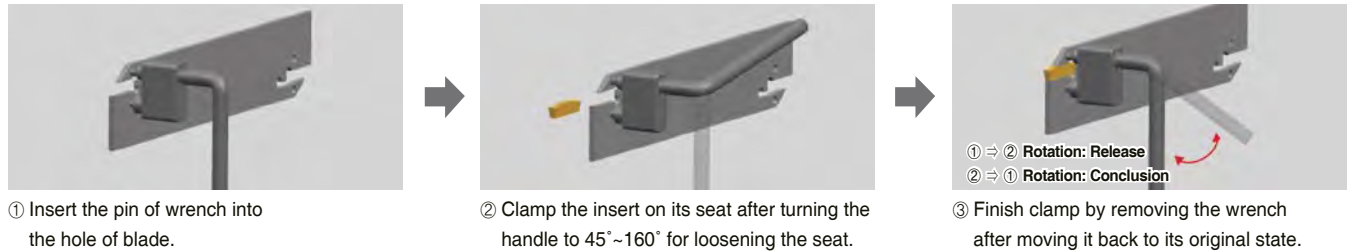
## KGT Blades for Parting off

- Parting application with the use of existing KGT inserts
- Economical machining with a double sided insert
- Specially designed slot for strong and stable clamping
- Easy insert change with the use of an exclusive wrench

### Code system



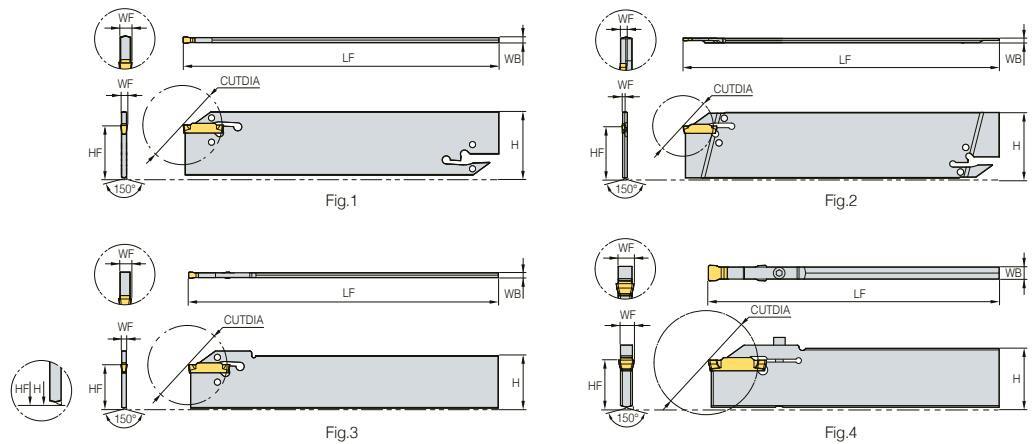
### How to clamp insert



## KGTB



KGMN  
KGGN



Designation	Stock	LF	WF	WB	HF	H	HAND	ØD CUTDIA <sup>(2)</sup>	ØD CUTDIA <sup>(3)</sup>	Applicable insert	Wrench	Fig.	
<b>KGTB 1526S</b>		151	1.3	2.4	21	26	N	-	26	KG□□150-□-□	EW1203 (Separately ordered)	4	
<b>1532</b>	●	151	1.3	2.4	25	32	N	-	26	KG□□150-□-□		1	
<b>2026S</b>		151	1.9	2.4	21	26	N	50	39	KG□□200-□-□ KG□□200S-□-□- <sup>(4)</sup> R		4	
<b>2032</b>	●	151	1.9	2.4	25	32	N	50	39	KG□□200-□-□ KG□□200S-□-□- <sup>(4)</sup> R		1	
<b>3026S</b>	●	151	2.7	2.4	21	26	N	100	39	KG□□300-□-□ KG□□300S-□-□- <sup>(4)</sup> R		4	
<b>3032</b>	●	151	2.7	2.4	25	32	N	100	39	KG□□300-□-□ KG□□300S-□-□- <sup>(4)</sup> R		2	
<b>4026S</b>		151	3.6	3.2	21	26	N	100	39	KG□□400-□-□ KG□□400S-□-□- <sup>(4)</sup> R		4	
<b>4032</b>	●	151	3.6	3.2	25	32	N	100	39	KG□□400-□-□ KG□□400S-□-□- <sup>(4)</sup> R		2	
<b>5032</b>	●	151	4.5	4	25	32	N	120	49	KG□□500-□-□ KG□□500S-□-□- <sup>(4)</sup> R		2	
<b>6032</b>	●	151	5.6	5.2	25	32	N	120	49	KG□□600-□-□ KG□□600S-□-□- <sup>(4)</sup> R		2	
<b>8032S<sup>(1)</sup></b>	●	151.5	7.1	6.2	25	32	N	80	59	KG□□800-□-□ KG□□800S-□-□- <sup>(4)</sup> R		HW30L	3

● Applicable inserts C28 ~ C30

<sup>(1)</sup> Screw clamping <sup>(2)</sup> 1 corner use <sup>(3)</sup> 2 corner use <sup>(4)</sup> 1 corner insert

●: Stock item

Universal tools for Grooving / Parting Off / Turning

# MGT Plus /MGT

- High chipping resistance and fracture resistance
- Excellent chip control
- Additional edge treatment for its consistency
- Applicable for various MGT holders

## Code system

### • Insert

<b>PG</b>	<b>M</b>	<b>N</b>	<b>300</b>	-	<b>04</b>	-	<b>MM</b>
<ul style="list-style-type: none"> <li>• MGT Plus Grooving</li> <li>• MGT Grooving</li> </ul>	<b>Tolerance</b> M : Pressed class	<b>Hand</b> N: Neutral	<b>Width of cutting edge</b> 200 : 2.00 mm 300 : 3.00 mm 400 : 4.00 mm		<b>Nose R</b> 04 : 0.4 mm		<b>Chip Breaker</b> MM / GM

### • Insert (Round)

<b>PR</b>	<b>M</b>	<b>N</b>	<b>300</b>	-	<b>RM</b>
<ul style="list-style-type: none"> <li>• MGT Plus Grooving Round</li> <li>• MGT Grooving Round</li> </ul>	<b>Tolerance</b> M : Pressed class	<b>Hand</b> N: Neutral	<b>Width of cutting edge</b> 200 : 2.00 mm 300 : 3.00 mm 400 : 4.00 mm		<b>Chip Breaker</b> RM

### • Shank (External)

<b>MG</b>	<b>E</b>	<b>H</b>	<b>R</b>	<b>25</b>	<b>25</b>	-	<b>3</b>	-	<b>T20</b>
<ul style="list-style-type: none"> <li>• MGT Grooving</li> </ul>	<b>Use</b> E : External	<b>Holder Type</b> H : Horizontal V : Vertical U : Under cut	<b>Hand</b> R: Right L: Left	<b>Shank height</b> 25 : 25 mm 32 : 32 mm	<b>Shank width</b> 25 : 25 mm 32 : 32 mm		<b>Width of insert cutting edge</b> 3 : 3.00 mm		<b>Max. depth of cut</b> T20 : 20 mm

### • Shank (Internal)

<b>MG</b>	<b>I</b>	<b>V</b>	<b>R</b>	<b>25</b>	<b>20</b>	-	<b>3</b>
<ul style="list-style-type: none"> <li>• MGT Grooving</li> </ul>	<b>Use</b> I : Internal	<b>Holder Type</b> V : Vertical U : Under cut	<b>Hand</b> R: Right L: Left	<b>Min. cutting dia.</b> 25 : 25 mm	<b>Shank dia.</b> 20 : 20 mm 25 : 25 mm		<b>Width of insert cutting edge</b> 3 : 3.00 mm

### • Shank (Facing)

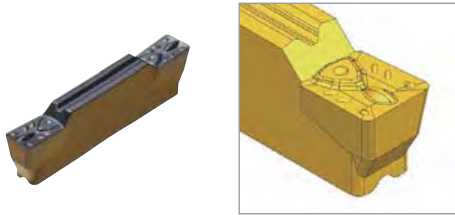
<b>MG</b>	<b>F</b>	<b>H</b>	<b>R</b>	<b>3</b>	<b>25</b>	-	<b>44 / 70</b>	-	<b>T20</b>
<ul style="list-style-type: none"> <li>• MGT Grooving</li> </ul>	<b>Use</b> F : Facing	<b>Holder Type</b> H : Horizontal V : Vertical	<b>Hand</b> R: Right L: Left	<b>Width of insert cutting edge</b> 3 : 3.00 mm	<b>Shank height, Shank width</b> 25 : 25 mm 32 : 32 mm		<b>Min. cutting dia.</b> 44 : 44 mm	<b>Max. cutting dia.</b> 70 : 70 mm	<b>Max. depth of cut</b> T15 : 15 mm

# C Technical Information for MGT Plus /MGT

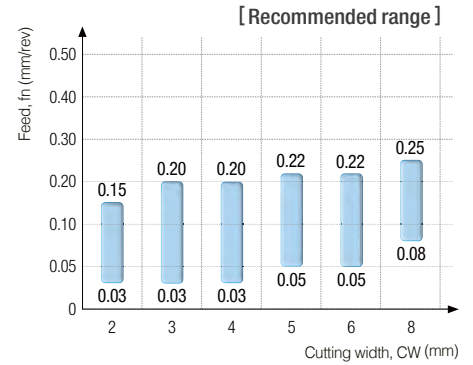
## Features of Chip breaker

⊙: 1st recommendation ○: 2nd recommendation

### MM Multi Medium



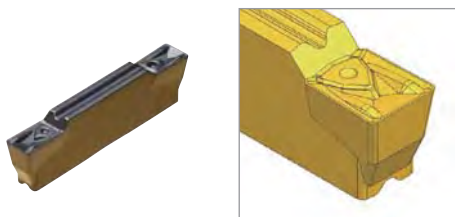
- For grooving, parting and turning
- Bumps on the rake surface
- Straight cutting edge
- Various workpieces



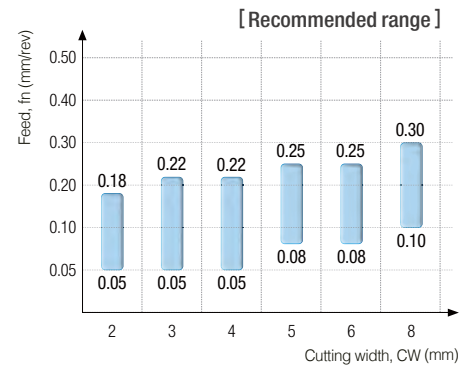
Recommended cutting											
External					Internal				Facing		Special
Grooving	Parting	Turning	Copying	Relief	Grooving	Turning	Copying	Relief	Grooving	Turning	
⊙	○	⊙			○	○			○	○	

Recommended workpiece				
P	M	K	N	S
⊙	○	○		○

### GM Groove Medium



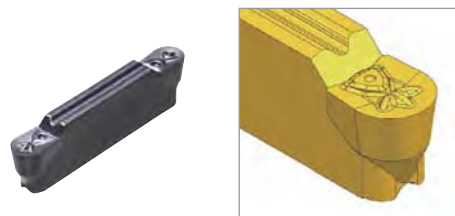
- For grooving and parting
- Straight cutting edge
- Bumps on the rake surface
- Various workpieces
- High depth of cut machining
- For Hard-to-cut material Cutting



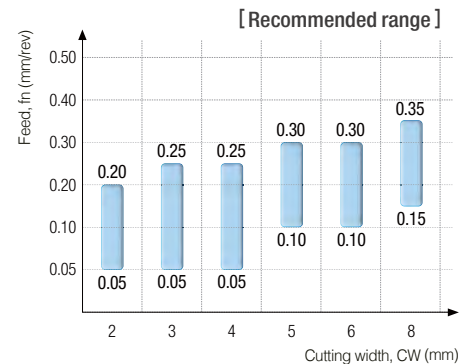
Recommended cutting											
External					Internal				Facing		Special
Grooving	Parting	Turning	Copying	Relief	Grooving	Turning	Copying	Relief	Grooving	Turning	
⊙	⊙				○				○		

Recommended workpiece				
P	M	K	N	S
⊙	⊙	○		○

### RM Relief Medium



- For copying and relief cutting
- Round cutting edge
- Bumps on the rake surface
- Excellent surface finish



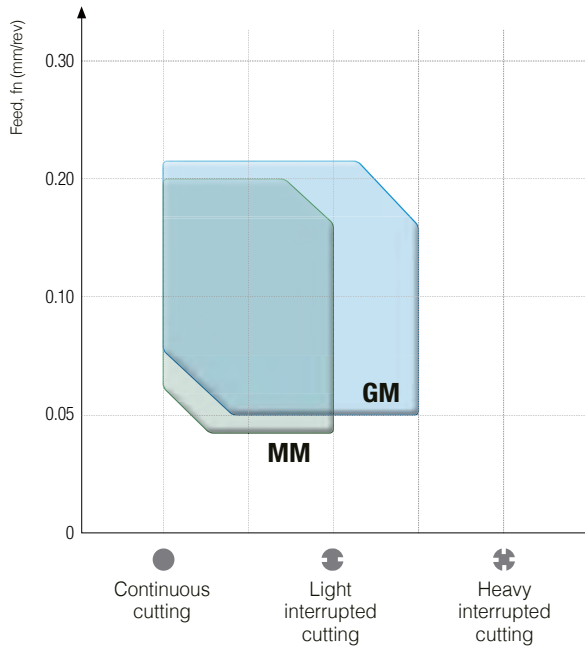
Recommended cutting											
External					Internal				Facing		Special
Grooving	Parting	Turning	Copying	Relief	Grooving	Turning	Copying	Relief	Grooving	Turning	
○			⊙	⊙			⊙	⊙			

Recommended workpiece				
P	M	K	N	S
⊙	○	○		○

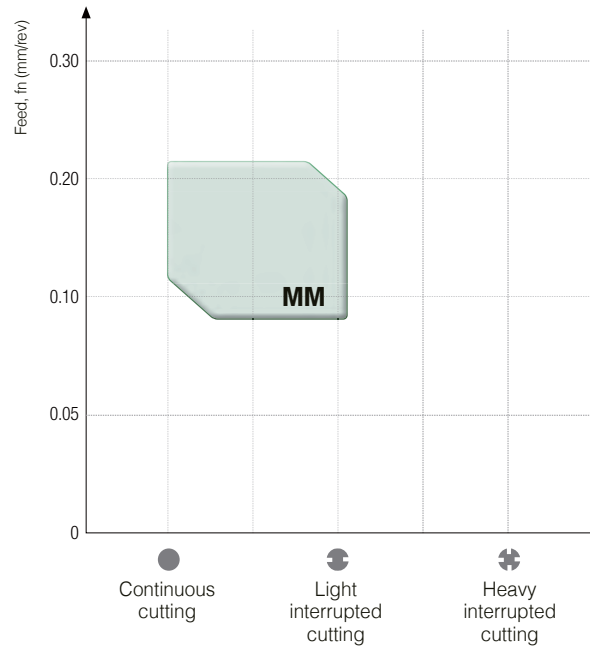
## Cutting range

Cutting width (mm) = Based on 3

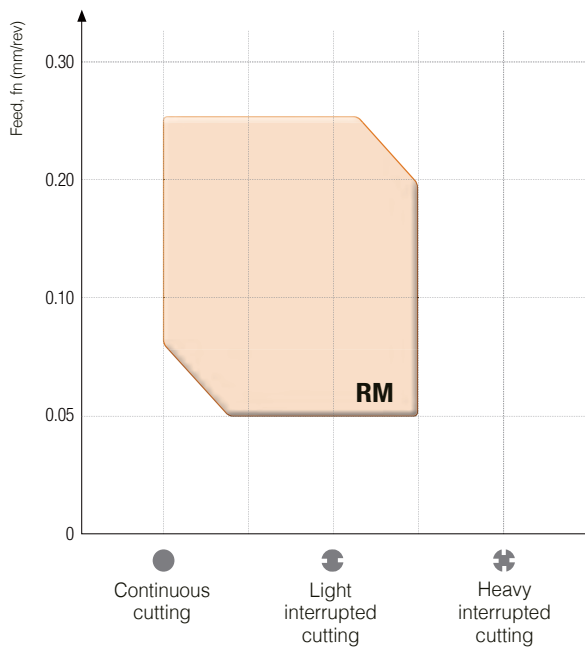
### Grooving



### Turning



### Profile




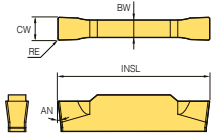

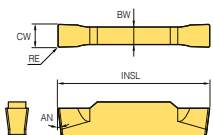

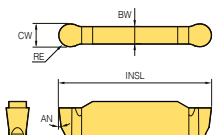
## Recommended cutting conditions

Cutting width (mm) = Based on 3

Workpiece					Grade					Chip breaker						
ISO	Workpiece material	ISO	AISI	Brinell hardness (HB)	CVD		PVD			Grooving			Turning			
					NC3225	NC3235	PC3035	PC5300	PC9030	MM	GM	RM	MM	RM		
					vc (m/min)					fn (mm/rev)			fn (mm/rev)			
P	Carbon steel	C = 0.25%	C25	1025	125	180	140	110	110	110	0.20	0.22	0.25	0.20	0.25	
						<b>275</b>	<b>215</b>	<b>170</b>	<b>170</b>	<b>170</b>	<b>0.12</b>	<b>0.14</b>	<b>0.15</b>	<b>0.16</b>	<b>0.20</b>	
						370	290	230	230	230	0.03	0.05	0.05	0.12	0.15	
		C = 0.35%	C35	1035	160	170	130	100	100	100	0.20	0.22	0.25	0.20	0.25	
						<b>255</b>	<b>200</b>	<b>155</b>	<b>155</b>	<b>155</b>	<b>0.12</b>	<b>0.14</b>	<b>0.15</b>	<b>0.16</b>	<b>0.20</b>	
						340	270	210	210	210	0.03	0.05	0.05	0.12	0.15	
	C = 0.45%	C45	1045	170	150	120	90	90	90	0.20	0.22	0.25	0.20	0.25		
					<b>235</b>	<b>185</b>	<b>145</b>	<b>145</b>	<b>145</b>	<b>0.12</b>	<b>0.14</b>	<b>0.15</b>	<b>0.16</b>	<b>0.20</b>		
					320	250	200	200	200	0.03	0.05	0.05	0.12	0.15		
	Low alloy steel ≤ 5%	Non-hardened	42CrMo4	4140	180	130	100	80	80	80	0.20	0.22	0.25	0.18	0.23	
						<b>195</b>	<b>155</b>	<b>120</b>	<b>120</b>	<b>120</b>	<b>0.12</b>	<b>0.14</b>	<b>0.15</b>	<b>0.14</b>	<b>0.18</b>	
		Hardened and tempered	-	-	4145	350	80	60	50	50	50	0.20	0.22	0.25	0.18	0.23
							<b>115</b>	<b>90</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>0.12</b>	<b>0.14</b>	<b>0.15</b>	<b>0.14</b>	<b>0.18</b>
							150	120	100	100	100	0.03	0.05	0.05	0.10	0.13
							<b>150</b>	<b>120</b>	<b>90</b>	<b>90</b>	<b>90</b>	<b>0.12</b>	<b>0.14</b>	<b>0.12</b>	<b>0.14</b>	<b>0.18</b>
	High alloy steel < 5%	Annealed	-	D2	200	100	80	60	60	60	0.20	0.22	0.20	0.18	0.23	
						<b>150</b>	<b>120</b>	<b>90</b>	<b>90</b>	<b>90</b>	<b>0.12</b>	<b>0.14</b>	<b>0.12</b>	<b>0.14</b>	<b>0.18</b>	
		Hardened tool steel	X40CrMoV5-1	H13	352	200	160	120	120	120	0.03	0.05	0.03	0.10	0.13	
<b>120</b>						<b>95</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>0.12</b>	<b>0.14</b>	<b>0.12</b>	<b>0.14</b>	<b>0.18</b>		
80						60	50	50	50	0.20	0.22	0.20	0.18	0.23		
<b>120</b>						<b>95</b>	<b>75</b>	<b>75</b>	<b>75</b>	<b>0.12</b>	<b>0.14</b>	<b>0.12</b>	<b>0.14</b>	<b>0.18</b>		
M	Austenite series	X5CrNi18-9	304	160 ~ 180	-	100	-	80	80	0.15	0.15	0.18	0.18	0.23		
					<b>145</b>	<b>115</b>	<b>115</b>	<b>0.09</b>	<b>0.09</b>	<b>0.13</b>	<b>0.14</b>	<b>0.18</b>				
					-	190	-	150	150	0.03	0.03	0.08	0.10	0.13		
		X5CrNiMo17-12-2	316	160 ~ 180	-	100	-	80	80	0.15	0.15	0.18	0.18	0.23		
					<b>145</b>	<b>115</b>	<b>115</b>	<b>0.09</b>	<b>0.09</b>	<b>0.13</b>	<b>0.14</b>	<b>0.18</b>				
					-	190	-	150	150	0.03	0.03	0.08	0.10	0.13		
	K	Gray cast iron	Low tensile strength	150	No25B	≤ 212	-	-	-	100	-	0.25	0.25	0.25	0.18	0.23
							<b>150</b>	<b>150</b>	<b>150</b>	<b>0.17</b>	<b>0.17</b>	<b>0.15</b>	<b>0.14</b>	<b>0.18</b>		
							-	-	-	200	-	0.09	0.09	0.05	0.10	0.13
			High tensile strength	250 350	No35B No50B	≤ 248 ≤ 277	-	-	-	80	-	0.25	0.25	0.25	0.18	0.23
							<b>125</b>	<b>125</b>	<b>125</b>	<b>0.17</b>	<b>0.17</b>	<b>0.15</b>	<b>0.14</b>	<b>0.18</b>		
							-	-	-	170	-	0.09	0.09	0.05	0.10	0.13
Ductile cast iron		Ferritic	500-7	65-45-12	170 ~ 241	-	-	-	70	-	0.25	0.25	0.25	0.20	0.25	
						<b>105</b>	<b>105</b>	<b>105</b>	<b>0.17</b>	<b>0.17</b>	<b>0.15</b>	<b>0.16</b>	<b>0.20</b>			
						-	-	-	140	-	0.09	0.09	0.05	0.12	0.15	
		Pearlitic	600-3	80-55-06	192 ~ 269	-	-	-	50	-	0.25	0.25	0.25	0.20	0.25	
						<b>80</b>	<b>80</b>	<b>80</b>	<b>0.17</b>	<b>0.17</b>	<b>0.15</b>	<b>0.16</b>	<b>0.20</b>			
						-	-	-	110	-	0.09	0.09	0.05	0.12	0.15	
Martensitic	700-2	100-70-03	229 ~ 302	-	-	-	50	-	0.20	0.22	0.20	0.20	0.25			
				<b>80</b>	<b>80</b>	<b>80</b>	<b>0.12</b>	<b>0.14</b>	<b>0.12</b>	<b>0.16</b>	<b>0.20</b>					
				-	-	-	110	-	0.03	0.05	0.03	0.12	0.15			
S	Inconel	-	-	200	-	-	-	20	-	0.10	0.10	0.12	0.13	0.16		
					<b>35</b>	<b>35</b>	<b>35</b>	<b>0.06</b>	<b>0.06</b>	<b>0.10</b>	<b>0.11</b>	<b>0.14</b>				
					-	-	-	50	-	0.03	0.03	0.08	0.09	0.12		
		-	-	250 350	-	-	-	-	20	-	0.10	0.10	0.12	0.13	0.16	
						<b>35</b>	<b>35</b>	<b>35</b>	<b>0.06</b>	<b>0.06</b>	<b>0.10</b>	<b>0.11</b>	<b>0.14</b>			
						-	-	-	50	-	0.03	0.03	0.08	0.09	0.12	
	Titanium alloy	-	-	3400	-	-	-	60	-	0.10	0.10	0.18	0.18	0.20		
					<b>80</b>	<b>80</b>	<b>80</b>	<b>0.06</b>	<b>0.06</b>	<b>0.13</b>	<b>0.14</b>	<b>0.18</b>				
					-	-	-	100	-	0.03	0.03	0.08	0.10	0.16		
		-	-	950	-	-	-	-	30	-	0.10	0.10	0.18	0.18	0.20	
						<b>45</b>	<b>45</b>	<b>45</b>	<b>0.06</b>	<b>0.06</b>	<b>0.13</b>	<b>0.14</b>	<b>0.18</b>			
						-	-	-	60	-	0.03	0.03	0.08	0.10	0.16	

## MGT Plus / MGT Applicable inserts

※ AN = 7°

Application	Picture	Designation	Coated					Dimension (mm)				Geometry	
			NC3225	NC3235	PC3035	PC5300	PC9030	CW	RE	INSL	BW		
Grooving · Turning		<b>PGMN</b>	<b>200-02-MM</b>	●	●	●	●	●	2.00	0.2	16	1.6	
			<b>300-04-MM</b>	●	●	●	●	●	3.00	0.4	21	2.35	
			<b>400-04-MM</b>	●	●	●	●	●	4.00	0.4	21	3.3	
			<b>500-08-MM</b>	●	●	●	●	●	5.00	0.8	26	4.1	
			<b>600-08-MM</b>	●	●	●	●	●	6.00	0.8	26	5.0	
			<b>800-08-MM</b>	●	●	●	●	●	8.00	0.8	31	6.0	
Grooving		<b>PGMN</b>	<b>150-015-GM</b>	●	●	●	●	●	1.50	0.15	16	1.2	
			<b>200-02-GM</b>	●	●	●	●	●	2.00	0.2	16	1.6	
			<b>250-02-GM</b>	●	●	●	●	●	2.50	0.2	18.5	2.0	
			<b>300-03-GM</b>	●	●	●	●	●	3.00	0.3	21	2.35	
			<b>400-03-GM</b>	●	●	●	●	●	4.00	0.3	21	3.3	
Relieving Profiling		<b>PRMN</b>	<b>200-RM</b>	●	●	●	●	●	2.00	1.0	16	1.6	
			<b>300-RM</b>	●	●	●	●	●	3.00	1.5	21	2.35	
			<b>400-RM</b>	●	●	●	●	●	4.00	2.0	21	3.3	
			<b>500-RM</b>	●	●	●	●	●	5.00	2.5	26	4.1	
			<b>600-RM</b>	●	●	●	●	●	6.00	3.0	26	5.0	
			<b>800-RM</b>	●	●	●	●	●	8.00	4.0	31	6.0	

●: Stock item

# C Technical Information for MGT

## Geometry of chip breaker

<p><b>MGM(G)N-M</b></p>  <ul style="list-style-type: none"> <li>Specially designed chip breaker allows a smoother chip flow versus conventional flat-top geometries through the use of a central chip breaker</li> <li>Specially placed convex dots assists with chip control in external machining, for a smoother chip flow</li> <li>Chip breaker designed for turning &amp; grooving applications</li> </ul>	<p><b>MGMN-G</b></p>  <ul style="list-style-type: none"> <li>Specially designed chip breaker allows narrower chips to promote better chip flow</li> <li>Specifically designed for grooving applications</li> </ul>	<p><b>MRMN-M</b></p>  <ul style="list-style-type: none"> <li>Full radius geometry for applications that require profiling</li> <li>Available for relief machining</li> </ul>	<p><b>MFMN300</b></p>  <ul style="list-style-type: none"> <li>Specially designed chip breaker allows narrower chips to promote better chip flow</li> <li>Chip breaker specially designed for face grooving</li> </ul>
<p><b>MRGN-A</b></p>  <ul style="list-style-type: none"> <li>Specially designed high positive geometry, ideal for machining aluminum</li> <li>The chip breaker's super buffed, high rake angle allows optimal chip flow of aluminum</li> </ul>	<p><b>MGMR-PS</b></p>  <ul style="list-style-type: none"> <li>Sharply designed cutting edge.</li> <li>Recommended in machining low carbon steel and stainless steel</li> <li>Specially designed chip breaker allows narrower chips to promote better chip flow.</li> <li>Able to machine Feed rates and small diameter cutting</li> </ul>	<p><b>MGMR-PT</b></p>  <ul style="list-style-type: none"> <li>Stronger cutting edge with a negative land for tougher applications</li> <li>Able to machine at high feed rate and bar stock</li> <li>Chip breaker design helps narrow chips for better flow</li> </ul>	
<p><b>MGMN-L</b></p>  <ul style="list-style-type: none"> <li>Sharp cutting edge</li> <li>Low cutting resistance</li> <li>For auto CNC machine</li> <li>For small diameter</li> </ul>	<p><b>MGMN-R</b></p>  <ul style="list-style-type: none"> <li>Strong cutting edge</li> <li>For high feed rate machining</li> </ul>	<p><b>MGMN-T</b></p>  <ul style="list-style-type: none"> <li>For turning &amp; grooving</li> <li>Reduced chip width &amp; smooth chip control by dot designed on the top corner</li> </ul>	<p><b>MGGN-A</b></p>  <ul style="list-style-type: none"> <li>Smooth chip flow</li> <li>Prevent built-up edge face grooving</li> </ul>

## Parting off (MGMN / MGMR/L)

Workpiece	Cutting Speed (vc = m/min)							Feed (fn = mm/rev)					
	CVD			PVD			Uncoated	Cutting width (mm)					
	NC3120	NC3030	NCM325	NC5330	PC8110	PC5300		PC6510	ST30A	2	3	4	5
SM□□C	80~180			80~180		80~180			0.02~0.15	0.03~0.20	0.08~0.30	0.10~0.40	0.12~0.50
SCM	70~150	70~150	70~150	70~150		70~150			0.02~0.15	0.03~0.20	0.08~0.30	0.10~0.40	0.12~0.50
GC/GCD				50~100			50~100	50~100	0.05~0.12	0.10~0.25	0.10~0.30	0.10~0.35	0.10~0.40
STS			50~120	50~120	50~120	60~140			0.02~0.10	0.03~0.15	0.08~0.25	0.10~0.35	0.12~0.40
Non-ferrous metal (Al, Copper)								200~450	0.05~0.10	0.05~0.20	0.05~0.25	0.05~0.30	0.05~0.35

## Facing (FGD / FGM / FMM / MFMN / MGMN)


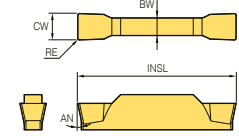

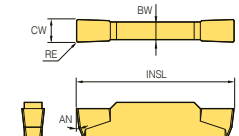

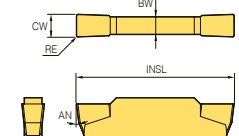

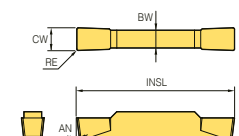

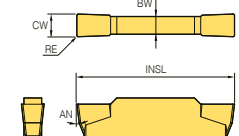
Workpiece	Cutting Speed (vc = m/min)						Feed (fn = mm/rev)				
	CVD			PVD			Uncoated	Cutting width (mm)			
	NC6310	NC3030	NC5330	NC3120	PC215K	PC8110 / PC5300		H01	3	4	5
SM□□C			100~160	100~160					0.05~0.10	0.05~0.12	0.05~0.15
SCM		50~130	50~130	50~130					0.05~0.10	0.05~0.12	0.05~0.15
GC/GCD	120~150		120~150		120~150				0.05~0.10	0.05~0.12	0.05~0.15
STS			60~150			60~150			0.05~0.10	0.05~0.12	0.05~0.15
Non-ferrous metal (Al, Copper)								200~800	0.05~0.15	0.08~0.15	0.08~0.15

## Grooving, Turning (MGMN / MRMN)

Workpiece	Cutting Speed (vc = m/min)							Feed (fn = mm/rev)						
	CVD			PVD		Cermet	Uncoated	Cutting width (mm)						
	NC3120	NC3030	NC5330	PC215K	PC5300			CN2500	ST30A	ST20	0.5~1.0	1.0~2.0	2~3	3~4
SM□□C	80~200		80~200		80~180	80~120		80~120	0.03~0.08	0.04~0.09	0.05~0.1	0.05~0.12	0.05~0.15	0.05~0.2
SCM	80~180	80~180	80~180		80~160	80~120	80~120	80~120	0.03~0.07	0.04~0.08	0.05~0.08	0.05~0.1	0.05~0.12	0.05~0.15
GC/GCD			60~130		60~130				0.03~0.07	0.04~0.08	0.05~0.08	0.05~0.1	0.05~0.10	0.05~0.12
STS			60~100	60~100			60~100		0.03~0.08	0.04~0.09	0.05~0.10	0.05~0.12	0.05~0.12	0.05~0.15
Non-ferrous metal (Al, Copper)				150~300			150~400		0.05~0.12	0.05~0.15	0.05~0.15	0.08~0.15	0.08~0.15	0.10~0.20


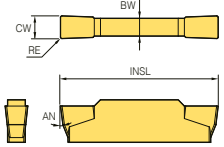

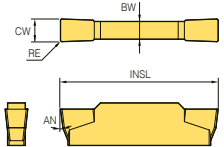

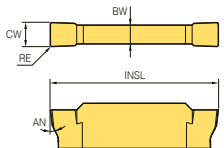


Applicable insert

Application	Picture	Designation	Coated						Uncoated	Dimensions (mm)						Configuration			
			NC3120	NC3225	NC3030	NC5330	NC6315	PC5300	PC8110	PC9030	H01	SSC	CW	RE	BW		INSL	AN	HAND
Face Grooving		MFMN 300				●						30	3	0.2	2	18	12	N	
Grooving · Turning		300-02-M										30	3	0.2	2.35	21	7	N	
		300-04-M										30	3	0.4	2.35	21	7	N	
		300-08-M										30	3	0.8	2.35	21	7	N	
		400-02-M										40	4	0.2	3.3	21	7	N	
		400-04-M										40	4	0.4	2.35	21	7	N	
		400-08-M										40	4	0.8	2.35	21	7	N	
		500-02-M										50	5	0.2	4.1	26	7	N	
		500-04-M										50	5	0.4	2.35	26	7	N	
		500-08-M										50	5	0.8	2.35	26	7	N	
		600-02-M										60	6	0.2	5	26	7	N	
600-04-M										60	6	0.4	2.35	26	7	N			
600-08-M										60	6	0.8	2.35	26	7	N			
Grooving		MGMN 150-G		●	●			●	●	●		15	1.5	0.15	1.2	16	7	N	
		200-G	●	●	●			●	●	●		20	2	0.2	1.6	16	7	N	
		250-G			●			●	●	●		25	2.5	0.2	2	18.5	7	N	
		300-G	●	●	●	●		●	●	●		30	3	0.3	2.35	21	7	N	
		400-G	●		●			●	●	●		40	4	0.3	3.3	21	7	N	
		500-G										50	5	0.5	4.1	26	7	N	
		600-G										60	6	0.8	5	26	7	N	
Grooving · Turning		MGMN 200-M	●	●	●	●		●	●	●		20	2	0.2	1.6	16	7	N	
		250-M	●	●	●			●	●	●		25	2.5	0.2	2	18.5	7	N	
		300-02-M				●						30	3	0.2	2.35	21	7	N	
		300-M	●	●	●	●	●	●	●	●		30	3	0.4	2.35	21	7	N	
		350-03-M										40	4	0.3	2.9	21	7	N	
		400-02-M										40	4	0.2	3.3	21	7	N	
		400-M	●	●	●	●	●	●	●	●		40	4	0.4	3.3	21	7	N	
		500-04-M				●						50	5	0.4	4.1	26	7	N	
		500-M	●	●	●	●	●		●	●		50	5	0.8	4.1	26	7	N	
600-M	●	●	●	●	●					60	6	0.8	5	26	7	N			
800-M			●	●						80	8	0.8	6	31	7	N			
Grooving		MGMN 200-02-L										20	2	0.2	1.6	16	7	N	
		200-04-L										20	2	0.4	1.6	16	7	N	
		250-02-L										25	2.5	0.2	2	18.5	7	N	
		300-02-L							●			30	3	0.2	2.35	21	7	N	
		300-04-L										30	3	0.4	2.35	21	7	N	
		400-02-L							●			40	4	0.2	3.3	21	7	N	
		400-04-L										40	4	0.4	3.3	21	7	N	
		500-03-L										50	5	0.3	4.1	26	7	N	
500-04-L							●			50	5	0.4	4.1	26	7	N			


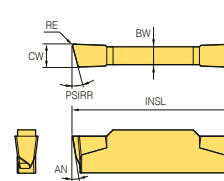





● : Stock item

## Applicable insert

Application	Picture	Designation	Coated						Uncoated		Dimensions (mm)							Configuration		
			NC3120	NC3225	NC3030	NC5330	NC6315	PC5300	PC8100	PC9030	H01	H05	SSC	CW	RE	BW	INSL		AN	HAND
Grooving · Parting off		MGMN 150-015-R											15	1.5	0.15	1.2	16	7	N	
		200-02-R											20	2	0.2	1.6	16	7	N	
		200-04-R											20	2	0.4	1.6	16	7	N	
		250-02-R											25	2.5	0.2	2	18.5	7	N	
		300-02-R	●				●						30	3	0.2	2.35	21	7	N	
		300-04-R											30	3	0.4	2.35	21	7	N	
		400-02-R	●				●						40	4	0.2	3.3	21	7	N	
		400-04-R											40	4	0.4	3.3	21	7	N	
		500-04-R	●				●						50	5	0.4	4.1	26	7	N	
		500-08-R											50	5	0.8	4.1	26	7	N	
		600-04-R											60	6	0.4	5	26	7	N	
600-08-R											60	6	0.8	5	26	7	N			
Grooving · Turning		MGMN 150-015-T											15	1.5	0.15	1.2	16	7	N	
		200-T											20	2	0.2	1.6	16	7	N	
		300-T	●				●						30	3	0.4	2.35	21	7	N	
		400-T	●				●						40	4	0.4	3.3	21	7	N	
		500-04-T											50	5	0.4	4.1	26	7	N	
		500-T						●					50	5	0.8	4.1	26	7	N	
		600-08-T											60	6	0.8	5	26	7	N	
Grooving		MGGN 300-02-A											30	3	0.2	2.35	21	7	N	
		300-04-A											30	3	0.4	2.35	21	7	N	
		300-08-A											30	3	0.8	2.35	21	7	N	
		400-02-A											40	4	0.2	3.3	21	7	N	
		400-04-A											40	4	0.4	3.3	21	7	N	
		400-08-A											40	4	0.8	3.3	21	7	N	
		500-02-A											50	5	0.2	4.1	26	7	N	
		500-04-A											50	5	0.4	4.1	26	7	N	
500-08-A											50	5	0.8	4.1	26	7	N			

● : Stock item

Applicable insert

Application	Picture	Designation	Coated						Uncoated		Dimensions (mm)								Configuration			
			NC3120	NC3225	NC3030	NC5330	NC6315	PC5300	PC8100	PC9030	H01	H05	SSC	CW	PSIRL	PSIRR	RE	INSL		BW	AN	HAND
Parting off	 MGMR-PS	MGMR 300-6D-PS											30	3	-	6	0.2	21.2	2.35	7	R	
		300-8D-PS											30	3	-	8	0.2	21.2	2.35	7	R	
		300-15D-PS											30	3	-	15	0.2	21.2	2.35	7	R	
		400-4D-PS											40	4	-	4	0.3	21.2	3.3	7	R	
		500-4D-PS											50	5	-	4	0.3	26.2	4.1	7	R	
	 MGML-PS	MGML 300-6D-PS											30	3	6	-	0.2	21.2	2.35	7	L	
		300-8D-PS											30	3	8	-	0.2	21.2	2.35	7	L	
		300-15D-PS											30	3	15	-	0.2	21.2	2.35	7	L	
		400-4D-PS											40	4	4	-	0.3	21.2	3.3	7	L	
		500-4D-PS											50	5	4	-	0.3	26.2	4.1	7	L	
Parting off	 MGMR-PT	MGMR 200-6D-PT					●						20	2	-	6	0.2	16.2	1.6	7	R	
		300-6D-PT											30	3	-	6	0.2	21.2	2.35	7	R	
		300-8D-PT	●										30	3	-	8	0.2	21.2	2.35	7	R	
		300-15D-PT											30	3	-	15	0.2	21.2	2.35	7	R	
		400-4D-PT											40	4	-	4	0.3	21.2	3.3	7	R	
	500-4D-PT											50	5	-	4	0.3	26.2	4.1	7	R		
	 MGML-PT	MGML 200-6D-PT											20	2	6	-	0.2	16.2	1.6	7	L	
		300-6D-PT					●						30	3	6	-	0.2	21.2	2.35	7	L	
		300-8D-PT											30	3	8	-	0.2	21.2	2.35	7	L	
		300-15D-PT											30	3	15	-	0.2	21.2	2.35	7	L	
400-4D-PT												40	4	4	-	0.3	21.2	3.3	7	L		
500-4D-PT											50	5	4	-	0.3	26.2	4.1	7	L			
Aluminum	 MRGN-A	MRGN 300-A											30	3	-	-	1.5	21	2.35	7	N	
		400-A								●			40	4	-	-	2	21	3.3	7	N	
		500-A											50	5	-	-	2.5	26	4.1	7	N	
		600-A										●	60	6	-	-	3	26	5	12	N	
		800-A										●	80	8	-	-	4	31	6	12	N	
Relieving Profiling	 MRMN-M	MRMN 200-M	●	●	●					●			20	2	-	-	1	16	1.6	7	N	
		300-M	●	●	●	●					●			30	3	-	-	1.5	21	2.35	7	N
		400-M	●	●	●	●					●			40	4	-	-	2	21	3.3	7	N
		500-M		●			●							50	5	-	-	2.5	26	4.1	7	N
		600-M		●	●									60	6	-	-	3	26	5	7	N
		800-M		●	●									80	8	-	-	4	31	6	7	N

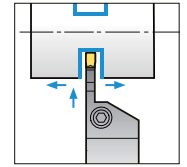
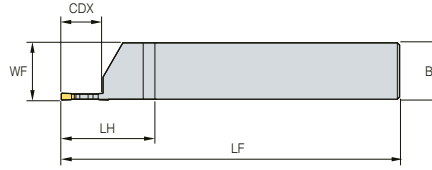
● : Stock item

## MGEHR/L



PGMN MGMN MGMR  
PRMN MGGN MRMN  
MRGN

For grooving, turning, parting off, relief, Profiling machining



• R type holder



(mm)

Designation	Stock		CDX	LH	LF	WF	HF	HBH	B	H	HAND	Applicable insert	Screw	Wrench
	R	L												
MGEHR/L 1616-1.5	●	●	14	36.5	100	16.2	16	-	16	16	R/L	PGMN150-□-□ MGMN150-G	LTX0514	TW20L
2020-1.5	●	●	14	36.5	125	20.2	20	-	20	20	R/L			
2525-1.5	●	●	14	36.5	150	25.2	25	-	25	25	R/L			
1212-2	●		14	32	100	12.25	12	-	12	12	R/L	PGMN200-□-□ PRMN200-□ MGMN200-G MGMN200-M	MHA0512	HW40L
1616-2	●	●	14	36.5	100	16.25	16	-	16	16	R/L			
2020-2	●	●	14	36.5	125	20.25	20	-	20	20	R/L			
2525-2	●	●	14	36.5	150	25.25	25	-	25	25	R/L	MGMR200-□-□-□ PGMN250-□-□ MGMN250-G MGMN250-M	MHA0512	HW40L
1616-2.5	●	●	16	39	100	16.3	16	-	16	16	R/L			
2020-2.5	●	●	16	39	125	20.3	20	-	20	20	R/L			
2525-2.5	●	●	16	39	150	25.3	25	-	25	25	R/L	PGMN300-□-□ PRMN300-□ MGMN300-M/T MGGN300-□-□-□-□-□ MRMN300-M MGMR300-□-□-□-□ MGMN300-□-□-□-□-□-□	MHA0512	HW40L
1616-3	●	●	18	41.5	100	16.35	16	-	16	16	R/L			
2020-3-T10	●		10	41.5	125	20.35	20	-	20	20	R/L			
2020-3	●	●	18	41.5	125	20.35	20	-	20	20	R/L	PGMN400-□-□ PRMN400-□ MGMN400-M/T MGGN400-□-□-□-□-□ MRMN400-M MGMR400-□-□-□-□ MGMN400-□-□-□-□-□-□	MHA0512	HW40L
2525-3-T10	●	●	10	41.5	150	25.4	25	-	25	25	R/L			
2525-3	●	●	18	41.5	150	25.35	25	-	25	25	R/L			
3232-3-T10			10	41.5	170	32.35	32	-	32	32	R/L	MGMR300-□-□-□ MGMN300-□-□-□-□-□-□	MHA0512	HW40L
3232-3	●	●	18	41.5	170	32.4	32	-	32	32	R/L			
2020-4-T10	●		10	41.5	125	20.4	20	-	20	20	R/L			
2020-4	●	●	18	41.5	125	20.4	20	-	20	20	R/L	PGMN500-□-□ PRMN500-□ MGMN500-M/T MGGN500-□-□-□-□-□ MRMN500-M MGMR500-□-□-□-□ MGMN500-□-□-□-□-□-□	MHA0512	HW40L
2525-4-T10	●	●	10	41.5	150	25.4	25	-	25	25	R/L			
2525-4	●	●	18	41.5	150	25.4	25	-	25	25	R/L			
3232-4-T10			10	41.5	170	32.4	32	-	32	32	R/L	MGMR400-□-□-□ MGMN400-□-□-□-□-□-□	MHA0512	HW40L
3232-4	●	●	18	41.5	170	32.4	32	-	32	32	R/L			
2020-5-T15			15	46.5	150	20.5	20	-	20	20	R/L			
2020-5	●	●	23	46.5	150	20.5	20	-	20	20	R/L	PGMN600-□-□ PRMN600-□ MGMN600-M MGGN600-□-□-□-□-□ MRMN600-M	MHA0512	HW40L
2525-5-T15			15	40.5	150	25.5	25	-	25	25	R/L			
2525-5	●	●	23	46.5	150	25.5	25	-	25	25	R/L			
3232-5-T15			15	46.5	150	32.5	32	-	32	32	R/L	MGMR500-□-□-□ MGMN500-□-□-□-□-□-□	MHA0512	HW40L
3232-5	●	●	23	46.5	170	32.5	32	-	32	32	R/L			
2020-6-T15			15	46.5	125	20.55	20	-	20	20	R/L			
2020-6	●	●	23	46.5	125	20.6	20	-	20	20	R/L	PGMN800-□-□ PRMN800-□ MRMN800-M MGMN800-M	MHA0512	HW40L
2525-6-T15			15	46.5	150	25.55	25	-	25	25	R/L			
2525-6	●	●	23	46.5	150	25.55	25	-	25	25	R/L			
3232-6-T15			15	46.5	150	32.55	32	-	32	32	R/L	MGMR600-□-□-□ MGMN600-M MGGN600-□-□-□-□-□ MRMN600-M	MHA0512	HW40L
3232-6	●	●	23	46.5	170	32.6	32	-	32	32	R/L			
2525-8-T15	●		15	51.5	150	26.1	25	-	25	25	R/L			
2525-8	●	●	28	51.5	150	26.1	25	-	25	25	R/L	PGMN800-□-□ PRMN800-□ MRMN800-M MGMN800-M	MHA0512	HW40L
3232-8-T15			16	51.5	170	33.1	32	-	32	32	R/L			
3232-8	●	●	28	51.5	170	33.1	32	-	32	32	R/L			
2525-6A-T15			15	46.5	150	25.55	25	-	25	25	R/L	MRGN600-A	MHA0512	HW40L
2525-6A	●		23	46.5	150	25.55	25	-	25	25	R/L			
3232-6A-T15			15	46.5	170	32.55	32	-	32	32	R/L			
3232-6A			23	46.5	170	32.55	32	-	32	32	R/L	MRGN800-A	MHA0512	HW40L
2525-8A-T15		●	16	51.5	150	26.1	25	-	25	25	R/L			
2525-8A	●	●	28	51.5	150	26.1	25	-	25	25	R/L			
3232-8A-T15			15	51.5	170	33.1	32	-	32	32	R/L	MRGN800-A	MHA0512	HW40L
3232-8A			28	51.5	170	33.1	32	-	32	32	R/L			

Applicable inserts C45 ~ C49

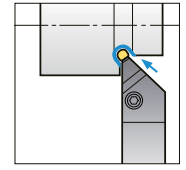
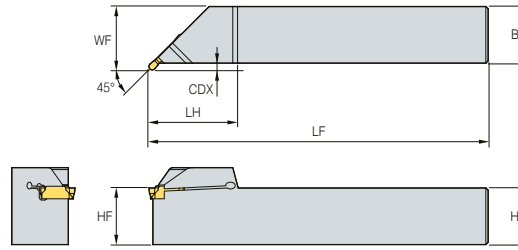
●: Stock item

# MGEUR/L

For relief, Profiling machining





PRMN MGMN  
MGGN



45°  
• R type holder

(mm)

Designation	Stock		CDX	LH	LF	WF	HF	B	H	HAND	Applicable insert	Screw 	Wrench 
	R	L											
MGEUR/L 2020-3	•		3	39.5	125	23	20	20	20	R/L	PRMN300-□ MRMN300-M	BHA0616	HW50L
2525-3	•		3	39.5	150	28	25	25	25	R/L			
3232-3			3	39.5	170	35	32	32	32	R/L			
2020-4			3	39.5	125	23	20	20	20	R/L	PRMN400-□ MRMN400-M		
2525-4	•		3	39.5	150	28	25	25	25	R/L			
3232-4			3	39.5	170	35	32	32	32	R/L			
2020-5			4	40	125	24	20	20	20	R/L	PRMN500-□ MRMN500-M		
2525-5	•	•	4	41	150	29	25	25	25	R/L			
3232-5			4	40	170	36	32	32	32	R/L			
2020-6			4	40	125	24	20	20	20	R/L	PRMN600-□ MRMN600-M		
2525-6	•		4	40	150	29	25	25	25	R/L			
3232-6	•	•	4	40	170	36	32	32	32	R/L			
2525-8			5	39.5	150	30	25	25	25	R/L	PRMN800-□ MRMN800-M		
3232-8			5	45	170	37	32	32	32	R/L			
2525-6A			4	40	150	29	25	25	25	R/L	MRGN600-A		
3232-6A			4	40	170	36	32	32	32	R/L			
2525-8A			5	45	150	30	25	25	25	R/L	MRGN800-A		
3232-8A			5	45	170	37	32	32	32	R/L			

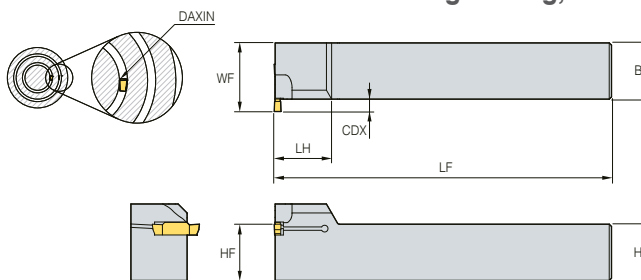
 Applicable inserts C45 ~ C49

• : Stock item

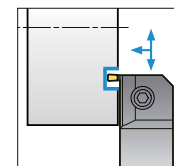
## MGEVR/L



PGMN PRMN  
MGMN MRMN  
MGMN MRGN



For grooving, turning, Profiling machining



• R type holder

(mm)

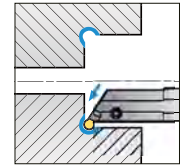
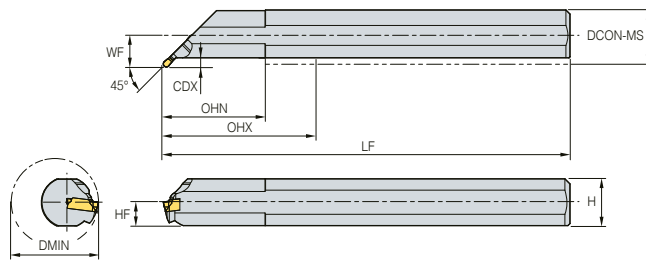
Designation	Stock		CDX	LH	LF	WF	HF	HBH	B	H	DAXIN HAND	Applicable insert	Screw	Wrench	
	R	L													
<b>MGEVR/L 2020-1.5</b>	●		3	28	125	23.5	20	-	20	20	85	R/L	LTX0514	TW20L	
<b>2525-1.5</b>			3	28	150	28.5	25	-	25	25	85	R/L			
<b>3232-1.5</b>			3	28	170	35	32	-	32	32	85	R/L			
<b>2020-2</b>	●		3.5	28	125	23.5	20	-	20	20	65	R/L	PGMN200-□-□ PRMN200-□ MGMN200-M MGMN200-G		
<b>2525-2</b>			3.5	28	150	28.5	25	-	25	25	65	R/L			
<b>3232-2</b>			3.5	28	170	35.5	32	-	32	32	65	R/L			
<b>2020-2.5</b>			4	28	125	24.8	20	-	20	20	65	R/L	PGMN250-□-□ MGMN250-M MGMN250-G		
<b>2525-2.5</b>			4	28	150	29.8	25	-	25	25	65	R/L			
<b>3232-2.5</b>			4	28	170	36.8	32	-	32	32	65	R/L			
<b>2020-3</b>	●	●	5	28	125	25.5	20	-	20	20	75	R/L	PGMN300-□-□ PRMN300-□ MGMN300-M/T MGMN300-□-□- MRMN300-M MGMN300-□-□- L/R		
<b>2525-3</b>	●	●	5	28	150	30.5	25	-	25	25	75	R/L			
<b>3232-3</b>			5	28	170	37.5	32	-	32	32	75	R/L			
<b>2020-4</b>	●		5	28	125	25.5	20	-	20	20	70	R/L	PGMN400-□-□ PRMN400-□ MGMN400-M/T MGMN400-□-□- MRMN400-M MGMN400-□-□- L/R		
<b>2525-4</b>	●		5	28	150	30.5	25	-	25	25	70	R/L			
<b>3232-4</b>			5	28	170	37.5	32	-	32	32	70	R/L			
<b>2020-5</b>			7	30	125	27	20	-	20	20	75	R/L	PGMN500-□-□ PRMN500-□ MGMN500-M/T MGMN500-□-□- MRMN500-M MGMN500-□-□- L/R	BHA0616	HW50L
<b>2525-5</b>			7	30.5	150	32	25	-	25	25	75	R/L			
<b>3232-5</b>			7	30	170	39	32	-	32	32	75	R/L			
<b>2020-6</b>			7	30.5	150	30.5	20	-	20	20	70	R/L	PGMN600-□-□ PRMN600-□ MGMN600-M MGMN600-□-□- MRMN600-M		
<b>2525-6</b>			7	30	150	32	25	-	25	25	70	R/L			
<b>3232-6</b>			7	30.5	170	39	32	-	32	32	70	R/L			
<b>2525-8</b>			9	31	150	34	25	-	25	25	50	R/L	PGMN800-□-□ PRMN800-□ MRMN800-M MGMN800-M		
<b>3232-8</b>			9	31	170	41	32	-	32	32	50	R/L			
<b>2525-6A</b>			7	30	150	32	25	-	25	25	70	R/L			
<b>3232-6A</b>			7	30	170	39	32	-	32	32	70	R/L	MRGN600-A		
<b>2525-8A</b>			9	30	150	34	25	-	25	25	45	R/L	MRGN800-A		
<b>3232-8A</b>			9	30	170	41	32	-	32	32	45	R/L			

➡ Applicable inserts C45 ~ C49

● : Stock item

# MGIUR/L

For relief, Profiling machining



45°  
• R type holder

(mm)

Designation	Stock		CDX	DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench
	R	L											
<b>MGIUR/L 3520-3</b>			3.5	35	45	150	13	18	20	R/L	PRMN300-□ MRMN300-M	MHA0512	HW40L
<b>4025-3</b>	●		3.5	40	45	200	15.5	23	25	R/L			
<b>5032-3</b>			3.5	50	65	250	19	30	32	R/L			
<b>3520-4</b>			3.5	35	45	150	13	18	20	R/L			
<b>4025-4</b>	●		3.5	40	45	200	15.5	23	25	R/L	PRMN400-□ MRMN400-M	BHA0616 BHA0620	HW50L
<b>5032-4</b>	●		3.5	50	65	250	19	30	32	R/L			
<b>4025-5</b>			3.5	40	45	200	15.5	23	25	R/L			
<b>5032-5</b>	●		3.5	50	65	250	19	30	32	R/L	PRMN600-□ MRMN600-M	BHA0616 BHA0620	HW50L
<b>4025-6</b>			3.5	40	45	200	15.5	23	25	R/L			
<b>5032-6</b>	●		3.5	50	65	250	19	30	32	R/L	PRMN800-□ MRMN800-M	BHA0616 BHA0620	HW50L
<b>4025-8</b>			6.5	40	45	200	15.5	23	25	R/L			
<b>5032-8</b>	●		6.5	50	65	250	22	30	32	R/L	MRGN600-A	BHA0616 BHA0620	HW50L
<b>4025-6A</b>			4.5	40	45	200	15.5	23	25	R/L			
<b>5032-6A</b>			5.25	50	65	250	19	30	32	R/L	MRGN800-A	BHA0616 BHA0620	HW50L
<b>4025-8A</b>			7.5	40	45	200	18.5	23	25	R/L			
<b>5032-8A</b>			8	50	65	250	22	30	32	R/L			

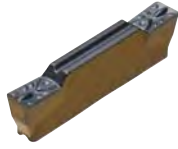
➡ Applicable inserts C45 ~ C49

● : Stock item

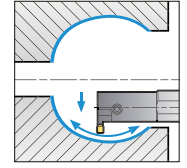
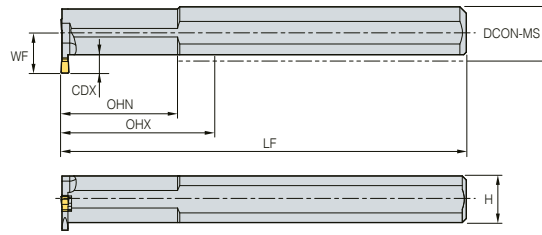
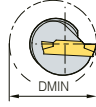


## MGIVR/L

For grooving, turning, Profiling machining



PGMN MGMN MRMN  
PRMN MGGN MRGN



• R type holder

(mm)

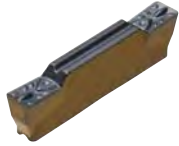
Designation	Stock		CDX	DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench
	R	L											
MGIVR/L 2016-1.5			3.5	20	35	125	11.3	15	16	R/L	PGMN150-□-□ MGMN150-G	MHB0310	HW25L
			3.5	25	45	150	13.1	18	20	R/L		MHA0512	HW40L
2925-1.5			3.5	29	45	200	16.2	23	25	R/L	PGMN200-□-□ PRMN200-□-□ MGMN200-G MGMN200-M MRMN200-M	MHB0310	HW25L
2016-2	•	•	4.5	20	35	125	11.95	15	16	R/L		MHA0512	HW40L
2520-2	•	•	4.5	25	45	150	14	18	20	R/L	PGMN250-□-□ MGMN250-G MGMN250-M	MHB0310	HW25L
2925-2	•	•	4.5	29	45	200	16.5	23	25	R/L		MHA0512	HW40L
2016-2.5	•		4.5	20	35	125	12.5	15	16	R/L	PGMN300-□-□ PRMN300-□-□ MGMN300-M/G/T MGMN300-□-□- MRMN300-M MGMN300-□-□- L/R	MHB0310	HW25L
2520-2.5			4.5	25	45	150	15.1	18	20	R/L		MHA0512	HW40L
2925-2.5			4.5	29	45	200	17.25	23	25	R/L	PGMN400-□-□ PRMN400-□-□ MGMN400-M/G/T MGMN400-□-□- MRMN400-M MGMN400-□-□- L/R	MHB0310	HW25L
2520-3	•	•	5	25	45	150	15.6	18	20	R/L		MHA0512	HW40L
2520-3-T7	•		7	25	49.3	150	16.5	18	20	R/L	PGMN500-□-□ PRMN500-□-□ MGMN500-M/G/T MGMN500-□-□- MRMN500-M MGMN500-□-□- L/R	MHB0310	HW25L
3125-3	•	•	6	31	45	200	18.9	23	25	R/L		MHA0512	HW40L
3125-3-T10	•		10	31	45	200	18.9	23	25	R/L	PGMN600-□-□ PRMN600-□-□ MGMN600-MG MGMN600-□-□- MRMN600-M	MHB0310	HW25L
3732-3	•	•	6	37	65	250	21.5	30	32	R/L		MHA0512	HW40L
3732-3-T12	•		12	37	65	250	21.5	30	32	R/L	PGMN800-□-□ PRMN800-□-□ MRMN800-M MGMN800-M	MHB0310	HW25L
2520-4	•	•	6	25	45	150	15.6	18	20	R/L		MHA0512	HW40L
2520-4-T7	•		7	25	45	150	15.6	18	20	R/L	MRGN600-A	MHB0310	HW25L
3125-4	•		6	31	45	200	18.9	23	25	R/L		MHA0512	HW40L
3125-4-T10	•		10	31	45	200	19	23	25	R/L	MRGN800-A	MHB0310	HW25L
3732-4	•		6	37	65	250	21.5	30	32	R/L		MHA0512	HW40L
3732-4-T12	•		12	37	65	250	21.5	30	32	R/L	MRGN800-A	MHB0310	HW25L
3125-5	•		8	31	45	200	19.4	23	25	R/L		MHA0512	HW40L
3732-5	•		8	37	65	250	21.5	30	32	R/L	BHA0616		
3125-6	•	•	8	31	45	200	19.4	23	25	R/L	BHA0616		
3732-6	•		8	37	65	250	21.5	30	32	R/L		BHA0620	HW50L
3732-8	•		10	37	65	250	23.4	30	32	R/L	BHA0616		
4540-8	•		10	45	70	300	27.2	37	40	R/L	BHA0620		
3125-6A			8.4	31	45	200	19.4	23	25	R/L	BHA0616		
3732-6A			8.5	37	65	250	21.5	30	32	R/L		BHA0620	
3732-8A			10.4	37	65	250	23.4	30	32	R/L	BHA0616		
4540-8A			10.2	45	70	300	27.2	37	40	R/L		BHA0620	

Applicable inserts C45 ~ C49

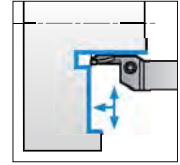
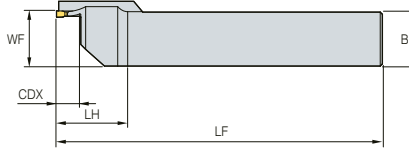
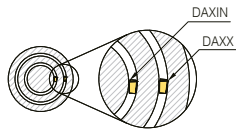
•: Stock item

# MGFHR/L

For face grooving machining



PGMN MFMN  
PRMN MGMN



• R type holder

(mm)

Designation	Stock		CDX	DAXIN	DAXX	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L												
MGFHR/L 325-24/35-T10	•		10	24	35	150	25.6	25	25	25	R/L	PGMN300-□-□ PRMN300-□ MFMN300	BHA0616	HW50L
29/40-T10	•		10	29	40	150	25.6	25	25	25	R/L			
34/50-T10	•		10	34	50	150	25.6	25	25	25	R/L			
44/70-T10	•		10	44	70	150	25.6	25	25	25	R/L			
64/99-T10	•		10	64	99	150	25.6	25	25	25	R/L			
425-42/63-T15	•		15	42	63	150	25.6	25	25	25	R/L			
62/120-T15	•		15	62	120	150	25.6	25	25	25	R/L			
112/200-T15	•		15	112	200	150	25.6	25	25	25	R/L	PGMN400-□-□ PRMN400-□ MGMN400-M/T MGMN400-□□-L/R	BHA0616	HW50L

↻ Applicable inserts C45 ~ C49

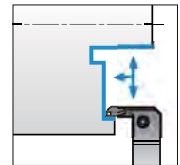
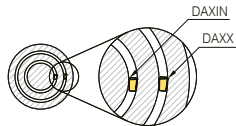
• : Stock item

# MGFVR/L

For face grooving machining



PGMN MFMN  
PRMN MGMN



• R type holder

(mm)

Designation	Stock		CDX	DAXIN	DAXX	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L												
MGFVR/L 325-24/35-T10	•		10	24	35	150	36	25	25	25	R/L	PGMN300-□-□ PRMN300-□ MFMN300	MHA0512	HW40L
29/40-T10	•		10	29	40	150	36	25	25	25	R/L			
34/50-T10	•		10	34	50	150	36	25	25	25	R/L			
44/70-T10	•		10	44	70	150	36	25	25	25	R/L			
64/99-T10	•		10	64	99	150	36	25	25	25	R/L			
425-44/60-T15	•		15	44	60	150	41	25	25	25	R/L	PGMN400-□-□ PRMN400-□ MGMN400-M/T MGMN400-□□-L/R	BHA0616	HW50L
60/120-T15	•		15	60	120	150	41	25	25	25	R/L			
112/200-T15	•		15	112	200	150	41	25	25	25	R/L			

↻ Applicable inserts C45 ~ C49

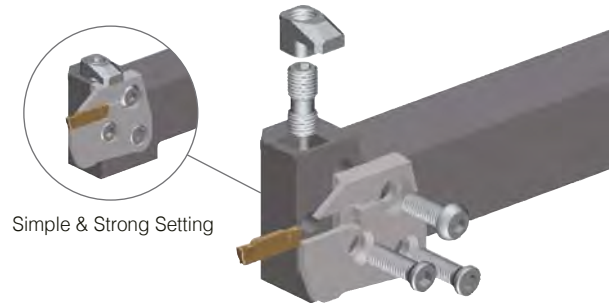
• : Stock item

## KGT/MGT Cartridges

### Features

- Compatible and economical due to divided cartridge & exclusive holder system from existing single body system
- Interchangeable cartridge
  - Various assembly depends on working style
  - Reduce cutting tool costs by over 30%
  - Setting with upper clamp & side screw
- Strong & stable setting force
  - Simultaneous assembly of insert & cartridge
  - Easy assembly & tool exchange
- Stable assembly system
  - Simple & superior setting force

Stable Assembly thanks to double screw & clamp



Simple & Strong Setting

### Code system

#### • Holder

<b>KC</b>	<b>H</b>	<b>R/L</b>	<b>25</b>	<b>25</b>
<b>System Code</b>	<b>Holder Style</b>	<b>Hand</b>	<b>Height (mm)</b>	<b>Width (mm)</b>
KC: KGT-Cartridge System MC: MGT-Cartridge System	H: Horizontal V: Vertical			

Horizontal type		Vertical type	
<b>MCHR</b>	<b>MCHL</b>	<b>MCVR</b>	<b>MCVL</b>
• External process: KCER/MCER • Facing process: KCFL/MCFL	• External process: KCEL/MCEL • Facing process: KCFR/MCFR	• External process: KCEL/MCEL • Facing process: KCFR/MCFR	• External process: KCER/MCER • Facing process: KCFL/MCFL

Available cartridge



#### • Cartridge

<b>KC</b>	<b>F</b>	<b>R/L</b>	<b>3</b>	<b>24/35</b>	<b>T16</b>
<b>System Code</b>	<b>Working Style</b>	<b>Hand</b>	<b>Cutting Width (mm)</b>	<b>Facing Dia (min/max)</b>	<b>Maximum Depth (mm)</b>
KC: KGT-Cartridge System MC: MGT-Cartridge System	E: External Process F: Facing Process				

#### External Process



KCER / MCER



KCER / MCER

#### Facing Process



KCFR / MCFR



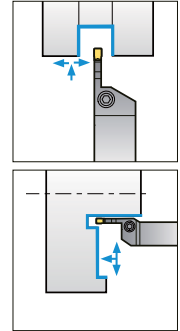
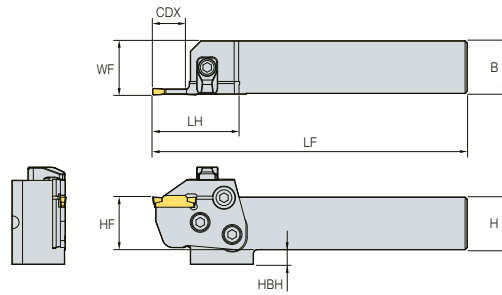
KCFL / MCFL

# MCHR/L (Holder)

For grooving, turning, parting off, relief, Profiling machining



KCER/L MCER/L MGMN  
KCFR/L MCFR/ MFMN



• R type holder

(mm)

Designation	Stock		LF	WF	HF	B	H	HBH	HAND	Applicable Cartridge	Clamp	Clamp Screw	Hinge Screw	Clamping Screw	Wrench
	R	L													
MCHR/L	2020	● ●	150	20.7	20	20	20	12	R/L	KCER/L KCFR/L MCER/L MCFR/L					
	2525	● ●	150	25.7	25	25	25	7	R/L						
	3232	● ●	170	32.7	32	32	32	0	R/L						

🔄 Applicable cartridge C58 ~ C59

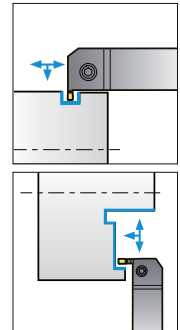
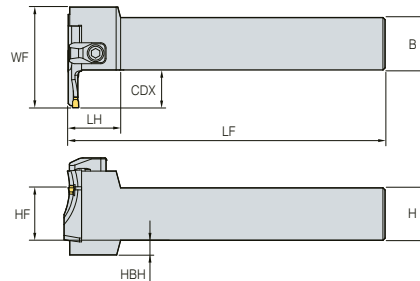
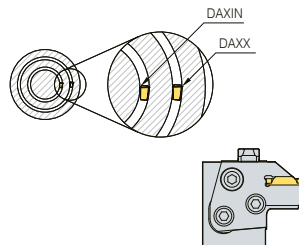
● : Stock item

# MCVR/L (Holder)

For face grooving, turning machining



KCER/L MCER/L  
KCFR/L MCFR/L



• R type holder

(mm)

Designation	Stock		LF	WF	HF	B	H	HBH	HAND	Applicable Cartridge	Clamp	Clamp Screw	Hinge Screw	Clamping Screw	Wrench
	R	L													
MCVR/L	2020	● ●	150	38	20	20	20	12	R/L	KCER/L KCFR/L MCER/L MCFR/L					
	2525	● ●	150	43	25	25	25	7	R/L						
	3232	● ●	170	50	32	32	32	0	R/L						

🔄 Applicable cartridge C58 ~ C59

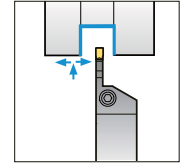
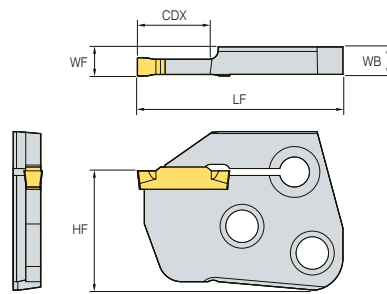
● : Stock item

## KCER/L (Cartridge)

For grooving, turning, parting off, relief, Profilingmachining



KGMN KGMR/L  
KGGN KRMN



• R type holder

(mm)

Designation	Stock		CDX	LF	WF	WB	HF	HAND	Applicable insert		Holder
	R	L							Width	Designation	
KCER/L	3-T16	● ●	16	44.5	6.35	5.97	25.83	R/L	3	KGMN	MCVR/L MCHR/L
	4-T16	● ●	16	44.5	6.35	5.97	25.83	R/L	4	KGMR/L	
	5-T20	● ●	20	48.5	6.35	5.97	25.83	R/L	5	KGGN	
	6-T20	● ●	20	48.5	6.35	5.82	25.83	R/L	6	KRMN	

➤ Applicable inserts C28 ~ C30

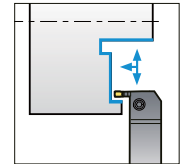
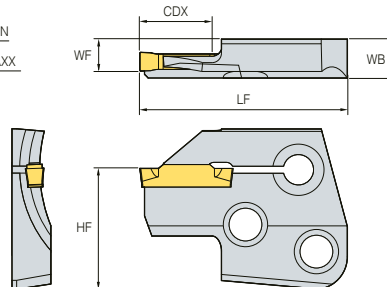
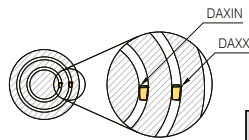
● : Stock item

## KCFR/L (Cartridge)

For face grooving, turning machining



KGMN  
KGMI



• R type holder

(mm)

Designation	Stock		CDX	DAXIN	DAXX	LF	WF	WB	HF	HAND	Applicable insert		Holder
	R	L									Width	Designation	
KCFR/L	3-34/50-T16	● ●	16	34	50	44.5	6.35	8.35	25.83	R/L	3	KGMN KRMN KGGN	MCVR/L MCHR/L
	44/70-T16	● ●	16	44	70	44.5	6.35	8.35	25.83	R/L	3		
	64/99-T16	● ●	16	64	99	44.5	6.35	8.35	25.83	R/L	3		
	4-44/60-T16	● ●	16	44	60	44.5	6.35	8.35	25.83	R/L	4		
	60/120-T16	● ●	16	60	120	44.5	6.35	8.35	25.83	R/L	4		
	112/200-T16	● ●	16	112	200	44.5	6.35	8.35	25.83	R/L	4		

➤ Applicable inserts C28 ~ C30

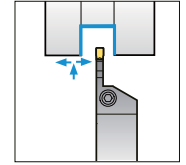
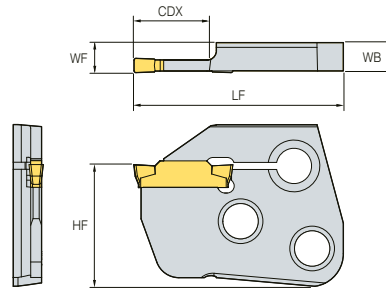
● : Stock item

## MCER/L (Cartridge)

For grooving, turning, parting off, relief, Profiling machining



PGMN MGMR  
PRMN MGGN MRMN



• R type holder

Designation	Stock		CDX	LF	WF	WB	HF	HAND	Applicable insert		Holder	
	R	L							Width	Designation		
MCER/L	3-T16	•	•	16	44.5	6.35	6	25.83	R/L	3	PGMN PRMN	MCVR/L MCHR/L
	4-T16	•	•	16	44.5	6.35	5.97	25.83	R/L	4	MGMN	
	5-T20	•	•	20	48.5	6.35	5.87	25.83	R/L	5	MGMR/L	
	6-T20			20	48.5	6.35	5.82	25.83	R/L	6	MGGN MRMN	

➔ Applicable inserts C45 ~ C49

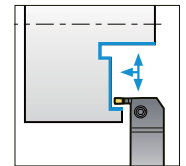
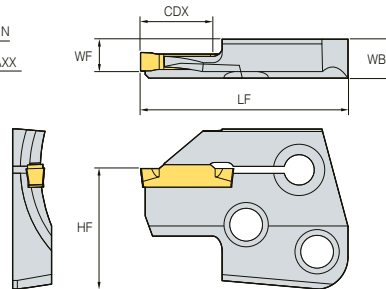
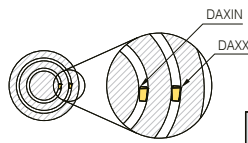
• : Stock item

## MCFR/L (Cartridge)

For face grooving, turning machining



PGMN MFNM  
PRMN MGGN



• R type holder

Designation	Stock		CDX	DAXIN	DAXX	LF	WF	WB	HF	HAND	Applicable insert		Holder
	R	L									Width	Designation	
MCFR/L	3-24/35-T16	•		24	35	44.5	6.35	8	25.83	R/L	3	MFNM300	MCVR/L MCHR/L
	29/40-T16			29	40	44.5	6.35	8	25.83	R/L	3		
	34/50-T16			34	50	44.5	6.35	8	25.83	R/L	3		
	44/70-T16			44	70	44.5	6.35	8	25.83	R/L	3		
	64/99-T16			64	99	44.5	6.35	8	25.83	R/L	3		
4-44/60-T16			16	44	60	44.5	6.35	7.97	25.83	R/L	4	PGMN400-□-□	
60/120-T16	•	•	16	60	120	44.5	6.35	7.97	25.83	R/L	4	PRMN400-□	
112/200-T16	•		16	112	200	44.5	6.35	7.97	25.83	R/L	4	MGMN400	

➔ Applicable inserts C45 ~ C49

• : Stock item

## MGT for Aluminum Wheel

### Features

- Optimally designed inserts for aluminum wheel machining
- Longer tool life when matched with the best grade for application
- Unique clamping mechanism places a strong clamp over the insert
- A variety of insert types for multi application functions

### Code system

#### Insert

<b>MR</b>	<b>G</b>	<b>N</b>	<b>6</b>	<b>-</b>	<b>A</b>
<b>System Code</b>	<b>Tolerance</b>	<b>Hand</b>	<b>Cutting Edge Width</b>		<b>Chip Breaker</b>
MR: Multi Grooving Round shape MV: Multi Grooving V shape	G: Ground	N: Neutral	6 mm, 8 mm		A / AM / AP / A5

#### Holder

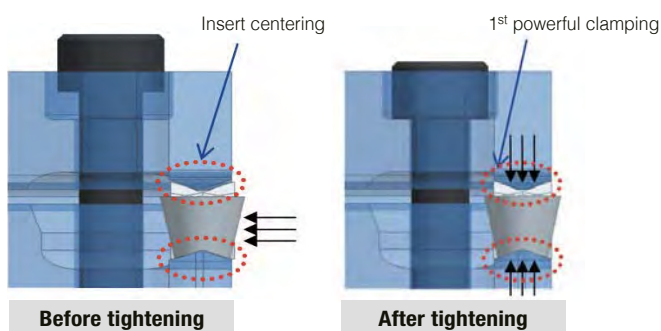
<b>MG</b>	<b>E</b>	<b>H</b>	<b>R/L</b>	<b>25N</b>	<b>-</b>	<b>8</b>	<b>A</b>	<b>-</b>	<b>MR</b>
<b>System Code</b>	<b>Application</b>	<b>Holder Type</b>	<b>Hand</b>	<b>Shank Size</b>		<b>Cutting Width</b>	<b>Chip Breaker</b>		<b>Insert Type</b>
MG: Multi Grooving	E: External machining I: Internal machining	H: Horizontal V: Vertical U: Undercut X: Special	R: Right L: Left	Height: 25 mm Width: 25 mm (For internal machining: Minimum diameter)		1.5~8.0 mm	A / AM / AP / A5		MR : Round MV : V

### Various insert types

MRGN type : Full "Round" geometry

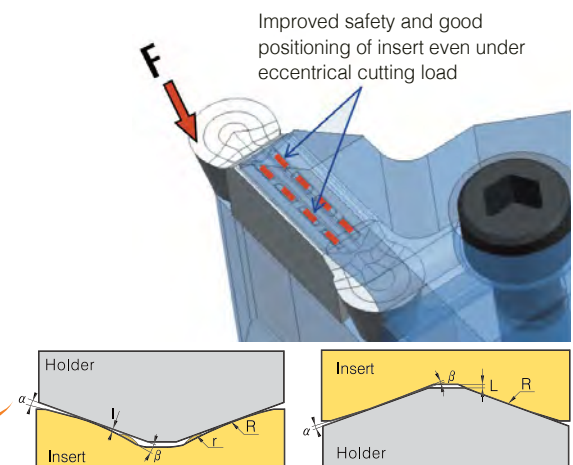
MRGN-A (For general)	MRGN-A5 (For copying)	MRGN-AM (Medium finishing)	MRGN-AP (PCD)	MVGN-A (For fine finishing)
				
High rake angle, Sharp cutting edge	Reinforced clamping force	For ductile cast iron	Improved chip control	High rake and relief angle

### New clamping system




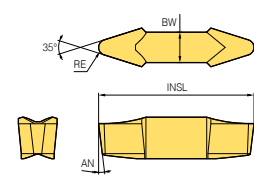

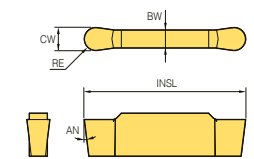
\* Reinforcing the clamping force due to radius designed on the top & bottom side of insert and convex "DOT" on the top of insert

**PATENT**





**Applicable inserts**

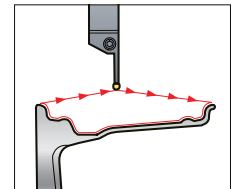
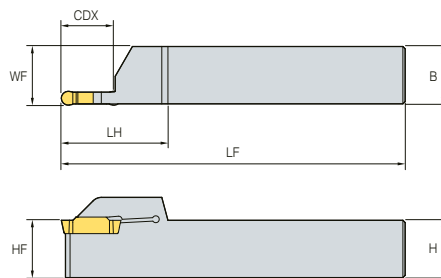
Application	Picture	Designation	Coated		Dimensions (mm)							Configuration	Page
			DP150	G10	SSC	CW	RE	BW	INSL	AN	HAND		
For Aluminum Wheel		MVGN 8N-A-R1.2			80	8	1.2	6	30	7	N		C46
		MVGN 8N-A-R1.6			80	8	1.6	6	30	7	N		
		MRGN 6N-A		●	60	6	3	5	26	12	N		C45 C46
		MRGN 6N-AM			60	6	3	5	26	12	N		
		MRGN 6N-AP			60	6	3	5	26	12	N		
		MRGN 6N-A5		●	60	6	3	5	26	17	N		
		MRGN 8N-A			80	8	4	6	30	12	N		
		MRGN 8N-AM			80	8	4	6	30	12	N		
		MRGN 8N-AP			80	8	4	6	30	12	N		
		MRGN 8N-A5		●	80	8	4	6	30	17	N		

● : Stock item



**MGEHR/L**



MRGN



• R type holder

Designation	Stock		CDX	LH	LF	WF	HF	HBH	B	H	HAND	Applicable insert	Screw	Wrench							
	R	L																			
MGEHR/L 25N-6A	●		23.5	44.65	150	25.55	25	7	25	25	R/L	MRGN6N-A/AP/AM									
32N-6A			27	51.8	170	32.55	32	8	32	32	R/L										
25N-8A	●		23.5	51.8	150	26.05	25	7	25	25	R/L				MRGN8N-A/AP/AM	BHA0620	HW50L				
32N-8A			27	50	170	33.05	32	8	32	32	R/L										
25N-6A5	●		23.5	44.65	150	25.55	25	7	25	25	R/L				MRGN6N-A5						
32N-6A5			27	50	170	32.55	32	8	32	32	R/L										
25N-8A5			23.5	50	150	26.05	25	7	25	25	R/L				MRGN8N-A5						
32N-8A5			27	50	170	33.05	32	8	32	32	R/L										

(mm)

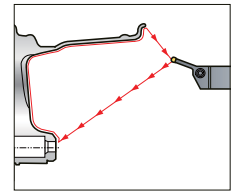
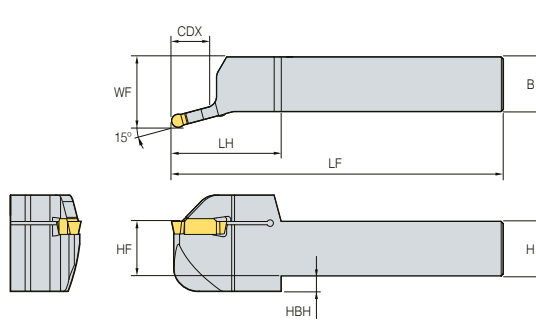
Applicable inserts **C61**

● : Stock item

## MGEHR/L-15



MRGN



• R type holder

(mm)

Designation	Stock		CDX	LH	LF	WF	HF	HBH	B	H	HAND	Applicable insert	Screw	Wrench
	R	L												
MGEHR/L 25N-6A-15	●		20	50	150	32.2	25	7	25	25	R/L	MRGN6N-A/AP/AM	BHA0620	HW50L
32N-6A-15			25	50	150	39.2	32	8	32	32	R/L			
25N-8A-15			20	55	150	32.2	25	7	25	25	R/L	MRGN8N-A/AP/AM		
32N-8A-15			25.5	55	170	39.2	32	8	32	32	R/L			
25N-6A5-15	●		20	55	150	32.2	25	7	25	25	R/L	MRGN6N-A5		
32N-6A5-15			25	55	170	39.2	32	8	32	32	R/L			
25N-8A5-15	●		20	60	150	32.2	25	7	25	25	R/L	MRGN8N-A5		
32N-8A5-15			25.5	60	170	39.2	32	8	32	32	R/L			

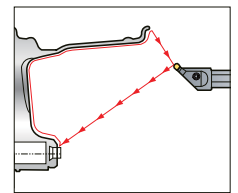
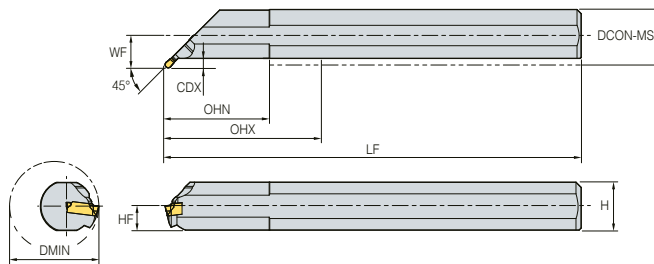
➤ Applicable inserts C61

●: Stock item

## MGIUR/L-MR



MRGN



45°

• R type holder

(mm)

Designation	Stock		CDX	DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench
	R	L											
MGIUR/L 6832-8A-MR			8	68	65	170	26	30	32	R/L	MRGN8N-A/AP/AM	BHA0620	HW50L
6832-8A5-MR			8	68	65	170	26	30	32	R/L			

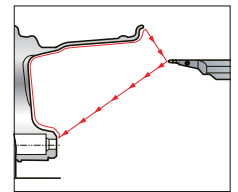
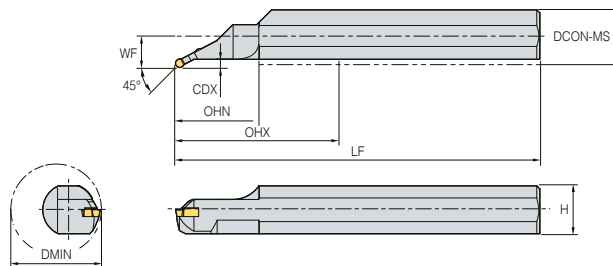
➤ Applicable inserts C61

●: Stock item

## MGIXR/L-MR



MRGN



45°

• R type holder

(mm)

Designation	Stock		CDX	DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench
	R	L											
MGIXR/L 7050-8A-MR	●		7.7	70	80	350	30.2	46	50	R/L	MRGN8N-A/AP/AM	BHA0620	HW50L
7050-8A5-MR			7.7	70	80	350	30.2	46	50	R/L			

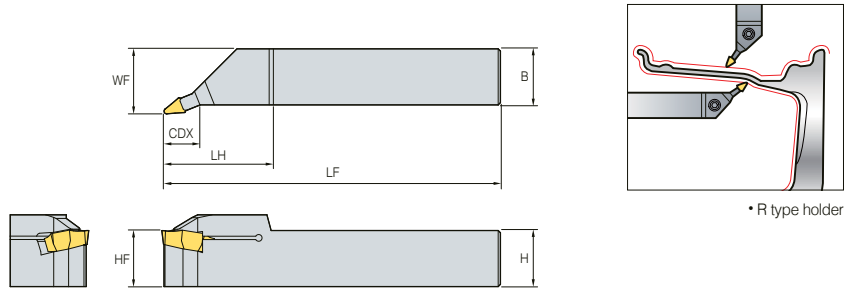
➤ Applicable inserts C61

●: Stock item

# MGEXR/L



MVGN



• R type holder

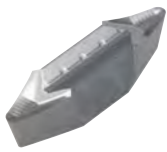
(mm)

Designation	Stock		CDX	DMIN	OHN	LF	WF	H	B	HAND	Applicable insert	Screw	Wrench
	R	L											
MGEXR/L 25N-8A-5V	•		23.5	48.75	150	29	25	25	25	R/L	MVGN8N-A-R1.2	BHA0620	HW50L
25N-8A-22.5V	•		27	42.65	150	35	25	25	25	R/L	MVGN8N-A-R1.6		

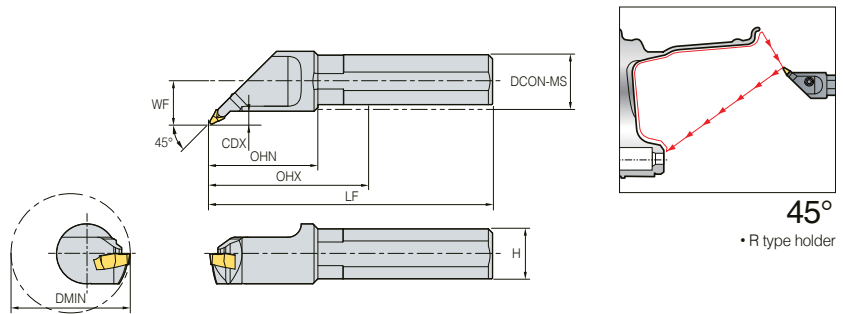
↻ Applicable inserts **C61**

• : Stock item

# MGIUR/L-MV



MVGN



45°  
• R type holder

(mm)

Designation	Stock		CDX	DMIN	OHN	LF	WF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench
	R	L											
MGIUR/L 6832-8A-MV			8	68	65	170	26	30	32	R/L	MVGN8N-A-R1.2 MVGN8N-A-R1.6	BHA0620	HW50L

↻ Applicable inserts **C61**

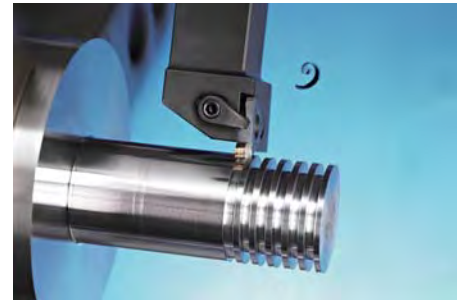
• : Stock item

# C Technical Information for TB/TB-M

Economical 3-corner insert for high precision grooving

## TB/TB-M

- Economical 3-corner insert for grooving
- Various cutting edge size ranging from 0.5~4.5 mm
- High accuracy ground insert ensures high precision machining
- Stable chip control optimized for automated grooving process



### Code system



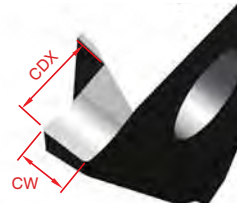
#### • Insert

<b>TB</b>	<b>5</b>	<b>150</b>	<b>N</b>	<b>-</b>	<b>010</b>	<b>M</b>
<b>Triangle Blade</b>	<b>Inscribed circle</b>	<b>Cutting edge width</b>	<b>Hand</b>		<b>Nose R</b>	<b>Chip breaker</b>
	3: 9.525 mm 4: 12.7 mm 5: 15.875 mm	0.5~4.5 mm	N: Neutral R: Right L: Left		0.00~0.40 mm	None M

#### • Holder

<b>TBH</b>	<b>5</b>	<b>25</b>	<b>R</b>
<b>Triangle Blade Holder</b>	<b>Inscribed circle</b>	<b>Shank size</b>	<b>Hand</b>
	3: 9.525 mm 4: 12.7 mm 5: 15.875 mm	10~25 mm	R: Right L: Left

### TB/TB-M

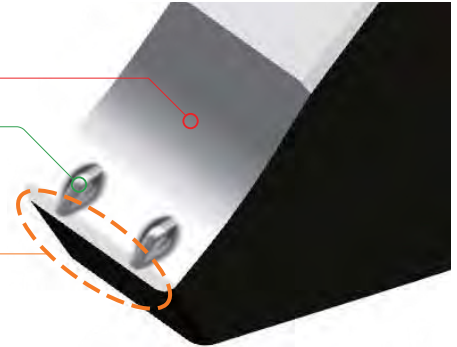
Specification	TB3000R/L, TB4000R/L	TB4000R-M	TB5000N-000-M	
Designation	TB3125R/L~TB3430R/L (Inscribed circle of 9.525mm)  TB4125R/L~TB4430R/L (Inscribed circle of 12.7mm)	TB4150R-M~TB4450R-M (Inscribed circle of 12.7mm)	TB5050N-000-M~TB5318-020-M (Inscribed circle of 15.875mm)	
Insert shape				
Features	Chip breaker	Ground chip breaker	Pressed chip breaker	
	Hand	Right/Left-handed	Right-handed	Neutral
	Cutting edge width(CW)	TB3000 : 1.25 ~ 4.3mm TB4000 : 1.25 ~ 4.5mm	1.5 ~ 4.5mm	0.5 ~ 3.18mm
	Depth of cut (CDX)	TB3000 : ~ 3.5mm TB4000 : ~ 5.0mm	~ 5.0mm	~ 6.5mm
	Shape	○	X	X
Cutting edge width	○	○	○	
Chip breaker shape				
Application range	P	P, M, K	P, M, K	
Grade	CN2500, PC5300	CN2500, PC5300	PC5300	

**TB-M chip breaker**

- Minimized cutting force at high speed and high feed → Smooth chip evacuation outside each groove
- High precision cutting performance → Exceptional surface finish and accurate dimensions
- Excellent chip flow and cutting results → Ideal for automated and unmanned production

**TB5-M Chip breaker**

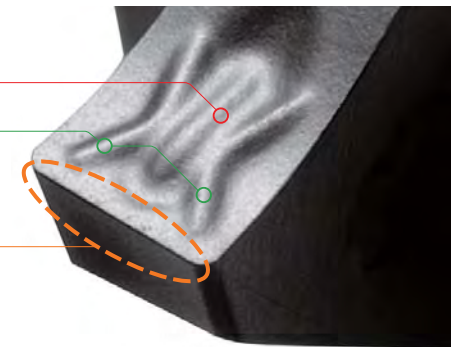
- **Lowered back area:** reduced load of chip evacuation due to minimizing chip friction
- **Beveled protruding dot:** made regular sized chip curls good chip flow out of the groove by reducing the chip width minimized load for chip evacuation in high depth of cut
- **Land:** prevented chipping and increased stability in interrupted machining
- **Use:** for grooving with T-MAX 6.5 mm below, parting and interrupted machining



Designation	TB5050N-M ~ TB5120N-M	TB5140N-M ~ TB5178N-M	TB5196N-M ~ TB5239N-M	TB5247N-M ~ TB5287N-M	TB5300N-M ~ TB5318N-M
Shape					
Cutting edge width (CW)	0.5 ~ 1.2mm	1.40 ~ 1.78mm	1.96 ~ 2.39mm	2.47 ~ 2.87mm	3.0 ~ 3.18mm

**TB4-M Chip breaker**

- **Second protruding dot:** stable chip curl control
- **Main protruding dot:** making regular sized chip curl good chip flow out of the groove by reducing the chip width good chip control in turning and chamfering
- **Sharp cutting edge:** increased machinability
- **Use:** for grooving with T-MAX 4.5 mm below and turning



Designation	TB4150R-M ~TB4185R-M	TB4200R-M ~TB4228R-M	TB4300R-M ~TB4350R-M	TB4400R-M ~TB4450R-M
Shape				
Cutting edge width (CW)	1.5 ~ 1.85mm	2.0 ~ 2.8mm	3.0 ~ 3.5mm	4.0 ~ 4.5mm

# C Technical Information for TB/TB-M

## Guide for TB

(mm)

TB				TB3 / TB4	TB4-M	TB5-M	
Recommended machining method							
Cutting edge width (CW)	Depth of cut CDX			Recommended feed rate (mm/rev)			
	TB3/TB4	TB4-M	TB5-M				
0.50	-	-	2.5	0.05(0.03~0.1)	-	-	●
0.80	-	-	1.6	0.05(0.03~0.1)	-	-	●
1.00	-	-	3.5	0.05(0.03~0.1)	-	-	●
1.04	-	-	2.0	0.05(0.03~0.1)	-	-	●
1.20	-	-	2.0	0.05(0.03~0.1)	-	-	●
1.25	2.0	-	2.0	0.05(0.03~0.1)	●	-	●
1.40	2.0	-	6.5	0.10(0.03~0.15)	●	-	●
1.45	2.0	-	-	0.10(0.03~0.15)	●	-	-
1.47	-	-	6.5	0.10(0.03~0.15)	-	-	●
1.50	3.5	3.5	6.5	0.10(0.03~0.15)	●	●	●
1.57	-	-	6.5	0.10(0.03~0.15)	-	-	●
1.70	-	-	6.5	0.10(0.03~0.15)	-	-	●
1.75	3.5	3.5	-	0.10(0.03~0.15)	●	●	-
1.78	-	-	6.5	0.10(0.03~0.15)	-	-	●
1.85	3.5	3.5	-	0.10(0.03~0.15)	●	●	-
1.96	-	-	6.5	0.10(0.03~0.15)	-	-	●
2.00	3.5	3.5	6.5	0.10(0.03~0.15)	●	●	●
2.15	3.5	3.5	-	0.12(0.03~0.2)	●	●	-
2.22	6.5	-	6.5	0.12(0.03~0.2)	-	-	●
2.30	3.5	3.5	6.5	0.12(0.03~0.2)	●	●	●
2.39	-	-	6.5	0.12(0.03~0.2)	-	-	●
2.47	-	-	6.5	0.12(0.03~0.2)	-	-	●
2.50	4.0	4.0	6.5	0.12(0.03~0.2)	●	●	●
2.65	4.0	4.0	6.5	0.12(0.03~0.2)	●	●	●
2.70	-	-	6.5	0.12(0.03~0.2)	-	-	●
2.80	4.0	4.0	-	0.12(0.03~0.2)	●	●	-
2.87	-	-	6.5	0.12(0.03~0.2)	-	-	●
3.00	4.0	4.0	6.5	0.12(0.03~0.2)	●	●	●
3.15	-	-	6.5	0.15(0.05~0.2)	-	-	●
3.18	-	-	6.5	0.15(0.05~0.2)	-	-	●
3.30	4.0	-	-	0.15(0.05~0.2)	●	-	-
3.50	5.0	5.0	-	0.15(0.05~0.2)	●	●	-
4.00	5.0	5.0	-	0.15(0.05~0.2)	●	●	-
4.30	5.0	5.0	-	0.15(0.05~0.2)	●	●	-
4.50	5.0	5.0	-	0.15(0.05~0.2)	●	●	-

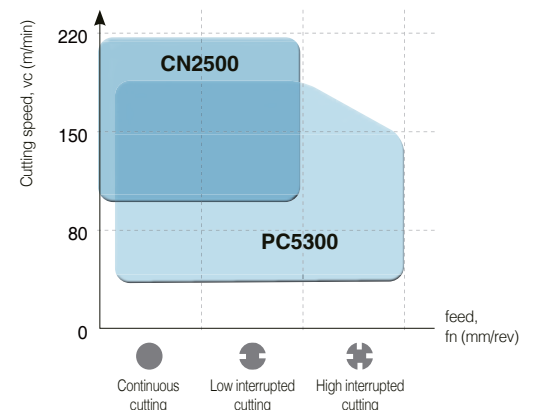
●: Stock item

## Recommended cutting conditions

Workpiece		CN2500 (Cermet)			PC5300 (Coated)		
		Min	Recommended	Max.	Min	Recommended	Max.
P	SM□□C	100	160	220	80	140	200
	SCM	100	150	200	80	130	180
M	STS	-	-	-	40	80	150
K	GC, GCD	-	-	-	80	130	180

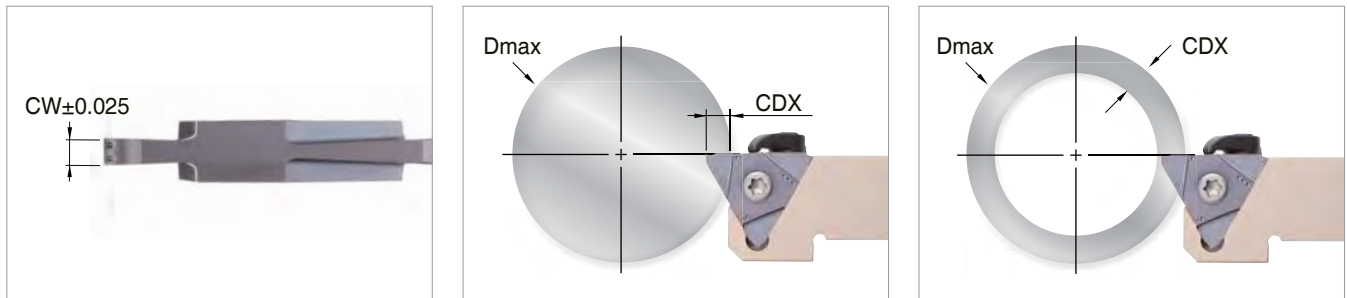
Recommended cutting speed, vc (m/min)

## Recommended cutting range



**TB5-M machining range**



- There is a limit to cutting diameters of TB5-M when depth of cuts are over 5 mm  
(e.g. When cutting with a TB5200N-020-M insert at the depth of 6.2 mm, Ø60 D-Max is available)
- N.L = No limit

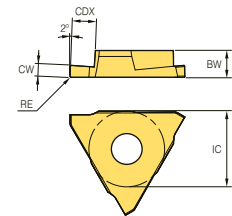


Designation	CW	RE	CDX	ØDmax										
				T≤3.0	T≤3.5	T≤4.0	T≤4.5	T≤5.0	T≤5.5	T≤6.0	T≤6.4	T≤6.5		
TB	5050N- 000-M	0.50	0.00	1.0	-	-	-	-	-	-	-	-	-	-
	004-M	0.50	0.04	2.5	-	-	-	-	-	-	-	-	-	-
	5080N- 000-M	0.80	0.00	1.6	-	-	-	-	-	-	-	-	-	-
	5100N- 006-M	1.00	0.06	3.5	-	-	-	-	-	-	-	-	-	-
	5104N- 000-M	1.04	0.00	2.0	-	-	-	-	-	-	-	-	-	-
	5120N- 000-M	1.20	0.00	2.0	-	-	-	-	-	-	-	-	-	-
	5140N- 000-M	1.40	0.00	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5147N- 000-M	1.47	0.00	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5150N- 010-M	1.50	0.10	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	015-M	1.50	0.15	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5157N- 015-M	1.57	0.15	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5170N- 010-M	1.70	0.10	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5178N- 018-M	1.78	0.18	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5196N- 015-M	1.96	0.15	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5200N- 020-M	2.00	0.20	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5222N- 015-M	2.22	0.15	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5230N- 020-M	2.30	0.20	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5239N- 015-M	2.39	0.15	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5247N- 020-M	2.47	0.20	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5250N- 020-M	2.50	0.20	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5270N- 010-M	2.70	0.10	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5287N- 020-M	2.87	0.20	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5300N- 000-M	3.00	0.00	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5300N- 020-M	3.00	0.20	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	040-M	3.00	0.40	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5315N- 015-M	3.15	0.15	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	
	5318N- 020-M	3.18	0.20	6.5	N.L	N.L	N.L	N.L	N.L	Ø300	Ø170	Ø60	Ø40	




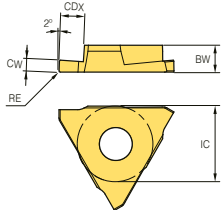

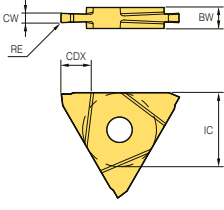
## TB Insert

Picture	Designation	Cermet		Coated		Dimensions (mm)						Configuration	
		CN2500	PC5300	SSC	IC	CDX	CW	RE	BW	AN	HAND		
	<b>TB</b>												
	(Right-handed)												
	3125R			30	9.525	1.5	1.25	0.2	4.76	5	R		
	3145R			30	9.525	1.5	1.45	0.2	4.76	5	R		
	3175R			30	9.525	2.5	1.75	0.2	4.76	5	R		
	3185R			30	9.525	2.5	1.85	0.2	4.76	5	R		
	3200R			•	30	9.525	2.5	2	0.2	4.76	5	R	
	3230R				30	9.525	3.5	2.3	0.3	4.76	5	R	
	3280R				30	9.525	3.5	2.8	0.3	4.76	5	R	
	3330R				30	9.525	3.5	3.3	0.3	4.76	5	R	
	3430R				30	9.525	3.5	4.3	0.4	4.76	5	R	
	4125R		•	•	40	12.7	3.5	1.25	0.2	4.76	5	R	
	4145R		•	•	40	12.7	3.5	1.45	0.2	4.76	5	R	
	4150R		•	•	40	12.7	3.5	1.5	0.2	4.76	5	R	
	4175R		•	•	40	12.7	3.5	1.75	0.2	4.76	5	R	
	4185R		•	•	40	12.7	3.5	1.85	0.2	4.76	5	R	
	4200R		•	•	40	12.7	3.5	2	0.2	4.76	5	R	
	4215R		•	•	40	12.7	3.5	2.15	0.2	4.76	5	R	
	4230R		•	•	40	12.7	3.5	2.3	0.2	4.76	5	R	
	4250R		•	•	40	12.7	4	2.5	0.3	4.76	5	R	
	4265R				40	12.7	4	2.65	0.3	4.76	5	R	
	4280R				40	12.7	4	2.8	0.3	4.76	5	R	
	4300R			•	40	12.7	4	3	0.3	4.76	5	R	
	4330R				40	12.7	4	3.3	0.3	4.76	5	R	
	4350R				40	12.7	4	3.5	0.3	4.76	5	R	
4400R			•	40	12.7	4	4	0.4	4.76	5	R		
4430R				40	12.7	4	4.3	0.4	4.76	5	R		
4450R			•	40	12.7	4	4.5	0.4	4.76	5	R		
	<b>TB</b>												
	(Left-handed)												
	3125L			30	9.525	1.5	1.25	0.2	4.76	5	L		
	3145L		•	30	9.525	1.5	1.45	0.2	4.76	5	L		
	3175L				30	9.525	2.5	1.75	0.2	4.76	5	L	
	3185L				30	9.525	2.5	1.85	0.2	4.76	5	L	
	3200L				30	9.525	2.5	2	0.2	4.76	5	L	
	3230L				30	9.525	3.5	2.3	0.3	4.76	5	L	
	3280L				30	9.525	3.5	2.8	0.3	4.76	5	L	
	3330L				30	9.525	3.5	3.3	0.3	4.76	5	L	
	3430L				30	9.525	3.5	4.3	0.4	4.76	5	L	
	4125L				40	12.7	3.5	1.25	0.2	4.76	5	L	
	4145L				40	12.7	3.5	1.45	0.2	4.76	5	L	
	4150L		•		40	12.7	3.5	1.5	0.2	4.76	5	L	
	4175L		•		40	12.7	3.5	1.75	0.2	4.76	5	L	
	4185L				40	12.7	3.5	1.85	0.2	4.76	5	L	
	4200L		•		40	12.7	3.5	2	0.2	4.76	5	L	
	4215L				40	12.7	3.5	2.15	0.2	4.76	5	L	
	4230L				40	12.7	3.5	2.3	0.2	4.76	5	L	
	4250L		•		40	12.7	4	2.5	0.3	4.76	5	L	
	4265L		•		40	12.7	4	2.65	0.3	4.76	5	L	
	4280L				40	12.7	4	2.8	0.3	4.76	5	L	
	4300L			•	40	12.7	4	3	0.3	4.76	5	L	
	4330L				40	12.7	4	3.3	0.3	4.76	5	L	
	4350L			•	40	12.7	5	3.5	0.3	4.76	5	L	
4400L			•	40	12.7	5	4	0.4	4.76	5	L		
4430L				40	12.7	5	4.3	0.4	4.76	5	L		
4450L				40	12.7	5	4.5	0.4	4.76	5	L		



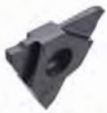
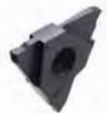
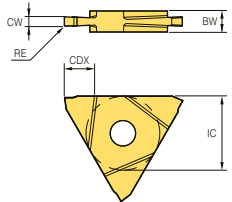
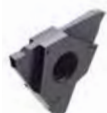

• : Stock item

**TB Insert**

Picture	Designation	Cermet	Coated	Dimensions (mm)									Configuration				
		CN2500	PC5300	SSC	IC	CDX	CW	RE	BW	AN	HAND						
	<b>TB</b>																
	(Right-handed)	4150R-M	●	●	40	12.7	3.5	1.5	0.2	4.76	5	R					
	4175R-M	●	●	40	12.7	3.5	1.75	0.2	4.76	5	R						
	4185R-M	●	●	40	12.7	3.5	1.85	0.2	4.76	5	R						
	4200R-M	●	●	40	12.7	3.5	2	0.2	4.76	5	R						
	4215R-M	●	●	40	12.7	3.5	2.15	0.2	4.76	5	R						
	4230R-M	●	●	40	12.7	3.5	2.3	0.2	4.76	5	R						
	4250R-M	●	●	40	12.7	4	2.5	0.3	4.76	5	R						
	4265R-M		●	●	40	12.7	4	2.65	0.3	4.76	5	R					
	4280R-M		●	●	40	12.7	4	2.8	0.3	4.76	5	R					
	4300R-M		●	●	40	12.7	4	3	0.3	4.76	5	R					
	4330R-M		●	●	40	12.7	4	3.3	0.3	4.76	5	R					
	4350R-M	●	●	●	40	12.7	5	3.5	0.3	4.76	5	R					
	4400R-M		●	●	40	12.7	5	4	0.4	4.76	5	R					
	4430R-M		●	●	40	12.7	5	4.3	0.4	4.76	5	R					
4450R-M		●	●	40	12.7	5	4.5	0.4	4.76	5	R						
	<b>TB</b>																
	(Neutral)	5050N-000-M		●	50	15.875	1	0.5	-	4.5	7	N					
	5050N-004-M		●	50	15.875	2.5	0.5	0.04	4.5	7	N						
	5080N-000-M		●	●	50	15.875	1.6	0.8	-	4.5	7	N					
	5100N-006-M		●	●	50	15.875	3.5	1	0.06	4.5	7	N					
	5104N-000-M		●	●	50	15.875	2	1.04	-	4.5	7	N					
	5120N-000-M		●	●	50	15.875	2	1.2	-	4.5	7	N					
	5140N-000-M		●	●	50	15.875	6.5	1.4	-	4.5	7	N					
	5147N-000-M		●	●	50	15.875	6.5	1.47	-	4.5	7	N					
	5150N-010-M		●	●	50	15.875	6.5	1.5	0.1	4.5	7	N					
	5150N-015-M		●	●	50	15.875	6.5	1.5	0.15	4.5	7	N					
	5157N-015-M		●	●	50	15.875	6.5	1.57	0.15	4.5	7	N					
	5170N-010-M		●	●	50	15.875	6.5	1.7	0.1	4.5	7	N					
	5178N-018-M		●	●	50	15.875	6.5	1.78	0.18	4.5	7	N					
	5196N-015-M		●	●	50	15.875	6.5	1.96	0.15	4.5	7	N					
	5200N-020-M		●	●	50	15.875	6.5	2	0.2	4.5	7	N					
	5222N-015-M		●	●	50	15.875	6.5	2.22	0.15	4.5	7	N					
	5230N-020-M		●	●	50	15.875	6.5	2.3	0.2	4.5	7	N					
	5239N-015-M		●	●	50	15.875	6.5	2.39	0.15	4.5	7	N					
	5247N-020-M		●	●	50	15.875	6.5	2.47	0.2	4.5	7	N					
	5250N-020-M		●	●	50	15.875	6.5	2.5	0.2	4.5	7	N					
	5270N-010-M		●	●	50	15.875	6.5	2.7	0.1	4.5	7	N					
	5287N-020-M		●	●	50	15.875	6.5	2.87	0.2	4.5	7	N					
	5300N-000-M		●	●	50	15.875	6.5	3	-	4.5	7	N					
	5300N-020-M		●	●	50	15.875	6.5	3	0.2	4.5	7	N					
5300N-040-M		●	●	50	15.875	6.5	3	0.4	4.5	7	N						
5315N-015-M		●	●	50	15.875	6.5	3.15	0.15	4.5	7	N						
5318N-020-M		●	●	50	15.875	6.5	3.18	0.2	4.5	7	N						

● : Stock item

## TB Insert

Picture	Designation	Cermet	Coated	Dimensions (mm)								Configuration
		CN2500	PC5300	SSC	IC	CDX	CW	RE	BW	AN	HAND	
	<b>TB</b> 5050N-004-P			50	15.875	1	0.5	0.04	4.5	7	N	
	(Neutral) 5100N-010-P			50	15.875	3.5	1	0.1	4.5	7	N	
	5150N-010-P			50	15.875	6.5	1.5	0.1	4.5	7	N	
	020-P			50	15.875	6.5	1.5	0.2	4.5	7	N	
	5200N-010-P			50	15.875	6.5	2	0.1	4.5	7	N	
	020-P			50	15.875	6.5	2	0.2	4.5	7	N	
	5239N-015-P			50	15.875	6.5	2.39	0.15	4.5	7	N	
	5250N-020-P			50	15.875	6.5	2.5	0.2	4.5	7	N	
5300N-020-P			50	15.875	6.5	3	0.2	4.5	7	N		
	<b>TB</b> 5100N-6DR-P		●	50	15.875	3.5	1	0.05	4.5	7	N	
	(Neutral, Right-handed) 15DR-P		●	50	15.875	3.5	1	0.05	4.5	7	N	
	5150N-6DR-P		●	50	15.875	6.5	1.5	0.05	4.5	7	N	
	15DR-P		●	50	15.875	6.5	1.5	0.05	4.5	7	N	
	5200N-6DR-P		●	50	15.875	6.5	2	0.1	4.5	7	N	
	15DR-P		●	50	15.875	6.5	2	0.1	4.5	7	N	
	<b>TB</b> 5100N-6DL-P			50	15.875	3.5	1	0.05	4.5	7	N	
	(Neutral, Left-handed) 15DL-P			50	15.875	3.5	1	0.05	4.5	7	N	
	5150N-6DL-P			50	15.875	6.5	1.5	0.05	4.5	7	N	
	15DL-P			50	15.875	6.5	1.5	0.05	4.5	7	N	
	5200N-6DL-P			50	15.875	6.5	2	0.1	4.5	7	N	
	15DL-P			50	15.875	6.5	2	0.1	4.5	7	N	
	<b>TB</b> 5157N-079-P			50	15.875	6.5	1.57	0.79	4.5	7	N	
	(Neutral, Round shape) 5200N-100-P			50	15.875	6.5	2	1	4.5	7	N	
	5239N-120-P			50	15.875	6.5	2.39	1.2	4.5	7	N	
	5300N-150-P			50	15.875	6.5	3	1.5	4.5	7	N	

● : Stock item

# TBH



TB3000R/L  
TB4000R-M

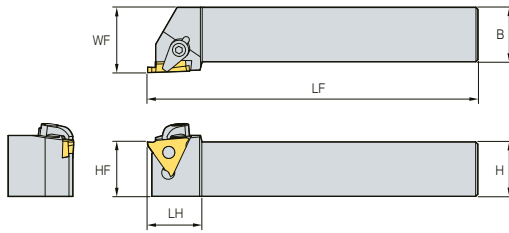
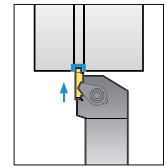


Fig. 1



• R type holder



TB5000N-□□□-M

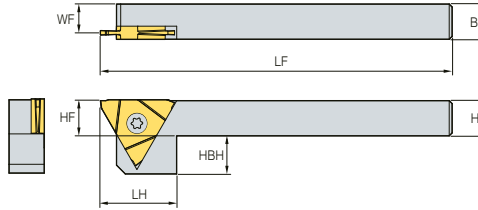


Fig. 2

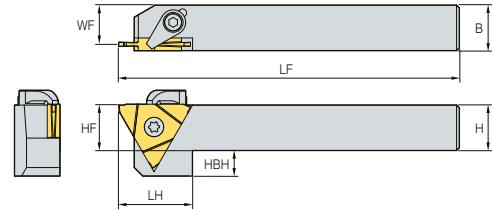


Fig. 3

Designation	Stock		HF	B	H	LH	LF	WF	HBH	HAND	Applicable insert	Clamp	Clamp Screw	Screw	Wrench	Fig.
	R	L														
<b>TBH</b>	<b>320R/L-23</b>		20	20	20	25.5	125	25	-	R/L	TB3125-3230R/L	CS6R1	DHA0617	-	HW30L	1
	<b>320R/L-33</b>		20	20	20	25.5	125	25	-	R/L	TB3280-3330R/L					
	<b>320R/L-43</b>		20	20	20	25.5	125	25	-	R/L	TB3430R/L					
	<b>325R/L-23</b>	●	25	25	25	25.5	150	30	-	R/L	TB3125-3230R/L					
	<b>325R/L-33</b>		25	25	25	25.5	150	30	-	R/L	TB3280-3330R/L					
	<b>325R/L-43</b>		25	25	25	25.5	150	30	-	R/L	TB3430R/L					
	<b>420R/L-23</b>	●	20	20	20	25.5	125	25	-	R/L	TB4125-4230R/L					
	<b>420R/L-33</b>	●	20	20	20	25.5	125	25	-	R/L	TB4250-4330R/L					
	<b>420R/L-45</b>	●	20	20	20	25.5	150	25	-	R/L	TB4350-4450R/L					
	<b>425R/L-23</b>	●	20	20	20	25.5	125	25	-	R/L	TB4125-4230R/L					
	<b>425R/L-33</b>	●	25	25	25	25.5	150	30	-	R/L	TB4250-4330R/L					
	<b>425R/L-45</b>	●	25	25	25	25.5	150	30	-	R/L	TB4350-4450R/L					
<b>TBH</b>	<b>510R/L</b>	● ●	10	10	10	26	120	7.8	15	R/L	TB5050-5318N	-	-	FTNA0512	TW20L	2
	<b>512R/L</b>	● ●	12	12	12	26	120	9.8	13	R/L						
	<b>516R/L</b>	● ●	16	16	16	26	120	13.8	9	R/L						
	<b>520R/L</b>	● ●	20	20	20	26	120	17.8	5	R/L						
	<b>525R/L</b>	● ●	25	25	25	-	150	22.8	-	R/L						
											CS6R1	DHA0617	FTNA0516	HW30L, TW20L	3	

➡ Applicable inserts C68 ~ C70

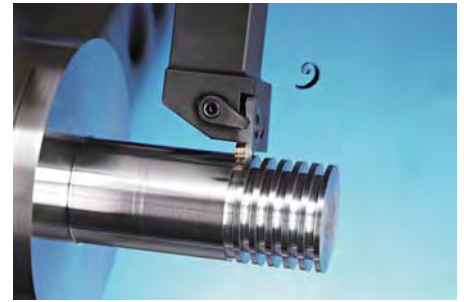
● : Stock item

# C Technical Information for Hexa Blade

Grooving and Parting tool with precision 6 corners

## Hexa Blade

- Grooving and Parting tool with high economical 6 corners
- Increased reliability and stability in cutting due to high qualified cutting edge



### Code system

#### • Insert

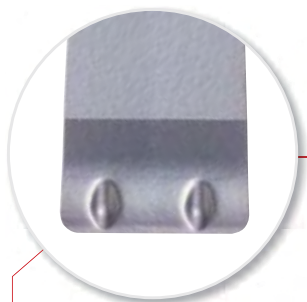
<b>HB</b>	<b>27</b>	<b>N</b>	<b>200</b>	-	<b>020</b>	-	<b>M</b>
Hexa Blade	Inscribed circle diameter 27 : 27.0 mm	Hand N : Neutral	Cutting width 200 : 2.00 mm		Nose R 020 : 0.20 mm		Chip breaker M

#### • Holder

<b>HB</b>	<b>E</b>	<b>H</b>	<b>R</b>	<b>25</b>	<b>25</b>	-	<b>27</b>	-	<b>2</b>
Hexa Blade	Application E : External machining	Holder type H : Horizontal	Hand R : Right handed L : Left handed	Shank height 25 : 25.0 mm	Shank width 25 : 25.0 mm		Inscribed circle diameter 27 : 27.0 mm		Insert size 2 : BW = 2.70 mm 3 : BW = 3.70 mm 4 : BW = 4.70 mm

### Features

- Dot-typed chip breaker general cutting for various workpieces
- Good chip control preventing long chip and chip curling
- Stable cutting even in high feed cutting due to strengthened cutting edge structure

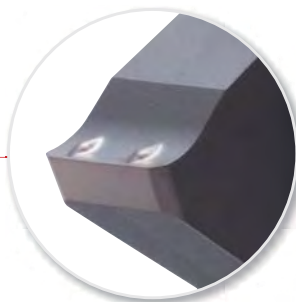


#### • Precision insert

- Superior quality in dimensions
- Excellent corner dimension deviation management
- Equally stable performance

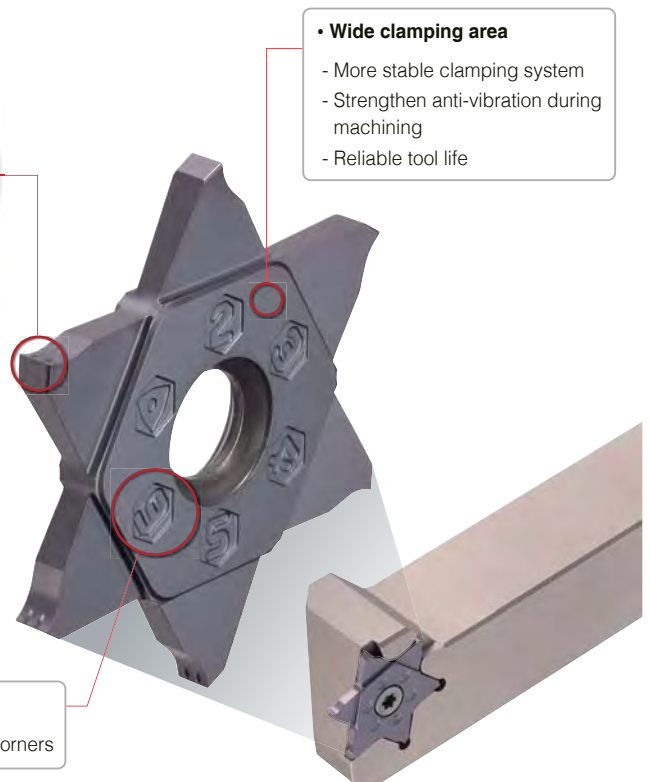
#### • Neutral hand

- Convenient use with neutral hand



#### • Strong cutting edge

- Increased high feed cutting performance



#### • Wide clamping area

- More stable clamping system
- Strengthen anti-vibration during machining
- Reliable tool life

#### • 6 cornered insert

- High cost efficiency from multi-corners

## Recommended cutting conditions

ISO	Workpiece			Specific cutting force (N/mm <sup>2</sup> )	Brinell hardness (HB)	Grade	C/B	ap (mm)	
	Workpiece materials	KS	ISO			PC5300	M		
						vc (m/min)	fn (mm/rev)		
P	Unalloyed steel	C = 0.25~0.55%	SM35C	C35	1600	150	110	0.15	≤ 5.0
							<b>130</b>	<b>0.12</b>	
		C = 0.55~0.80%	SM45C	C45	1700	170	80	0.15	
							<b>100</b>	<b>0.12</b>	
	Low alloy steel	Non-hardened	SCM440	43CrMo4	1700	180	80	0.15	
							<b>100</b>	<b>0.12</b>	
		Hardened and tempered	SCM445	-	2050	350	50	0.15	
							<b>60</b>	<b>0.12</b>	
	High alloy steel	Annealed	STD11	-	1950	200	60	0.15	
							<b>75</b>	<b>0.12</b>	
							90	0.10	
							<b>100</b>	<b>0.06</b>	
M	Austenite series	STS304	X5CrNi18-9	2000	180	60	0.10	≤ 5.0	
						<b>80</b>	<b>0.08</b>		
						100	0.06		
		STS316	X5CrNiMo17-12-2	2000	180	60	0.10		
						<b>80</b>	<b>0.08</b>		
						100	0.06		

## Product using guide

Cutting depth maximum and max. workpiece dia. (mm)		Using guide
Cutting depth maximum (CDX)	Max. workpiece dia. (Dmax)	
5.0	≤ 30	
4.9	≤ 34	
4.8	≤ 38	
4.7	≤ 42	
4.6	≤ 46	
4.5	≤ 58	
4.4	≤ 62	
4.3	≤ 66	
4.2	≤ 70	
4.1	≤ 74	
4.0	≤ 89	
3.9	≤ 93	
3.8	≤ 97	
3.7	≤ 101	
3.6	≤ 105	
3.5	≤ 109	
3.4	≤ 123	
3.3	≤ 127	
3.2	≤ 131	
3.1	≤ 135	
3.0	≤ 147	
2.9	≤ 151	
2.8	≤ 155	
2.7	≤ 159	
2.6	≤ 163	
2.5	≤ 200	
2.4	≤ 200	
2.3	≤ 200	
2.2	≤ 200	
2.1	≤ 200	
2.0	∞	

Cutting depth maximum (CDX)


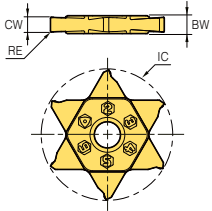
Max. workpiece dia. (Dmax)

- ① Hexa Blade enables to cut with maximum 5.0 mm depth of cut. In this case, the maximum workpiece cutting diameter is 30 mm.
- ② In Hexa Blade cutting with 2.0 mm depth of cut, the size of workpiece cutting diameter doesn't matter. If cutting with more than 2.0 mm depth of cut, the applicable workpiece cutting diameter could be different depending on depth of cut.
- ③ If workpiece cutting diameter is bigger than 65 mm, the maximum depth of cut is 4.3 mm. In case of cutting with deeper than 4.3 mm, there could be cutting troubles because the holder touches workpieces.
- ④ If depth of cut is 3.5 mm, the maximum workpiece cutting diameter is 109 mm. If it is bigger than 109

\* Cutting depth maximum and max. workpiece dia. on the chart could be different up to cutting environment.

# C Hexa Blade Insert / Holder

## Applicable inserts

Application	Picture	Designation	Coated	Dimensions (mm)								Configuration
			PC5300	SSC	IC	CDX	CW	RE	BW	AN	HAND	
Parting		HB 27N178-018-M	●	20	27	5	1.78	0.18	2.7	5	N	
		27N185-015-M	●	20	27	5	1.85	0.15	2.7	5	N	
		27N196-015-M	●	20	27	5	1.96	0.15	2.7	5	N	
		27N200-020-M	●	20	27	5	2	0.4	2.7	5	N	
		27N200-040-M	●	20	27	5	2	0.4	2.7	5	N	
		27N270-010-M	●	30	27	5	2.7	0.1	3.7	5	N	
		27N287-020-M	●	30	27	5	2.87	0.2	3.7	5	N	
		27N300-000-M	●	30	27	5	3	0	3.7	5	N	
		27N300-020-M	●	30	27	5	3	0.2	3.7	5	N	
		27N300-040-M	●	30	27	5	3	0.4	3.7	5	N	
		27N374-020-M	●	40	27	5	3.74	0.2	4.7	5	N	
		27N398-020-M	●	40	27	5	3.98	0.2	4.7	5	N	
		27N400-040-M	●	40	27	5	4	0.4	4.7	5	N	

● : Stock item

## HBEHR/L



HB

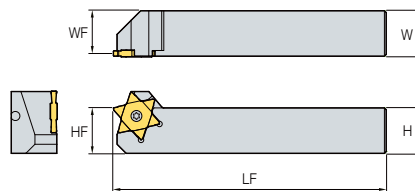


Fig. 1

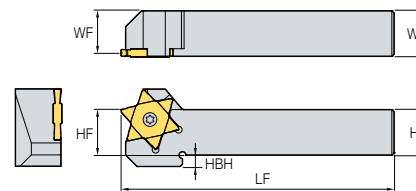
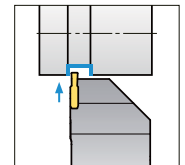


Fig. 2



• R type holder

Designation	Stock	H	B	LF	HF	WF	HBH	LH	HAND	Screw	Wrench	Fig
HBEHR/L 1616-27-2	●	16	16	100	16	15	9	27	R/L	PTMA0512D	TW15P	2
2020-27-2	●	20	20	120	20	19	5	27	R/L			2
2525-27-2	●	25	25	150	25	24	-	27	R/L			1
1616-27-3	●	16	16	100	16	15	9	27	R/L			2
2020-27-3	●	20	20	120	20	19	5	27	R/L			2
2525-27-3	●	25	25	150	25	24	-	27	R/L			1
1616-27-4	●	16	16	100	16	15	9	27	R/L			2
2020-27-4	●	20	20	120	20	19	5	27	R/L			2
2525-27-4	●	25	25	150	25	24	-	27	R/L			1

(mm)

### Cutting depth maximum and max. workpiece dia. (mm)

Cutting depth maximum (CDX)	5.0	4.5	4.0	3.5	3.0	2.5	2.0
Max. workpiece dia. (Dmax)	≤ 30	≤ 62	≤ 89	≤ 109	≤ 147	≤ 200	∞

Applicable inserts C73

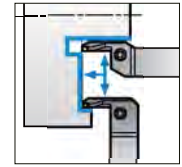
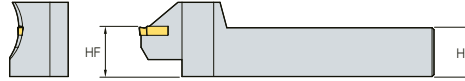
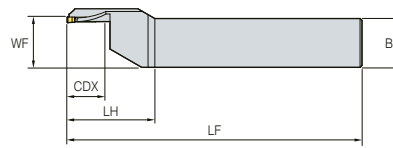
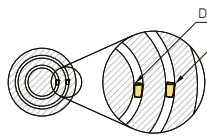
※Please refer to the Page C74 for the cutting depth maximum and max. workpiece dia. (mm)



# FGHH



FGD FGM FMM



• R type holder

For face grooving, turning machining

(mm)

Designation	Stock		CDX	DAXIN	DAXX	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench	
	R	L													
FGHH 320R - 25/30	•		12	25	30	125	20.6	20	20	20	R	FMM300R-03			
	•		12	30	35	125	20.6	20	20	20	R				
	•		12	35	48	125	20.6	20	20	20	R				
			22	48	60	150	20.6	20	20	20	R				FGD300R-03 FGM300R-03
			22	60	75	150	20.6	20	20	20	R				
			22	75	100	150	20.6	20	20	20	R				
			22	100	140	150	20.6	20	20	20	R				
325R - 25/30	•		12	25	30	150	25.6	25	25	25	R	FMM300R-03			
	•		12	30	35	150	25.6	25	25	25	R				
	•		12	35	48	150	25.6	25	25	25	R				
	•		22	48	60	150	25.6	25	25	25	R				FGD300R-03 FGM300R-03
	•		22	60	75	150	25.6	25	25	25	R				
	•		22	75	100	150	25.6	25	25	25	R				
	•		22	100	140	150	25.6	25	25	25	R				
420R - 25/30	•		12	25	30	125	20.6	20	20	20	R	FMM400R-04			
	•		12	30	35	125	20.6	20	20	20	R				
			12	35	48	125	20.6	20	20	20	R				
			25	48	60	150	20.6	20	20	20	R				FGD400R-04 FGM400R-04
			25	60	75	150	20.6	20	20	20	R				
			25	75	100	150	20.6	20	20	20	R				
			25	100	140	150	20.6	20	20	20	R				
425R - 25/30			12	25	30	150	25.6	25	25	25	R	FMM400R-04			
	•		12	30	35	150	25.6	25	25	25	R				
	•		12	35	48	150	25.6	25	25	25	R				
	•		25	48	60	150	25.6	25	25	25	R				FGD400R-04 FGM400R-04
	•		25	60	75	150	25.6	25	25	25	R				
	•		25	75	100	150	25.6	25	25	25	R				
	•		25	100	140	150	25.6	25	25	25	R				
520R - 25/30			12	25	30	125	20.6	20	20	20	R	FMM500R-04			
			12	30	35	125	20.6	20	20	20	R				
			20	35	40	125	20.6	20	20	20	R				
			20	40	48	125	20.6	20	20	20	R				
			25	48	60	150	20.6	20	20	20	R				FGD500R-04 FGM500R-04
			25	60	75	150	20.6	20	20	20	R				
			25	75	100	150	20.6	20	20	20	R				
			25	100	140	150	20.6	20	20	20	R				
525R - 25/30			12	25	30	150	25.6	25	25	25	R	FMM500R-04			
			12	30	35	150	25.6	25	25	25	R				
	•		20	35	40	150	25.6	25	25	25	R				
			20	40	48	150	25.6	25	25	25	R				
	•		25	48	60	150	25.6	25	25	25	R				FGD500R-04 FGM500R-04
	•		25	60	75	150	25.6	25	25	25	R				
	•		25	75	100	150	25.6	25	25	25	R				
	•		25	100	140	150	25.6	25	25	25	R				

BHA0616 HW50L

Applicable inserts C77

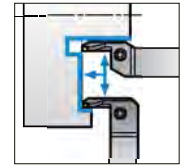
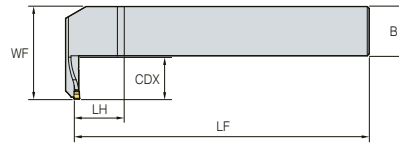
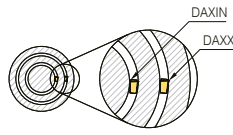
• : Stock item

## FGVH

For face grooving, turning machining



FGD FGM FMM



• R type holder




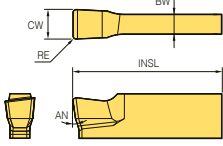


(mm)

Designation	Stock		CDX	DAXIN	DAXX	LF	WF	HF	B	H	HAND	Applicable insert	Screw	Wrench
	R	L												
FGVH 320R - 25/30	•		12	25	30	125	40	20	20	20	R	FMM300R-03		
	•		12	30	35	125	40	20	20	20	R			
	•		12	35	48	125	40	20	20	20	R			
			22	48	60	150	42	20	20	20	R			
			22	60	75	125	42	20	20	20	R			
			22	75	100	125	42	20	20	20	R			
			22	100	140	150	42	20	20	20	R			
325R - 25/30	•		12	25	30	150	25.6	25	25	25	R	FMM300R-03		
	•		12	30	35	150	45	25	25	25	R			
	•		12	35	48	150	25.6	25	25	25	R			
	•		22	48	60	150	47	25	25	25	R			
	•		22	60	75	150	47	25	25	25	R			
	•		22	75	100	150	47	25	25	25	R			
	•		22	100	140	150	47	25	25	25	R			
420R - 25/30			12	25	30	125	40	20	20	20	R	FMM400R-04		
			12	30	35	125	40	20	20	20	R			
	•		12	35	48	125	40	20	20	20	R			
			25	48	60	150	45	20	20	20	R			
			25	60	75	150	45	20	20	20	R			
			25	75	100	150	45	20	20	20	R			
			25	100	140	150	45	20	20	20	R			
425R - 25/30	•		12	25	30	150	45	25	25	25	R	FMM400R-04	BHA0616	HW50L
			12	30	35	150	45	25	25	25	R			
			12	35	48	150	45	25	25	25	R			
	•		25	48	60	150	50	25	25	25	R			
	•		25	60	75	150	50	25	25	25	R			
	•		25	75	100	150	50	25	25	25	R			
	•		25	100	140	150	50	25	25	25	R			
520R - 25/30			12	25	30	125	40	20	20	20	R	FMM500R-04		
			12	30	35	125	40	20	20	20	R			
			20	35	40	125	41.5	20	20	20	R			
			20	40	48	125	41.5	20	20	20	R			
			25	48	60	125	20.6	20	20	20	R			
			25	60	75	125	20.6	20	20	20	R			
			25	75	100	125	20.6	20	20	20	R			
525R - 25/30			12	25	30	150	45	25	25	25	R	FMM500R-04		
			12	30	35	150	45	25	25	25	R			
			20	35	40	150	46.5	25	25	25	R			
			20	40	48	150	46.5	25	25	25	R			
			25	48	60	150	53	25	25	25	R			
	•		25	60	75	150	53	25	25	25	R			
	•		25	75	100	150	53	25	25	25	R			
•		25	100	140	150	53	25	25	25	R				

• Applicable inserts C77

• : Stock item

**Applicable inserts**

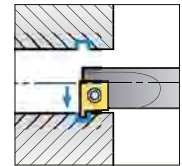
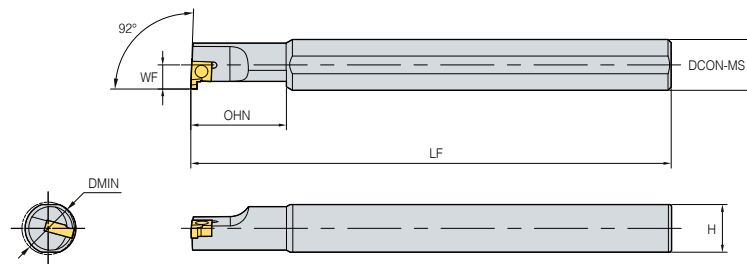
Application	Picture	Designation	Coated						Uncoated	Dimensions (mm)						Configuration	Page		
			NC3120	NC3225	NC3030	NC5330	NC6315	PC5300	PC8110	PC9030	H01	SSC	CW	RE	BW			INSL	AN
Face grooving	FGD 	300R-03			●						30	3	0.3	2	4.06	7	N		C37 C38
		400R-04			●						40	4	0.4	3	4.56	7	N		
		500R-04			●						50	5	0.4	4	5.06	7	N		
	FGM 	300R-03									30	3	0.3	2	4.06	7	N		C37 C38
		400R-04			●						40	4	0.4	3	4.56	7	N		
		500R-04									50	5	0.4	4	5.06	7	N		
	FMM 	300R-03			●				●		30	3	0.3	2	4	7	N		C37 C38
		400R-04			●						40	4	0.4	3	4.5	7	N		
		500R-04									50	5	0.4	4	15	7	N		

● : Stock item

**IGH** For internal grooving



IG




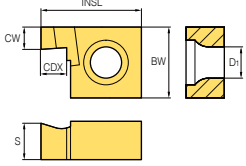
• R type holder

Designation	Stock	DMIN	WF	OHN	LF	H	DCON-MS	HAND	Applicable insert	Screw	Wrench
IGH 214R	●	14	6.6	25	2	3.9	7	R	IG125-280	FTKA02565	TW07P
IGH 216R	●	16	7.6	30	3	3.96	7	R			
IGH 220R	●	20	9.6	40	4	4.424	7	R			

Applicable inserts **C77**

● : Stock item

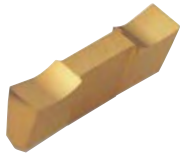
**Applicable inserts**

Application	Picture	Designation	Coated			Uncoated			Dimensions (mm)						Configuration	
			NC3215	NC3120	NC3225	H01	G10	ST30A	SSC	CDX	CW	S	IC	INSL		D1
Internal grooving		IG 125R					●	20	1.5	1.25	3.18	6.35	9	2.8	R	
		145R					●	20	1.5	1.45	3.18	6.35	9	2.8	R	
		175R					●	20	1.5	1.75	3.18	6.35	9	2.8	R	
		200R					●	20	2.3	2	3.18	6.35	9	2.8	R	
		230R					●	20	2.3	2.3	3.18	6.35	9	2.8	R	
		280R					●	20	2.3	2.8	3.18	6.35	9	2.8	R	

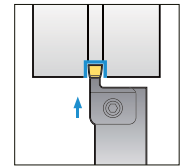
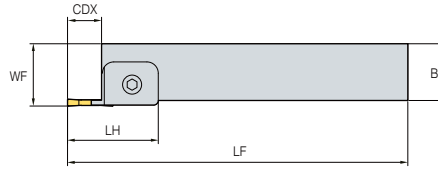
● : Stock item

# C Grooving Tools

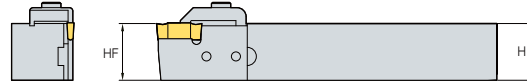
## DBH For deep and wide grooving



DB DC



• R type holder



(mm)

Designation	Stock	CDX	LH	LF	WF	HF	B	H	HAND	S		Applicable insert		Clamp	Clamp Screw	Screw	Locator	Wrench
										*	**	*	**					
DBH	320R	●	13.9	40	150	20.8	20	20	R	22.3	22.8	DB300	DB400	CGH5R1	MHA0512	MHB0410	LD34	HW30L HW40L
	325R	●	13.9	40	150	20.8	25	25	R	27.3	27.8	DC300	DC400					
	520R	●	13.9	40	150	20.8	20	20	R	23.8	24.3	DB500	DB600	CGH5R2	MHA0512	MHB0410	LD56	HW30L HW40L
	525R	●	13.9	40	150	20.8	25	25	R	28.8	29.3	DC500	DB600					
	720R		13.9	40	150	20.8	20	20	R	25.8	26.3	DB700	DB800	CGH5R3	MHA0512	MHB0410	LD78	HW30L HW40L

Applicable inserts C78

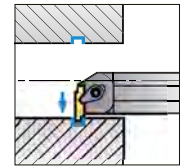
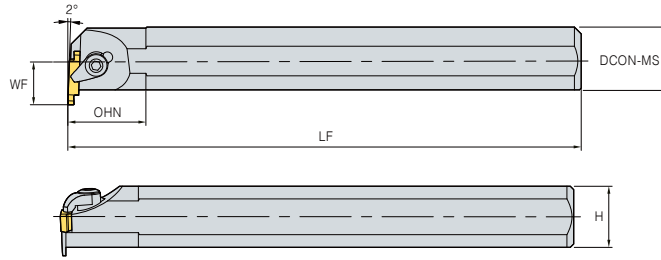
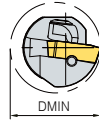
●: Stock item

## Applicable inserts

Application	Picture	Designation	Coated		Uncoated		Dimensions (mm)							Configuration	
			NC3215	NC3120	NC3225	H01	G10	SSC	CW	RE	BW	INSL	AN		HAND
Grooving		DB 300						40	3	0.2	2.5	20	5	N	
		400						40	4	0.2	2.5	20	5	N	
		500						60	5	0.2	3.5	20	5	N	
		600						60	6	0.2	3.5	20	5	N	
		700						80	7	0.2	5.5	20	5	N	
		800						80	8	0.2	5.5	20	5	N	
		DC 300						40	3	0.2	2.5	20	5	N	
		400						40	4	0.25	2.5	20	5	N	
		500						50	5	0.3	3.5	20	5	N	

●: Stock item

# GFIP For Internal grooving



• R type holder

(mm)

Designation	Stock		DMIN	WF	OHN	LF	H	DCON-MS	HAND	Applicable insert	Clamp	C-ring	Screw	Pin	Wrench	
	R	L														
GFIP	316R/L	• •	20	11	17	150	15	16	R/L	GW110-300R/L,BF3	CH5R2	CR04	CHX0513	PN0310	HW25L	
	320R/L	•	26	13	22	150	18	20	R/L		GW315-500R/L,BF5	CH6R2	CR05	CHX0616	PN0310	HW30L
	325R/L	•	32	17	22	200	23	25	R/L							
	340R/L	•	50	27	32	300	37	40	R/L							
	525R/L	•	32	17	22	200	23	25	R/L							
	540R/L	•	50	27	32	300	37	40	R/L	GW600-800R/L,BF8	CS8R1	-	DHA0820	PN0314	HW40L	
	840R/L	•	50	27	32	300	37	40	R/L							

🔗 Applicable inserts **C79**

• : Stock item

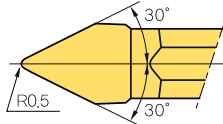
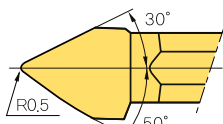
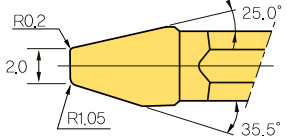
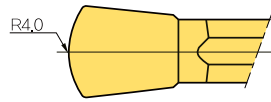
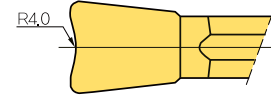
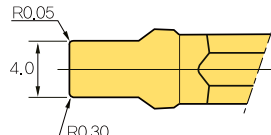
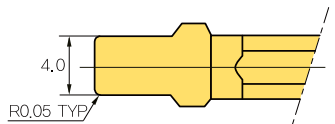
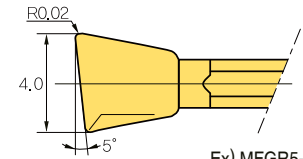
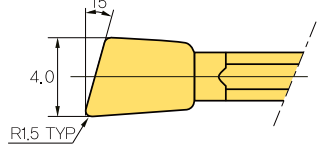
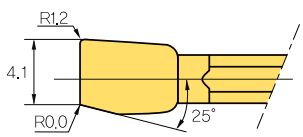
## 🔗 Applicable inserts

Application	Picture	Designation	Uncoated		Dimensions (mm)						Configuration
			ST30A		SSC	CW	BW	INSL	AN	HAND	
Blank		BF	•	-3	30	3.1	3.1	16.4	11	N	
				-5	50	5.1	5.1	22.4	11	N	
				-8	80	8.1	8.1	27.4	11	N	

Application	Picture	Designation	Uncoated		Dimensions (mm)						Configuration	
			ST30A		SSC	CDX	CW	RE	INSL	AN		HAND
Grooving		GW	• •	110R/L	30	2.1	1.1	0.2	16	11	R/L	
				130R/L	30	2.3	1.3	0.2	16	11	R/L	
				160R/L	30	2.6	1.6	0.2	16	11	R/L	
				185R/L	30	2.9	1.85	0.2	16	11	R/L	
				215R/L	30	3.2	2.15	0.2	16	11	R/L	
				265R/L	30	3.7	2.65	0.2	16	11	R/L	
				300R/L	30	4	3	0.2	16	11	R/L	
				315R/L	50	4.2	3.15	0.3	22	11	R/L	
				415R/L	50	5.2	4.15	0.3	22	11	R/L	
				500R/L	50	6	5	0.3	22	11	R/L	
				600R/L	80	7	6	0.3	27	11	R/L	
				800R/L	80	9	8	0.3	27	11	R/L	

• : Stock item

# C Special Order Form for MGT

Code system	Configuration
<p><b>M F G N 4 - 0.5R - 30D</b></p> <p>① ② ③ ④ ⑤ ⑥ ⑦</p> <p>① Multi                      ② Forming                      ③ Grinding            ④ Feed Direction          ⑤ Clamp part : 4mm          ⑥ Nose Radius : 0.5            ⑦ Degree : 30°</p>	 <p>Ex) MFGN4-0.5R-30D</p>
<p><b>MFGN4 - 0.5R - L 50 D - R 30D</b></p> <p>① ② ③ ④ ⑤ ⑥</p> <p>① Refer to No. 1          ② Nose Radius : 0.5          ③ Left            ④ Degree : 50°              ⑤ Right                          ⑥ Degree &gt; 30°</p>	 <p>Ex) MFGN4-0.5R-L50D-R30D</p>
<p><b>MFGN4 - 2.0 - R 020 250 - L 105 335</b></p> <p>① ② ③ ④ ⑤ ⑥ ⑦ ⑧</p> <p>① Refer to No. 1          ② Width of cutting edge : 2.0mm      ③ Right            ④ Nose Radius : 0.20      ⑤ Degree : 25.0°              ⑥ Left            ⑦ Nose Radius : 1.05      ⑧ Degree : 35.5°</p>	 <p>Ex) MFGN4-2.0-R020250-L105335</p>
<p><b>MFGN5 - 4.0R F</b></p> <p>① ② ③</p> <p>① Refer to No. 1          ② Radius : 4.0                  ③ Front(Concave)</p>	 <p>Ex) MFGN5-4.0RF</p>
<p><b>MFGN5 - 4.0R B</b></p> <p>① ② ③</p> <p>① Refer to No. 1          ② Radius : 4.0                  ③ Back(Concave)</p>	 <p>Ex) MFGN5-4.0RB</p>
<p><b>MFGN5 - 4.0 - R 005 - L 030</b></p> <p>① ② ③ ④ ⑤ ⑥</p> <p>① Refer to No. 1          ② Width of cutting edge : 4.0mm      ③ Right            ④ Nose Radius : 0.05      ⑤ Left                              ⑥ Nose Radius : 0.30</p>	 <p>Ex) MFGN5-4.0-R005-L030</p>
<p><b>MFGN5 - 4.0 - 0.05 R</b></p> <p>① ② ③</p> <p>① Refer to No. 1            ② Width of cutting edge: 4.0mm            ③ Nose Radius : 0.05</p>	 <p>Ex) MFGN5-4.0-0.05R</p>
<p><b>MFG R 5 - 4.0 - 5D - R 002 - L 115</b></p> <p>① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨</p> <p>① Refer to No. 1              ② Right                          ③ Clamp part: 5mm            ④ Width of cutting edge : 4.0mm      ⑤ Lead angle : 5°              ⑥ Right            ⑦ Nose Radius : 0.02              ⑧ Left                              ⑨ Nose Radius : 1.15</p>	 <p>Ex) MFGR5-4.0-5D-R002-L115</p>
<p><b>MFG L 5 - 4.0 - 15D - 1.5R</b></p> <p>① ② ③ ④ ⑤ ⑥</p> <p>① Refer to No. 1              ② Left                              ③ Clamp part: 5mm            ④ Width of cutting edge : 4.0mm      ⑤ Lead angle : 15°              ⑥ Right Nose Radius : 1.5</p>	 <p>Ex) MFG L5-4.0-15D-1.5R</p>
<p><b>MFG R 5 - 4.10 - 25D - R012 - L000</b></p> <p>① ② ③ ④ ⑤ ⑥ ⑦</p> <p>① Refer to No. 1              ② Right                          ③ Clamp part: 5mm            ④ Width of cutting edge : 4.1mm      ⑤ Degree : 25°                  ⑥ Right Nose Radius : 1.2            ⑦ Left Nose Radius : 0.0</p>	 <p>Ex) MFGR5-4.10-25D-R012-L000</p>

## Code system

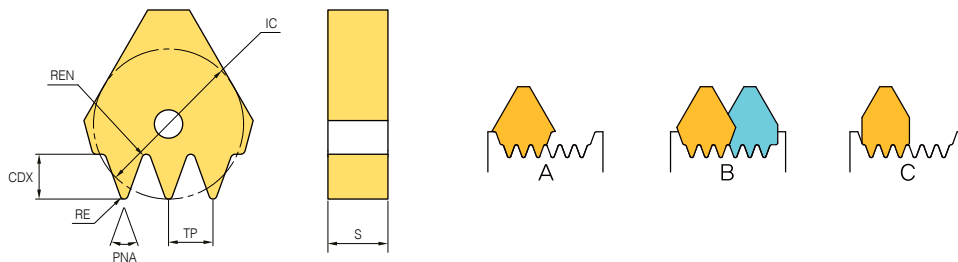
<b>KP</b>	<b>27</b>	<b>064</b>	<b>-</b>	<b>R0.425</b>	<b>N3</b>
KORLOY PULLEY	ØD	W		R1	No. of flutes

Ex) 

<b>I.C</b> Ø15.875	<b>T</b> 6.4	<b>R</b> 0.425	<b>Z</b> 3
-----------------------	-----------------	-------------------	---------------

 » Special types are available for quotation

### Insert for machining of pulley



Specifications	Standard designation	Specifications	Standard designation
	<b>KP27064-R0.35-N3</b> (Former: DF356-3B)		<b>KP270476-R0.43-N3</b> (Former: DF356-3SR)
	<b>KP27064-R0.35-N4</b> (Former: DF356-4B)		<b>KP27064-R0.35-N4-A</b> (Former: DF356-4X)
	<b>KP27064-R0.375-N5</b> (Former: DF356-5B)		<b>UF320</b>
	<b>VF13M52</b>		





# THREADING

Korloy threading tools are available for machining various shapes of thread at various pitches while ensuring high quality performances



## Technical information for THREADING

### Threading Code System

- D3 Threading Holder Code System
- D3 Threading Insert Code System

### Technical Information for Threading

- D4 Technical Information for Threading
- D10 Threading Inserts with Chip Breaker

### Threading Inserts

- D11 Partial profile 60°
- D12 Partial profile 55°
- D13 ISO Metric
- D17 American UN (UN, UNC, UNF, UNEF, UNS)
- D19 Whitworth (BSW, BSF, BSP, BSB)
- D23 British Standard Pipe Thread (BSPT)
- D23 National Pipe Thread (NPT)
- D24 National Pipe Threads-Dryseal (NPTF)
- D24 Round DIN405 (RD)
- D25 Trapez DIN 103 (TR)
- D25 American ACME (ACME)
- D26 Stub ACME (STACME)
- D27 UNJ (Unified Constant Thread)
- D29 American Buttress (ABUT)
- D29 British Buttress (BBUT)
- D30 Metric Buttress (SAGE)
- D30 API
- D31 API Buttress Casing (BUT)
- D31 API Round Casing & Tubing (APIRD)
- D31 Extreme Line Casing (EL)

### Threading Holders

- D32 External Holders
- D33 Internal Holders
- D34 Vertical Type Holders

# D Threading Code System

## Threading Holder Code System

E R H 10 (N) - 11 (C)

1 2 3 4 5 6 7

Holder type Hand of insert Name Height of shank(∅) Shim Insert size Clamping system

**1 Holder type**  
E R H 10 (N) - 11 (C)

E: For External I: For Internal

**4 Height of shank(∅)**  
E R H 10 (N) - 11 (C)

- External  
8, 10, 12, 16, 20,  
25, 32, 40, 50

- Internal  
10, 12, 13, 16, 20,  
25, 32, 49, 50, 60

\* Refer to the specification for shank diameter information

**6 Insert size (mm)**  
E R H 10 (N) - 11 (C)

11 : IC=6.35  
 16 : IC=9.525  
 22 : IC=12.7  
 27 : IC=15.875

**2 Hand of insert**  
E R H 10 (N) - 11 (C)

R: Right handed L: Left handed

**5 Shim**  
E R H 10 (N) - 11 (C)

No code: Shim required  
 N: No shim required

**7 Clamping system**  
E R H 10 (N) - 11 (C)

No code: Screw on system  
 C: Clamp on system

**3 Name**  
E R H 10 (N) - 11 (C)

H : Holder

## Threading Insert Code System

E R M 16 - 1.5 ISO

1 2 3 4 5 6

Insert type Hand of insert Chip breaker Insert size Pitch Type

**1 Insert type**  
E R M 16 - 1.5 ISO

E: For External I: For Internal

**4 Insert size (mm)**  
E R M 16 - 1.5 ISO

11 : IC =6.35  
 16 : IC =9.525  
 22 : IC =12.7  
 27 : IC =15.875

**6 Type**  
E R M 16 - 1.5 ISO

Partial profile 60°  
 Partial Profile 55°  
 ISO Metric (Full Profile)  
 American UN (Full Profile) UN, UNC, UNF, UNEF  
 Whitworth (Full Profile) BSW, BSF, BSP  
 British Standard Pipe thread (Full Profile) BSPT  
 National Pipe Thread (Full Profile) NPT  
 National Pipe Threads-Dryseal (Full Profile) NPTF  
 Round DIN 405  
 Trapez DIN 103  
 American ACME  
 Stub ACME  
 UNJ  
 American Buttress  
 British Buttress  
 Metric Buttress-Sagengewinde  
 API  
 API Buttress Casing  
 API Round Casing & Tubing  
 EL-Extreme Line Casing

**2 Hand of insert**  
E R M 16 - 1.5 ISO

R: Right handed L: Left handed

**5 Pitch**  
E R M 16 - 1.5 ISO

Full profile		Partial profile	
mm	tpi	mm	tpi
0.35-6.0	72 - 3	A 0.5 - 1.5	48 - 16
		AG 0.5 - 3.0	48 - 8
		G 1.75 - 3.0	14 - 8
		N 3.5 - 5.0	7 - 5
		Q 5.5 - 6.0	4.5 - 4

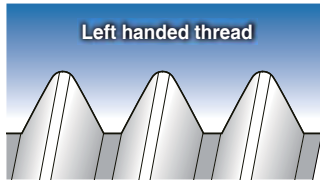
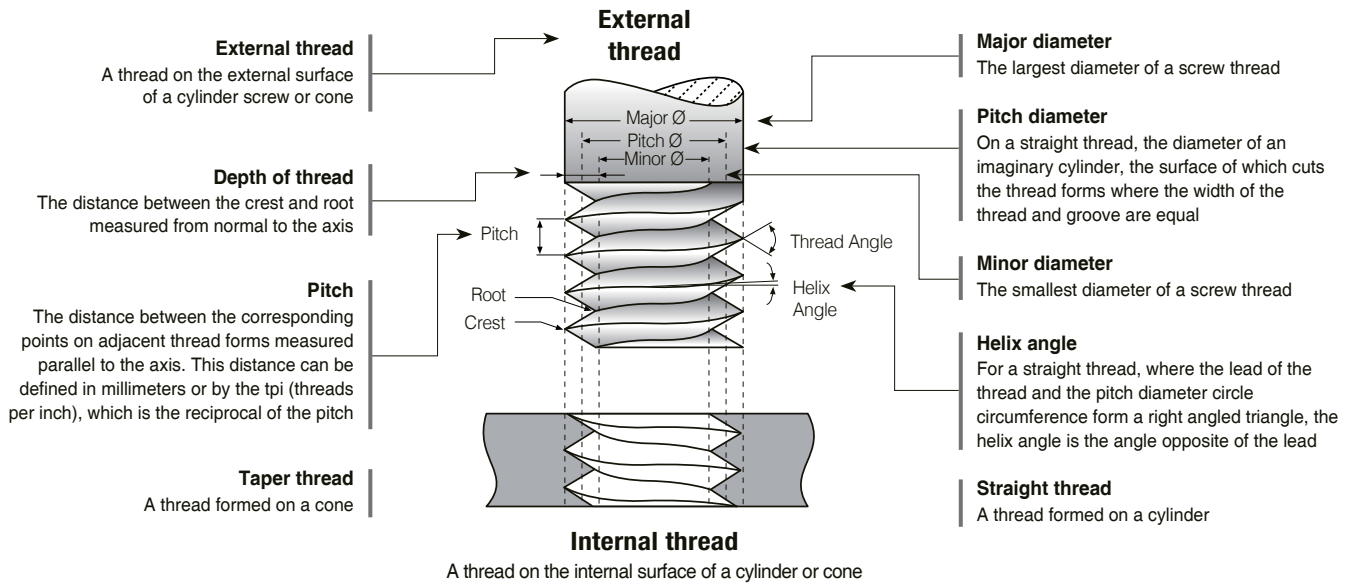
**3 Chip breaker**  
E R M 16 - 1.5 ISO

M: With chip breaker

**Insert shape**

< ER / IR >      < ERM / IRM >

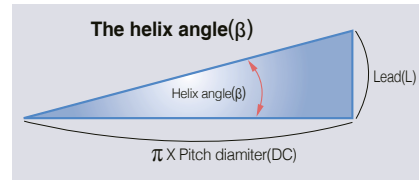
## Special features



A thread which, when viewed axially, winds in a counter clockwise and receding direction. All left handed threads are designated LH



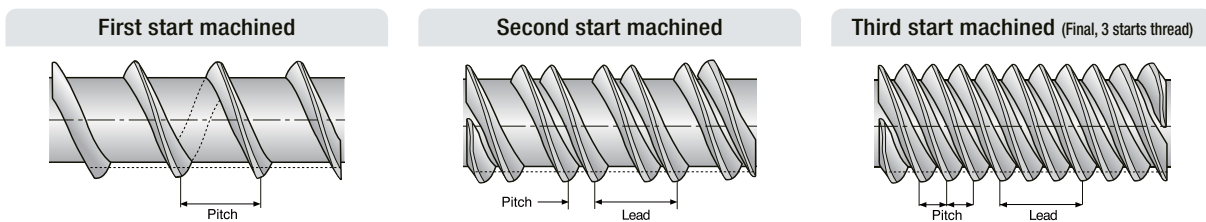
A thread which, when viewed axially, winds in a clockwise and receding direction. Threads are always right handed unless they are specified



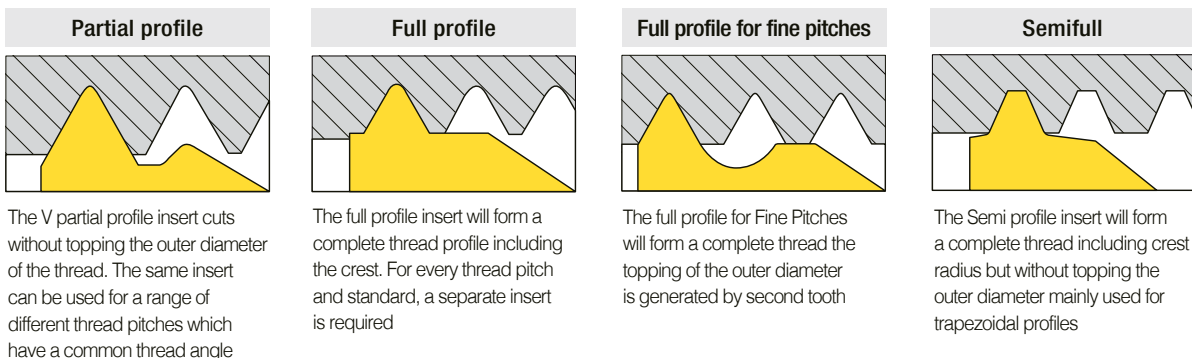
For a straight thread, where the lead of the thread and the pitch diameter circle circumference form a right angled triangle, the helix angle is the angle opposite of the lead

## Machining a multi-start thread

- A thread in which the lead is an integral multiple, greater than one, of the pitch. A multi-start thread permits a more rapid advance without a coarser (larger) thread form



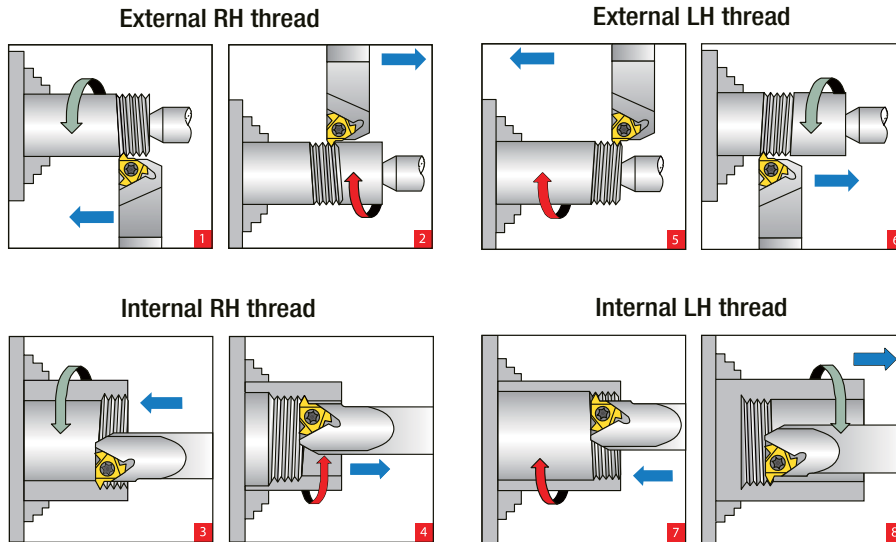
## Insert profile style



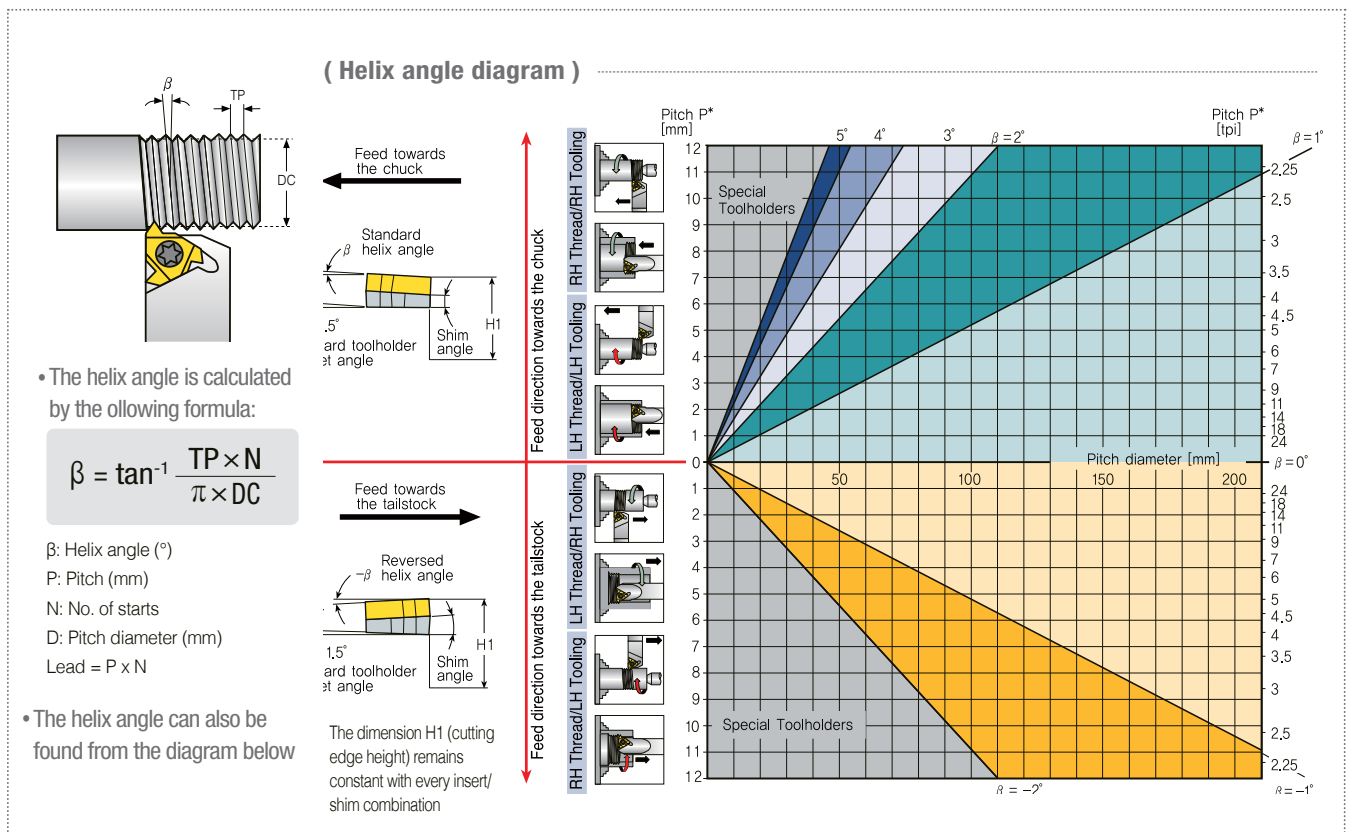
# D Technical Information for Threading

## Thread turning method

Thread	Inserts & Tool holder	Rotation	Feed direction	Helix method	Drawing no.
Right Handed External	EX RH	Counter clockwise	Towards chuck	Regular	1
	EX LH	Clockwise	From chuck	Reversed	2
Right Handed Internal	IN RH	Counter clockwise	Towards chuck	Regular	3
	IN LH	Clockwise	From chuck	Reversed	4
Left Handed External	EX LH	Clockwise	Towards chuck	Regular	5
	EX RH	Counter clockwise	From chuck	Reversed	6
Left Handed Internal	IN LH	Clockwise	Towards chuck	Regular	7
	IN RH	Counter clockwise	From chuck	Reversed	8

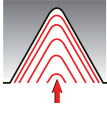
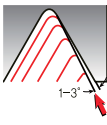



## Calculating the helix angle (β)


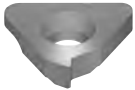




## Thread infeed method

Infeed	Application
 <b>Radial infeed</b>	<ul style="list-style-type: none"> <li>When the pitch is smaller than 16 tpi</li> <li>For material with short chips</li> <li>For work with hardened material</li> </ul> <p>Radial infeed is the simplest and quickest method. The feed is perpendicular to the turning axis, and both flanks of the insert perform the cutting operation. Radial infeed is recommended in 3 cases.</p>
 <b>Flank infeed (modified)</b>	<ul style="list-style-type: none"> <li>When the thread pitch is greater than 16 tpi. Using the radial method, the effective cutting edge length is too large, resulting in chatter. For TRAPEZ and ACME. The radial method results in three cutting edges, making chip flow very difficult.</li> </ul> <p>Flank infeed is recommended in the following cases.</p>
 <b>Alternate flank infeed</b>	<ul style="list-style-type: none"> <li>This method divides the load equally on both flanks, resulting in equal wear along the cutting edges. Alternate flank infeed requires more complicated programming, and is not available on all lathes.</li> </ul> <p>Use of the alternate flank method is recommended especially in large pitches and for materials with long chips.</p>

## Shim

Standard shim	ATE (External)	ATI (Through)	Resultant Helix Angle 1.5°	Insert size	IC	9.525		12.7		15.875	
				L		16	22		27		
	Holder			ER(L)H	IR(L)H	ER(L)H	IR(L)H	ER(L)H	IR(L)H		
	Ordering code			ATE16	ATI16	ATE22	ATI22	ATE27	ATI27		

※ Standard shim has Resultant Helix Angle 1.5°

## Application grade

Grade	Features		Available insert type
<b>PC5300</b>	Universal grade	<ul style="list-style-type: none"> <li>For chip breaker type only</li> <li>Stable machining on a wide application due to fine-grained carbide substrate with balanced heat resistance and toughness</li> <li>Excellent wear resistance and oxidation resistance due to AlTiN coating film</li> <li>Outstanding performance on high speed machining</li> </ul>	ERM/IRM (Insert with Chip breaker)
<b>PC3030T</b>	Specialized grade for threading inserts	<ul style="list-style-type: none"> <li>A tough sub-micron substrate with TiAlN coating provides good fracture toughness and excellent wear resistance</li> <li>Outstanding performance on STS and hard to cut materials</li> </ul>	ER/IR (Ground insert)
<b>PC9070T</b>	Specialized grade for threading inserts	<ul style="list-style-type: none"> <li>Strong wear resistance in stainless machining thanks to multilayer PVD coatings</li> </ul>	E/IR (Ground insert)

## Application range

Workpiece		Application Range
<b>P</b>	Carbon steel, Alloy steel, Cast Steel	PC5300, PC3030T
<b>M</b>	Stainless steel	PC5300, PC3030T, PC9070T
<b>K</b>	Cast Steel	PC5300, PC3030T
<b>N</b>	Aluminum, Copper	PC5300, PC3030T

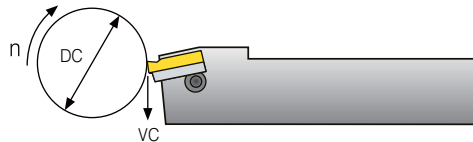
# D Technical Information for Threading

## Recommended cutting speed as per workpiece

Workpiece		Hardness brinell (HB)	vc (m/min)		
			PC3030T	PC9070T	PC5300
P	Carbon steel	Low carbon (C=0.1-0.25 %)	125	115~190	110~190
		Medium carbon (C=0.25-0.55 %)	150	100~175	100~165
		High carbon (C=0.55-0.85 %)	170	90~155	90~155
	Low alloy steel	Non-hardened	180	100~180	100~180
		Hardened	275	75~140	75~140
		Hardened	350	70~135	70~135
	High alloy steel	Annealed	200	80~120	80~120
		Hardened	325	50~100	50~100
Cast steel	Low alloy	200	70~130	70~130	
	High alloy	225	60~120	60~120	
M	Stainless steel ferritic	Non-hardened	200	70~130	70~150
		Hardened	330	50~95	60~125
	Stainless steel austenitic	Austenitic	180	80~120	90~160
		Super austenitic	200	30~100	40~120
	Stainless steel cast ferritic	Non-hardened	200	90~120	90~150
		Hardened	330	65~110	65~120
	Stainless steel cast austenitic	Austenitic	200	85~110	85~120
		Hardened	330	60~100	60~110
	High temperature alloy	Annealed (Iron based)	200	45~60	45~60
		Aged (Iron based)	280	30~50	30~50
		Annealed (Nickel or Cobalt based)	250	20~30	20~30
		Aged (Nickel or Cobalt based)	350	15~25	15~25
Titanium alloy	99.5% pure Titanium	400Rm	140~170	140~170	
	Titanium alloy	1050Rm	50~70	50~70	
K	Extra hard steel	Hardened & tempered	55HRC	45~60	45~60
	Malleable cast iron	Ferritic (short chips)	130	70~120	70~120
		Pearlitic (long chips)	230	70~120	70~120
	Gray cast iron	Low tensile strength	180	70~130	70~130
		High tensile strength	260	60~100	60~100
	Nodular SG iron	Ferritic	160	125~160	125~160
Pearlitic		260	90~120	90~120	
N	Aluminum alloy wrought	Non-aging	60	100~250	100~250
		Aged	100	80~180	80~180
	Aluminum alloy	Cast	75	200~400	200~400
		Cast & aged	90	200~280	200~280
		Cast Si 13-22%	130	60~150	60~180
	Copper and copper alloy	Brass	90	80~120	80~210
Bronze and non-lead copper		100	80~120	80~210	

## Calculation of n [RPM]

$$n = \frac{vc \times 1000}{\pi \times DC} \quad vc = \frac{\pi \times DC \times n}{1000}$$



n: Revolution Per Minute [min<sup>-1</sup>]  
vc: Cutting Speed [m/min]  
D: Workpiece Diameter [mm]

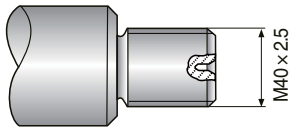
## Number of passes

Pitch	mm	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	8.00
	tpi	48	32	24	20	16	14	12	10	8	7	6	5.5	5	4.5	4	3
No. of passes		4~6	4~7	4~8	5~9	6~10	7~12	7~12	8~14	9~16	10~18	11~18	11~19	12~20	12~20	12~20	15~24

※ One cutting depth is calculated by total cutting depth divided into machining times  
ex) ER16-1.5ISO, hmin 0.92: If 10 times machining, one cutting depth is 0.092 (0.92/10)



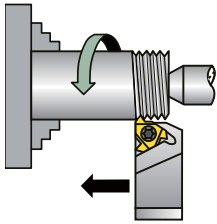
## Step by step thread turning



### Application

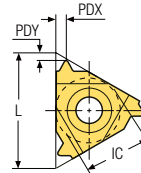
- Thread: External right Handed ISO metric M40x2.5
- Material: 4140 (25 HRC)

### 1 Choose the thread turning method



Feed direction towards the chuck was chosen. Therefore an external right Handed insert and an external right Handed holder will be used.

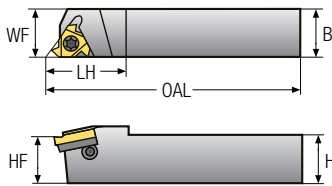
### 2 Choose the insert size



- Chosen insert: ER16-2.5 ISO

Insert size	Pitch	Ordering code	Shim	Tool holder
IC	mm	RH (Right Handed)	RH (Right Handed)	
9.525	2.5	ER16-2.5ISO	ATE16	ERH□□-16

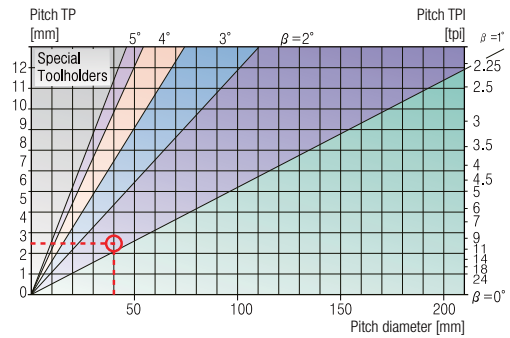
### 3 Choose the tool holder



- Chosen tool holder: ERH 25-16

Insert size	Pitch	Dimensions (mm)				
IC	RH (Right Handed)	H = HF	B	WF	OAL	LH
9.525	ERH25-16	25	25	25	153.6	30

### 4 Determine



• From the table, using a pitch of 2.5 mm (10 tpi) and a workpiece diameter of 40 mm (1.57°), we find the helix angle to be 1.5°

### 5 Choose the correct shim

Resultant Helix angle		1.5°
Insert size	IC	9.525
	L	16
Ordering code		ATE16

### 6 Choose the carbide grade and cutting speed

- Carbide grade chosen: PC3030T
- Cutting speed: 140 m/min

Workpiece	HB	vc (m/min)	
		PC3030T	
P Low alloy steel	Non-hardened	180	85~145
	Hardened	275	75~140
	Hardened	350	70~135

### 7 Determine the number of passes

- Carbide grade chosen: PC3030T
- Cutting speed: 140 m/min

Pitch	mm	1.50	1.75	2.00	2.50	3.00	3.50	4.00
	TPI	16	14	12	10	8	7	6
No. of passes		6~10	7~12	7~12	8~14	9~16	10~18	11~18

### 8 Summary

Thread type	ISO M40 x 2.5 External right handed
1. Feed direction	Towards the chuck
2. Insert and grade	ER16-2.5ISO, PC3030T
3. Tool holder	ERH25-16
4. Helix angle	1.5°
5. Shim	ATE16
6. Cutting speed	140 m/min
7. Number of passes	10

# D Technical Information for Threading

## ➤ Cutting condition depending on

<b>Workpiece</b>	Material type		<b>Coolant</b>	Coolant type		
	Material dimension			<b>Holders</b>	Holder cross section area	
	Diameter and length chipflow character				Holder overhang	
Material hardness		Through coolant option				
<b>Thread application</b>	External or internal		<b>Insert</b>		Shank type: Carbide, alloy	
	Profile shape			Carbide implant grade		
	Surface finish			Profile shape: Pitch and depth		
<b>Machine</b>	Machine stability			Nose radius		
	Max. RPM		Chip breaker style			
	Clamping system stability					

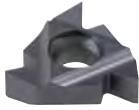

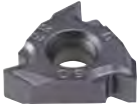









## ➤ Trouble shooting

Problem	Possible cause	Solution
<b>Increased flank wear</b>	Cutting speed too high → Depth of cut too low/too many passes → Unsuitable carbide grade → Insufficient cooling →	Reduce cutting speed/use coated insert Increase the depth of cut per pass Use a coated carbide grade Increase coolant flow rate
<b>Uneven cutting edge wear</b>	Incorrect helix angle → Wrong infeed method →	Choose the correct shim Use the alternating flank infeed method
<b>Extreme plastic deformation</b>	Depth of cut too large → Insufficient cooling → Cutting speed too high → Unsuitable carbide grade → Nose radius too small →	Decrease depth of cut/ increase number of passes Increase coolant flow rate Reduce cutting speed Use a tougher carbide Use an insert with a larger radius, if possible
<b>Cutting edge breakage</b>	Depth of cut too large → Extreme plastic deformation → Insufficient cooling → Unsuitable carbide grade → Instability →	Decrease depth of cut/ increase number of passes. Use a tougher carbide Increase flow rate and/ or correct flow direction Use a tougher carbide Check stability of the system
<b>Built-up edge</b>	Incorrect cutting speed → Unsuitable carbide grade →	Change the cutting speed Use a coated carbide
<b>Thread profile is too shallow</b>	The tool is not at the workpiece axis height → Insert is not machining the thread crest → Worn insert →	Change tool height Measure the workpiece diameter Change the cutting edge sooner
<b>Poor surface quality</b>	Too low cutting speed → Wrong shim → Flank infeed method is not appropriate →	Increase cutting speed Choose correct shim Use the alternate flank or radial infeed method

## Threading Inserts with Chip Breaker

- Economical insert
- Good toughness and high accuracy as ground type inserts
- Exclusive insert design improves chip control
- New grade for general application of various kinds of workpieces

### Features

Type	Ground insert		Insert with a chip breaker			
C/B Code	None		None		U	
Designation	ER16-1.5ISO		ERM16-1.5ISO		ERM16-1.5ISO-U	
Machining	External	Internal	External	Internal	External	Internal
Insert Shape						
Chip Shape						
Class	P, M, K, N, S		P, M, K		P, M, K	
Application	G - Class		M - Class		M - Class	
Features	<ul style="list-style-type: none"> <li>• Groove-shaped chip breaker with superior chip evacuation lowers cutting load</li> <li>• Enables high precision machining</li> <li>• Applicable for machining of various shapes of threads</li> <li>• Applicable for machining of various workpieces</li> </ul>		<ul style="list-style-type: none"> <li>• Unique 3 dimensional chip breaker improves machinability with good chip control</li> <li>• Excellent cutting edge treatment technology ensures high precision sharp cutting edge</li> </ul>		<ul style="list-style-type: none"> <li>• Groove-shaped chip breaker with superior chip evacuation lowers cutting load</li> <li>• Reduces machining pass by 10~30%</li> <li>• Excellent cutting edge treatment achieves high precision sharp cutting edge</li> </ul>	

## Partial profile 60°

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch		Dimensions (mm)				Configuration	
							TP	TPI	IC	L	RE	PDY		PDX
External	ER 11-A60	●	●	EL 11-A60	●	●	0.5~1.5	48~16	6.35	11	0.05	0.8	0.9	
	16-A60	●	●	16-A60	●	●	0.5~1.5	48~16	9.525	16	0.05	0.8	0.9	
	16-G60	●	●	16-G60	●	●	1.75~3.0	14~8	9.525	16	0.27	1.2	1.7	
	16-AG60	●	●	16-AG60	●	●	0.5~3.0	48~8	9.525	16	0.08	1.2	1.7	
	22-N60	●	●	22-N60	●	●	3.5~5.0	7~5	12.7	22	0.53	1.7	2.5	
	27-Q60	●	●	27-Q60	●	●	5.5~6.0	4.5~4	15.875	27	0.64	2.1	3.1	
Internal	IR 11-A60	●	●	IL 11-A60	●	●	0.5~1.5	48~16	6.35	11	0.05	0.8	0.9	
	16-A60	●	●	16-A60	●	●	0.5~1.5	48~16	9.525	16	0.05	0.8	0.9	
	16-G60	●	●	16-G60	●	●	1.75~3.0	14~8	9.525	16	0.16	1.2	1.7	
	16-AG60	●	●	16-AG60	●	●	0.5~3.0	48~8	9.525	16	0.05	1.2	1.7	
	22-N60	●	●	22-N60	●	●	3.5~5.0	7~5	12.7	22	0.30	1.7	2.5	
	27-Q60	●	●	27-Q60	●	●	5.5~6.0	4.5~4	15.875	27	0.30	1.8	2.7	

Applicable holders D32, D33

●: Stock item

## Partial profile 60° (M chip breaker)

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch		Dimensions (mm)				Configuration		
						TP	TPI	IC	L	RE	PDY		PDX	
External	ERM 16-A60	●					0.5~1.5	48~16	9.525	16	0.08	0.8	0.9	
	16-G60	●					1.75~3.0	14~8	9.525	16	0.27	1.2	1.7	
	16-AG60	●					0.5~3.0	48~8	9.525	16	0.08	1.2	1.7	
	22-N60	●					3.5~5.0	7~5	12.7	22	0.53	1.7	2.5	
Internal	IRM 11-A60	●					0.5~1.5	48~16	6.35	11	0.08	0.8	0.9	
	16-A60	●					0.5~1.5	48~16	9.525	16	0.08	0.8	0.9	
	16-G60	●					1.75~3.0	14~8	9.525	16	0.12	1.2	1.7	
	16-AG60	●					0.5~3.0	48~8	9.525	16	0.08	1.2	1.7	
	22-N60	●					3.5~5.0	7~5	12.7	22	0.30	1.7	2.5	

Applicable holders D32, D33

●: Stock item

## Partial profile 60° (U chip breaker)

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch		Dimensions (mm)				Configuration		
						TP	TPI	IC	L	RE	PDY		PDX	
External	ERM 16-AG60-U						0.5~3.0	48~8	9.525	16	0.08	1.2	1.7	
Internal	IRM 16-AG60-U						0.5~3.0	48~8	9.525	16	0.08	1.2	1.7	

Applicable holders D32, D33

●: Stock item

## Partial profile 55°

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch		Dimensions (mm)					Configuration
							TP	TPI	IC	L	RE	PDY	PDX	
External	ER 11-A55	●		EL 11-A55			0.5~1.5	48~16	6.35	11	0.05	0.8	0.9	
	16-A55	●		16-A55	●		0.5~1.5	48~16	9.525	16	0.05	0.8	0.9	
	16-G55	●		16-G55			1.75~3.0	14~8	9.525	16	0.21	1.2	1.7	
	16-AG55	●		16-AG55	●		0.5~3.0	48~8	9.525	16	0.07	1.2	1.7	
	22-N55	●		22-N55			3.5~5.0	7~5	12.7	22	0.43	1.7	2.5	
	27-Q55			27-Q55			5.5~6.0	4.5~4	15.875	27	0.60	2.0	2.9	
Internal	IR 11-A55	●		IL 11-A55	●		0.5~1.5	48~16	6.35	11	0.05	0.8	0.9	
	16-A55	●		16-A55			0.5~1.5	48~16	9.525	16	0.05	0.8	0.9	
	16-G55	●		16-G55			1.75~3.0	14~8	9.525	16	0.21	1.2	1.7	
	16-AG55	●		16-AG55	●		0.5~3.0	48~8	9.525	16	0.07	1.2	1.7	
	22-N55	●		22-N55			3.5~5.0	7~5	12.7	22	0.43	1.7	2.5	
	27-Q55			27-Q55			5.5~6.0	4.5~4	15.875	27	0.60	2.0	2.9	

➔ Applicable holders D32, D33

● : Stock item

## Partial profile 55° (M chip breaker)

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch		Dimensions (mm)					Configuration
						TP	TPI	IC	L	RE	PDY	PDX	
External	ERM 16-A55	●				0.5~1.5	48~16	9.525	16	0.08	0.8	0.9	
	16-G55	●				1.75~3.0	14~8	9.525	16	0.21	1.2	1.7	
	16-AG55	●				0.5~3.0	48~8	9.525	16	0.07	1.2	1.7	
	22-N55	●				3.5~5.0	7~5	12.7	22	0.43	1.7	2.5	
Internal	IRM 11-A55	●				0.5~1.5	48~16	6.35	11	0.08	0.8	0.9	
	16-A55	●				0.5~1.5	48~16	9.525	16	0.05	0.8	0.9	
	16-G55	●				1.75~3.0	14~8	9.525	16	0.08	1.2	1.7	
	16-AG55	●				0.5~3.0	48~8	9.525	16	0.08	1.2	1.7	
	22-N55	●				3.5~5.0	7~5	12.7	22	0.43	1.7	2.5	

➔ Applicable holders D32, D33

● : Stock item

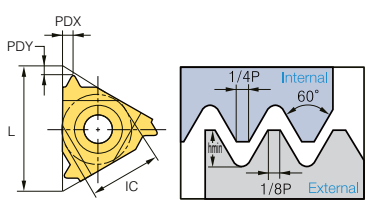
## Partial profile 55° (U chip breaker)

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch		Dimensions (mm)					Configuration
						TP	TPI	IC	L	RE	PDY	PDX	
External	ERM 16-AG55-U					0.5~3.0	48~8	9.525	16	0.07	1.2	1.7	
Internal	IRM 16-AG55-U					0.5~3.0	48~8	9.525	16	0.08	1.2	1.7	

➔ Applicable holders D32, D33

● : Stock item

## ISO Metric

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch	Dimensions (mm)					Configuration
							TP	IC	L	hmin	PDY	PDX	
External	ER 11-0.35ISO	●		EL 11-0.35ISO			0.35	6.35	11	0.21	0.8	0.4	
	11-0.4ISO	●		11-0.4ISO			0.4	6.35	11	0.25	0.7	0.4	
	11-0.45ISO	●		11-0.45ISO			0.45	6.35	11	0.28	0.7	0.4	
	11-0.5ISO	●		11-0.5ISO			0.5	6.35	11	0.31	0.6	0.4	
	11-0.6ISO	●		11-0.6ISO			0.6	6.35	11	0.37	0.6	0.6	
	11-0.7ISO	●		11-0.7ISO			0.7	6.35	11	0.43	0.6	0.6	
	11-0.75ISO			11-0.75ISO			0.75	6.35	11	0.46	0.6	0.6	
	11-0.8ISO	●		11-0.8ISO			0.8	6.35	11	0.49	0.6	0.6	
	11-1.0ISO	●		11-1.0ISO			1.0	6.35	11	0.61	0.7	0.7	
	11-1.25ISO	●	●	11-1.25ISO			1.25	6.35	11	0.77	0.8	0.9	
	11-1.5ISO	●		11-1.5ISO	●		1.5	6.35	11	0.92	0.8	1.0	
	11-1.75ISO	●		11-1.75ISO			1.75	6.35	11	1.07	0.8	1.1	
	16-0.35ISO			16-0.35ISO			0.35	9.525	16	0.21	0.8	0.4	
	16-0.4ISO			16-0.4ISO			0.4	9.525	16	0.25	0.7	0.4	
	16-0.45ISO	●		16-0.45ISO			0.45	9.525	16	0.28	0.7	0.4	
	16-0.5ISO	●		16-0.5ISO	●		0.5	9.525	16	0.31	0.6	0.4	
	16-0.6ISO	●		16-0.6ISO			0.6	9.525	16	0.37	0.6	0.6	
	16-0.7ISO	●		16-0.7ISO			0.7	9.525	16	0.43	0.6	0.6	
	16-0.75ISO	●		16-0.75ISO			0.75	9.525	16	0.46	0.6	0.6	
	16-0.8ISO	●	●	16-0.8ISO			0.8	9.525	16	0.49	0.6	0.6	
	16-1.0ISO	●	●	16-1.0ISO	●		1.0	9.525	16	0.61	0.7	0.7	
	16-1.25ISO	●	●	16-1.25ISO	●		1.25	9.525	16	0.77	0.8	0.9	
	16-1.5ISO	●	●	16-1.5ISO	●		1.5	9.525	16	0.92	0.8	1.0	
	16-1.75ISO	●	●	16-1.75ISO			1.75	9.525	16	1.07	0.9	1.2	
	16-2.0ISO	●	●	16-2.0ISO	●		2.0	9.525	16	1.23	1.0	1.3	
	16-2.5ISO	●	●	16-2.5ISO			2.5	9.525	16	1.53	1.1	1.5	
	16-3.0ISO	●	●	16-3.0ISO	●		3.0	9.525	16	1.84	1.2	1.6	
	22-3.5ISO	●	●	22-3.5ISO			3.5	12.7	22	2.15	1.6	2.3	
	22-4.0ISO	●	●	22-4.0ISO	●		4.0	12.7	22	2.45	1.6	2.3	
	22-4.5ISO	●	●	22-4.5ISO			4.5	12.7	22	2.78	1.7	2.4	
	22-5.0ISO	●	●	22-5.0ISO	●		5.0	12.7	22	3.07	1.7	2.5	
	27-5.5ISO			27-5.5ISO			5.5	15.875	27	3.37	1.9	2.7	
	27-6.0ISO	●	●	27-6.0ISO			6.0	15.875	27	3.68	2.0	2.9	

Applicable holders D32

●: Stock item

## ISO Metric (M chip breaker)

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Configuration
						TP	IC	L	hmin	PDY	PDX	
External	ERM 16-1.0ISO	●				1.0	9.525	16	0.61	0.7	0.7	
	16-1.25ISO					1.25	9.525	16	0.77	0.8	0.9	
	16-1.5ISO	●				1.5	9.525	16	0.93	0.8	1.0	
	16-1.75ISO	●				1.75	9.525	16	1.09	0.9	1.2	
	16-2.0ISO	●				2.0	9.525	16	1.25	1.0	1.3	
	16-2.5ISO	●				2.5	9.525	16	1.55	1.1	1.5	
	16-3.0ISO	●				3.0	9.525	16	1.87	1.2	1.6	

➔ Applicable holders **D32**

● : Stock item

## ISO Metric (U chip breaker)

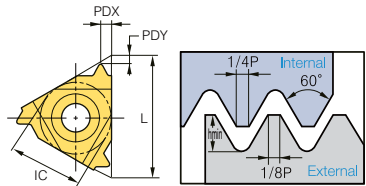
Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Configuration
						TP	IC	L	hmin	PDY	PDX	
External	ERM 16-1.5ISO-U					1.5	9.525	16	0.93	0.8	1.0	
	16-2.0ISO-U					2.0	9.525	16	1.25	1.0	1.3	

➔ Applicable holders **D32**

● : Stock item



## ISO Metric

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch	Dimensions (mm)					Configuration
							TP	IC	L	hmin	PDY	PDX	
Internal	IR	11-0.35ISO	●	IL	11-0.35ISO		0.35	6.35	11	0.20	0.8	0.3	
		11-0.4ISO	●		11-0.4ISO		0.4	6.35	11	0.23	0.8	0.4	
		11-0.45ISO	●		11-0.45ISO		0.45	6.35	11	0.26	0.8	0.4	
		11-0.5ISO	●		11-0.5ISO	●	0.5	6.35	11	0.29	0.6	0.4	
		11-0.6ISO	●		11-0.6ISO		0.6	6.35	11	0.35	0.6	0.6	
		11-0.7ISO	●		11-0.7ISO		0.7	6.35	11	0.40	0.6	0.6	
		11-0.75ISO	●		11-0.75ISO	●	0.75	6.35	11	0.43	0.6	0.6	
		11-0.8ISO			11-0.8ISO		0.8	6.35	11	0.46	0.6	0.6	
		11-1.0ISO	● ●		11-1.0ISO		1.0	6.35	11	0.58	0.6	0.7	
		11-1.25ISO	● ●		11-1.25ISO	●	1.25	6.35	11	0.72	0.8	0.9	
		11-1.5ISO	● ●		11-1.5ISO	● ●	1.5	6.35	11	0.87	0.8	1.0	
	11-1.75ISO		11-1.75ISO		1.75	6.35	11	1.01	0.9	1.1			
	11-2.0ISO	● ●	11-2.0ISO	●	2.0	6.35	11	1.15	0.9	1.1			
	11-2.5ISO	●	11-2.5ISO	●	2.5	6.35	11	1.44	0.8	1.1			
	16-0.35ISO	●	16-0.35ISO		0.35	9.525	16	0.20	0.8	0.3			
	16-0.4ISO	●	16-0.4ISO		0.4	9.525	16	0.23	0.8	0.4			
	16-0.45ISO	●	16-0.45ISO		0.45	9.525	16	0.26	0.8	0.4			
	16-0.5ISO	●	16-0.5ISO		0.5	9.525	16	0.29	0.6	0.4			
	16-0.6ISO		16-0.6ISO		0.6	9.525	16	0.35	0.6	0.6			
	16-0.7ISO		16-0.7ISO		0.7	9.525	16	0.40	0.6	0.6			
	16-0.75ISO	●	16-0.75ISO		0.75	9.525	16	0.43	0.6	0.6			
	16-0.8ISO	●	16-0.8ISO		0.8	9.525	16	0.46	0.6	0.6			
	16-1.0ISO	● ●	16-1.0ISO		1.0	9.525	16	0.58	0.6	0.7			
	16-1.25ISO	● ●	16-1.25ISO		1.25	9.525	16	0.72	0.8	0.9			
	16-1.5ISO	● ●	16-1.5ISO	●	1.5	9.525	16	0.87	0.8	1.0			
	16-1.75ISO	● ●	16-1.75ISO		1.75	9.525	16	1.01	0.9	1.2			
	16-2.0ISO	● ●	16-2.0ISO	●	2.0	9.525	16	1.15	1.0	1.3			
	16-2.5ISO	● ●	16-2.5ISO	●	2.5	9.525	16	1.44	1.1	1.5			
	16-3.0ISO	● ●	16-3.0ISO	●	3.0	9.525	16	1.73	1.1	1.5			
	22-3.5ISO	● ●	22-3.5ISO		3.5	12.7	22	2.02	1.6	2.3			
	22-4.0ISO	● ●	22-4.0ISO	●	4.0	12.7	22	2.31	1.6	2.3			
	22-4.5ISO	● ●	22-4.5ISO		4.5	12.7	22	2.60	1.6	2.4			
	22-5.0ISO	● ●	22-5.0ISO		5.0	12.7	22	2.89	1.6	2.3			
	27-5.5ISO	●	27-5.5ISO		5.5	15.875	27	3.17	1.6	2.3			
	27-6.0ISO	●	27-6.0ISO		6.0	15.875	27	3.46	1.8	2.5			

Applicable holders **D33**

●: Stock item

## ISO Metric (M chip breaker)

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Configuration
						TP	IC	L	hmin	PDY	PDX	
Internal	IRM 11-1.5ISO	●				1.5	6.35	11	0.85	0.8	1.0	
	16-1.0ISO	●				1.0	9.525	16	0.58	0.6	0.7	
	16-1.25ISO					1.25	9.525	16	0.72	0.8	0.9	
	16-1.5ISO	●				1.5	9.525	16	0.85	0.8	1.0	
	16-1.75ISO					1.75	9.525	16	1.01	0.9	1.2	
	16-2.0ISO	●				2.0	9.525	16	1.12	1.0	1.3	
	16-2.5ISO	●				2.5	9.525	16	1.44	1.1	1.5	
	16-3.0ISO	●				3.0	9.525	16	1.69	1.1	1.5	

➔ Applicable holders **D33**

● : Stock item

## ISO Metric (U chip breaker)

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Configuration
						TP	IC	L	hmin	PDY	PDX	
Internal	IRM 16-1.5ISO-U					1.5	9.525	16	0.85	0.8	1.0	
	16-2.0ISO-U					2.0	9.525	16	1.12	1.0	1.3	

➔ Applicable holders **D33**

● : Stock item

## American UN (UN, UNC, UNF, UNEF, UNS)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch	Dimensions (mm)					Configuration
							TPI	IC	L	hmin	PDY	PDX	
External	ER 11-72UN	●		EL 11-72UN			72	6.35	11	0.22	0.8	0.4	
	11-64UN	●		11-64UN			64	6.35	11	0.24	0.8	0.4	
	11-56UN	●		11-56UN			56	6.35	11	0.28	0.7	0.4	
	11-48UN	●		11-48UN			48	6.35	11	0.32	0.6	0.6	
	11-44UN	●		11-44UN			44	6.35	11	0.35	0.6	0.6	
	11-40UN	●		11-40UN			40	6.35	11	0.39	0.6	0.6	
	11-36UN	●		11-36UN			36	6.35	11	0.43	0.6	0.6	
	11-32UN	●		11-32UN			32	6.35	11	0.49	0.6	0.6	
	11-28UN	●		11-28UN			28	6.35	11	0.56	0.6	0.7	
	11-27UN	●		11-27UN			27	6.35	11	0.58	0.7	0.8	
	11-24UN	●		11-24UN			24	6.35	11	0.65	0.7	0.8	
	11-20UN	●		11-20UN			20	6.35	11	0.78	0.8	0.9	
	11-18UN	●		11-18UN			18	6.35	11	0.87	0.8	1.0	
	11-16UN	●		11-16UN			16	6.35	11	0.97	0.9	1.1	
	11-14UN	●		11-14UN			14	6.35	11	1.11	0.9	1.1	
	16-72UN			16-72UN			72	9.525	16	0.22	0.8	0.4	
	16-64UN			16-64UN			64	9.525	16	0.24	0.8	0.4	
	16-56UN			16-56UN			56	9.525	16	0.28	0.7	0.4	
	16-48UN			16-48UN			48	9.525	16	0.32	0.6	0.6	
	16-44UN			16-44UN			44	9.525	16	0.35	0.6	0.6	
	16-40UN			16-40UN			40	9.525	16	0.39	0.6	0.6	
	16-36UN			16-36UN			36	9.525	16	0.43	0.6	0.6	
	16-32UN	●		16-32UN			32	9.525	16	0.49	0.6	0.6	
	16-28UN	●		16-28UN			28	9.525	16	0.56	0.6	0.7	
	16-27UN	●		16-27UN			27	9.525	16	0.58	0.7	0.8	
	16-24UN	● ●		16-24UN			24	9.525	16	0.65	0.7	0.8	
	16-20UN	● ●		16-20UN			20	9.525	16	0.78	0.8	0.9	
	16-18UN	● ●		16-18UN	●		18	9.525	16	0.87	0.8	1.0	
	16-16UN	● ●		16-16UN	●		16	9.525	16	0.97	0.9	1.1	
	16-14UN	● ●		16-14UN			14	9.525	16	1.11	1.0	1.2	
	16-13UN			16-13UN			13	9.525	16	1.20	1.0	1.3	
	16-12UN	● ●		16-12UN			12	9.525	16	1.30	1.1	1.4	
	16-11.5UN			16-11.5UN			11.5	9.525	16	1.35	1.1	1.5	
	16-11UN	● ●		16-11UN			11	9.525	16	1.42	1.1	1.5	
	16-10UN	● ●		16-10UN			10	9.525	16	1.56	1.1	1.5	
	16-9UN	●		16-9UN			9	9.525	16	1.73	1.2	1.7	
	16-8UN	● ●		16-8UN			8	9.525	16	1.95	1.2	1.6	
	22-7UN			22-7UN			7	12.7	22	2.22	1.6	2.3	
	22-6UN			22-6UN			6	12.7	22	2.60	1.6	2.3	
	22-5UN	●		22-5UN			5	12.7	22	3.12	1.7	2.5	
27-4.5UN			27-4.5UN			4.5	15.875	27	3.46	1.9	2.7		
27-4UN			27-4UN			4	15.875	27	3.89	2.1	3.0		

Applicable holders D33

● : Stock item

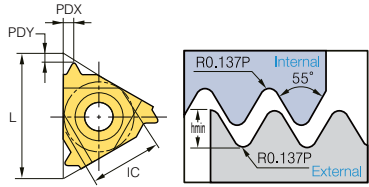
# American UN (UN, UNC, UNF, UNEF, UNS)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch		Dimensions (mm)					Configuration
							TPI	IC	L	hmin	PDY	PDX		
Internal	IR 11-72UN			IL 11-72UN			72	6.35	11	0.20	0.8	0.3		
	11-64UN			11-64UN			64	6.35	11	0.23	0.8	0.4		
	11-56UN			11-56UN			56	6.35	11	0.26	0.7	0.4		
	11-48UN			11-48UN			48	6.35	11	0.31	0.6	0.6		
	11-44UN			11-44UN			44	6.35	11	0.33	0.6	0.6		
	11-40UN			11-40UN			40	6.35	11	0.37	0.6	0.6		
	11-36UN			11-36UN			36	6.35	11	0.41	0.6	0.6		
	11-32UN			11-32UN			32	6.35	11	0.46	0.6	0.6		
	11-28UN			11-28UN			28	6.35	11	0.52	0.6	0.7		
	11-27UN			11-27UN			27	6.35	11	0.54	0.7	0.8		
	11-24UN			11-24UN			24	6.35	11	0.61	0.7	0.8		
	11-20UN		●	11-20UN			20	6.35	11	0.73	0.8	0.9		
	11-18UN	●		11-18UN			18	6.35	11	0.81	0.8	1.0		
	11-16UN		●	11-16UN			16	6.35	11	0.92	0.9	1.1		
	11-14UN	●		11-14UN			14	6.35	11	1.05	0.9	1.1		
	11-12UN		●	11-12UN			12	6.35	11	1.22	0.8	1.1		
	11-11UN	●		11-11UN	●		11	6.35	11	1.33	0.8	1.1		
	16-72UN			16-72UN			72	9.525	16	0.20	0.8	0.3		
	16-64UN			16-64UN			64	9.525	16	0.23	0.8	0.4		
	16-56UN			16-56UN			56	9.525	16	0.26	0.7	0.4		
	16-48UN			16-48UN			48	9.525	16	0.31	0.6	0.6		
	16-44UN			16-44UN			44	9.525	16	0.33	0.6	0.6		
	16-40UN			16-40UN			40	9.525	16	0.37	0.6	0.6		
	16-36UN			16-36UN			36	9.525	16	0.41	0.6	0.6		
	16-32UN			16-32UN			32	9.525	16	0.51	0.6	0.6		
	16-28UN	●		16-28UN			28	9.525	16	0.52	0.6	0.7		
	16-27UN			16-27UN			27	9.525	16	0.54	0.7	0.8		
	16-24UN			16-24UN			24	9.525	16	0.61	0.7	0.8		
	16-20UN	●		16-20UN			20	9.525	16	0.73	0.8	0.9		
	16-18UN	●	●	16-18UN			18	9.525	16	0.81	0.8	1.0		
	16-16UN	●	●	16-16UN			16	9.525	16	0.92	0.9	1.1		
	16-14UN	●		16-14UN			14	9.525	16	1.05	0.9	1.2		
	16-13UN			16-13UN			13	9.525	16	1.13	1.0	1.3		
	16-12UN	●	●	16-12UN			12	9.525	16	1.22	1.1	1.4		
	16-11.5UN	●		16-11.5UN			11.5	9.525	16	1.28	1.1	1.5		
	16-11UN	●	●	16-11UN			11	9.525	16	1.33	1.1	1.5		
	16-10UN	●		16-10UN	●		10	9.525	16	1.47	1.1	1.5		
	16-9UN		●	16-9UN			9	9.525	16	1.63	1.2	1.7		
	16-8UN	●	●	16-8UN	●		8	9.525	16	1.83	1.2	1.5		
	22-7UN			22-7UN			7	12.7	22	2.09	1.6	2.3		
	22-6UN			22-6UN			6	12.7	22	2.44	1.6	2.3		
	22-5UN			22-5UN			5	12.7	22	2.93	1.7	2.3		
	27-4.5UN			27-4.5UN			4.5	15.875	27	3.26	1.9	2.4		
	27-4UN			27-4UN			4	15.875	27	3.67	2.1	2.7		

● Applicable holders D33

● : Stock item

## Whitworth (BSW, BSF, BSP, BSB)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch	Dimensions (mm)					Configuration
							TPI	IC	L	hmin	PDY	PDX	
External	ER 11-72W	●		EL 11-72W			72	6.35	11	0.23	0.7	0.4	
	11-60W	●		11-60W			60	6.35	11	0.27	0.7	0.4	
	11-56W	●		11-56W			56	6.35	11	0.29	0.7	0.4	
	11-48W	●		11-48W			48	6.35	11	0.34	0.6	0.6	
	11-40W	●		11-40W			40	6.35	11	0.41	0.6	0.6	
	11-36W	●		11-36W			36	6.35	11	0.45	0.6	0.6	
	11-32W	●		11-32W			32	6.35	11	0.51	0.6	0.6	
	11-28W	●		11-28W			28	6.35	11	0.58	0.6	0.7	
	11-26W	●		11-26W			26	6.35	11	0.63	0.7	0.8	
	11-24W	●		11-24W			24	6.35	11	0.68	0.7	0.8	
	11-22W	●		11-22W			22	6.35	11	0.74	0.8	0.9	
	11-20W	●		11-20W			20	6.35	11	0.81	0.8	0.9	
	11-19W	●		11-19W			19	6.35	11	0.86	0.8	1.0	
	11-18W	●		11-18W			18	6.35	11	0.90	0.8	1.0	
	11-16W	●		11-16W			16	6.35	11	1.02	0.9	1.1	
	11-14W	●		11-14W	●		14	6.35	11	1.16	1.0	1.2	
	16-72W	●		16-72W			72	9.525	16	0.23	0.7	0.4	
	16-60W	●		16-60W			60	9.525	16	0.27	0.7	0.4	
	16-56W	●		16-56W			56	9.525	16	0.29	0.7	0.4	
	16-48W	●		16-48W			48	9.525	16	0.34	0.6	0.6	
	16-40W	●		16-40W			40	9.525	16	0.41	0.6	0.6	
	16-36W	●		16-36W			36	9.525	16	0.45	0.6	0.6	
	16-32W	●		16-32W			32	9.525	16	0.51	0.6	0.6	
	16-30W	●		16-30W			30	9.525	16	0.55	0.6	0.7	
	16-28W	●	●	16-28W			28	9.525	16	0.58	0.6	0.7	
	16-26W	●		16-26W			26	9.525	16	0.63	0.7	0.8	
	16-24W	●		16-24W			24	9.525	16	0.68	0.7	0.8	
	16-22W	●		16-22W			22	9.525	16	0.74	0.8	0.9	
	16-20W	●		16-20W			20	9.525	16	0.81	0.8	0.9	
	16-19W	●	●	16-19W			19	9.525	16	0.86	0.8	1.0	
	16-18W	●		16-18W			18	9.525	16	0.90	0.8	1.0	
	16-16W	●		16-16W			16	9.525	16	1.02	0.9	1.1	
	16-14W	●	●	16-14W			14	9.525	16	1.16	1.0	1.2	
	16-12W	●		16-12W			12	9.525	16	1.36	1.1	1.4	
	16-11W	●	●	16-11W			11	9.525	16	1.48	1.1	1.5	
	16-10W	●		16-10W			10	9.525	16	1.63	1.1	1.5	
	16-9W	●		16-9W			9	9.525	16	1.81	1.2	1.7	
	16-8W	●		16-8W			8	9.525	16	2.03	1.2	1.5	
	22-7W	●		22-7W			7	12.7	22	3.32	1.6	2.3	
	22-6W	●		22-6W	●		6	12.7	22	2.71	1.6	2.3	
	22-5W	●		22-5W			5	12.7	22	3.25	1.7	2.4	
	27-4.5W	●		27-4.5W			4.5	15.875	27	3.61	1.8	2.6	
	27-4W			27-4W			4	15.875	27	4.07	2.0	2.9	

Applicable holders D32

●: Stock item

## Whitworth (M chip breaker)

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Configuration
						TPI	IC	L	hmin	PDY	PDX	
Internal	ERM 16-11W	●				11	9.525	16	1.16	1.0	1.2	
	16-14W	●				14	9.525	16	1.48	1.1	1.5	
	16-19W	●					19	9.525	16	0.86	0.8	

Applicable holders **D32**

● : Stock item

## Whitworth (U chip breaker)

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Configuration
						TPI	IC	L	hmin	PDY	PDX	
Internal	ERM 16-14W-U					14	9.525	16	1.16	1.0	1.2	
	16-11W-U					11	9.525	16	1.48	1.1	1.5	

Applicable holders **D32**

● : Stock item

## Whitworth (BSW, BSF, BSP, BSB)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch	Dimensions (mm)					Configuration
								TPI	IC	L	hmin	PDY	
Internal	IR 11-72W	•		IL 11-72W			72	6.35	11	0.23	0.7	0.4	
	11-60W	•		11-60W			60	6.35	11	0.27	0.7	0.4	
	11-56W	•		11-56W			56	6.35	11	0.29	0.7	0.4	
	11-48W	•		11-48W			48	6.35	11	0.34	0.6	0.6	
	11-40W	•		11-40W			40	6.35	11	0.41	0.6	0.6	
	11-36W	•		11-36W			36	6.35	11	0.45	0.6	0.6	
	11-32W	•		11-32W			32	6.35	11	0.51	0.6	0.6	
	11-28W	•		11-28W			28	6.35	11	0.58	0.6	0.7	
	11-26W	•		11-26W			26	6.35	11	0.63	0.7	0.8	
	11-24W	•		11-24W			24	6.35	11	0.68	0.7	0.8	
	11-22W	•		11-22W			22	6.35	11	0.74	0.8	0.9	
	11-20W			11-20W			20	6.35	11	0.81	0.8	0.9	
	11-19W	•	•	11-19W	•		19	6.35	11	0.86	0.8	1.0	
	11-18W	•		11-18W	•		18	6.35	11	0.90	0.8	1.0	
	11-16W	•		11-16W	•		16	6.35	11	1.02	0.9	1.1	
	11-14W	•		11-14W	•		14	6.35	11	1.16	0.9	1.1	
	11-12W	•		11-12W	•		12	6.35	11	1.32	0.9	1.2	
	16-72W	•		16-72W			72	9.525	16	0.23	0.7	0.4	
	16-60W	•		16-60W			60	9.525	16	0.27	0.7	0.4	
	16-56W	•		16-56W			56	9.525	16	0.29	0.7	0.4	
	16-48W	•		16-48W			48	9.525	16	0.34	0.6	0.6	
	16-40W	•		16-40W			40	9.525	16	0.41	0.6	0.6	
	16-36W	•		16-36W			36	9.525	16	0.45	0.6	0.6	
	16-32W	•		16-32W			32	9.525	16	0.51	0.6	0.6	
	16-30W	•		16-30W			30	9.525	16	0.55	0.6	0.7	
	16-28W	•		16-28W			28	9.525	16	0.58	0.6	0.7	
	16-26W	•		16-26W			26	9.525	16	0.63	0.7	0.8	
	16-24W	•		16-24W			24	9.525	16	0.68	0.7	0.8	
	16-22W	•		16-22W			22	9.525	16	0.74	0.8	0.9	
	16-20W	•		16-20W			20	9.525	16	0.81	0.8	0.9	
	16-19W	•		16-19W			19	9.525	16	0.86	0.8	1.0	
	16-18W	•		16-18W			18	9.525	16	0.90	0.8	1.0	
	16-16W	•		16-16W			16	9.525	16	1.02	0.9	1.1	
	16-14W	•	•	16-14W			14	9.525	16	1.16	1.0	1.2	
	16-12W	•		16-12W			12	9.525	16	1.36	1.1	1.4	
	16-11W	•	•	16-11W			11	9.525	16	1.48	1.1	1.5	
	16-10W	•		16-10W			10	9.525	16	1.63	1.1	1.5	
	16-9W	•		16-9W			9	9.525	16	1.81	1.2	1.7	
	16-8W	•		16-8W			8	9.525	16	2.03	1.2	1.5	
	22-7W			22-7W			7	12.7	22	3.32	1.6	2.3	
	22-6W	•		22-6W			6	12.7	22	2.71	1.6	2.3	
	22-5W	•		22-5W			5	12.7	22	3.25	1.7	2.4	
	27-4.5W	•		27-4.5W			4.5	15.875	27	3.61	1.8	2.6	
	27-4W	•		27-4W			4	15.875	27	4.07	2.0	2.9	

Applicable holders D33

•: Stock item



## Whitworth (M chip breaker)

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Configuration
						TPI	IC	L	hmin	PDY	PDX	
Internal	IRM 16-14W					14	9.525	16	1.16	1.0	1.2	
	16-11W	●				11	9.525	16	1.48	1.1	1.5	

➡ Applicable holders **D33**

● : Stock item

## Whitworth (U chip breaker)

Type	Designation (Right)	PC3030T	PC5300	Designation (Left)	PC3030T	Pitch	Dimensions (mm)					Configuration
						TPI	IC	L	hmin	PDY	PDX	
Internal	IRM 16-14W-U					14	9.525	16	1.16	1.0	1.2	
	16-11W-U					11	9.525	16	1.48	1.1	1.5	

➡ Applicable holders **D33**

● : Stock item

## British Standard Pipe Thread (BSPT)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch		Dimensions (mm)					Configuration
							TPI	IC	L	hmin	PDY	PDX		
External	ER 11-28BSPT			EL 11-28BSPT			28	6.35	11	0.58	0.6	0.6		
	11-19BSPT			11-19BSPT			19	6.35	11	0.86	0.8	0.9		
	11-14BSPT			11-14BSPT			14	6.35	11	1.16	0.9	1.0		
	16-28BSPT			16-28BSPT			28	9.525	16	0.58	0.6	0.6		
	16-19BSPT	●	●	16-19BSPT			19	9.525	16	0.86	0.8	0.9		
	16-14BSPT	●	●	16-14BSPT			14	9.525	16	1.16	1.0	1.2		
	16-11BSPT	●	●	16-11BSPT			11	9.525	16	1.48	1.1	1.5		
Internal	IR 11-28BSPT			IL 11-28BSPT			28	6.35	11	0.58	0.6	0.6		
	11-19BSPT		●	11-19BSPT			19	6.35	11	0.86	0.8	0.9		
	11-14BSPT		●	11-14BSPT			14	6.35	11	1.16	0.9	1.0		
	16-28BSPT			16-28BSPT			28	9.525	16	0.58	0.6	0.6		
	16-19BSPT	●	●	16-19BSPT			19	9.525	16	0.86	0.8	0.9		
	16-14BSPT	●	●	16-14BSPT			14	9.525	16	1.16	1.0	1.2		
	16-11BSPT	●	●	16-11BSPT			11	9.525	16	1.48	1.1	1.5		

● Applicable holders D32, D33

●: Stock item

## National Pipe Thread (NPT)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch		Dimensions (mm)					Configuration
							TPI	IC	L	hmin	PDY	PDX		
External	ER 11-27NPT	●		EL 11-27NPT			27	6.35	11	0.66	0.7	0.8		
	11-18NPT	●		11-18NPT			18	6.35	11	1.01	0.8	1.0		
	11-14NPT	●		11-14NPT			14	6.35	11	1.33	0.8	1.0		
	16-27NPT	●		16-27NPT			27	9.525	16	0.66	0.7	0.8		
	16-18NPT	●	●	16-18NPT			18	9.525	16	1.01	0.8	1.0		
	16-14NPT	●	●	16-14NPT			14	9.525	16	1.33	0.9	1.2		
	16-11.5NPT	●		16-11.5NPT			11.5	9.525	16	1.64	1.1	1.5		
	16-8NPT	●		16-8NPT			8	9.525	16	2.42	1.3	1.8		
Internal	IR 11-27NPT	●		IL 11-27NPT			27	6.35	11	0.66	0.7	0.8		
	11-18NPT	●		11-18NPT			18	6.35	11	1.01	0.8	1.0		
	11-14NPT	●	●	11-14NPT	●		14	6.35	11	1.33	0.8	1.0		
	16-27NPT	●		16-27NPT			27	9.525	16	0.66	0.7	0.8		
	16-18NPT	●		16-18NPT			18	9.525	16	1.01	0.8	1.0		
	16-14NPT	●	●	16-14NPT			14	9.525	16	1.33	0.9	1.2		
	16-11.5NPT	●	●	16-11.5NPT	●		11.5	9.525	16	1.64	1.1	1.5		
	16-8NPT	●		16-8NPT	●		8	9.525	16	2.42	1.3	1.8		

● Applicable holders D32, D33

●: Stock item

## National Pipe Threads-Dryseal (NPTF)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch		Dimensions (mm)					Configuration
							TPI	IC	L	hmin	PDY	PDX		
External	ER 11-27NPTF			EL 11-27NPTF			27	6.35	11	0.64	0.7	0.8		
	11-18NPTF			11-18NPTF			18	6.35	11	1.00	0.8	1.0		
	11-14NPTF			11-14NPTF			14	6.35	11	1.35	0.8	1.0		
	16-27NPTF			16-27NPTF			27	9.525	16	0.64	0.7	0.8		
	16-18NPTF	●		16-18NPTF			18	9.525	16	1.00	0.8	1.0		
	16-14NPTF			16-14NPTF			14	9.525	16	1.35	0.9	1.2		
	16-11.5NPTF			16-11.5NPTF			11.5	9.525	16	1.63	1.1	1.5		
	16-8NPTF			16-8NPTF	●		8	9.525	16	2.38	1.3	1.8		
Internal	IR 11-27NPTF			IL 11-27NPTF			27	6.35	11	0.64	0.7	0.8		
	11-18NPTF			11-18NPTF			18	6.35	11	1.00	0.8	1.0		
	11-14NPTF			11-14NPTF			14	6.35	11	1.35	0.8	1.0		
	16-27NPTF			16-27NPTF			27	9.525	16	0.64	0.7	0.8		
	16-18NPTF			16-18NPTF			18	9.525	16	1.00	0.8	1.0		
	16-14NPTF			16-14NPTF			14	9.525	16	1.35	0.9	1.2		
	16-11.5NPTF			16-11.5NPTF			11.5	9.525	16	1.63	1.1	1.5		
	16-8NPTF			16-8NPTF			8	9.525	16	2.38	1.3	1.8		

● Applicable holders D32, D33

● : Stock item

## Round DIN405 (RD)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch		Dimensions (mm)					Configuration
							TPI	IC	L	hmin	PDY	PDX		
External	ER 16-10RD			EL 16-10RD			10	9.525	16	1.27	1.1	1.2		
	16-8RD	●		16-8RD			8	9.525	16	1.59	1.4	1.3		
	16-6RD	●		16-6RD			6	9.525	16	2.12	1.5	1.7		
	22-6RD			22-6RD			6	12.7	22	2.12	1.5	1.7		
	22-4RD	●		22-4RD			4	12.7	22	3.18	2.2	2.3		
	27-4RD			27-4RD			4	15.875	27	3.18	2.2	2.3		
Internal	IR 16-10RD			IL 16-10RD			10	9.525	16	1.27	1.1	1.2		
	16-8RD			16-8RD			8	9.525	16	1.59	1.4	1.4		
	16-6RD	●		16-6RD			6	9.525	16	2.12	1.4	1.5		
	22-6RD			22-6RD			6	12.7	22	2.12	1.5	1.7		
	22-4RD	●		22-4RD			4	12.7	22	3.18	2.2	2.3		
	27-4RD			27-4RD			4	15.875	27	3.18	2.2	2.3		

● Applicable holders D32, D33

● : Stock item

## Trapez DIN 103 (TR)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch	Dimensions (mm)					Configuration
							TP	IC	L	hmin	PDY	PDX	
External	ER 11-1.5TR	●		EL 11-1.5TR	●		1.5	6.35	11	0.90	0.8	0.9	
	16-1.5TR			16-1.5TR			1.5	9.525	16	0.90	1.0	1.1	
	16-2.0TR	●		16-2.0TR	●		2.0	9.525	16	1.25	1.1	1.3	
	16-3.0TR	●	●	16-3.0TR	●		3.0	9.525	16	1.75	1.3	1.5	
	22-4.0TR	●	●	22-4.0TR	●		4.0	12.7	22	2.25	1.7	1.9	
	22-5.0TR	●	●	22-5.0TR	●		5.0	12.7	22	2.75	2.1	2.5	
	27-6.0TR	●	●	27-6.0TR	●		6.0	15.875	27	3.50	2.3	2.7	
Internal	IR 11-1.5TR			IL 11-1.5TR	●		1.5	6.35	11	0.90	0.8	0.9	
	16-1.5TR	●		16-1.5TR	●		1.5	9.525	16	0.90	1.0	1.1	
	16-2.0TR	●		16-2.0TR	●		2.0	9.525	16	1.25	1.1	1.3	
	16-2.5TR	●		16-2.5TR	●		2.5	9.525	16	1.53	1.2	1.4	
	16-3.0TR	●		16-3.0TR	●		3.0	9.525	16	1.75	1.3	1.5	
	22-4.0TR	●	●	22-4.0TR	●		4.0	12.7	22	2.25	1.7	1.9	
	22-5.0TR	●	●	22-5.0TR	●		5.0	12.7	22	2.75	2.1	2.5	
	27-6.0TR	●	●	27-6.0TR	●		6.0	15.875	27	3.50	2.3	2.7	

Applicable holders D32, D33

●: Stock item

## American ACME (ACME)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch	Dimensions (mm)					Configuration
							TPI	IC	L	hmin	PDY	PDX	
External	ER 11-16ACME			EL 11-16ACME			16	6.35	11	0.92	1.0	1.1	
	16-16ACME			16-16ACME			16	9.525	16	0.92	1.0	1.1	
	16-14ACME			16-14ACME			14	9.525	16	1.03	1.0	1.2	
	16-12ACME			16-12ACME			12	9.525	16	1.19	1.1	1.2	
	16-10ACME			16-10ACME			10	9.525	16	1.52	1.3	1.4	
	16-8ACME			16-8ACME			8	9.525	16	1.84	1.4	1.5	
	16-6ACME			16-6ACME			6	9.525	16	2.37	1.7	1.9	
	22-6ACME	●		22-6ACME	●		6	12.7	22	2.37	1.8	2.1	
	22-5ACME	●		22-5ACME	●		5	12.7	22	2.79	2.0	2.3	
	27-4ACME			27-4ACME			4	15.875	27	3.43	2.4	2.7	
Internal	IR 11-16ACME			IL 11-16ACME			16	6.35	11	0.92	0.9	0.9	
	16-16ACME			16-16ACME			16	9.525	16	0.92	1.0	1.1	
	16-14ACME			16-14ACME			14	9.525	16	1.03	1.1	1.2	
	16-12ACME			16-12ACME			12	9.525	16	1.19	1.2	1.3	
	16-10ACME	●		16-10ACME			10	9.525	16	1.52	1.2	1.3	
	16-8ACME	●		16-8ACME			8	9.525	16	1.84	1.4	1.5	
	16-6ACME			16-6ACME			6	9.525	16	2.37	1.7	1.9	
	22-6ACME	●		22-6ACME			6	12.7	22	2.37	1.8	2.1	
	22-5ACME	●		22-5ACME			5	12.7	22	2.79	2.0	2.3	
	27-4ACME	●		27-4ACME			4	15.875	27	3.43	2.3	2.6	

Applicable holders D32, D33

●: Stock item

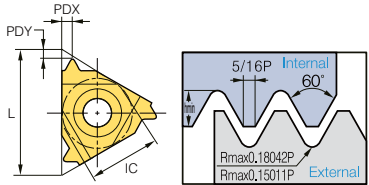
# Stub ACME (STACME)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch	Dimensions (mm)					Configuration
								TPI	IC	L	hmin	PDY	
External	ER 11-16STACME			EL 11-16STACME			16	6.35	11	0.60	1.0	1.0	
	16-16STACME			16-16STACME			16	9.525	16	0.60	1.0	1.0	
	16-14STACME			16-14STACME			14	9.525	16	0.67	1.1	1.1	
	16-12STACME			16-12STACME			12	9.525	16	0.76	1.2	1.2	
	16-10STACME			16-10STACME			10	9.525	16	1.02	1.2	1.3	
	16-8STACME			16-8STACME			8	9.525	16	1.21	1.4	1.5	
	16-6STACME			16-6STACME			6	9.525	16	1.52	1.7	1.8	
	22-6STACME			22-6STACME			6	12.7	22	1.52	1.7	1.8	
	22-5STACME			22-5STACME			5	12.7	22	1.78	2.1	2.3	
	27-4STACME			27-4STACME			4	15.875	27	2.16	2.3	2.4	
	27-3STACME			27-3STACME			3	15.875	27	2.79	2.9	2.9	
	Internal	IR 11-16STACME			IL 11-16STACME			16	6.35	11	0.60	1.0	
16-16STACME				16-16STACME			16	9.525	16	0.60	1.0	1.0	
16-14STACME				16-14STACME			14	9.525	16	0.67	1.1	1.1	
16-12STACME				16-12STACME			12	9.525	16	0.76	1.1	1.2	
16-10STACME				16-10STACME			10	9.525	16	1.02	1.2	1.3	
16-8STACME				16-8STACME			8	9.525	16	1.21	1.4	1.5	
16-6STACME				16-6STACME			6	9.525	16	1.52	1.7	1.8	
22-6STACME				22-6STACME			6	12.7	22	1.52	1.7	1.8	
22-5STACME				22-5STACME			5	12.7	22	1.78	2.1	2.3	
27-4STACME				27-4STACME			4	15.875	27	2.16	2.3	2.4	
27-3STACME				27-3STACME			3	15.875	27	2.79	2.9	2.9	

Applicable holders **D32, D33**

● : Stock item

## UNJ (Unified Constant Thread)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch	Dimensions (mm)					Configuration
							TPI	IC	L	hmin	PDY	PDX	
External	ER 11-48UNJ			EL 11-48UNJ			48	6.35	11	0.31	0.6	0.5	
	11-44UNJ			11-44UNJ			44	6.35	11	0.33	0.6	0.6	
	11-40UNJ			11-40UNJ			40	6.35	11	0.37	0.6	0.6	
	11-36UNJ			11-36UNJ			36	6.35	11	0.41	0.6	0.6	
	11-32UNJ			11-32UNJ			32	6.35	11	0.46	0.6	0.7	
	11-28UNJ			11-28UNJ			28	6.35	11	0.52	0.7	0.7	
	11-24UNJ	●		11-24UNJ			24	6.35	11	0.61	0.7	0.8	
	11-20UNJ			11-20UNJ			20	6.35	11	0.73	0.8	0.9	
	11-18UNJ			11-18UNJ			18	6.35	11	0.81	0.8	1.0	
	11-16UNJ			11-16UNJ			16	6.35	11	0.92	0.9	1.1	
	11-14UNJ			11-14UNJ			14	6.35	11	1.05	1.0	1.2	
	16-48UNJ			16-48UNJ			48	9.525	16	0.31	0.6	0.5	
	16-44UNJ			16-44UNJ			44	9.525	16	0.33	0.6	0.6	
	16-40UNJ			16-40UNJ			40	9.525	16	0.37	0.6	0.6	
	16-36UNJ			16-36UNJ			36	9.525	16	0.41	0.6	0.6	
	16-32UNJ	●		16-32UNJ			32	9.525	16	0.46	0.6	0.7	
	16-28UNJ	●		16-28UNJ			28	9.525	16	0.52	0.7	0.7	
	16-24UNJ	●		16-24UNJ			24	9.525	16	0.61	0.7	0.8	
	16-20UNJ	●		16-20UNJ			20	9.525	16	0.73	0.8	0.9	
	16-18UNJ			16-18UNJ			18	9.525	16	0.81	0.8	1.0	
	16-16UNJ	●		16-16UNJ			16	9.525	16	0.92	0.9	1.1	
	16-14UNJ			16-14UNJ			14	9.525	16	1.05	1.0	1.2	
	16-13UNJ			16-13UNJ			13	9.525	16	1.13	1.0	1.3	
	16-12UNJ	●		16-12UNJ			12	9.525	16	1.22	1.1	1.3	
	16-11UNJ			16-11UNJ			11	9.525	16	1.33	1.2	1.5	
	16-10UNJ			16-10UNJ	●		10	9.525	16	1.47	1.2	1.5	
	16-9UNJ			16-9UNJ			9	9.525	16	1.63	1.3	1.7	
	16-8UNJ			16-8UNJ			8	9.525	16	1.83	1.2	1.6	
	22-7UNJ			22-7UNJ			7	12.7	22	2.09	1.7	2.3	
	22-6UNJ			22-6UNJ			6	12.7	22	2.44	1.7	2.3	
	22-5UNJ			22-5UNJ			5	12.7	22	2.93	1.8	2.5	
	27-4.5UNJ			27-4.5UNJ			4.5	15.875	27	3.26	2.0	2.7	
	27-4UNJ			27-4UNJ			4	15.875	27	3.67	2.2	3.0	

Applicable holders **D32**

●: Stock item

# UNJ (Unified Constant Thread)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch	Dimensions (mm)					Configuration
							TPI	IC	L	hmin	PDY	PDX	
Internal	IR 11-48UNJ			IL 11-48UNJ			48	6.35	11	0.28	0.6	0.5	
	11-44UNJ			11-44UNJ			44	6.35	11	0.30	0.6	0.6	
	11-40UNJ			11-40UNJ			40	6.35	11	0.33	0.6	0.6	
	11-36UNJ			11-36UNJ			36	6.35	11	0.37	0.6	0.6	
	11-32UNJ			11-32UNJ			32	6.35	11	0.42	0.6	0.7	
	11-28UNJ			11-28UNJ			28	6.35	11	0.47	0.7	0.7	
	11-24UNJ			11-24UNJ			24	6.35	11	0.55	0.7	0.8	
	11-20UNJ			11-20UNJ			20	6.35	11	0.66	0.8	0.9	
	11-18UNJ			11-18UNJ			18	6.35	11	0.74	0.8	1.0	
	11-16UNJ			11-16UNJ			16	6.35	11	0.83	0.9	1.1	
	11-14UNJ			11-14UNJ			14	9.525	11	0.95	1.0	1.2	
	16-48UNJ			16-48UNJ			48	9.525	16	0.28	0.6	0.5	
	16-44UNJ			16-44UNJ			44	9.525	16	0.30	0.6	0.6	
	16-40UNJ			16-40UNJ			40	9.525	16	0.33	0.6	0.6	
	16-36UNJ			16-36UNJ			36	9.525	16	0.37	0.6	0.6	
	16-32UNJ			16-32UNJ			32	9.525	16	0.42	0.6	0.7	
	16-28UNJ			16-28UNJ			28	9.525	16	0.47	0.7	0.7	
	16-24UNJ			16-24UNJ			24	9.525	16	0.55	0.7	0.8	
	16-20UNJ			16-20UNJ			20	9.525	16	0.66	0.8	0.9	
	16-18UNJ			16-18UNJ			18	9.555	16	0.74	0.8	1.0	
	16-16UNJ			16-16UNJ			16	9.525	16	0.83	0.9	1.1	
	16-14UNJ			16-14UNJ			14	9.525	16	0.95	1.0	1.2	
	16-13UNJ			16-13UNJ			13	9.525	16	1.02	1.0	1.3	
	16-12UNJ			16-12UNJ	●		12	9.525	16	1.11	1.1	1.3	
	16-11UNJ			16-11UNJ			11	9.525	16	1.21	1.2	1.5	
	16-10UNJ			16-10UNJ			10	9.525	16	1.33	1.2	1.5	
	16-9UNJ			16-9UNJ			9	9.525	16	1.48	1.3	1.7	
	16-8UNJ			16-8UNJ			8	9.525	16	1.66	1.2	1.6	
	22-7UNJ			22-7UNJ			7	12.7	22	1.90	1.7	2.3	
	22-6UNJ			22-6UNJ			6	12.7	22	2.21	1.7	2.3	
	22-5UNJ			22-5UNJ			5	12.7	22	2.66	1.8	2.5	
	27-4.5UNJ			27-4.5UNJ			4.5	15.875	27	2.95	2.0	2.7	
	27-4UNJ			27-4UNJ			4	15.875	27	3.32	2.2	3.0	

Applicable holders **D33**

● : Stock item



## American Buttress (ABUT)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch	Dimensions (mm)					Configuration
								TPI	IC	L	hmin	PDY	
External	ER 11-20ABUT			EL 11-20ABUT			20	6.35	11	0.84	1.0	1.4	
	11-16ABUT			11-16ABUT			16	6.35	11	1.05	1.3	1.9	
	16-20ABUT	●		16-20ABUT			20	9.525	16	0.84	1.0	1.4	
	16-16ABUT			16-16ABUT			16	9.525	16	1.05	1.3	1.9	
	16-12ABUT			16-12ABUT			12	9.525	16	1.40	1.4	2.0	
	16-10ABUT			16-10ABUT			10	9.525	16	1.68	1.5	2.3	
	22-8ABUT			22-8ABUT			8	12.7	22	2.10	2.0	3.2	
	22-6ABUT			22-6ABUT			6	12.7	22	2.80	2.2	3.5	
Internal	IR 11-20ABUT	●		IL 11-20ABUT			20	6.35	11	0.84	1.0	1.4	
	11-16ABUT			11-16ABUT			16	6.35	11	1.05	1.3	1.9	
	16-20ABUT	●		16-20ABUT			20	9.525	16	0.84	1.0	1.4	
	16-16ABUT			16-16ABUT			16	9.525	16	1.05	1.3	1.9	
	16-12ABUT	●		16-12ABUT			12	9.525	16	1.40	1.4	2.0	
	16-10ABUT	●		16-10ABUT			10	9.525	16	1.68	1.5	2.3	
	22-8ABUT			22-8ABUT			8	12.7	22	2.10	2.0	3.2	
	22-6ABUT			22-6ABUT			6	12.7	22	2.80	2.2	3.5	

● Applicable holders D32, D33

●: Stock item

## British Buttress (BBUT)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch	Dimensions (mm)					Configuration
								TPI	IC	L	hmin	PDY	
External	ER 16-16BBUT	●		EL 16-16BBUT			16	9.525	16	0.80	1.1	1.6	
	16-12BBUT			16-12BBUT			12	9.525	16	1.07	1.4	2.1	
	16-10BBUT			16-10BBUT			10	9.525	16	1.28	1.4	2.2	
	16-8BBUT	●		16-8BBUT			8	9.525	16	1.61	1.6	2.5	
	22-8BBUT			22-8BBUT			8	12.7	22	1.61	1.6	2.5	
Internal	IR 16-16BBUT	●		IL 16-16BBUT			16	9.525	16	0.80	1.1	1.6	
	16-12BBUT			16-12BBUT			12	9.525	16	1.07	1.4	2.1	
	16-10BBUT			16-10BBUT			10	9.525	16	1.28	1.4	2.2	
	16-8BBUT			16-8BBUT			8	9.525	16	1.61	1.6	2.5	
	22-8BBUT			22-8BBUT			8	12.7	22	1.61	1.6	2.5	

● Applicable holders D32, D33

●: Stock item

# Metric Buttress (SAGE)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch	Dimensions (mm)					Configuration
							TP	IC	L	hmin	PDY	PDX	
External	ER 16-2.0SAGE			EL 16-2.0SAGE			2.0	9.525	16	1.74	1.47	2.08	
	22-2.0SAGE			22-2.0SAGE			2.0	12.7	22	1.74	1.47	2.08	
	22-3.0SAGE	●		22-3.0SAGE			3.0	12.7	22	2.60	1.79	2.60	
	27-4.0SAGE	●		27-4.0SAGE			4.0	15.875	27	3.55	1.93	3.20	
Internal	IR 16-2.0SAGE	●		IL 16-2.0SAGE			2.0	9.525	16	1.50	1.52	2.2	
	22-3.0SAGE			22-3.0SAGE			3.0	12.7	22	2.25	1.66	2.9	
	27-4.0SAGE	●		27-4.0SAGE			4.0	15.875	27	3.09	2.12	3.2	

➔ Applicable holders D32, D33

● : Stock item

# API

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch	Dimensions (mm)					Configuration
							TPI	IC	L	hmin	PDY	PDX	
External	ER 22-4API382	●		EL 22-4API382			4	12.7	22	3.09	2.1	2.8	
	22-4API383			22-4API383			4	12.7	22	3.08	2.1	2.8	
	22-4API502	●		22-4API502			4	12.7	22	3.75	2.0	2.9	
	22-4API503	●		22-4API503			4	12.7	22	3.74	2.0	2.9	
	22-5API403			22-5API403			5	12.7	22	2.99	1.8	2.6	
	22-6API551			22-6API551			6	12.7	22	1.41	2.6	2.0	
	27-4API382	●		27-4API382			4	15.875	27	3.09	2.1	2.8	
	27-4API383			27-4API383			4	15.875	27	3.08	2.1	2.8	
	27-4API502			27-4API502			4	15.875	27	3.75	2.1	3.1	
	27-4API503	●		27-4API503			4	15.875	27	3.74	2.1	3.1	
	27-5API403	●		27-5API403			5	15.875	27	2.99	1.9	2.7	
Internal	IR 22-4API382			IL 22-4API382			4	12.7	22	3.09	2.1	2.8	
	22-4API383			22-4API383			4	12.7	22	3.08	2.1	2.8	
	22-4API502	●		22-4API502			4	12.7	22	3.75	2.1	3.1	
	22-4API503			22-4API503			4	12.7	22	3.74	2.0	2.9	
	22-5API403	●		22-5API403			5	12.7	22	2.99	1.8	2.6	
	22-6API551	●		22-6API551			6	12.7	22	1.41	2.6	2.0	
	27-4API382			27-4API382			4	15.875	27	3.09	2.1	2.8	
	27-4API383	●		27-4API383			4	15.875	27	3.08	2.1	2.8	
	27-4API502	●		27-4API502			4	15.875	27	3.75	2.1	3.1	
	27-4API503	●		27-4API503			4	15.875	27	3.74	2.1	3.1	
	27-5API403	●		27-5API403			5	15.875	27	2.99	1.9	2.7	

➔ Applicable holders D32, D33

● : Stock item

## API Buttress Casing (BUT)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch TPI	Dimensions (mm)					Configuration
								IC	L	hmin	PDY	PDX	
External	ER 22-5BUT75	●		EL 22-5BUT75			5	12.7	22	1.55	3.1	1.9	
	22-5BUT1			22-5BUT1			5	12.7	22	1.55	3.1	1.9	
Internal	IR 22-5BUT75	●		IL 22-5BUT75			5	12.7	22	1.55	2.8	1.9	
	22-5BUT1	●		22-5BUT1			5	12.7	22	1.55	2.8	1.9	

Applicable holders D32, D33

●: Stock item

## API Round Casing & Tubing (APIRD)

Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch TPI	Dimensions (mm)					Configuration
								IC	L	hmin	PDY	PDX	
External	ER 16-10APIRD	●		EL 16-10APIRD			10	9.525	16	1.41	1.2	1.4	
	16-8APIRD	●		16-8APIRD			8	9.525	16	1.81	1.3	1.5	
Internal	IR 16-10APIRD	●		IL 16-10APIRD			10	9.525	16	1.41	1.2	1.4	
	16-8APIRD	●		16-8APIRD			8	9.525	16	1.81	1.3	1.5	

Applicable holders D32, D33

●: Stock item

## Extreme Line Casing (EL)

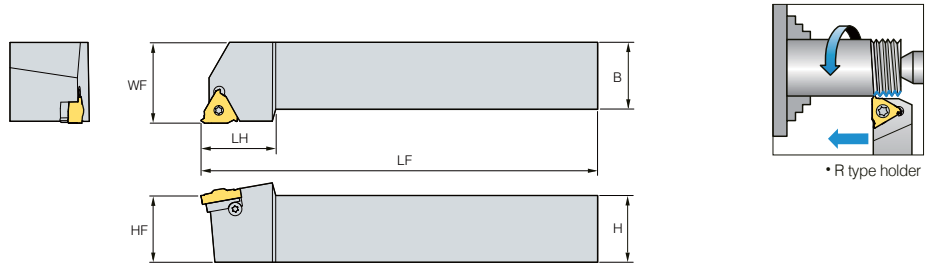
Type	Designation (Right)	PC3030T	PC9070T	Designation (Left)	PC3030T	PC9070T	Pitch TPI	Dimensions (mm)					Configuration
								IC	L	hmin	PDY	PDX	
External	ER 22-6EL15			EL 22-6EL15			6	12.7	22	1.21	1.9	1.9	
	22-5EL125			22-5EL125			5	12.7	22	1.71	2.3	2.4	
Internal	IR 22-6EL15			IL 22-6EL15			6	12.7	22	1.39	1.8	1.9	
	22-5EL125			22-5EL125			5	12.7	22	1.91	2.2	2.4	

Applicable holders D32, D33

●: Stock item

# ER(L)H

(Screw on system)



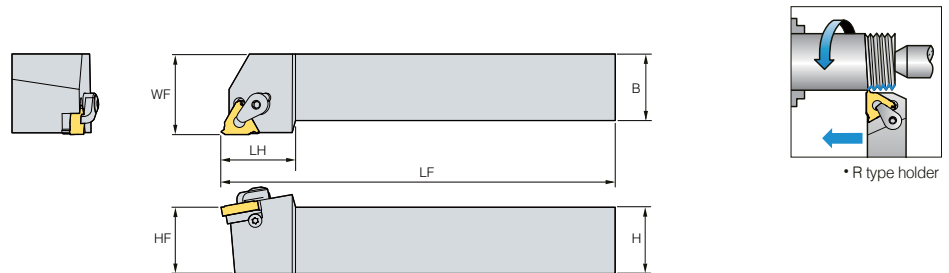
(mm)

Designation	Stock		Inscribed circle	H	B	LF	WF	HF	LH	Insert screw	Shim screw	Shim RH	Shim LH	Wrench
	R	L												
<b>ER(L)H</b> 08N-11			6.35	8	8	136.4	11	8	17.5	ST11N	-	-	-	TW08P
10N-11			6.35	10	10	70.0	11	10	17.5					
12N-11	●		6.35	12	12	80.0	12	12	17.5	ST16N	-	-	-	TW10P
12N-16			9.525	12	12	83.2	16	12	22					
09-16			9.525	9.52	9.52	63.6	16	9.52	20.5	ST16	STA16	ATE16	ATI22	TW10P
12-16	●		9.525	12	12	83.2	16	12	22					
16-16	●	●	9.525	16	16	100.0	16	16	20.5					
20-16	●	●	9.525	20	20	128.6	20	20	30					
25-16	●	●	9.525	25	25	153.6	25	25	30					
32-16	●		9.525	32	32	173.6	32	32	30					
25-22	●	●	12.7	25	25	155.7	25	25	36	ST22	STA22	ATE22	ATI22	TW20P
32-22	●		12.7	32	32	175.7	32	32	36					
40-22			12.7	40	40	205.7	40	40	36	ST27	STA27	ATE27	ATI27	TW25L
25-27	●	●	15.875	25	25	151.6	32	25	35					
32-27	●		15.875	32	32	176.6	32	32	40					
40-27	●		15.875	40	40	206.6	40	40	40					
50-27			15.875	50	50	256.6	50	50	40					

↻ Applicable inserts **D11~D14, D17, D19, D20, D23~D27, D29~D31** • Helix angle is 1.5° for all holders • No shim needed for N type holder • ● : Stock item

# ER(L)H-C

(Clamp on system)

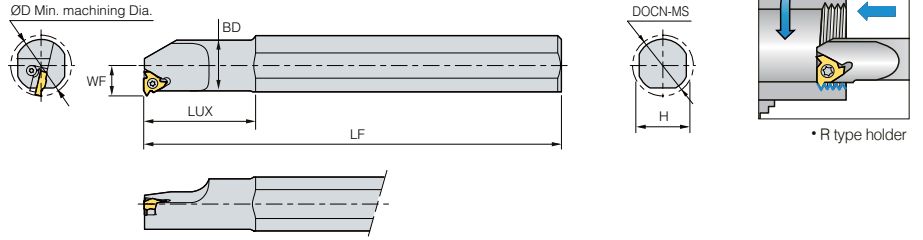


(mm)

Designation	Stock		Inscribed circle	H	B	LF	WF	HF	LH	Shim screw	Clamp	Shim RH	Shim LH	Wrench
	R	L												
<b>ER(L)H</b> 20-16C	●	●	9.525	20	20	128.6	20	20	30	STA16	CTH16	ATE16	ATI16	TW10P TW15P
25-16C	●	●	9.525	25	25	153.6	25	25	30					
32-16C	●		9.525	32	32	173.6	32	32	30	STA22	CTH22	ATE22	ATI22	TW20P
25-22C	●	●	12.7	25	25	155.7	25	25	36					
32-22C	●		12.7	32	32	175.7	32	32	36					
40-22C	●		12.7	40	40	205.7	40	40	36	STA27	CTH27	ATE27	ATI27	TW25L
25-27C	●		15.875	25	25	151.6	25	25	35					
32-27C			15.875	32	32	176.6	32	32	40					
40-27C			15.875	40	40	206.6	40	40	40					
50-27C			15.875	50	50	256.6	50	50	40					

↻ Applicable inserts **D11~D14, D17, D19, D20, D23~D27, D29~D31** • Helix angle is 1.5° for all holders • No shim needed for N type holder • ● : Stock item

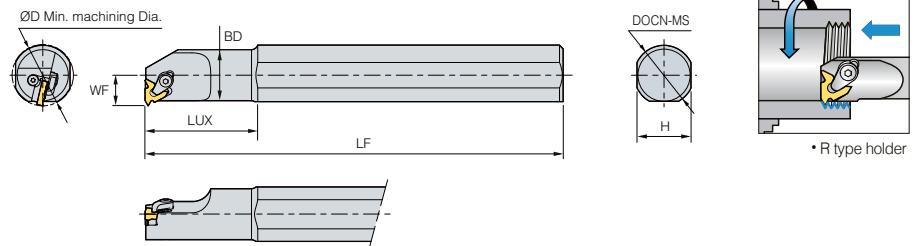
## IR(L)H (Screw on system)



Designation	Stock		Inscribed circle	DMIN	DOCN-MS	BD	H	LF	WF	LUX	Insert screw	Shim screw	Shim RH	Shim LH	Wrench	
	R	L														
IR(L)H	10DN-11	●	●	6.35	13	10	10.0	9.5	100	7.3	-	-	-	-	-	-
	10N-11	●	●	6.35	13	20	10.0	18.0	180	7.3	25	ST11N	-	-	-	TW08P
	13N-11	●	●	6.35	16	20	13.0	18.0	180	8.9	32	-	-	-	-	-
	13N-16	●	●	9.525	17	20	12.7	18.0	180	10.3	32	-	-	-	-	-
	16N-16	●	●	9.525	20	20	16.0	18.0	180	11.5	40	-	-	-	-	-
	16DN-16	●	●	9.525	20	16	16.0	15.2	150	11.3	32	ST16N	-	-	-	TW10P
	20-16	●	●	9.525	24	20	20.0	18.0	180	13.4	40	-	-	-	-	-
	25-16	●	●	9.525	29	32	25.0	29.0	250	16.3	60	-	-	-	-	-
	25D-16	●	●	9.525	29	25	24.5	22.6	200	16.1	45	ST16	STA16	ATI16	ATE16	TW10P
	32-16	●	●	9.525	36	32	32.0	29.0	250	19.6	60	-	-	-	-	-
	40-16	●	●	9.525	44	40	40.0	36.0	300	23.8	60	-	-	-	-	-
	20N-22	●	●	12.7	27	20	20.0	18.0	180	15.6	50	ST22N	-	-	-	TW20P
	25-22	●	●	12.7	32	32	25.0	29.0	250	17.4	60	-	-	-	-	-
	25D-22	●	●	12.7	32	25	24.6	22.6	200	17.2	45	ST22	STA22	ATI22	ATE22	TW20P
	32-22	●	●	12.7	39	32	32.0	29.0	250	21.5	60	-	-	-	-	-
	40-22	●	●	12.7	47	40	40.0	36.0	300	25.8	60	-	-	-	-	-
	32-27	●	●	15.875	40	32	32.0	29.0	250	22.4	60	-	-	-	-	-
	40-27	●	●	15.875	48	40	40.0	36.0	300	26.4	60	-	-	-	-	-
	50-27	●	●	15.875	58	50	50.0	45.0	350	31.4	75	ST27	STA27	ATI27	ATE27	TW25L
	60-27	●	●	15.875	69	60	60.0	54.0	400	36.4	75	-	-	-	-	-

⚠ Applicable inserts **D11, D12, D15, D16, D18, D21~D26, D28~D31** • Helix angle is 1.5° for all holders • No shim needed for N type holder • Processing smaller than D uses NFFT or MSB • ●: Stock item

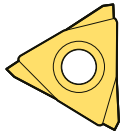
## IR(L)H-C (Clamp on system)



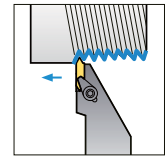
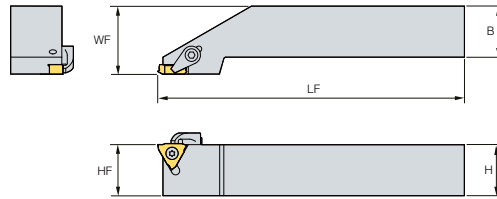
Designation	Stock		Inscribed circle	DMIN	DOCN-MS	BD	H	LF	WF	LUX	Shim screw	Clamp	Shim RH	Shim LH	Wrench	
	R	L														
IR(L)H	20-16C	●	●	9.525	24	20	20.0	18.0	180	13.4	50	-	-	-	-	-
	25-16C	●	●	9.525	29	32	25.0	28.0	250	16.3	60	-	-	-	-	-
	25D-16C	●	●	9.525	29	25	24.6	22.6	200	16.1	45	STA16	CTH16	ATI16	ATE16	TW10P TW15P
	32-16C	●	●	9.525	36	32	32.0	29.0	250	19.6	60	-	-	-	-	-
	40-16C	●	●	9.525	44	40	40.0	36.0	300	23.8	60	-	-	-	-	-
	25-22C	●	●	12.7	32	32	25.0	29.0	250	17.4	60	-	-	-	-	-
	25D-22C	●	●	12.7	32	25	24.6	22.6	200	17.2	45	STA22	CTH22	ATI22	ATE22	TW20P
	32-22C	●	●	12.7	39	32	32.0	29.0	250	21.5	60	-	-	-	-	-
	40-22C	●	●	12.7	47	40	40.0	36.0	300	25.8	60	-	-	-	-	-
	32-27C	●	●	15.875	40	32	32.0	29.0	250	22.4	60	-	-	-	-	-
	40-27C	●	●	15.875	48	40	40.0	36.0	300	26.4	60	-	-	-	-	-
	50-27C	●	●	15.875	58	50	50.0	45.0	350	31.4	75	STA27	CTH27	ATI27	ATE27	TW25L
	60-27C	●	●	15.875	69	60	60.5	54.0	400	36.4	75	-	-	-	-	-

⚠ Applicable inserts **D11, D12, D15, D16, D18, D21~D26, D28~D31** • Helix angle is 1.5° for all holders • ●: Stock item

## VTH



VETR



• R type holder

Designation		Stock	H=(h)	B	LF	WF	Applicable inserts	Clamp	Clamp screw	Screw	Wrench
VTH	2020R	●	20	20	125	26.4	VETR				
	2525R	●	25	25	150	33.4					
	3225R		32	25	170	33.4					

(mm)

● : Stock item

### Vertical type thread insert

Picture	Designation	Uncoated	Dimensions (mm)		Configuration
		ST10	Pitch (TP)	PDX	
	VETR 080		0.8	1.4	<p>IC: 9.525 S1: 4.76</p>
	100	●	1.0	1.4	
	125		1.25	1.4	
	150	●	1.5	1.2	
	175		1.75	1.2	
	200	●	2.0	1.2	
	250		2.5	1.4	
	300	●	3.0	1.6	
	150F	●	0.8~1.5	1.4	
	300F	●	1.5~3.0	1.6	

● : Stock item





# PARTS







## Technical information for PARTS

<b>E3</b>	Shim
<b>E4</b>	Cartridge
<b>E4</b>	Chip breaker
<b>E4</b>	Chip cover
<b>E4</b>	Clamp
<b>E5</b>	Coolant bolt
<b>E5</b>	Wrench bolt
<b>E5</b>	Lever
<b>E6</b>	Locator
<b>E6</b>	Nut
<b>E6</b>	Pin
<b>E6</b>	Screw
<b>E7</b>	Shim pin
<b>E8</b>	Spring
<b>E8</b>	Wrench
<b>E8</b>	Stop ring
<b>E8</b>	Washer
<b>E8</b>	Stopper
<b>E8</b>	Nozzle



Geometry	Designation	Dimensions					
		a	b	c	d	angle	
	<b>SC32</b>	8.5	3.18	4.9			
	<b>SC32N</b>	8.5	3.18	4.88			
	<b>SC42</b>	12.5	3.18	6.9			
	<b>SC42N</b>	11.6	3.18	6.5			
	<b>SC53</b>	15.7	4.76	7.9			
	<b>SC53N</b>	14.6	4.76	8.11			
	<b>SC63</b>	18.85	4.76	10			
	<b>SC63N</b>	17.8	4.76	9.6			
	<b>SC83</b>	24.4	4.76	12.8			
	<b>SC84N</b>	24.2	6.35	13			
<b>SC42B</b>	12.5	3.18	6.9				
	<b>SC42CC</b>	12.5	3.18	3.5			
		<b>SC32D</b>	9.27	3.18	6.48		
		<b>SC43D</b>	12.45	4.76	7.34		
		<b>SC53D</b>	15.62	4.76	9.65		
		<b>SC63D</b>	18.8	4.76	11.25		
		<b>SC84D</b>	25.08	6.35	14.85		
		<b>SC42S</b>	11.5	3.18	6.4		
	<b>SC32S</b>	8.3	3.18	5.4			
		<b>SC63V</b>	18.35	4.76	5.5		
		<b>SC83V</b>	25.3	4.76	6.55		
<b>SC84V</b>		25.3	6.35	6.35			
<b>SC32V</b>		9.12	3.18	3.4			
<b>SC42V</b>		12.6	3.18	4.5			
<b>SC44V</b>		12.6	6.35	4.5			
<b>SC54V</b>		15.75	6.35	5.5			
<b>SS32V</b>		9.12	3.18	3.4			
<b>SS42V</b>		12.6	3.18	4.5			
<b>SS54V</b>		15.75	6.35	5.5			
<b>SS64V</b>	18.9	6.35	5.5				
	<b>SD317</b>	9.35	2.7	5.2			
	<b>SD32N</b>	8.5	3.18	4.88			
	<b>SD42</b>	12.5	3.18	6.9			
	<b>SD42N</b>	11.6	3.18	6.5			
	<b>SD43N</b>	11.6	4.75	6.5			
	<b>SD32D</b>	9.2	3.18	5.8			
	<b>SD43D</b>	12.45	4.76	7.34			
		<b>SD32S</b>	8.5	3.18	5.4		
<b>SD42S</b>		11.5	3.18	6.4			
	<b>SD32V</b>	9.12	3.18	3.4			
	<b>SD43V</b>	12.6	4.76	4.5			
	<b>SD44V</b>	12.6	6.35	4.5			

Geometry	Designation	Dimensions					
		a	b	c	d	angle	
	<b>SES33C</b>	9.1	12	4.76	3.5		
		<b>SK33C</b>	9.33	14.7	4.8	3.5	
<b>SK33CL</b>		9.33	14.7	4.8	3.5		
	<b>SR10</b>	8.4	3.18	4.7			
	<b>SR12</b>	10	3.18	4.7			
	<b>SR16</b>	13.55	4.76	6.9			
	<b>SR20</b>	17.1	4.85	7.9			
	<b>SR25</b>	22	6.35	9.6			
	<b>SR32</b>	27.8	6.35	13			
	<b>SR42CC</b>	12.575	3.18	3.5			
		<b>SR10S</b>	8.8	3.18	5.4		
		<b>SR12S</b>	10.55	3.18	5.4		
		<b>SS32</b>	8.5	3.18	4.9		
<b>SS32N</b>		8.5	3.18	4.88			
<b>SS42</b>		12.5	3.18	6.9			
<b>SS42B</b>		12.5	3.18	6.9			
<b>SS42N</b>		11.6	3.18	6.5			
<b>SS53</b>		15.7	4.76	7.9			
<b>SS53N</b>		14.6	4.76	8.11			
<b>SS63</b>		18.85	4.76	10			
<b>SS63N</b>		17.8	4.76	9.6			
<b>SS84</b>		24.4	6.35	12.8			
<b>SS84N</b>	24.2	6.35	13				
<b>SS42CC</b>	12.5	3.18	3.5				
<b>SS32CC</b>	9.3	3.18	3.5				
	<b>SS32D</b>	9.27	3.18	5.77			
	<b>SS43D</b>	12.45	4.76	7.34			
	<b>SS53D</b>	15.62	4.76	9.65			
	<b>SS63D</b>	18.8	4.76	11.25			
	<b>SS84D</b>	25.15	6.35	14.43			
	<b>SS32S</b>	8.3	3.18	5.4			
<b>SS42S</b>	11.5	3.18	6.4				
	<b>SS42SAF</b>	11.2	3	5.5			
		<b>ST317</b>	9.35	2.7	5		
<b>ST317B</b>		9.35	2.7	5			
<b>ST317N</b>		8.5	2.7	4.88			
<b>ST42</b>		12.5	3.18	6.9			
<b>ST42N</b>		11.6	3.18	6.5			
<b>ST53</b>		15.7	4.76	7.9			

**Shim**

Geometry	Designation	Dimensions				
		a	b	c	d	angle
	<b>ST32CC</b>	9.35	3.18		3.5	
	<b>ST32C1</b>	9.13	3.18		4.95	
	<b>ST42C1</b>	12.3	3.18		4.95	
	<b>ST32D</b>	9.35	3.18		5.77	
	<b>ST43D</b>	12.52	4.76		7.34	
	<b>ST53D</b>	15.7	4.76		9.65	
	<b>ST63D</b>	18.87	4.76		11.25	
	<b>ST32M</b>	8.7	3.18		4.7	
	<b>ST43M</b>	12.5	4.76		6.3	
	<b>ST32S</b>	8.5	3.18		5.4	
	<b>ST32V</b>	9.12	3.18		3.4	
	<b>ST44V</b>	12.6	6.35		4.5	
	<b>SV32D</b>	9.2	3.18		5.8	
	<b>SV43D</b>	12.29	4.76		7.34	
	<b>SV32D2</b>	9.2	3.18		5.8	
	<b>SV32S</b>	8.4	3.18		5.4	
	<b>SW317</b>	9.35	2.7		5	
	<b>SW317N</b>	8.5	2.7		4.88	
	<b>SW42</b>	12.5	3.18		6.9	
	<b>SW42N</b>	11.6	3.18		6.5	
	<b>SW32D</b>	9.25	3.18		5.8	
	<b>SW43D</b>	12.45	4.76		7.34	
	<b>SW53D</b>	15.62	4.76		9.65	
	<b>SW63D</b>	18.8	4.76		11.25	
	<b>SW84D</b>	24.89	6.35		14.43	
	<b>SW43M</b>	12.5	4.76		6.2	
	<b>SW32M</b>	8.52	3.18		5.2	
	<b>SW32V</b>	9.12	3.18		3.4	
	<b>SW44V</b>	12.6	6.35		4.5	
	<b>SW54V</b>	15.75	4.76		5.5	

**Cartridge**

Geometry	Designation	Dimensions				
		a	b	c	d	angle
	<b>LAPDR-AJ</b>	M4x0.7	30	15	10	

**Chip breaker**

Geometry	Designation	Dimensions				
		a	b	c	d	angle
	<b>CB20</b>	8.5	3.4	20		

**Chip cover**

Geometry	Designation	Dimensions				
		a	b	c	d	angle
	<b>CFMP3R14R1-A</b>	10.5	20	1	(Ø4.3)	
	<b>CFMP3R-A</b>	8	18	1	(Ø4.3)	
	<b>CFMP4R-A</b>	8	22	1	(Ø4.3)	

**Clamp**

Geometry	Designation	Dimensions				
		a	b	c	d	angle
	<b>CA05R</b>	8.9	5.5	17.6	3.3	
	<b>CA06R</b>	12	7.2	20.6	5.3	
	<b>CH5R3</b>	7.85	7.2	14.8	3.1	
	<b>CH6R4</b>	12.02	9	23.97	3.75	
	<b>CBH4.5R1</b>	8	5.74	17.7	4	
	<b>CBH4.5R2</b>	9.5	6.4	18	4	
	<b>CBH5R1</b>	10	7.8	21.3	5	
	<b>CBH6R1</b>	12	9.3	26	6	
	<b>CDH6N</b>	9.5	10	18.6	6.1	
	<b>CDH7N</b>	7.9	11.4	14.7	4.7	
	<b>CDH8N</b>	10.9	16.9	22.4	6.1	
	<b>CDH8N1</b>	10.9	16.9	19.1	6.1	
	<b>CDH8N2</b>	10.9	16.9	25.4	6.1	
	<b>CDH8N3</b>	12.5	19.8	25.4	9.2	
	<b>CDS8N</b>	10.8	17	22.2	5	
	<b>CGH5R1</b>	19.5	9.5	28.8	2.5	
	<b>CGH5R2</b>	20.5	9.5	28.8	3.5	
	<b>CGH5R3</b>	22.5	9.5	28.8	5.5	



## Clamp

Geometry	Designation	Dimensions				
		a	b	c	d	angle
	<b>CGH6R1</b>	22.3	11.9	23.2	2.5	
	<b>CGH6R2</b>	23.2	11.9	23.2	3.4	
	<b>CGH6R3</b>	24.0	11.9	23.2	4.2	
	<b>CHH3.5R1</b>	7.5	6.7	13	2.45	
	<b>CHH4.5R1</b>	7.9	7.85	14.1	2.54	
	<b>CHH5.5R1</b>	9.8	10	16.4	4	
	<b>CH4R1</b>	7.4	5	14.1	3.1	
	<b>CH5R1</b>	10.0	6.6	20.2	4.5	
	<b>CH5R2</b>	6.85	7	13.8	2	
	<b>CH6R2</b>	8.85	8.7	16.5	2	
	<b>CH6R3</b>	11.8	10	23	4.2	
	<b>CMH5R1</b>	18.5	7.9	16	6.26	
	<b>CMH6R1</b>	24	8.5	16.5	8.28	
	<b>CMH6R2</b>	20	10.7	18.56	13.25	
	<b>CMH6R6</b>	18.5	7.9	16	6.26	
	<b>CMH6R3</b>	20.0	11	17.51		
	<b>CMH6L3</b>	20.0	11	17.51		
	<b>CS5R1</b>	6.8	7	14.5	2	
	<b>CS6R1</b>	8.8	8.5	18.1	2.7	
	<b>CS8R1</b>	11.8	10	23	4.2	
	<b>CTH6L1</b>	23.5	12	25.4	14.35	
	<b>CTH6R1</b>	23.5	12	25.4	14.35	
	<b>CTH6R2</b>	21.78	12.9	31.22	17.33	
	<b>CVH3</b>	21	11	5.8	7.7	
	<b>CVH3V</b>	29	14	7	8	
	<b>CVH4</b>	25.5	14.5	6	7	
	<b>CVH5</b>	30	17	7.5	9.5	
	<b>CVH6</b>	33.5	18.5	8	10	
	<b>CXH8N</b>	10.1	10.0	17.5	-	

## Coolant bolt

Geometry	Designation	Dimensions					
		a	b	c	d	B(T)	a'
	<b>CBA063-3IN/MM</b>	M10	Ø25	Ø16	37	8	(27)
	<b>CBA063-4IN/MM</b>	M10	Ø25	Ø16	42.5	8	(27)
	<b>CBA080-IN/MM</b>	M12	Ø28	Ø18	45.5	10	(32)
	<b>CBP063-IN/MM</b>	M10	Ø22	Ø16	38.6	8	(27)
	<b>CBP080-IN/MM</b>	M12	Ø25	Ø18	48.6	10	(32)

## Coolant bolt

Geometry	Designation	Dimensions					
		a	b	c	d	B(T)	a'
	<b>CBA100-IN/MM</b>	M16	Ø54	Ø43	47	14	(32)
	<b>CBA100-IN-25.4</b>	M12	Ø44	Ø36	41.5	10	(25)
	<b>CBA125-IN</b>	M20	Ø65	Ø54	56	17	(38)
	<b>CBA125-IN-25.4</b>	M12	Ø44	Ø36	43.5	10	(25)
	<b>CBA125-MM</b>	M20	Ø65	Ø54	57	17	(35)
	<b>CBA160-IN</b>	M24	Ø83	Ø73	56	19	(38)
	<b>CBA160-MM</b>	M20	Ø83	Ø73	53	17	(34)
	<b>CBP100-IN</b>	M16	Ø50	Ø43	48.6	14	(32)
	<b>CBP100-IN-25.4</b>	M12	Ø44	Ø36	46.5	10	(25)
	<b>CBP100-MM-1</b>	M16	Ø50	Ø43	48.6	14	(36)
	<b>CBP125-IN</b>	M20	Ø65	Ø54	56	17	(38)
	<b>CBP125-IN-25.4</b>	M12	Ø44	Ø36	55	10	(25)
	<b>CBP125-MM</b>	M20	Ø65	Ø54	57	17	(35)
	<b>CBP125-MM-1</b>	M20	Ø61	Ø54	65.6	14	(33)
	<b>CBP160-IN</b>	M24	Ø83	Ø73	56	19	(38)
	<b>CBP160-MM</b>	M20	Ø83	Ø73	53	17	(34)

## Wrench bolt

Geometry	Designation	Dimensions				
		A	C	K	L	M
	<b>SB0825</b>	13	6	8	25	M08 x 1.25
	<b>SB1025</b>	16	8	10	25	M10 x 1.50
	<b>SB1035</b>	16	8	10	35	M10 x 1.50
	<b>SB1230</b>	18	10	12	30	M12 x 1.75
	<b>SB1630</b>	24	14	16	30	M16 x 2.0
	<b>SB1645</b>	24	14	16	45	M16 x 2.0
	<b>SB2040</b>	30	17	20	40	M20 x 2.5
	<b>CB1025</b>	13	6	8	25	M08x1.25
	<b>CB1025</b>	16	8	10	25	M10x1.50
	<b>CB1035</b>	16	8	10	35	M10x1.50
	<b>CB1230</b>	18	10	12	30	M12x1.75
	<b>CB1245</b>	18	10	12	45	M12x1.75
	<b>CB1630</b>	24	14	16	30	M16x2.0
	<b>CB1645</b>	24	14	16	45	M16x2.0
<b>CB2040</b>	30	17	20	40	M20x2.5	

## Lever

Geometry	Designation	Dimensions				
		a	b	c	d	
	<b>LR10</b>	3.4	10.8	11.7	3	
	<b>LR12</b>	3.7	13.5	13.4	3.5	
	<b>LR16</b>	4.75	18.7	18.3	4.3	
	<b>LR20</b>	5.9	20.5	18.7	5.55	
	<b>LR25</b>	7.35	24.25	23.7	6.2	
	<b>LR32</b>	8.45	29.7	26.95	7.9	
		<b>LV2</b>	2.6	7.75	6	2.1
		<b>LV3B</b>	3.1	10	9.5	3.7
		<b>LV4B</b>	4.7	14.55	15.6	4.7
		<b>LV4BN</b>	4.7	16	14.9	4.68
	<b>LV3</b>	3.7	10	12	3.6	
	<b>LV3N</b>	3.75	10	12	3.55	
	<b>LV3AN</b>	3.75	12.1	11.4	4.64	
	<b>LV3C</b>	3.1	10	7.85	3.6	
	<b>LV3CN</b>	3.2	10	7.8	3.6	
	<b>LV3DN</b>	3.2	11.65	9.5	3.55	
	<b>LV4</b>	4.7	14.55	14	4.7	
	<b>LV4N</b>	4.7	13.45	13.2	4.68	
	<b>LV5</b>	6	17.1	17	6	
	<b>LV5N</b>	6	16.4	17.08	5.95	
	<b>LV5AN</b>	6	18.82	17.3	5.95	
	<b>LV6N</b>	7.5	20.5	21	7.6	
	<b>LV8N</b>	8.6	25.5	25.4	8.6	

**Lever**

Geometry	Designation	Dimensions			
		a	b	c	d
	LV4A	4.6	13.24	9.95	4.7
	LV4AN	4.7	13.3	10	4.68

**Locator**

Geometry	Designation	Dimensions			
		a	b	c	d
	LFMP3R-A	M3.5	18.7	10.1	4.6
	LFMP4R1-A	M4.5	24.3	13.8	6.2
	LFMP4R-A	M4.5	26.3	13.8	6.2
	LFMA3R-A	M3	18.5	9.5	4.8
	LFMA4R-A	M3.5	26	13.1	7.3

**Nut**

Geometry	Designation	Dimensions					
		a	b	c	d	B(T)	a'
	N0407	M4 X 0.7	7.5	6	7	3	
	N0508	M5 X 0.8	8.3	6.6	7	3	

**Pin**

Geometry	Designation	Dimensions		
		a	b	c
	PN0308	3.0	8	
	PN0310	3.0	10	
	PN0312	3.0	12	
	PN0314	3.0	14	
	PN0515	4.8	3.3	14.5

**Screw**

Geometry	Designation	Dimensions					
		a	b	c	d	B(T)	a'
	AZ0508F	M5 X 0.5	13	8	9	Ø2	
	AZ0514	M5 X 0.8	14	7	9	Ø2.5	
	BHA0510	M5 X 0.8	15	10	8.5	4.0	
	BHA0512	M5 X 0.8	17	12	8.5	4.0	
	BHA0612	M6 X 1.0	18	12	10	5.0	
	BHA0614	M6 X 1.0	20	14	10	5.0	
	BHA0616	M6 X 1.0	22	16	10	5	
	BHA0619-NYLOK	M6 X 1.0	25	19	10	5	
	CHX0407	M4 X 0.7	9.5	7.36	5.7	2.5	
	CHX0415	M4 X 0.7	17.5	15	5.4	2.5	
	CHX0510	M5 X 0.8	13.1	10.1	7.7	3	
	CHX0518	M5 X 0.8	21.5	18	8	3	
	CHX0622	M6 X 1.0	26.5	22	10	4	
	CHX0513	M5 X 0.8	13	8	6.4	2.5	
	CHX0616	M6 x 1.0	16.2	10.1	8.5	3	
	CHX0617L	M6 x 1.0 (Ø1.4)	17.2	10.1	8.5	3	
	CHX0621	M6 X 1.0	21	10.1	8.5	3	

**Screw**

Geometry	Designation	Dimensions					
		a	b	c	d	B(T)	a'
	CHX0625	1/4-20UNC	24.8	11	10	4	
	CTX03510	M3.5 X 0.6	10	4.7	5.3	15	
	CTX04513	M4.5 X 0.75	13.1	6.9	6.8	20	
	CTX04513H	M4.5 X 0.75	13.1	7.2	6.8	20	
	CTX0515	M5 X 0.8	15	8	7	20	
	CTX0517	M5 X 0.8	17.5	10	7	20	
	CTX0621	M6 X 1.0	21.2	12.4	9	25	
	DHA0514	M5 X 0.8	14.0	5.0	7.0	2.5	
	DHA0617	M6 x 1.0	17.0	7.0	7.5	3.0	
	DHA0620	M6 x 1.0	20.0	8.0	8.0	3.0	
	DHA0624	M6 x 1.0	24.0	12.0	8.5	3.0	
	DHA0815	M8 X 1.25	15.5	6.25	6.25	4.0	
	DHA0818F	M8 X 1.0	18	8.5	5.5	4.0	
	DHA0820	M8 X 1.25	20.0	8.0	9.0	4.0	
	DHA0821F	M8 X 1.0	21.0	8.5	8.5	4.0	
	DHA0825	M8 X 1.25	25.0	10.0	9.0	4.0	
	DHA0830	M8 X 1.25	30.0	11.5	11.5	4.0	
	ETGA0520CBM	M5 X 0.8	20	6.5	20	43°	
	ETGD0825	M8 X 1.25	25.2	11.1	40	40°	
	ETKA0523	M5 X 0.8	23	7.6	20	43°	
	ETKA0625	M6 X 1.0	25.5	8.8	20	43°	
	ETKD0516	M5 X 0.8	16.4	6.8	20	40°	
	ETKD0620	M6 X 1.0	20	8.3	25	40°	
	ETNA02506	M2.5 X 0.45	5.7	3.4	7	43°	
	ETNA0408	M4 X 0.7	8.0	5.1	15	43°	
	ETNA0412	M4 X 0.7	12	5.1	15	43°	
	ETNA0511	M5 X 0.8	11.0	6.4	20	43°	
	ETND02506F	M2.5 X 0.35	6.25	3.1	7	40°	
	ETND0307F	M3 X 0.35	7.8	3.7	8	40°	
	ETND03509	M3.5 X 0.6	9.6	4.7	10	40°	
	FTGA03507	M3.5 X 0.6	7.0	5.3	15	60°	
	FTGA03508	M3.5 X 0.6	8.0	5.3	15	60°	
	FTGA03510	M3.5 X 0.6	10.0	5.3	15	60°	
	FTGA03512	M3.5 X 0.6	12.0	5.0	15	60°	
	FTGA0411F	M4 X 0.5	11.0	7.0	15	60°	
	FTGA0417CBM	M4 X 0.7	17.0	5.5	15	62°	
	FTGA0510-P	M5 X 0.8	10.0	7.0	20	63°	
	FTGA0512-P	M5 X 0.8	12.0	7.0	20	63°	
	FTGA0513	M5 X 0.8	13.2	7.0	20	61°	
	FTGA0513-P	M5 X 0.8	13.0	7.0	20	63°	
	FTGA0517	M5 X 0.8	17.0	7.5	20	61°	
	FTGA0621	M6 X 1.0	21.5	9.0	20	61°	
	FTGA0826	M8 X 1.25	26.0	11.6	25	61°	
	FTKA02206	M2.2 X 0.45	5.5	3.0	6	60°	
	FTKA02206S	M2.2 X 0.45	5.6	3.05	7	60°	
	FTKA02555	M2.5 X 0.45	5.5	3.5	7	60°	
	FTKA02565	M2.5 X 0.45	6.5	3.5	7	60°	
	FTKA02565S	M2.5 X 0.45	6.5	3.8	8	60°	
	FTKA0307	M3 X 0.5	7.2	4.2	9	60°	
	FTKA03508	M3.5 X 0.6	8.4	5.5	15	60°	
	FTKA03510	M3.5 X 0.6	10.4	5.5	15	60°	
	FTKA03511A	M3.5 X 0.6	11.0	5.2	15	60°	
	FTKA0408	M4 X 0.7	8.4	5.5	15	60°	
	FTKA0410	M4 X 0.7	10.0	5.5	15	60°	
	FTKA0411K	M4 X 0.7	11.0	6.8	15	60°	
	FTKA0412B	M4 X 0.7	12.5	5.5	15	60°	
	FTKA0413	M4 X 0.7	13.0	5.5	15	60°	
	FTNA01633	M1.6 X 0.35	3.3	2.6	6	60°	
	FTNA0203	M2 X 0.4	3.0	2.7	6	60°	
	FTNA02033	M2 X 0.4	3.3	2.7	6	60°	
	FTNA0204	M2 X 0.4	4.3	2.7	6	60°	
	FTNA02205	M2.2 X 0.45	4.5	3.0	6	60°	
	FTNA0238	M2 X 0.4	3.8	3.0	6	60°	
	FTNA0305	M3 X 0.5	5.2	4.2	9	60°	
	FTNA0306	M3 X 0.5	6.2	4.2	9	60°	
	FTNA0307	M3 X 0.5	7.2	4.2	9	60°	
	FTNA0408	M4 X 0.7	8.5	5.5	15	60°	
	FTNA0411	M4 X 0.7	11.0	5.5	15	60°	
	FTNA0511	M5 X 0.8	11	7.0	20	63°	
	FTNA0513	M5 X 0.8	13.0	7.0	20	60°	
	FTNA0516	M5 X 0.8	16.0	7.0	20	60°	

## Screw

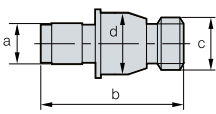
Geometry	Designation	Dimensions						
		a	b	c	d	B(T)	α	
	FTNB0411	M4 X 0.7	10.8	5.7	15	60°		
	FTNC04509	M4.5 X 0.75	9.5	6.8	20	55°		
	FTNC04511	M4.5 X 0.75	11.5	6.8	20	55°		
	FTNB0209	2 X 0.4	9	2.5	2.7	60°		
	FTNB0209-P	2 X 0.4	9	2.5	2.7	60°		
	FTNB02512	2.5 X 0.45	12	3.5	3.5	60°		
	FTNB02512-P	2.5 X 0.45	12	3.5	3.5	60°		
	FTNB02514	2.5 X 0.45	14	3.5	3.5	60°		
	FTNB02514-P	2.5 X 0.45	14	3.5	3.5	60°		
	FTNB0316	3 X 0.5	16	4.5	4.2	60°		
	FTNB0316-P	3 X 0.5	16	4.5	4.2	60°		
	FTNB0319	3 X 0.5	19	5	4.5	60°		
	FTNB03522	3.5 X 0.6	22	5.6	5.5	60°		
	FTNB03524	3.5 X 0.6	24	5.6	5.5	60°		
	FTNB0426	4 X 0.7	26	6.7	5.5	60°		
	FTNB0528	5 X 0.8	28	6.5	7	60°		
		KHA0508	M5 X 0.8	8			2.5	
		KHA0510	M5 X 0.8	10				2.5
KHA0610		M6 X 1.0	10				3	
KHA0612		M6 X 1.0	12				3.0	
KHA0812		M8 X 1.25	12				4.0	
KHA0815		M8 X 1.25	15				4.0	
KHA1015		M10 X 1.5	15				5.0	
KHA1020		M10 X 1.5	20				5.0	
KHB0417		M4 X 0.7	17.2	4.5	2.5	2		
		KHB0406	M4 X 0.7	6	4.2	3	2	
	KHC0510	M5 X 0.8	10	8.1	2.5	90°		
	KHC0610	M6 X 1.0	10	7.8	3.0	90°		
	KHC0812	M8 X 1.25	12	9	4.0	90°		
	KHC1016	M10 X 1.5	16	12.3	5.0	90°		
	KHC1020	M10 X 1.5	20	16.3	5.0	90°		
	KHD0510	M5 X 0.8	10	9	3	2.5		
	KHD0610	M6 X 1.0	10	10	4	3		
	KHD0810	M8 X 1.25	10	10	7.5	4		
	LTX0512	M5 X 0.8	15.1	12	7.3	20		
	LTX0514	M5 X 0.8	17.1	14	7.3	20		
	MHA0512	M5 X 0.8	17.0	10.8	8.0	4.0		
	MHB0310	M3 X 0.5	13.4	8.0	5.5	2.5		
	MHB0410	M4 X 0.7	14.0	8.0	7.0	3.0		
	MHB1055	M10 X 1.5	65	50	16	8		
	MHB1260	M12 X 1.75	72	55	18	10		
	MHB1680	M16 X 2.0	96	75	24	14		
	MHX0523	M5 X 0.8	23.5	9.7	10	2.5		
MHX0626	M6 X 1.0	25.8	10	11	3			
MHX0630	M6 X 1.0	30	12.5	10.5	4			
	PTKA02508	M2.5 X 0.45	8	5	3.8	8	92°	
	PTKA03510	M3.5 X 0.6	10	5	5	15	92°	
	PTKA0407	M4 X 0.7	7	4.6	5.5	15	86°	
	PTKA0407F	M4 X 0.5	7.3	3.8	6.5	15	91°	
	PTKA0408	M4 X 0.7	8	5.6	5.5	15	86°	
	PTKA0408F	M4 X 0.5	8.3	5.7	6.5	15	91°	
	PTKA0409F	M4 X 0.5	9.3	6.7	6.5	15	91°	
	PTKA0410F	M4 X 0.5	10.3	7.7	6.5	15	91°	
	PTKA0411F	M4 X 0.5	11.3	8.7	6.5	15	91°	
	PTKA0412	M4 X 0.7	12	7.5	5.9	15	92°	
	PTKA0412F	M4 X 0.5	12.3	9.7	6.5	15	91°	
	PTKA0413F	M4 X 0.5	13.3	10.7	6.5	15	91°	
	PTKA0512	M5 X 0.8	12	7	6.9	20	92°	
	PTMA03508	M3.5 X 0.6	8	5.3	6	9	90°	
	PTMA0403F	M4 X 0.5	3.3	1.7	6.5	15	91°	
PTMA0404F	M4 X 0.5	4.3	2.7	6.5	15	91°		
PTMA0405F	M4 X 0.5	5.3	3.7	6.5	15	91°		
PTMA0406F	M4 X 0.5	6.3	4.7	6.5	15	91°		
PTMA0411	M4 X 0.7	11	8.5	6.6	15	90°		

Geometry	Designation	Dimensions					
		a	b	c	d	B(T)	α
	FHGA0618	M4 X 0.7	11	6.9	6	15	
	FHGA0618	M6 X 1.0	18	8.5	4.0	61°	
	PXMA0306	M3 X 0.5	5.9	5.7	2	90°	
	SHX0310	M3 X 0.5	10	5.9	2	91°	
	RHA0510	M5 X 0.8	10			4.0	
	RHA0613	M6 X 1.0	16.3	13	10.5	4.0	
	RHA0620	M6 X 1.0	24	20	10.5	4.0	
	VHX0509B	M5 X 0.8	9	4.15	5	2	
	VHX0512B	M5 X 0.8	12	6.5	5	2	
	VHX0512BN	M5 X 0.8	12	6.56	5	2	
	VHX0514	M5 X 0.8	14.5	8.25	5	2	
	VHX0613N	M6 X 1.0	13.4	7.5	5.93	2.5	
	VHX0617	M6 X 1.0	17	10	6	2.5	
	VHX0617N	M6 X 1.0	16.75	8.34	5.9	2.5	
	VHX0621	M6 X 1.0	21	14	6		
	VHX0817N	M8 X 1.0	17.05	7.98	7.9	3	
	VHX0820N	M8 X 1.0	20.7	7.98	7.9	3	
	VHX0820AN	M8 X 1.0	20.5	10.36	7.9	3	
	VHX0821	M8 X 1.0	21	10	8	3	
	VHX0821N	M8 X 1.0	21.2	9.68	7.9	3	
	VHX0823N	M8 X 1.0	23.5	10.36	7.9	3	
	VHX0825	M8 X 1.0	25	12	8	3	
VHX1027N	M10 X 1.0	27.2	14.4	9.8	5		
VHX1236N	M12 X 1.0	36	18.3	11.8	5		
	VHX0613A	M6 X 1.0	13.4	9.1	6.0	2.5	
	SHXN0509F	M5 X 0.5	M3.5 X 0.6	8.65	6.3	3.5	
SHXN0609F	M6 X 0.75	M4 X 0.7	9	7.8	4		
SHXN0610F	M6 X 0.75	M4 X 0.5	10	7.8	4		
SHXN0712F	M7 X 0.75	M5 X 0.8	12	8.5	5		
	WTX0813	M8 X 1.25	17.2	4.9	8.5	25	
	WTX0817	M8 X 1.25	22	4.9	8.5	25	

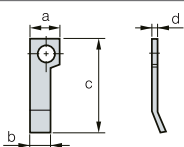
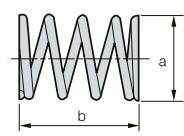
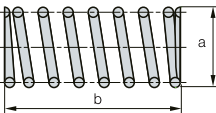
## Shim pin

Geometry	Designation	Dimensions			
		a	b	c	d
	SP3	5.5	3.5	5.9	
	SP3N	6.85	3.3	5.55	
	SP4	7.0	4.0	7.6	
	SP4N	5.8	4.35	7.4	
	SP5	8.5	4.5	8.8	
	SP5N	8.5	5.68	9	
	SP6N	11.1	6.0	11.0	
	SP8N	12.0	10.0	15.35	
	SP2M	5	14	M5 X 0.8	6
	SP3M	3.5	19.5	M4 X 0.7	4
	SP3M-1	3.5	16.5	M4 X 0.7	4
	SP4M	5	19	M5 X 0.8	6

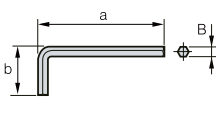
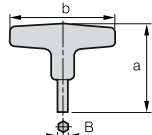
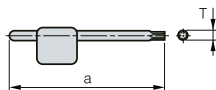
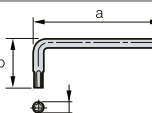
**Shim pin**

Geometry	Designation	Dimensions			
		a	b	c	d
	SP3D	3.7	13.1	UNF10-32	5.6
	SP3D2	3.6	12	UNF10-32	5.5
	SP3DS	3.7	11.54	UNF10-32	5.6
	SP4D	4.97	17.19	UNF1/4 28	7.12
	SP4DL	5	17.1	UNF1/4 28	7
	SP4DS	4.97	13.26	UNF1/4 28	
	SP5D	6.21	21.9	UNF5/16-24	9.44
	SP6D	7.75	21.9	UNF3/8-24	11.02
	SP8D	9.02	29.63	UNF7/16-20	14.21
	LSPS3	60	8.2	5.55	
LSPS4	65	10	7		
LSPS5	69	11.4	8.85		
LSPS6	69	13	11		
LSPS8	73	16.5	15.2		

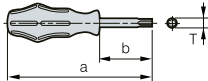
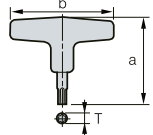
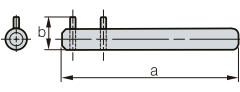
**Spring**

Geometry	Designation	Dimensions			
		a	b	c	d
	SR2	4.0	2.8	12.6	0.4
	SPR0315	3.0	15		
	SPR0415	4.0	15		
	SR3	9.2	12.5		
	SR4	4.0	11.0		
	SPR0714	7	14		
	SPR0510	5	10		
	SPR0714	7	14		
	SPR0811	8	11		

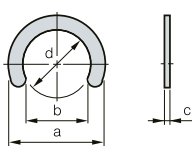
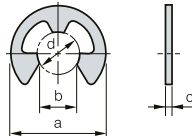
**Wrench**

Geometry	Designation	Dimensions		
		a	b	B(T)
	HW20L	52	18	2
	HW25L	58.5	20.5	2.5
	HW30L	66	23	3
	HW35L	72	25	3.5
	HW40L	74	29	4
	HW50L	85	33	5
	HW40	82	80	4
HW50	96	90	5	
	SW50L	70	27.5	
	TW06P	63	6	
	TW07P	63	7	
	TW08P	71	8	
	TW09P	75	9	
	TW10P	78	10	
	TW15P	82	15	
	TW20P	86	20	
	TW15L	60	21	15
	TW20L	60	21	20

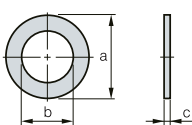
**Wrench**

Geometry	Designation	Dimensions		
		a	b	B(T)
	TW07S	140	60	7
	TW08S	150	76	8
	TW09S	165	70	9
	TW15S	190	90	15
	TW20S	195	91	20
	TW20	75	80	20
	TW25	74	80	25
	TW15-100	127	80	15
	TW20-100	127	80	20
	SW15S	150	13	

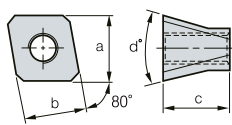
**Stop ring**

Geometry	Designation	Dimensions			
		a	b	c	d
	CR03	4.8	2.6	0.4	3.0
	CR04	6.6	3.6	0.4	4.0
	CR05	7.6	4.6	0.4	5.0
	ER03	7.0	2.6	0.6	3.0
	ER04	9.0	3.5	0.6	4.0
	ER05	11	4.3	0.6	5.0

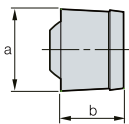
**Washer**

Geometry	Designation	Dimensions		
		a	b	c
	WA3	11.0	6.8	0.5-1.0
	WA4	10.0	5.3	0.5-1.0

**Stopper**

Geometry	Designation	Dimensions			
		a	b	c	d°
	STP5	11	10.2	11	30°

**Nozzle**

Geometry	Designation	Dimensions	
		a	b
	CN0605	6	4.6







# TECHNICAL INFORMATION

## Technical information for TECHNICAL INFORMATION

### Technical Information

- F3** Workpiece Material Grades
- F7** Steel, Non-Ferrous Metal Symbol List
- F8** SI Unit Conversion Table
- F9** Hardness Calculating Table
- F10** Technical Information for Turning
- F19** Technical Information for Multi Functional Tools
- F22** The Comparison of Chip Breakers
- F23** The Comparison of Grade for Turning

## Workpiece Material Grades

### Carbon steel and alloy steel for structural use

Type	Korea	ISO	Japan	U.S.A	Great Britain	Germany	France	Russia	
	KS	ISO	JIS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT	
Carbon steel	SM10C	C10	S10C	1010	040A10 045A10 045M10	C10E C10R	XC10	-	
	SM15C	C15E4 C15M2	S15C	1015	055M15	C15E C15R	-	-	
	SM20C	-	S20C	1020	070M20 C22, C22E C22R	C22 C22E C22R	C22 C22E C22R	-	
	SM25C	C25 C25E4 C25M2	S25C	1025	C25 C25E C25R	C25 C25E C25R	C25 C25E C25R	-	
	SM30C	C30 C30E4 C30M2	S30C	1030	080A30 080M30 CC30 C30E C30R	C30 C30E C30R	C30 C30E C30R	30 Г	
	SM35C	C35 C35E4 C35M2	S35C	1035	C35 C35E C35R	C35 C35E C35R	C35 C35E C35R	35 Г	
	SM40C	C40 C40E4 C40M2	S40C	1039 1040	080M40 C40 C40E C40R	C40 C40E C40R	C40 C40E C40R	40 Г	
	SM43C	-	S43C	1042 1043	080A42	-	-	40 Г	
	SM45C	C45 C45E4 C45M2	S45C	1045 1046	C45 C45E C45R	C45 C45E C45R	C45 C45E C45R	45 Г	
	SM48C	-	S48C	-	080A47	-	-	45 Г	
	SM50C	C50 C50E4 C50M2	S50C	1049	080M50 C50 C50E C50R	C50 C50E C50R	C50 C50E C50R	50 Г	
	SM53C	-	S53C	1050 1053	-	-	-	50 Г	
	SM55C	C55 C55E4 C55M2	S55C	1055	070M55 C55 C55E C55R	C55 C55E C55R	C55 C55E C55R	-	
	SM58C	C60 C60E4 C60M2	S58C	1059 1060	C60 C60E C60R	C60 C60E C60R	C60 C60E C60R	60 Г	
	Alloy steel	Nickel chromium steel	SNC236	-	SNC236	-	-	-	40XH
SNC415(H)			-	SNC415(H)	-	-	-	-	
SNC631(H)			-	SNC631(H)	-	-	-	30XH3A	
SNC815(H)			15NiCr13	SNC815(H)	-	655M13(655H13)	15NiCr13	-	
SNC836			-	SNC836	-	-	-	-	
Nickel chromium molybdenum steel		SNCM220	20NiCrMo2 20NiCrMoS2	SNCM220	8615 8617(H) 8620(H) 8622(H)	805A20 805M20 805A22 805M22	20NiCrMo2 20NiCrMoS2	20NCD2	-
		SNCM240	41CrNiMo2 41CrNiMoS2	SNCM240	8637 8640	-	-	-	
		SNCM415	-	SNCM415	-	-	-	-	
		SNCM420(H)	-	SNCM420(H)	4320(H)	-	-	-	
		SNCM431	-	SNCM431	-	-	-	-	
		SNCM439	-	SNCM439	4340	-	-	-	
		SNCM447	-	SNCM447	-	-	-	-	
		SNCM616	-	SNCM616	-	-	-	-	
		SNCM625	-	SNCM625	-	-	-	-	
		SNCM630	-	SNCM630	-	-	-	-	
SNCM815	-	SNCM815	-	-	-	-			
Chromium steel	SCr415(H)	-	SCr415(H)	-	-	17Cr3 17CrS3	-	15X 15XA 20X	
	SCr420(H)	20Cr4(H) 20CrS4	SCr420(H)	5120(H)	-	-	-		
	SCr430(H)	34Cr4 34CrS4	SCr430(H)	5130(H) 5132(H)	34Cr4 34CrS4	34Cr4 34CrS4	34Cr4 34CrS4	30X	
	SCr435(H)	34Cr4 34CrS4 37Cr4 37CrS4	SCr435(H)	5135(H)	37Cr4 37CrS4	37Cr4 37CrS4	37Cr4 37CrS4	35X	
	SCr440(H)	37Cr4 37CrS4 41Cr4 41CrS4	SCr440(H)	5140(H)	530M40 41Cr4 41CrS4	41Cr4 41CrS4	41Cr4 41CrS4	40X	
	SCr445(H)	-	SCr445(H)	-	-	-	-	45X	



Type		Korea	ISO	Japan	U.S.A	Great Britain	Germany	France	Russia
		KS	ISO	JIS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT
Alloy steel	Chromium molybdenum steel	SCM415(H)	-	SCM415(H)	-	-	-	-	-
		SCM418(H)	18CrMo4 18CrMoS4	SCM418(H)	-	-	18CrMo4 18CrMoS4	-	20XM
		SCM420(H)	-	SCM420(H)	-	708M20(708H20)	-	-	20XM
		SCM430	-	SCM430	4130	-	-	-	30XM 30XMA
		SCM432	-	SCM432	-	-	-	-	-
		SCM435(H)	34CrMo4 34CrMoS4	SCM435(H)	(4135H) 4137(H)	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	35XM
		SCM440(H)	42CrMo4 42CrMoS4	SCM440(H)	4140(H) 4142(H)	708M70 709M40 42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	-
	SCM445(H)	-	SCM445(H)	4145(H) 4147(H)	-	-	-	-	
	Manganese steel and Manganese chromium steel	SMn420(H)	22Mn6(H)	SMn420(H)	1522(H)	150M19	-	-	-
		SMn433(H)	-	SMn433(H)	1534	150M36	-	-	30Г 2 35Г 2
		SMn438(H)	36Mn6(H)	SMn438(H)	1541(H)	150M36	-	-	35Г 2 40Г 2
		SMn443(H)	42Mn6(H)	SMn443(H)	1541(H)	-	-	-	40Г 2 45Г 2
		SMnC420(H) SMnC443(H)	- -	SMnC420(H) SMnC443(H)	- -	- -	- -	- -	- -
Aluminum chromium molybdenum steel	SACM645	41CrAlMo74	SACM645	-	-	-	-	-	

• The above Alloy steel can supplied by domestic manufacturing

## Tool steel

Type		Korea	ISO	Japan	U.S.A	Great Britain	Germany	France	Russia	
		KS	ISO	JIS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT	
High speed steel	SKH2	HS18-0-1	SKH2	T1	-	-	-	-	-	
	SKH3	-	SKH3	T4	-	-	-	-	-	
	SKH4	-	SKH4	T5	-	-	-	-	-	
	SKH10	-	SKH10	T15	-	BM 2	S6/5/2	Z 85 WDCV	-	
	SKH51	HS6-5-2	SKH51	M2	-	-	-	-	-	
	SKH52	HS6-6-2	SKH52	M3-1	-	-	-	-	-	
	SKH53	HS6-5-3	SKH53	M3-2	-	-	-	-	-	
	SKH54	HS6-5-4	SKH54	M4	-	BM 35	S6/5/2/5	6-5-2-5	-	
	SKH55	HS6-5-2-5	SKH55	M 35	-	-	-	-	-	
	SKH56	-	SKH56	M36	-	-	-	-	-	
	SKH57	HS10-4-3-10	SKH57	-	-	-	S2/9/2	-	-	
	SKH58	HS2-9-2	SKH58	M7	-	-	-	-	-	
	SKH59	HS2-9-1-8	SKH59	M42	-	-	-	-	-	
	Alloy tool steel	STS11	-	SKS11	F2	-	-	-	-	-
		STS2	-	SKS2	-	-	-	-	-	-
STS21		-	SKS21	-	-	-	-	-	-	
STS5		-	SKS5	-	-	-	-	-	-	
STS51		-	SKS51	L6	-	-	-	-	-	
STS7		-	SKS7	-	-	-	-	-	-	
STS8		-	SKS8	-	-	-	-	-	-	
STS4		-	SKS4	-	-	-	-	-	-	
STS41		-	SKS41	-	-	-	-	-	-	
STS43		105V	SKS43	W2-9 1/ W2-8 1-2	-	-	-	-	-	
STS44		-	SKS44	-	-	-	-	-	-	
STS3		-	SKS3	-	-	-	105WCr6	105WC13	-	
STS31		105WCr1	SKS31	-	-	-	-	-	-	
STS93		-	SKS93	-	-	-	-	-	-	
STS94		-	SKS94	-	-	-	-	-	-	
STS95		-	SKS95	-	-	BD3	X210Cr12	Z200C12	-	
STD1		210Cr12	SKD1	D3	-	BA2	X100CrMoV5 1	Z100CDV5	-	
STD11		-	SKD11	D2	-	-	-	-	-	
STD12		100CrMoV5	SKD12	A2	-	BH21	X30WCrV9 3	Z30WCV9	-	
STD4		-	SKD4	-	-	-	-	-	-	
STD5		X30WCrV9-3	SKD5	H21	-	BH13	X40CrMoV5 1	Z40CDV5	-	
STD6		X37CrMoV5-1	SKD6	H11	-	-	-	-	-	
STD61		X40CrMoV5-1	SKD61	H13	-	-	-	-	-	
STD62		X35CrWMoV5	SKD62	H12	-	-	-	-	-	
STD7	32CrMoV12-28	SKD7	H10	-	-	-	-	-		
STD8	-	SKD8	H19	-	-	-	-	-		
STF3	-	SKT3	-	-	-	55NiCrMoV6	55NCDV7	-		
STF4	55NiCrMoV7	SKT4	L6	-	-	-	-	-		

• The above Alloy steel can supplied by domestic manufacturing

## Tool steel

Type	Korea	ISO	Japan	U.S.A	Great Britain	Germany	France	Russia
	KS	ISO	JIS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT
Free cutting carbon steel	SUM11	-	SUM11	1110				
	SUM12	-	SUM12	1109				
	SUM21	9S20	SUM21	1212				
	SUM22	11SMn28	SUM22	1213	230M07	9SMn28	S250	
	SUM22L	11SMnPb28	SUM22L	12L13		9SMnPb28	S250Pb	
	SUM23	-	SUM23	1215	240M07	9SMn36	S300	
	SUM23L	-	SUM23L	-				
	SUM24L	11SMnPb28	SUM24L	12L14		9SMnPb36	S300Pb	
	SUM25	12SMn35	SUM25	-				
	SUM31	-	SUM31	1117				
	SUM31L	-	SUM31L	-				
	SUM32	-	SUM32	-				
	SUM41	-	SUM41	1137				
	SUM42	-	SUM42	1141				
	SUM43	44SMn28	SUM43	1144				
High carbon chromiom	STB1	-	SUJ1	-				
	STB2	B1	SUJ2	52100	534A99	100Cr6	100Cr6	
	STB3	B2	SUJ3	ASTM A 485 Grade 1				
	STB4	-	SUJ4	-				
	STB5	-	SUJ5	-				

• The above Alloy steel can supplied by domestic manufacturing

## Stainless steel

Type		Korea	ISO	Japan	U.S.A		Great Britain	Germany	France	Russia	
		KS	ISO	JIS	UNS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT	
Stainless steel	Austenitic	STS201	X12CrMnNiN17-7-5	SUS201	S20100	201	284S16	X12CrNi17-7	Z12CMN17-07Az	12X17-9AH4	
		STS202	X12CrMnNiN18-9-5	SUS202	S20200	202	301S21	X2CrNiN18-7		07X16H6	
		STS301	X10CrNi18-8	SUS301	S30100	301			X12CrNi17-7	Z11CN17-08	
		STS301L	X2CrNiN18-7	SUS301L							
		STS301J1		SUS301J1			302S25				12X18H9
		STS302		SUS302	S30200	302		X10CrNiS18-9		Z12CN18-09	
		STS302B	X12CrNiSi18-9-3	SUS302B	S30215	302B	303S21				
		STS303	X10CrNiS18-9	SUS303	S30300	303	303S41			Z8CNF18-09	12X18H10E
		STS303Se		SUS303Se	S30323	303Se		X5CrNi18-10			
		STS303Cu		SUS303Cu			304S31				08X18H10
		STS304	X5CrNi18-9 X2CrNi18-9	SUS304	S30400	304		304S31		X2CrNi19-11	Z7CN18-09
		STS304L	X2CrNi19-11	SUS304L	S30403	304L		304S11		X2CrNiN18-10	Z3CN19-11
		STS304N1	X5CrNiN18-8	SUS304N1	S30451	304N					Z6CN19-09Az
		STS304LN	X2CrNiN18-8	SUS304LN	S30453	304LN			X5CrNi18-12	Z3CN18-10Az	
		STS304J1		SUS304J1				305S19			06X18H11
		STS305	X6CrNi18-12	SUS305	S30500	305					Z8CN18-12
		STS309S		SUS309S	S30908	309S	310S31	X5CrNiMo27-12-2	Z10CN24-13		10X23H18
		STS310S	X6CrNi25-20	SUS310S	S31008	310S	316S31	X5CrNiMo27-13-3	Z8CN25-20		
		STS316	X5CrNiMo17-12-2 X3CrNiMo17-12-3	SUS316	S31600	316		316S11	X2CrNiMo17-13-2 X2CrNiMo17-14-3	Z7CND17-12-02 Z6CND18-12-03	03X17H14M3
		STS316L	X2CrNiMo17-12-2 X2CrNiMo17-12-3 X2CrNiMo18-14-3	SUS316L	S31603	316L				Z3CND17-12-02 Z3CND17-12-03	
	STS316N		SUS316N	S31651	316N	317S16	X6CrNiTi18-10				
	STS317		SUS317	S31700	317	321S31	X6CrNiNb18-10			08X18H10T	
	STS321	X6CrNiTi18-10	SUS321	S32100	321	347S31			Z6CNT18-10	08X18H12	
	STS347	X6CrNiNb18-10	SUS347	S34700	347			X6CrAl13	Z6CNNb18-10		
	STS384	X3NiCr18-16	SUS384	S38400	384	405S17			Z6CN18-16		
	STS405	X6CrAl13	SUS405	S40500	405				Z8CA12		
	STS410L		SUS410L					X6Cr17	Z3C14		
	STS429		SUS429	S42900	429	430S17	X7CrS18			12X17	
	STS430	X6Cr17	SUS430	S43000	430		X6CrMo17-1		Z8C17		
	STS430F	X7CrS17	SUS430F	S43020	430F	434S17			Z8CF17		
	STS434	X6CrMo17-1	SUS434	S43400	434				Z8CD17-01		
	STS444	X2CrMoTi18-2	SUS444	S44400	444				Z3CDT18-02		
	STSXM27		SUSXM27	S44627			X10Cr13		Z1CD26-01		
STS403		SUS403	S40300	403	410S21						
STS410	X12Cr13	SUS410	S41000	410	416S21	X20Cr13		Z13C13			
STS416	X12CrS13	SUS416	S41600	416	420S29	X20CrNi17-2		Z11CF13	20X13		
STS420J1	X20Cr13	SUS420J1	S42000	420	431S29			Z20C13	20X17H2		
STS431	X19CrNi16-2	SUS431	S43100	431				Z15CN16-02			
STS440A	X70CrMo15	SUS440A	S44002	440A		X7CrNiAl17-7		Z70C15			
STS630	X5CrNiCuNb16-4	SUS630	S17400	S17400				Z6CNU17-04	09X17H7IO		
STS631	X7CrNiAl17-7	SUS631	S17700	S17700				Z9CNA17-07			
STS631J1		SUS631J1									

• The above Alloy steel can supplied by domestic manufacturing

**➤ Casting or forging steel**

Type		Korea	ISO	Japan	U.S.A	Great Britain	Germany	France	Russia
		KS	ISO	JIS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT
Casting Iron	Grey iron casting	GC100 GC150 GC200 GC250 GC300 GC350	100,150, 200, 250, 300, 350	FC100 FC150 FC200 FC250 FC300 FC350	No 20 B No 25 B No 30 B No 35 B No 45 B No 50 B No 55 B	Grade 150 Grade 220 Grade 260 Grade 300 Grade 350 Grade 400	GG 10 GG 15 GG 20 GG 25 GG 30 GG 35 GG 40	Ft 10 D Ft 15 D Ft 20 D Ft 25 D Ft 30 D Ft 35 D Ft 40 D	
	Spheroidal graphite iron casting	GCD400-15, GCD400-18 GCD450-10, GCD500-7 GCD600-3 GCD700-2	400-15, 400-18 450-10, 500-7 600-3 700-2	FCD400 FCD500 FCD600 FCD700	60-40-18 65-45-12 80-55-06 100-70-03	SNG 420/12 SNG 370/17 SNG 500/7 SNG 600/3 SNG 700/2	GGG 40 GGG 40.3 GGG 50 GGG 60 GGG 70	FCS 400-12 FGS 370-17 FGS 500-7 FGS 600-3 FGS 700-2	
	Austempered Spheroidal graphite iron casting	FCAD	-	FCAD	-	EN-GJS-	EN-GJS-	EN-GJS-	
	Austenitic iron casting	FCA-FCDA-	L-, S-	FCA-FCDA-	Type 1, 2, Type D-2, D-3A Class 1, 2	F1, F2, S2W, S5S	GGL-, GGG-	L-, S-	

**➤ Non-ferrous alloy**

Type		Korea	ISO	Japan	U.S.A	Great Britain	Germany	France	Russia
		KS	ISO	JIS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT
Aluminum alloy	Aluminum alloy ingots for casting	AC1B	Al-Cu4MgTi	AC1B	204.0	-	-	A-U5GT	
		AC2A	-	AC2A	-	-	-	-	
		AC2B	-	AC2B	319.0	-	-	-	
		AC3A	-	AC3A	-	LM-6	-	-	
		AC4A	-	AC4A	-	-	G(GK)-AlSi9Cu3	-	
		AC4B	-	AC4B	-	-	-	-	
		AC4C	Al-Si7Mg(Fe)	AC4C	356.0	LM-25	G(GK)-AlSi7MG	A-S7G	
		AC4CH	Al-Si7Mg	AC4CH	A356.0	-	-	-	
		AC4D	Al-Si5Cu1Mg	AC4D	355.0	LM-16	-	-	
		AC5A	Al-Cu4Ni2Mg2	AC5A	242.0	-	G(GK)-AlMg5	A-U4NT	
		AC7A	-	AC7A	514.0	LM-5	-	-	
		AC8A	-	AC8A	-	LM-13	-	A-S12UNG	
		AC8B	-	AC8B	-	LM-26	-	A-S10UG	
		AC8C	-	AC8C	-	-	-	A-S10UG	
	AC9A	-	AC9A	-	LM-29	-	-		
	AC9B	-	AC9B	-	-	G(GK)-AlSi12 (Cu)	A-S18UNG		
	Aluminum alloy die casting	ALDC1	Al-Si12CuFe	ADC1	A413.0	LM20	GD-AlSi10Mg	A-S13	
		ALDC2	-	ADC3	A360.0	-	GD-AlMg9	A-S9G	
		ALDC3	-	ADC5	518.0	-	-	A-G6	
		ALDC4	-	ADC6	-	-	GD-AlSi9Cu3	A-G3T	
		ALDC7	Al-Si8Cu3Fe	ADC10	A380.0	-	GD-AlSi9Cu3	-	
		ALDC7Z	Al-Si8Cu3Fe	ADC10Z	A380.0	LM24	-	-	
		ALDC8	-	ADC12	383.0	LM2	-	-	
		ALDC8Z	-	ADC12Z	383.0	LM2	-	-	
		ALDC9	-	ADC14	B390.0	LM30	EN AW-5052	-	
		Aluminum alloy extruded shapes	A5052S	-	A5052S	5052	EN AW-5052	EN AW-5454	EN AW-5052
	A5454S		-	A5454S	5454	EN AW-5454	EN AW-5083	EN AW-5454	
	A5083S		AlMg4.5Mn0.7	A5083S	5083	EN AW-5083	EN AW-5086	EN AW-5083	
	A5086S		-	A5086S	5086	EN AW-5086	EN AW-6061	EN AW-5086	
	A6061S		AlMg1SiCu	A6061S	6061	EN AW-6061	EN AW-6063	EN AW-6061	
	A6063S		AlMg0.7Si	A6063S	6063	EN AW-6063	EN AW-7003	EN AW-6063	
	A7003S		-	A7003S	-	EN AW-7003	-	EN AW-7003	
	A7N01S		-	A7N01S	-	-	EN AW-7075	-	
	A7075S		AlZn5.5MgCu	A7075S	7075	EN AW-7075	-	EN AW-7075	

**➤ Heat resistant steel**

Type		Korea	ISO	Japan	U.S.A	Great Britain	Germany	France	Russia	
		KS	ISO	JIS	UNS AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	GOCT	
Heat resistant steel	Austenitic	STR31		SUH31		331S42		Z35CNWS14-14		
		STR35		SUH35		349S52	X53CrMnNi21-9	Z52CMN21-09-Az		
		STR36		SUH36		349S54		Z55CMN21-09-Az		
		STR37		SUH37	S63008		381S34			
		STR38		SUH38	S63017					
		STR309		SUH309		309S24		CrNi2520	Z15CN24-13	
		STR310		SUH310	S30900		310S24		Z15CN25-20	
		STR330		SUH330	S31000	309			Z12NCS35-16	
		STR660		SUH660	N08330	310			Z6NCTV25-20	
		STR661		SUH661	S66286	N08330		CrAl1205		
	Ferritic	STR21		SUH21	R30155			X6CrTi12		
		STR409	X6CrTi12	SUH409			409S19		Z6CT12	
		STR409L	X2CrTi12	SUH409L		S40900			Z3CT12	
		STR446		SUH446		409		X45CrSi9-3	Z12C25	
	Martensitic	STR1		SUH1		S44600	401S45		Z45CS9	
		STR3		SUH3		S65007	446		Z40CSD10	
		STR4		SUH4			443S65		Z80CSN20-02	
		STR11		SUH11						
		STR600		SUH600						
		STR616		SUH616		S42200				

• The above Heat resistant steel can supplied by domestic manufacturing

## Steel, Non-Ferrous Metal Symbol List

### Comparison of workpiece material standards

Group	Standard term	Code	Group	Standard term	Code	
<b>Structural Steel</b>	Rolled Steel for Welded Structure	SWS	<b>Forged steel</b>	Carbon Steel Forging	SF	
	Rerolled Steel	SBR		Chromium Molybdenum Steel Forging	SFCM	
	Rolled Steel for General Structure	SB		Nickel Chromium Molybdenum Steel Forging	SFNCM	
	Light Gauge Steel for General Structure	SBC	<b>Cast iron</b>	Gray Cast iron	GC	
	Hot-rolled Steel Plate, Sheet/ Strip for Automobile Structural Use	SAPH		Spheroidal Graphite Cast iron	GCD	
<b>Steel Plate</b>	Cold-rolled Steel Sheet/Strip	SBC		Blackheart Malleable Cast iron	BMC	
	Hot-rolled Soft Steel Sheet/Strip	SHP		Whiteheat Malleable Cast iron	WMC	
<b>Steel Pipe</b>	Carbon Steel Pipe for Ordinary Piping	SPP	Pearlitic Malleable Cast iron	PMC		
	Carbon Steel Pipe for Boiler and Heat Exchanger	STH	<b>Cast steel</b>	Carbon Cast Steel	SC	
	Seamless Steel Pipe for High Pressure Gas Cylinder	STHG		High Tensile Strength Carbon Cast Steel & Low Alloy Cast Steel	HSC	
	Carbon Steel Pipe for General Structural Use	SPS		Stainless Cast Steel	SSC	
	Carbon Steel Pipe for Machine Structural Use	STST		Heat Resisting Cast Steel	HRSC	
	Alloy Steel Pipe for Structural Use	STA		High Manganese Cast Steel	HMnSC	
	Stainless Steel Pipe for Machine and Structural Use	STS-TK		Cast Steel for High Temperature and High Pressure Service	SCPH	
	Carbon Steel Square Pipe for General Structural Use	SPSR		<b>Casting</b>	Brass Casting	BsC
	Alloy Steel Pipe	SPA			High Strength Brass Casting	HBsC
	Carbon Steel Pipe for Pressure Service	SPPS	Bronze Casting		BrC	
	Carbon Steel Pipe for High Temperature Service	SPSR	Phosphoric Bronze Casting		PCB	
	Carbon Steel Pipe for High Pressure Service	SPPH	Aluminum Bronze Casting		AIBC	
	Stainless Steel Pipe	STSxT	Aluminum Alloy Casting		ACxA	
	<b>Iron and Steel</b>	Carbon Steel for Machine Structural Use	SMxxC, SMxxCK		Magnesium Alloy Casting	MgC
Aluminum Chromium Molybdenum Steel		SACM	Zinc Alloy Die Casting		ZnDC	
Chromium Molybdenum Steel		SCM	Aluminum Alloy Die Casting		Al DC	
Chromium Steel		SCr	Magnesium Alloy Die Casting		MgDC	
Nickel Chromium Steel		SNC	White Metal	WM		
Nickel Chromium Molybdenum Steel		SNCM	Aluminum Alloy Casting for Bearing	AM		
Manganese Steel and manganese Chromium Steel for Machine Structural Use		SMn, SMnC	Brass Alloy Casting for Bearing	KM		
<b>Special steel</b>	<b>Tool steel</b>	Carbon Tool Steel	STC			
		Hollow Drill Steel	SKC			
		Alloy Tool Steel	STS, STD, STF			
		High Speed Tool Steel	SKH			
	<b>Stainless steel</b>	Stainless Steel Bar	STS			
		<b>Heat resisting steel</b>	Heat Resisting Steel	STR		
			Heat Resisting Steel Bar	STR		
	Heat Resisting Steel Sheet		STR			
	Free cutting carbon steel	SUM				
	Special steel	STB				
Spring steel	SPS					



## SI Unit Conversion Table

### Major SI unit conversion table

#### Force

N	kgf	dyn
1	$1.01972 \times 10^{-1}$	$1 \times 10^5$
9.80665	1	$9.80665 \times 10^5$
$1 \times 10^{-5}$	$1.01972 \times 10^{-6}$	1

#### Stress

Pa or N/m <sup>2</sup>	MPa or N/mm <sup>2</sup>	kgf/mm <sup>2</sup>	kgf/cm <sup>2</sup>	kgf/m <sup>2</sup>
1	$1 \times 10^{-6}$	$1.01972 \times 10^{-7}$	$1.01972 \times 10^{-5}$	$1.01972 \times 10^{-1}$
$1 \times 10^6$	1	$1.01972 \times 10^{-1}$	$1.01972 \times 10$	$1.01972 \times 10^5$
$9.80665 \times 10^6$	9.80665	1	$1 \times 10^2$	$1 \times 10^6$
$9.80665 \times 10^4$	$9.80665 \times 10^{-2}$	$1 \times 10^{-2}$	1	$1 \times 10^4$
9.80665	$9.80665 \times 10^{-6}$	$1 \times 10^{-6}$	$1 \times 10^{-4}$	1

#### Pressure

Pa	kPa	MPa	bar	kgf/cm <sup>2</sup>
1	$1 \times 10^{-3}$	$1 \times 10^{-6}$	$1 \times 10^{-5}$	$1.01972 \times 10^{-5}$
$1 \times 10^3$	1	$1 \times 10^{-3}$	$1 \times 10^{-2}$	$1.01972 \times 10^{-2}$
$1 \times 10^6$	$1 \times 10^3$	1	$1 \times 10$	$1.01972 \times 10$
$1 \times 10^5$	$1 \times 10^2$	$1 \times 10^{-1}$	1	1.01972
$9.80665 \times 10^4$	$9.80665 \times 10$	$9.80665 \times 10^{-2}$	$9.80665 \times 10^{-1}$	1

#### Work, Energy, Calorie

J	kW·h	kgf·m	kcal
1	$2.77778 \times 10^{-7}$	$1.01972 \times 10^{-1}$	$2.38889 \times 10^{-4}$
$3.60000 \times 10^6$	1	$3.67098 \times 10^5$	$8.60000 \times 10^2$
9.80665	$2.72407 \times 10^{-6}$	1	$2.34270 \times 10^{-3}$
$4.18605 \times 10^3$	$1.16279 \times 10^{-3}$	$4.26858 \times 10^2$	1

#### Power

W	kW	kgf·m/s	PS	kcal/h
1	$1 \times 10^{-3}$	$1.01972 \times 10^{-1}$	$1.35962 \times 10^{-3}$	0.860
$1 \times 10^3$	1	$1.01972 \times 10^2$	1.359 62	$8.60000 \times 10^2$
9.81 65	$9.80665 \times 10^{-3}$	1	$1.33333 \times 10^{-2}$	8.433 71
$7.355 \times 10^2$	$7.355 \times 10^{-1}$	$7.5 \times 10$	1	$6.32529 \times 10^2$
1.16279	$1.16279 \times 10^{-3}$	$1.18572 \times 10^{-1}$	$1.58095 \times 10^{-3}$	1

#### Specific heat

J/(kg·K)	kcal/(kg·°C) cal/(g·°C)
1	$2.38889 \times 10^{-4}$
$4.18605 \times 10^3$	1

#### Thermal conductivity

W/(m·K)	kcal/(h·m·°C)
1	$8.6000 \times 10^{-1}$
1.16279	1

#### Revolution per minute

min <sup>-1</sup>	s <sup>-1</sup>	r.p.m.
1	0.0167	1
60	1	60

## Hardness Calculating Table

### Workpiece hardness calculating table

Vickers 50kgf  HV	Brinell 3000kgf HB		Rockwell				Shore  HS	Tensile strength (approximate value)  MPa (t)
	Standard ball 10mm	Cemented carbide ball 10mm	A scale 60kgf Diamond particle HrA	B scale 100kgf 1/16in ball HrB	C scale 150kgf Diamond particle HrC	D scale 100kgf Diamond particle HrD		
940	-	-	85.6	-	68.0	76.9	97	
920	-	-	85.3	-	67.5	76.5	96	
900	-	-	85.0	-	67.0	76.1	95	
880	-	(767)	84.7	-	66.4	75.7	93	
860	-	(757)	84.4	-	65.9	75.3	92	
840	-	(745)	84.1	-	65.3	74.8	91	
820	-	(733)	83.8	-	64.7	74.3	90	
800	-	(722)	83.4	-	64.0	74.8	88	
780	-	(710)	83.0	-	63.3	73.3	87	
760	-	(698)	82.6	-	62.5	72.6	86	
740	-	(684)	82.2	-	61.8	72.1	84	
720	-	(670)	81.8	-	61.0	71.5	83	
700	-	(656)	81.3	-	60.1	70.8	81	
690	-	(647)	81.1	-	59.7	70.5	-	
680	-	(638)	80.8	-	59.2	70.1	80	
670	-	630	80.6	-	58.8	69.8	-	
660	-	620	80.3	-	58.3	69.4	79	
650	-	611	80.0	-	57.8	69.0	-	
640	-	601	79.8	-	57.3	68.7	77	
630	-	591	79.5	-	56.8	68.3	-	
620	-	582	79.2	-	56.3	67.9	75	
610	-	573	78.9	-	55.7	67.5	-	
600	-	564	78.6	-	55.2	67.0	74	
590	-	554	78.4	-	54.7	66.7	-	2055
580	-	545	78.0	-	54.1	66.2	72	2020
570	-	535	77.8	-	53.6	65.8	-	1985
560	-	525	77.4	-	53.0	65.4	71	1950
550	(505)	517	77.0	-	52.3	64.8	-	1905
540	(496)	507	76.7	-	51.7	64.4	69	1860
530	(488)	497	76.4	-	51.1	63.9	-	1825
520	(480)	488	76.1	-	50.5	63.5	67	1795
510	(473)	479	75.7	-	49.8	62.9	-	1750
500	(465)	471	75.3	-	49.1	62.2	66	1705
490	(456)	460	74.9	-	48.4	61.6	-	1660
480	488	452	74.5	-	47.7	61.3	64	1620
470	441	442	74.1	-	46.9	60.7	-	1570
460	433	433	73.6	-	46.1	60.1	62	1530
450	425	425	73.3	-	45.3	59.4	-	1495
440	415	415	72.8	-	44.5	58.8	59	1460
430	405	405	72.3	-	43.6	58.2	-	1410
420	397	397	71.8	-	42.7	57.5	57	1370
410	388	388	71.4	-	41.8	56.8	-	1330
100	379	379	70.8	-	40.8	56.0	55	1290
390	369	369	70.3	-	39.8	55.2	-	1240
380	360	360	69.8	(100.0)	38.8	54.4	52	1205
370	350	350	69.2	-	39.9	53.6	-	1170
360	341	341	68.7	(109.0)	36.6	52.8	50	1130
350	331	331	68.1	-	35.5	51.9	-	1095
340	322	322	67.6	(108.0)	34.4	51.1	47	1070
330	313	313	67.0	-	33.3	50.2	-	1035

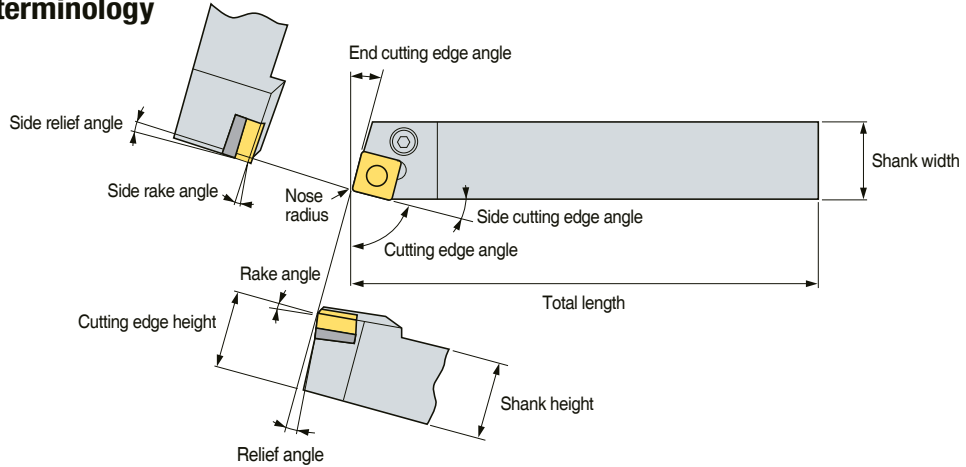
Vickers 50kgf  HV	Brinell 3000kgf HB		Rockwell				Shore  HS	Tensile strength (approximate value)  MPa (t)
	Standard ball 10mm	Cemented carbide ball 10mm	A scale 60kgf Diamond particle HrA	B scale 100kgf 1/16in ball HrB	C scale 150kgf Diamond particle HrC	D scale 100kgf Diamond particle HrD		
320	303	303	66.4	(107.0)	32.2	49.4	45	1005
310	294	294	65.8	-	31.0	48.4	-	980
300	284	284	65.2	(105.5)	29.8	47.5	42	950
295	280	280	64.8	-	29.2	47.1	-	935
290	275	275	64.5	(104.5)	28.5	46.5	41	915
285	270	270	64.2	-	27.8	46.0	-	905
280	265	265	63.8	(103.5)	27.1	45.3	40	890
275	261	261	63.5	-	26.4	44.9	-	875
270	256	256	63.1	(102.0)	25.6	44.3	38	855
265	252	252	62.7	-	24.8	43.7	-	840
260	247	247	62.4	(101.0)	24.0	43.1	37	825
255	243	243	62.0	-	23.1	42.2	-	805
250	238	238	61.6	99.5	22.2	41.7	36	795
245	233	233	61.2	-	21.3	41.1	-	780
240	228	228	60.7	98.1	20.3	40.3	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	-	-	-	-

Note) 1. 1MPa = 1N/mm<sup>2</sup>

2. The number in the blank is not generally used ranges

# Technical Information for Turning

## Insert shape and terminology

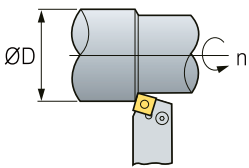


## Relating angles between tool and workpiece

Cutting edge inclination	Terminology	Function	Effect
<b>Rake angle</b>	Side rake angle Rake angle	• Cutting force, Cutting heat, The effects of chip control on tool life	<ul style="list-style-type: none"> <li>• (+): Excellent machine-ability(reducing cutting force, weakening cutting edge strength)</li> <li>• (+): When machining excellent machine-ability or thin workpiece</li> <li>• (-): When strong cutting edge is needed at interrupted condition or mill scale</li> </ul>
<b>Relief angle</b>	Relief angle Side relief angle	• Only cutting edge contact with cutting face	<ul style="list-style-type: none"> <li>• (-): Cutting edge is strong but has short tool life to make bad influence on flank wear</li> </ul>
<b>Cutting edge angle</b>	Cutting edge angle	• Affects chip control and cutting force direction	<ul style="list-style-type: none"> <li>• (+): Improved chip control because chip thickness is big</li> </ul>
	Side cutting edge angle	• Affects chip control and cutting force direction	<ul style="list-style-type: none"> <li>• (+): Strong cutting edge due to distributed cutting force but chip control is bad by thin chip thickness</li> <li>• (-): Improved chip performance</li> </ul>
	End cutting edge angle	• Prevent friction between cutting edge and cutting face	<ul style="list-style-type: none"> <li>• (-): Cutting edge is strong but has short tool life to make bad influence on flank wear</li> </ul>

## Calculation formulas for machining

### Cutting speed



$$vc = \frac{\pi \times D \times n}{1000} \text{ (m/min)}$$

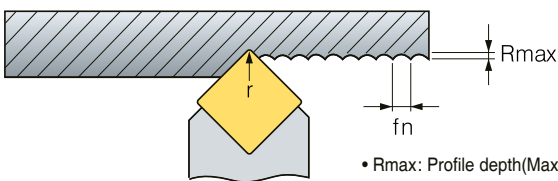
- vc: Cutting speed (m/min)
- n: Revolution per minute (min<sup>-1</sup>)
- D: Diameter (mm)
- π: Circular constant (3.14)

### Feed

$$fn = \frac{vf}{n} \text{ (mm/rev)}$$

- fn: Feed per revolution (mm/rev)
- n: Revolution per minute (min<sup>-1</sup>)
- vf: Table feed (mm/min)

### Surface finish



- Rmax: Profile depth(Maximum height roughness) (μ)
- fn: feed (mm/rev)
- r : nose radius

#### Theoretical surface roughness

$$R_{max} = \frac{fn^2}{8r} 1000 (\mu\text{m})$$

#### Practical surface roughness

- Steel: Rmax × (1.5~3)
- Cast iron: Rmax × (3~5)

### Power requirement

$$P_{kw} = \frac{Q \times kc}{60 \times 102 \times \eta}$$

$$P_{HP} = \frac{P_{KW}}{0.75}$$

$$Q = \frac{vc \times fn \times ap}{1000}$$

- P<sub>kw</sub>: Power requirement [kW]
- P<sub>HP</sub>: Power requirement (horse power) [HP]
- vc: Cutting speed [m/min]
- ap: Depth of cut [mm]
- fn: Feed per revolution [mm/rev]
- kc: Specific cutting resistance [kg/mm<sup>2</sup>]
- η: Machine efficiency rate (0.7~0.8)

Rough Kc	
Mild 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

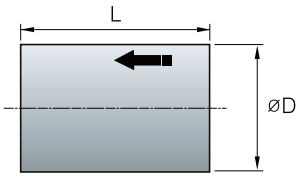
### Material removal rate

$$Q \text{ (cm}^3\text{/min)} = vc \times ap \times fn$$

- Q: Material removal rate [cm<sup>3</sup>/min]
- ap: Depth of cut [mm]
- vc: Cutting speed [m/min]
- fn: Feed per revolution [mm/rev]

## • Machining time

### External face machining 1



#### Constant revolution per minute

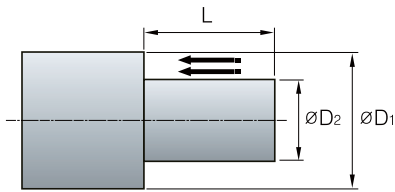
$$T = \frac{60 \times L}{f_n \times n}$$

#### Constant cutting speed

$$T = \frac{60 \times \pi \times L \times D}{1000 \times f_n \times v_c}$$

- T: Machining time [sec]
- L: Cutting length [mm]
- $f_n$ : Feed per revolution [mm/rev]
- n: Revolution per minute [ $\text{min}^{-1}$ ]
- D: Diameter of workpiece [mm]
- $v_c$ : Cutting speed [m/min]

### External face machining 2



#### Constant revolution per minute

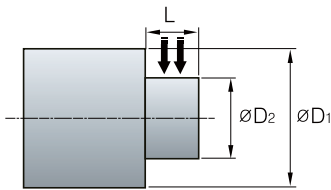
$$T = \frac{60 \times L}{f_n \times n} \times N$$

#### Constant cutting speed

$$T = \frac{60 \times \pi \times L \times (D_1 + D_2)}{2 \times 1000 \times f_n \times v_c} \times N$$

- T: Machining time [sec]
- L: Cutting length [mm]
- $f_n$ : Feed per revolution [mm/rev]
- n: Revolution per minute [ $\text{min}^{-1}$ ]
- D1: Maximum diameter of workpiece [mm]
- D2: Minimum diameter of workpiece [mm]
- $v_c$ : Cutting speed [m/min]
- N: The number of pass =  $(D_1 - D_2)/d/2$

### Facing



#### Constant revolution per minute

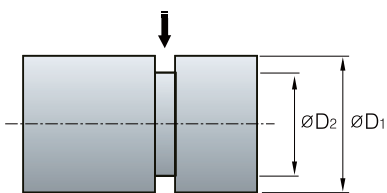
$$T = \frac{60 \times (D_1 - D_2)}{2 \times f_n \times n} \times N$$

#### Constant cutting speed

$$T_1 = \frac{60 \times \pi \times (D_1 + D_2) \times (D_1 - D_2)}{4000 \times f_n \times v_c} \times N$$

- T: Machining time [sec]
- T1: Machining time before the maximum rpm[sec]
- L: Width of machining [mm]
- $f_n$ : Feed per revolution [mm/rev]
- n: Revolution per minute [ $\text{min}^{-1}$ ]
- D1: Maximum diameter of workpiece [mm]
- D2: Minimum diameter of workpiece [mm]
- $v_c$ : Cutting speed [m/min]
- N: The number of pass =  $(D_1 - D_2)/d/2$

### Grooving



#### Constant revolution per minute

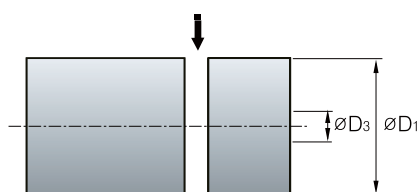
$$T = \frac{60 \times (D_1 - D_2)}{2 \times f_n \times n}$$

#### Constant cutting speed

$$T_1 = \frac{60 \times \pi \times (D_1 + D_2) \times (D_1 - D_2)}{4000 \times f_n \times v_c}$$

- T: Machining time [sec]
- T1: Machining time before the maximum rpm[sec]
- L: Width of machining [mm]
- $f_n$ : Feed per revolution [mm/rev]
- n: Revolution per minute [ $\text{min}^{-1}$ ]
- D1: Maximum diameter of workpiece [mm]
- D2: Minimum diameter of workpiece [mm]
- $v_c$ : Cutting speed [m/min]

### Parting



#### Constant revolution per minute

$$T = \frac{60 \times D_1}{2 \times f_n \times n}$$

#### Constant cutting speed

$$T_1 = \frac{60 \times \pi \times (D_1 + D_3) \times (D_1 - D_3)}{4000 \times f_n \times v_c}$$

$$T_3 = T_1 + \frac{60 \times D_3}{2 \times f_n \times n_{\max}}$$

- T: Machining time [sec]
- T1: Machining time before the maximum rpm[sec]
- T3: Machining time till maximum RPM[sec]
- $f_n$ : Feed per revolution [mm/rev]
- n: Revolution per minute [ $\text{min}^{-1}$ ]
- $n_{\max}$ : Maximum revolution per minute [ $\text{min}^{-1}$ ]
- D1: Maximum diameter of workpiece [mm]
- D3: Maximum diameter at maximum RPM [mm]
- $v_c$ : Cutting speed [m/min]

## ➤ The effects of cutting conditions

- The most desirable machining means short machining time, long tool life and good precision  
This is the reason that proper cutting condition for each tools should be selected according to material's properties, hardness, shapes, the efficiency of machine

## ➤ The effects of cutting speed

- When the cutting speed increases up to 20% in an application, the tool life respectively decreases down 50%.  
If increase the cutting speed by 50%, the tool life is reduced by 1/5.  
On the other hand if cutting speed is too low (20-40m/min) Tool life shortens due to vibration

## ➤ Feed

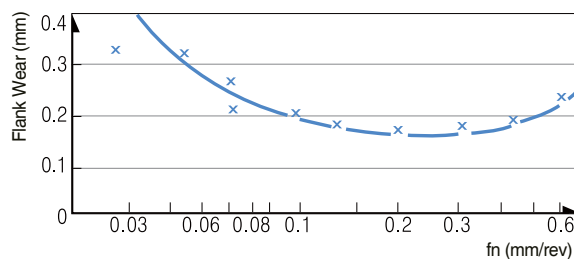
- The feed rate in turning means the progressed interval of a distance in a workpiece within 1 revolution  
The feed rate in a milling application means the table feed divided by number of teeth of cutter (feed rate per tooth)

## ➤ The effects of feed

- When the feed rate decreases the flank wear is increased. When the feed rate is too low, the tool life shortens radically
- When the feed rate increases, the flank wear increases due to high temperatures, however the feed rates effects tool life less than the cutting speed. And higher feed rates improve machining efficiency

(Relationship between feed and flank wear in steel turning)

- **Workpiece:** SNCN431
- **Grade:** ST20
- **Cutting speed:** 200 m/min
- **Depth of cut:** 1.0 mm
- **Cutting time:** 10 min

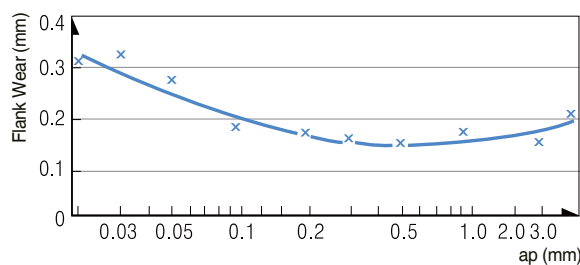


## ➤ Depth of cut

- Determined by the required allowances in machining a material and the capacity the machine can tolerate  
There are cutting limits according to the different shapes and sizes of the insert

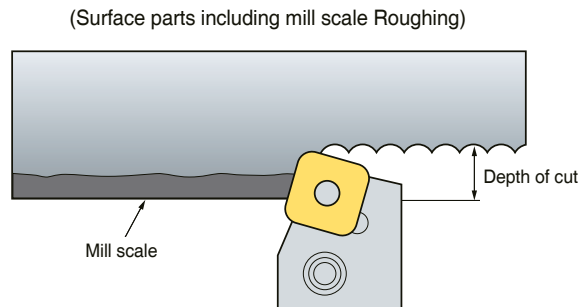
(Relationship between depth of cut and flank wear in steel turning)

- **Workpiece:** SNCN431
- **Grade:** ST20
- **Cutting speed:** 200 m/min
- **Feed:** 0.2 mm/rev
- **Cutting time:** 10 min



## ➤ The effect of a depth of cut

- Changing the depth of cut from 0.15 to 0.30 does not have a big influence on tool life
- When the depth of cut is small the workpiece is not cut but rather rubbed. In these cases, machine off the work hardened parts that decrease tool life
- When machining a cast skin or milling scale smaller depth of cuts usually cause chipping and abnormal wear because of hard impurities in the surface of the workpiece



## ➤ Relief angle

- Relief angle avoids the friction between workpiece and relief face and makes cutting edge move along workpiece easily

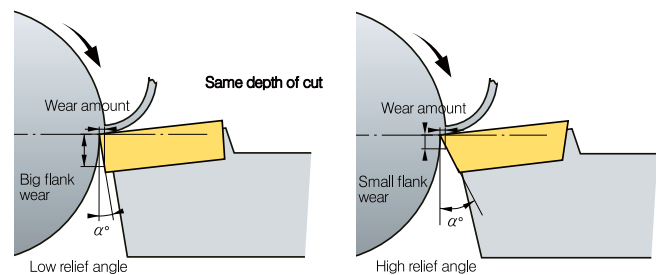
### ● Relationship between various relief angle and flank wear

#### Affects

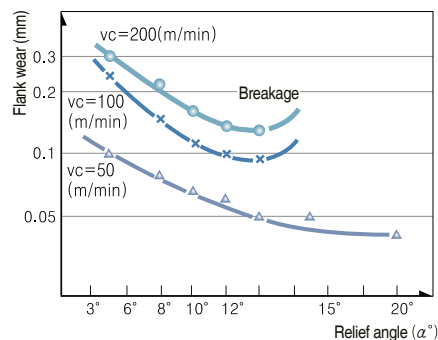
1. If relief angle is big Flank wear decreases
2. If relief angle is big Cutting edge strength weakens
3. If relief angle is small Chattering occurs

#### Selection system

1. Hard workpiece/When strong cutting edge is needed
  - Low relief angle
2. Soft workpiece/Workpiece turning to work hardening easily
  - High relief angle



- **Workpiece:** SNCM431 (HB)
- **Grade:** P20
- **Depth of cut:** 1 mm
- **Feed:** 0.32 mm/rev
- **Cutting time:** 20 min



## Side cutting edge angle

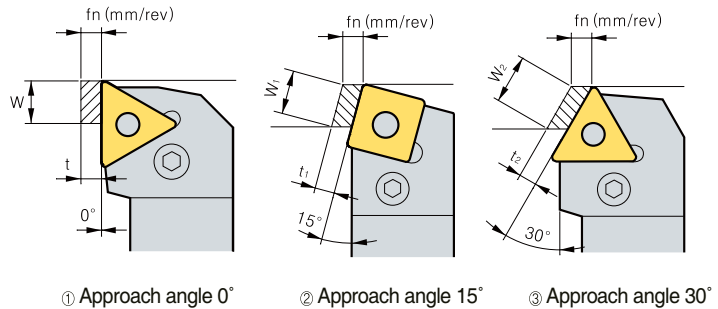
- Side cutting edge angle has big influence on chip flow and cutting force therefore proper side cutting edge angle is very important

### Side cutting edge angle and chip thickness

- As side cutting edge angle is getting bigger chips are getting thinner and wider (refer to left picture)
- At the same feed and depth of cut with approach angle  $0^\circ$  Chip thickness is the same as feed ( $t = fn$ ) and chip width is equal to depth of cut ( $W=ap$ )

$$t_1 = 0.97t, W_1 = 1.04W$$

$$t_2 = 0.87t, W_2 = 1.15W$$



### Side cutting edge angle and 3 cutting forces

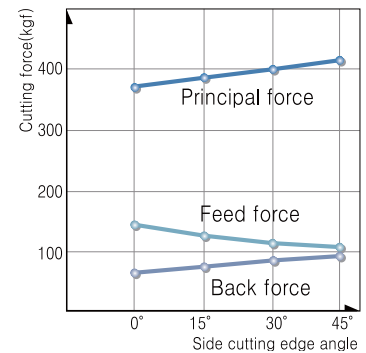
#### Affects

- Big side cutting edge angle with the same feed makes chip attaching length longer and chip thickness thinner. So that cutting forces scatter to long cutting edge therefore tool life gets longer
- Big side cutting edge angle for machining long bars can cause bending

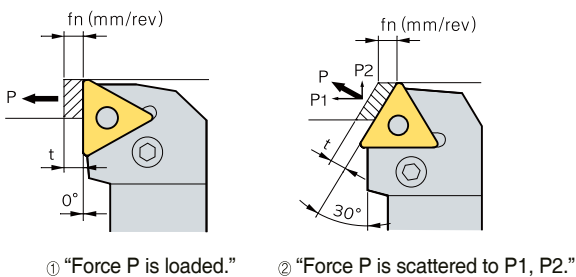
#### Selection system

- Deep depth of cut finishing/Long thin workpiece/Low machine rigidity - Small side cutting edge angle
- Hard and high calorific power workpiece/Roughing big workpiece/High machine rigidity - Big side cutting edge angle

- Workpiece:** SCM440 (HB250)
- Grade:** TNGA220412
- vc:** 100 m/min
- ap:** 4 mm
- fn:** 0.45 mm/rev



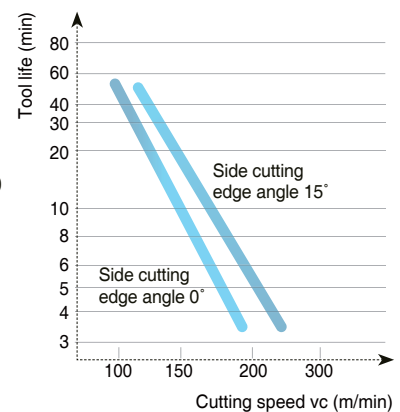
### Side cutting edge angle and cutting load



As approach angle gets bigger Back force gets bigger and feed force gets smaller

### Side cutting edge angle and tool life

- Workpiece:** SCM440
- Grade:** P20
- Depth of cut:** 3 mm
- Feed:** 0.2 mm/rev



### Side cutting edge angle and cutting performance

Specification	Low	Approach angle	High
Wear rate	High	←-----→	Low
Workpiece	Easy to cut material	←-----→	Difficult to cut material
Machining power	Small	←-----→	Big
Chatter	Hard to occur	←-----→	Easy to occur
How to machine	Finishing	←-----→	Roughing
Workpiece rigidity	Long thin workpiece	←-----→	Thick workpiece
Machine rigidity	In case of low rigidity	←-----→	In case of high rigidity



## End cutting edge angle

- It affects machined surface to prevent interference between surface of workpiece and insert

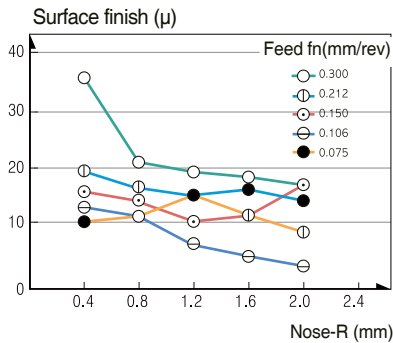
### Affects

1. If end cutting edge angle reduces cutting edge get stronger but cutting heat generated by machining increases
2. Small end cutting edge angle can cause chattering due to the increases cutting force

## Nose-R

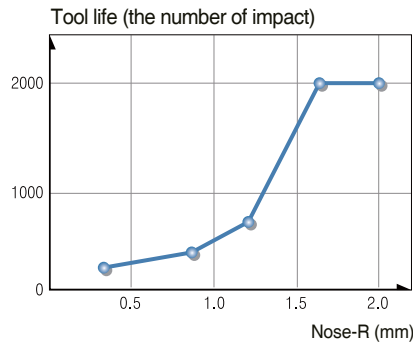
- Nose-R affects not only surface roughness but strength of cutting edge
- In general, It's desirable that Nose-R is 2~3 times bigger than feed

### Nose R and surface finish



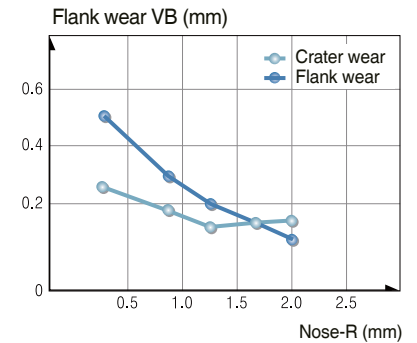
- **Workpiece:** SNCM439, HB200
- **Grade:** P20
- **vc:** 120 m/min
- **ap:** 0.5 mm

### Nose R and tool life



- **Workpiece:** SCM440, HB280
- **Grade:** P10
- **vc:** 100 m/min, **ap:** 0.5 mm
- **fn:** 0.3 mm/rev

### Nose R and wear of tool



- **Workpiece:** SNCM439, HB200
- **Grade:** P10
- **vc:** 140 m/min, **ap:** 2 mm
- **fn:** 0.2 mm/rev, **T:** 10 min

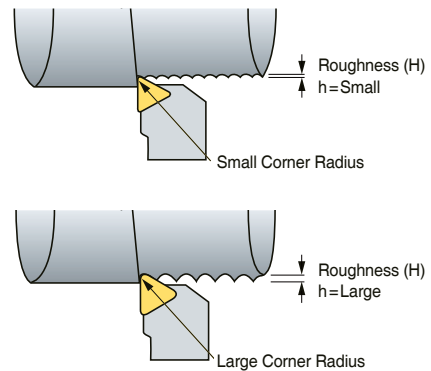
## Nose-R

### Affects

1. Big Nose-R improves surface finish
2. Big Nose-R improves cutting edge strength
3. Big Nose-R reduces flank wear and crater wear
4. Too big Nose-R causes chattering due to increased cutting force

### Selection system

1. For finishing with small depth of cut/long and thin workpiece/ When machine power is low - Small Nose-R
2. For applications that need strong cutting edge such as intermittent and machining mill scale/For roughing of big workpiece/When the machine power is strong enough - Big Nose-R



### Relationship between nose radius, feed and various surface roughness

fn (mm/rev) \ Nose R	0.4	0.8	1.2
0.15			
0.26			
0.46			

## ➤ Cutting edge shape and the affects

### ● Rake angle ( $\alpha$ )

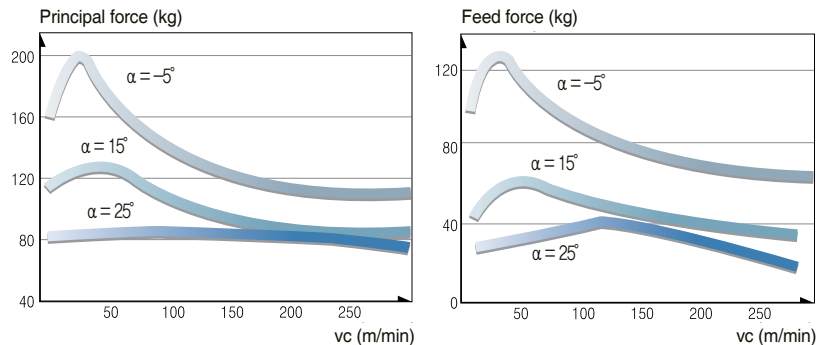
Rake angle has big influence on cutting force, chip flow and tool life

#### Affects

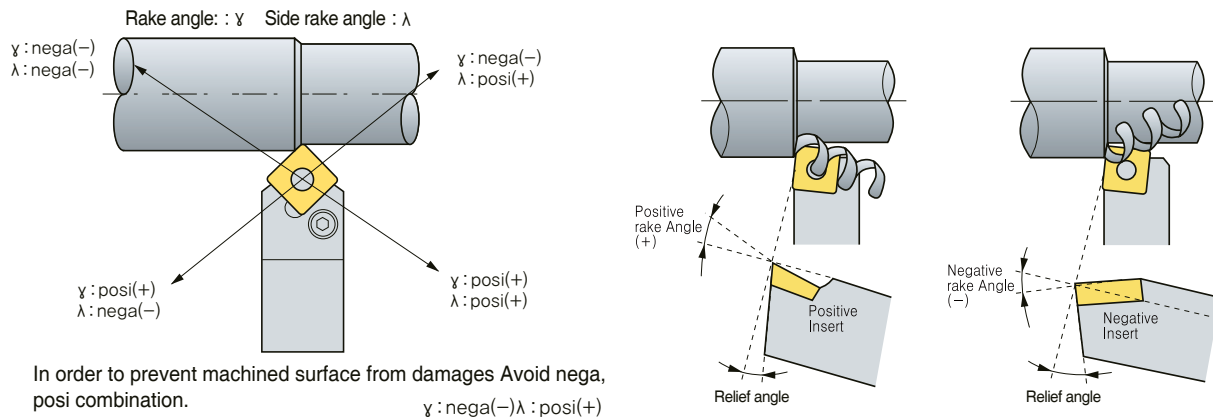
1. High rake angle results in good surface finish
2. As the rake angle increases by 1° Machining power decreases by 1%.
3. High rake angle weakens cutting edge

#### Selection system

1. For hard workpiece/For applications that need strong cutting edge such as interrupted and machining mill scale - Low rake angle
2. For soft workpiece/Easy to cut material/When the rigidity of machine power and workpiece is low - High rake angle



### ● Rake angle and the direction of chip flow



## ➤ Selecting proper tools

- Nowadays, It's very difficult to select the best tools in complicating tooling system and various cutting conditions
- However, It can be simplified by classifying basic factors below

### ● Selection of inserts and tool holder

Listed below is the basic factors and choose B according to A

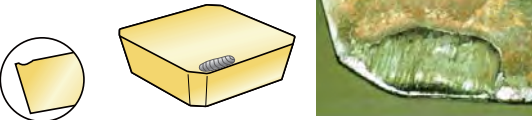
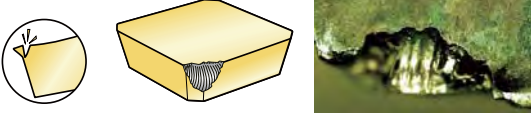
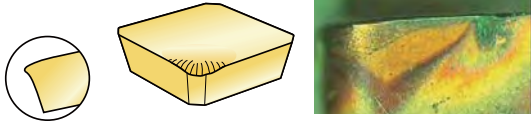




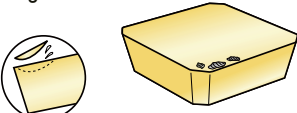

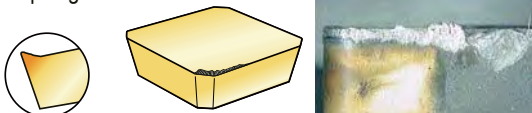
#### A Basic factors

- Workpiece material
- Workpiece shape
- Workpiece size
- Hardness of workpiece
- Surface roughness of workpiece (before machining)
- Surface finish required
- Type of lathe machine
- Condition of lathe machine (rigidity, power etc)
- Horse power of machine
- Clamping method of workpiece

#### B Selection system

- ① Select as big approach angle as possible
- ② Select as big shank as possible
- ③ Select as strong cutting edge of insert as possible
- ④ Select as big nose radius as possible
- ⑤ In finishing, Select the insert using many corners
- ⑥ Select as small insert as possible
- ⑦ Cutting speed should be determined carefully according to cutting conditions
- ⑧ Select as deep depth of cut as possible
- ⑨ Select as fast feed as possible
- ⑩ Cutting condition should be determined within chip breaker application ranges

## 🔧 Trouble shooting

Tool failure	Cause	Solution
<p>Crater wear</p> 	<ul style="list-style-type: none"> <li>• Improper grade</li> <li>• Excessive cutting condition</li> </ul>	<ul style="list-style-type: none"> <li>• Choose harder grade</li> <li>• Decrease cutting condition</li> </ul>
<p>Fracture</p> 	<ul style="list-style-type: none"> <li>• Improper grade</li> <li>• Excessive feed</li> <li>• Shorten cutting edge strength</li> <li>• Insufficient rigidity of holder</li> </ul>	<ul style="list-style-type: none"> <li>• Choose tougher grade</li> <li>• Decrease feed</li> <li>• Apply to large honed or chamfered edge</li> <li>• Choose bigger size holder</li> </ul>
<p>Plastic deformation</p> 	<ul style="list-style-type: none"> <li>• Improper grade</li> <li>• Excessive cutting condition</li> <li>• High cutting temperature</li> </ul>	<ul style="list-style-type: none"> <li>• Choose harder grade</li> <li>• Decrease cutting condition</li> <li>• Choose grade which heat conductivity are big</li> </ul>
<p>Wear on nose radius (Flank wear)</p> 	<ul style="list-style-type: none"> <li>• When the hardness of workpiece is too high compare with tool</li> <li>• When machining surface hardened workpiece</li> <li>• Improper grade</li> <li>• Excessive cutting speed</li> <li>• Too small relief angle</li> <li>• Too low feed</li> </ul>	<ul style="list-style-type: none"> <li>• Choose harder grade</li> <li>• Decrease cutting speed</li> <li>• Choose lager relief angle</li> <li>• Increase feed</li> </ul>
<p>Thermal crack</p> 	<ul style="list-style-type: none"> <li>• Expansion and shrinking by cutting temperature</li> <li>• Improper grade (*especially in milling operation)</li> </ul>	<ul style="list-style-type: none"> <li>• Apply to dry cutting (In case of wet cutting, use enough coolant)</li> <li>• Choose tougher grade</li> </ul>
<p>Chipping</p> 	<ul style="list-style-type: none"> <li>• Improper grade</li> <li>• Excessive feed</li> <li>• Shorten cutting edge strength</li> <li>• Insufficient rigidity of holder</li> </ul>	<ul style="list-style-type: none"> <li>• Choose tougher grade</li> <li>• Decrease feed</li> <li>• Apply to large honing or chamfer edge</li> <li>• Choose bigger size holder</li> </ul>
<p>Notch wear</p> 	<ul style="list-style-type: none"> <li>• Surface hardened workpiece</li> <li>• Friction due to bad chip geometry (Generate vibration)</li> </ul>	<ul style="list-style-type: none"> <li>• Choose harder grade</li> <li>• Improve chip control form large rake angle</li> </ul>
<p>Flaking</p> 	<ul style="list-style-type: none"> <li>• Deposition on cutting edge</li> <li>• Bad chip control</li> </ul>	<ul style="list-style-type: none"> <li>• Improve cutting performance from large rake angle</li> <li>• Apply to chip pocket with big size</li> </ul>
<p>Complete breakage</p> 	<ul style="list-style-type: none"> <li>• Unusable condition due to wear off the most parts of cutting edge by progress of wear</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce the feed rate.</li> <li>• Reduce the depth of cut.</li> <li>• Select a tougher grade.</li> <li>• Select a stronger chipbreaker.</li> <li>• Select a thicker insert.</li> </ul>
<p>Built-up edge</p> 	<ul style="list-style-type: none"> <li>• Slow cutting speed</li> <li>• Sticky materials</li> </ul>	<ul style="list-style-type: none"> <li>• Increase cutting speed.</li> <li>• Use more positive rake geometry.</li> <li>• Use tougher grade</li> </ul>

## Types of tool failure and trouble shooting

Troubles	Causes	Solution																
		Cutting conditions				Selecting insert grade				Tool shape				Machine clamping				
		Cutting speed	Feed	Depth of cut	Coolant	Select harder grade	Select tougher grade	Select better heat-impact resistance grade	Select better adhesion resistance grade	Chip breaker valuation	Flake angle	Nose radius	Side cutting edge angle	Cutting edge strength Honing	Improving insert precision M class → G class	Improving holder rigidity	Clamping workpiece	Holder overhang
<b>Poor precision</b> Unstable machining size	Insert precision is variable													●				
	Workpiece, Separation of tool								●	↑	↓				●	●	●	●
<b>Cutting edge back thrust is big</b> It's necessary to adjust because machining precision changes during operation.	Flank wear increase					●					↑							
	Cutting condition is improper	↓	↑			●												
<b>Poor surface roughness for finishing</b> Criterion of tool life.	Weakened cutting force by increasing wear of tool	↓			Wet cutting			●	●	↑	↑		↓	●				
	Cutting edge chipping		↓	↓		●			●		↑		↑			●	●	●
	Adhesion, built-up edge	↑	↑		Wet cutting			●	●	↑			↓	●				
	Improper cutting conditions	↑	↓	↓	Wet cutting													
	Improper tool and shape of cutting edge								●		↑		↓	●				
	Vibration, chattering	↓	↓	↓	Wet cutting	●			●	●	↑	↓		↓		●	●	●
<b>Cutting heat generation</b> Poor machining precision and short tool life by cutting heat	Improper cutting conditions	↓	↓	↓		●												
	Improper tool and shape of cutting edge								●	↑			↓					
<b>Burr, chipping, nap</b> steel, aluminum (burr)	Improper cutting conditions	↓	↑		Wet cutting	●												
	Wear on the tool, improper shape of cutting edge							⊙	●	↑	↓		↓					
<b>Cast iron (Weak chipping)</b>	Improper cutting conditions		↓	↓		●												
	Wear on the tool, improper shape of cutting edge								●	↑	↑		↓		●	●	●	●
<b>Soft steel (nap)</b>	Improper cutting conditions	↑	↑		Wet cutting	●												
	Wear on the tool, improper shape of cutting edge							⊙	●	↑			↓					

↑: Increase ↓: Decrease ●: use ⊙: Correct use

## Tool life criterion

### ● KS B0813

Flank wear width	Value	Application
	0.2 mm	Precision light cutting , Finishing in nonferrous alloy
	0.4 mm	Machining special steel
	0.7 mm	General cutting in cast iron, steel etc
	1~1.25 mm	General cutting in cast iron, steel etc
Depth of crater wear	In general 0.05~0.1 mm	

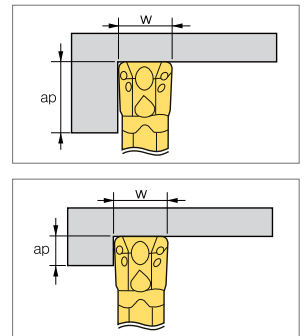
### ● ISO (B8688)

Tool life criterion	Application
Complete breakage	Machining special steel
Flank wear width VB = 0.3 mm	Even flank wear of cemented carbides, Ceramic tool
VBmax = 0.5 mm	Uneven flank wear
Crater wear width KT = 0.06+0.3fmm (f:mm/rev)	Cemented carbides tool
Criterion by surface roughness 1, 1.6, 2.5, 4, 6.3, 10 $\mu$ Ra	When surface roughness is important

## Turning and Grooving

### Selection of insert

- Feed rate
  - Decide maximum feed rate after considering the Characteristics of insert and machine capabilities ( $F_{max} = W \times 0.075$ )
  - Max feed rate should not be larger than the corner radius of the insert
  - In grooving applications, chip evacuation problems can be remedied by using step feed methods at small intervals
- Depth of cut
  - The minimum depth of cut should be bigger than corner radius of insert
  - When deciding on the max depth of cut please consider the machine's cutting load
  - Depending on the shape of the insert, deflection of workpiece and clearance angle can be changed

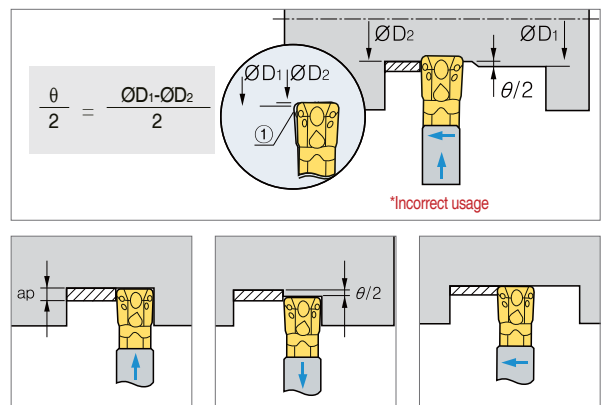


### Notice for turning

- KGT/MGT tools are designed to incur side cutting force from its clearance angle; this feature gives you advantage over a standard ISO insert
- The standard MGT insert also provides a “wiper” effect to improve surface roughness

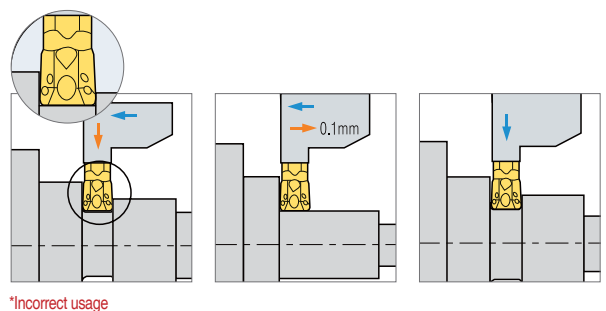
### Notice for finishing (offset need final quality)

- After desired diameter is grooved, continuous turning operation might cause some deflection of the workpiece. In these cases follow the given formula, offsetting these factors enable the desired diameter that you want
- To eliminate the difference in the machined diameter by utilizing the clearance angle (which is commonly generated during the final turning operation) follow the directions above when machining. To obtain a good surface roughness without offsetting in an application follows the directions below
  - 1) Groove to the desired diameter
  - 2) Pull the tool backs a total distance of  $\theta/2$
  - 3) Continue the external turning operation to desired diameter

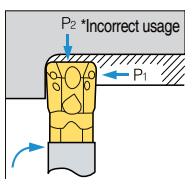


### Notice for MGT turning applications

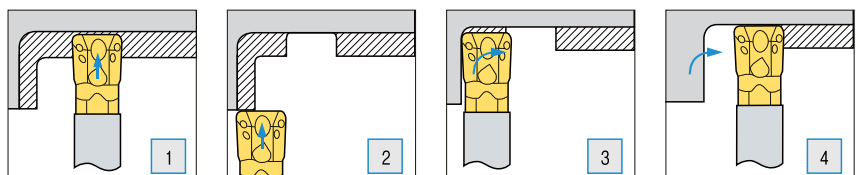
- KGT/MGT tools are available for grooving and turning as a multifunctional tool. When using a M.G.T tool keep in mind that the tool imitates a standard ISO turning application. The application uses a positive clearance angle where a tool's cutting force and depth of cut are all applied in an application. This might create normal wear on the insert, after turning, a grooving process might not meet the desired diameter on the workpiece. To off set this, adjust the tool 0.1 mm and return to the original position of the grooving application



### Machining workpiece with a radius bigger than the insert's corner radius

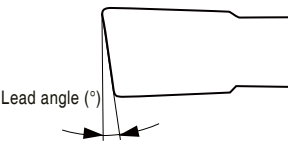

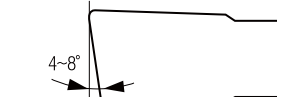



Stabilize your tool pressure. KGT/MGT tools create a cutting load when machining a workpiece with a radius larger than the corner radius of insert (shown in the picture). The unequal cutting force might initially break the insert or holder



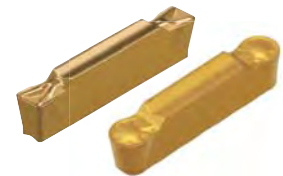
# Parting off & Grooving

## Insert

Lead angle applications	Lead angle 0° (Neutral)	Lead angle 4°~ 8°	Lead angle 8°~15°
			
<ul style="list-style-type: none"> <li>• 4°- Pipe (Tubing and hollow bar)</li> <li>• 6°- Pipe and solid bar</li> <li>• 8°- Solid bar</li> <li>• 15°- Small diameter Solid bar</li> </ul>	<ul style="list-style-type: none"> <li>• Parting off on solid bar type</li> <li>• Occurring the center stub when parting off</li> <li>• Prevent to be deflected workpiece by cutting direction during parting off</li> <li>• Available for use deep parting depth</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce the center stub when parting off on solid bar type</li> <li>• Reduce the burr when parting off on tubing or hollow bar type</li> </ul>	<ul style="list-style-type: none"> <li>• Parting off on a thin-walled circular hollow section</li> <li>• Reduce the burr and center stub when parting off on small diameter solid bar type</li> </ul>
<p>※ Available Inserts: MGMR/L□□□ - □□ - LP/RP, KGMR/L□□□ - □□ - PS/PT  <small>(Lead angle) (Lead angle)</small></p>			

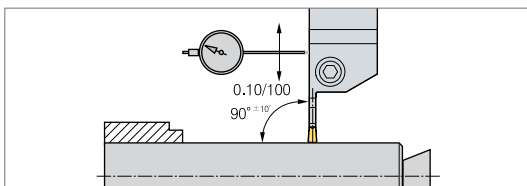
## Selection of Insert

- To properly match the insert and cutting condition, the following factors should be considered
  - Width of insert • Chip breaker • Grade and nose R
- The relationship between the cutting width and cutting depth
  - Neutral type, inserts with a 0-degree lead angle are best when used an applications maximum depth of cut
  - In general alloy steel, the maximum depth of cut =  $W \times 0.8$
- Insert with lead angle
  - To reduce burrs, we recommend using insert with a lead angle.
  - Insert that have larger lead angles reduce burrs but will also decreases tool life
  - In the case where burrs are acceptable, we recommend using a neutral type insert



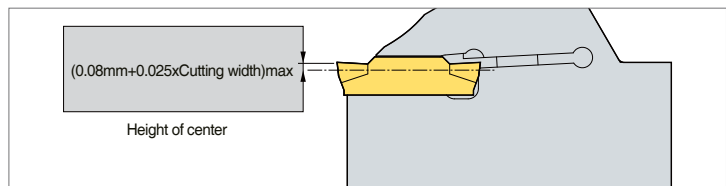
## Setting of holders

- The cutting position should be exactly mounted on machined axis in order to create a perpendicular direction or 90 to minimize vibration



## Setting of parting off

- The edge height of an insert should be set within  $\pm 0.1$ mm based on the center line
  - Parting off should be done as close to the chuck as possible to minimize vibration



## Notice

- Keep a consistent cutting speed and feed
- Use proper amounts of coolant for better performance
- Properly clean the insert pocket before mounting insert

## Usage

- If insert is worn, immediately replace with a new insert. This is to prevent the damage on the workpiece
- If the holder seat is worn or damaged, replace with a new one immediately for stable clamping
- Do not grind or regrind the holder seat

## Selection of chip breaker

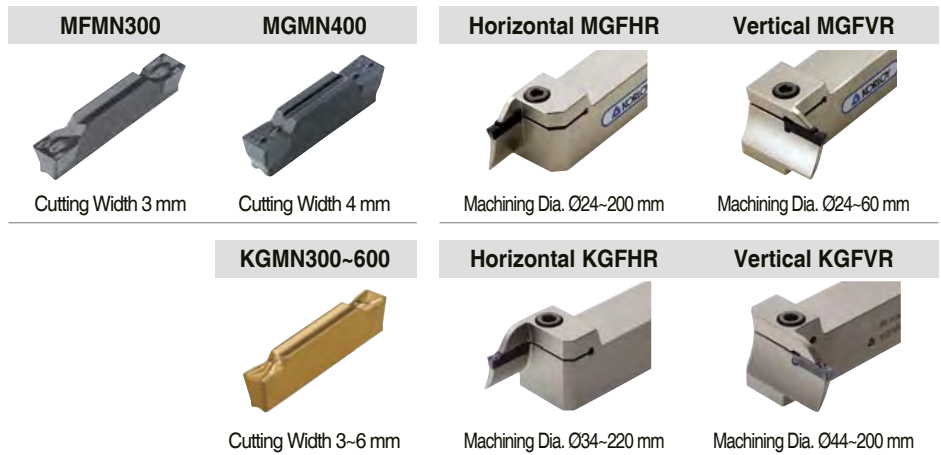
- Our chip breakers are designed to narrow chips during grooving operations. Narrow chips usually offer the following advantages
- Decreases friction between chips and the workpiece. This usually gives a better surface roughness finish
- With better chip flow, a machinist is able to increase feed rates due to a reduced cutting load



## Face Grooving Tools

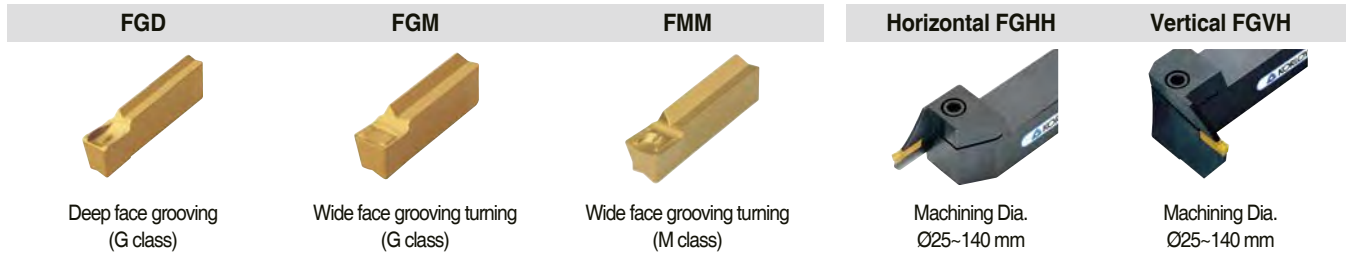
### For shallow grooving

- Economical tools utilizing a double ended cutting edge system
- Newly designed chip breakers that help ensure chip control for various face grooving applications
- KORLOY face grooving tools provide various holder line-ups to give you more options and benefits



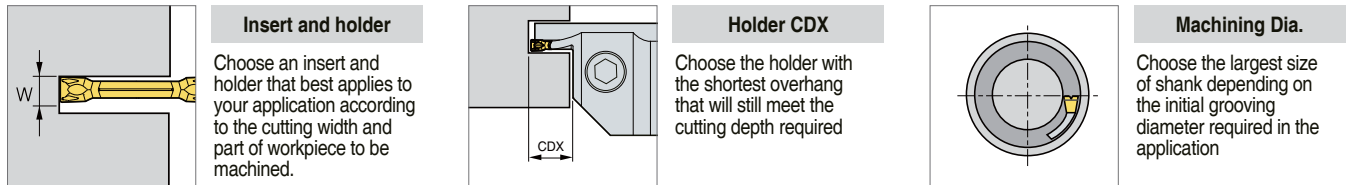
### For deep grooving

- These tools are suitable for deep grooving with a single cutting edge (Tmax 25 mm)
- A variety of chip breakers enable a machinist to apply a wide range of functions in machining
- A variety of holders ensures multiple application ranges



### Selection system of holder

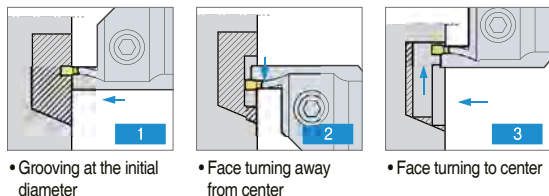
- Follow these 3 simple directions to choose the right insert and holder for your application



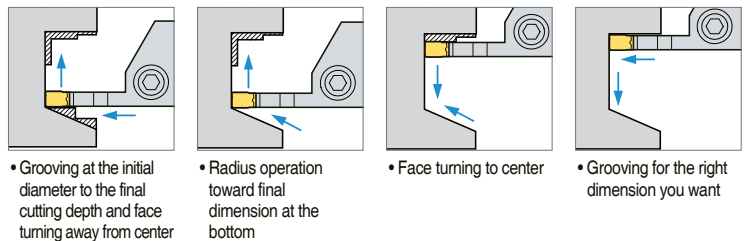
**Notice:** To minimize chattering, use the shortest holder according to CDX.

### Optimization of face grooving

**Roughing:** When face grooving decreases the cutting speed 40% below a normal face turning operation



**Finishing:** When face grooving decreases the cutting speed 40% below a normal face turning operation



### Notice for face grooving

- Before machining, check and adjust the following holder position





# The Comparison of Chip Breakers

Application			KORLOY	KYOCERA	TAEGUTEC	SUMITOMO	SANDVIK	KENNAMETAL	ISCAR	WLATER	MITSUBISHI	SECO	TUNGALLOY	
Negative	P	Ultra-Finishing	-	DP(G Class)	FA	FA	PMC	FF(G Class), FV	SF	-	PK(G Class), FY	FF1	TF	
			VL	GP	-	FL, FB	QF	UF	PF	NF3	FH, FS, SY	FF2	NS, ZF	
		Finishing	VF, VB	PP	FG	LU, FE	PF, XF	FN	NF, SM	NF4	FP		NM, NS, SS	
			-	-	SF	SU	61	K	F3P	FP5	LP, SH, SA	MF2	TS, TSF	
		Medium to finishing	VC	HQ, CQ	MC	SE	HM	LF, CT	TF	NS6	C(Cermet)		AS	
			LP, CP	PQ, CJ	FC	SX	PMC	-	-	MP3	MV	MF5	ZM, AM	
	Medium cutting	VM, HM	HK, GS, HS, PS	MP, MT	GU(UG)	QM, SM	MP, MN	PP, TF	NM4, NP5	MA, MH	M3, M5	TQ, TM		
		MP	PG	PC	GE, UX	PM, XM	-	M3P	MP5	MP	-	DM, None C/B		
	Roughing	B25				-	RP, MR	GN	-	GM, None C/B	M5	TH		
		GR	PT, GT, HT, PH	RT	MU, ME, MX	PR, WR	RN, None C/B	R3P	RP5, NM9	GH, RP	MR5, MR6, MR7	THS		
Heavy duty cutting	GH	PX	HB, RH, RX	HG, MP	PR, XMR	RH	NR, HT	RP7, NR4, NRF	HZ	R4, R5	CH			
	VH	-	HZ, EH	HP	QR	RM	HR	NRR, NR8	HX	R6, R7, R8, PR6	THS, TRS			
		VT	-	HT, HY, HD	HU, HW, HF	HR	MM	T3P	HV	PR9, R56, R57, R68	65, TUS			
Low carbon steel	Soft steel	VL	XF, XP, XP-T	SF	FL	LC	-	-	-	FY	-	-		
		-	XQ, XS	-	-	-	-	-	-	SY	-	-		
High feed	Wiper	VW	WP, WF	WS	LUW, SEW	WF, WL	FW	WF	NF	SW	FF2, MF2	AFW, FW		
		LW	WQ, WE	WT	GUW	WM, WMX	MW	WG	NM	MW	MF5, M3	ASW, SW		
		-	-	-	-	WR	RW	-	-	-	R4, R7	-		
Application	Shaft (long bar)	SH	CJ, ST	FS, VF, FX	HM	K	-	-	-	ES	UX	P, S		
		KNUX-	KNMX-	KNUX-	-	KNUX-71	-	-	-	KNMX-19	-	KNMX		
M	Stainless steel	Finishing	VP2, MP	MQ, GU, SK	EA, SF	SU, EF	MF, XF	FP, FF	SF, VL, F3M	NF4, FM5	SH, LM	FF1, MF1	SS, SF, SA	
		Medium cutting	MM	HU, TK, MS	MP, EM	EX, EG, GU	MM, XM, QM, MMC	MP, UP, MS	PP, TF, M3M	NM4, NR4	MS, GM, MM	MF3, MF4	SM	
		Roughing	RM	MU	ET	MU, HM, EM	MR, XMR, MRR	RP, P	MR, R3M	RM5, NRS	MA, ES	MF5, M5	S, SH	
K	Cast iron	Finishing	MP	None C/B, C, KQ	MT	UZ	KF, PMC, XF	T-20, FN	TF	NM, MK5	LK, MA	M4	CF	
		Medium cutting	B25, MK	ZS, KG	RT, KT	UX, GZ	KM, XM	UN, RP	GN	NM5, RK5	MK, GK, None C/B	M5	CM, None C/B	
		Roughing	-MA, RK	-MA, GC, KH	-MA	-MA	KR, XMR, KRR	MR, S-20, -MA	-MA, NR	-MA, RK7	RK, -MA	MR7	CH	
S	HRSA	Ultra-Finishing	VP1	MQ, SK	EA	EF	SF, SGF	FS(G Class) LF(G Class)	SF, PF	NF4	FJ(G Class)	M1	SF	
		Finishing	VP2	TK	ML	UP, EG	23.SR, XF, SMC	UP	PP	NFT	LS	MF1	HMM	
		Medium cutting	VP3	MS	EM	EX	SM, SMR, XM	MS, GP, P, UN	TF	NMS, NMT	MS	MF4, MR3	HRF	
		Roughing	VP4	MU	ET	MU	XMR	RP	MR	NRS, NRT	RS, GJ	MR4	HRM	
N	Aluminium alloy	HA	AH	ML	AX	23	GP, MS	NF, PP	FN2, PF2, MN2, PM2	MJ	MF1	P		
Positive	P M K	Finishing	FP	XP, PP	FA, FX	FC	PF, XF	11	PF	FP4	SMG(G Class), FV	FF1	O1	
			VL, VF	GP	-	FB, LU(FP, FK)	UF	UF	F3P	FK6	SV, FP	F1	PSF, PF	
		Medium cutting	HMP	XQ	FG	LB, NF	PM, XM	LF, FP	14	MP4, FM2, FM4, MK4	LP	MF2	PSS	
			MP	HQ, GK	PC, FM	NGU, SU, SC	UM, PMC	MP, T-20	SM	FP6, MM4, FM6, RK4	MV	F2, M3	PS	
		Roughing	C25	None C/B	MT	MU	PR, UR, XR	MF, GM, -C	19	RP4, RM4, RK6	None C/B, MP	M5	PM	
	Wiper	-	WP	-	LUW	WL, WF	FW	WF	PM	SW	-	-		
		-	-	WT	SDW	WM, WMX	MW	WG	-	MW	-	-		
	M S	Stainless steel For HRSA	Finishing	FS, MS, VP1	CF, GF, GQ	FG	FF, FC, FM	MF, MM, MMC	11, UF, LF	PF	FM4, NM4	FJ(G Class), FM, LM	F1, MF2	PSF, PSS
			Medium to finish cutting	FP, VL, LU	MQ	SA	LB, SI	MR, XR	MF	SM	RM4	MM	M3	PS
			Medium cutting	MU	MF	-	-	SMC	-	M3M	-	None C/B	M5	CM
K	Cast iron	Medium cutting	MP	HQ	PC	MU	KF, KM	LF	17	FK6	MK	M3	CM	
		Roughing	C25	GK	MT	None C/B	KR	MF, UF	19	MK4, RK6	None C/B, -MW	M5	None C/B	
N	Aluminium alloy	AK, AR	AH	FL	AW, AG, AY	AL	HP, LF	AS, AF	PM2	AZ, FS	AL	AL		
	High precision bar turning (tolerance class G&E)	KF, KM	FSF, USF, J, A3	GF, FF, GW	FY, FX, FZ	K, F, UM	GH	LF, RF, XL	-	F, SR, SS, SM	UX	JS, J10, JRP, JPP		

## The Comparison of Grade for Turning

### WC Turning Grades

ISO	Grade	KORLOY	Sandvik	SECO	WALTER	Kennametal	ISCAR	Tungaloy	Taegutec	Mitsubishi	Kyocera	Sumitomo	Hitachi	Dijet	Valenite
Turning	P	P35	ST30A		TP3501		IC50M IC54	UX30		UT120T	PW30	ST30A ST30N	EX35		
	S	S05	H01								MT9005 RT9010				
		S15	H05	H13A			KU10 K313 K68	IC07 IC08		K10	KW10 GW15			WH13S	
	K	K05	H01								HT105T HT110T		H1	WH05 W10	KT9
		K15	H05		890					K10	KW10				
		K20	G10	H13A	HX		K313 K68	IC20	KS20		UT120T	GW15	G10	WH20	
	N	N10	H01	H10			KU10		KS05F				H1		
		N20	H05		HX KX	WN23	K313 K68	IC08 IC20	TH10	K10	HT10	KW10			KT9
		N30	G10	H13A	883							GW15	G10		

### CVD Turning Grades

ISO	Grade	KORLOY	Sandvik	SECO	WALTER	Kennametal	ISCAR	Tungaloy	Taegutec	Mitsubishi	Kyocera	Sumitomo	Hitachi	Dijet	Valenite	
Turning	P	P05	NC3205 GC4405 GC4305	TP0501	WKP01G WPP05G	KCP05	IC9105	T9205	TT8105B	UE6105	CA5505 CA510	AC8115P AC805P	HG8010	JC110V		
		P15	NC3215 NC5320	GC4415 GC4315	TP1501 TP1500 TGP25	WPP10S WPP10G WKP13S	KCP10 KC9110	IC8150 IC9105	T9215 T9115	TT8115B LC215P	MC6115 UE6110	CA115P CA515 CA5515	AC8020P AC8015P AC810P	HG8010	JC110V JC215V	SV315 VP5515
		P25	NC3225	GC4425 GC4325	TP2501 TP2500 TGP35	WPP20S WPP20G	KCP25B KC9125 KCP25C	IC8250 IC9205	T9225 T9125	TT8125B LC225P	MC6125 MC6025 UE6020	CA125P CA025P CA525 CA5525	AC8025P AC820P	HG8025 IP2000 GM25	JC215V	SV325 VP5525
		P30	NC3030 NC5330		TGP45	WKP30S WKP23S				TT5100		CA5535	AC830P			VP5535
		P35	NC3235	GC4335 GC4235	TP3501 TP3500	WPP30S WPP30G	KCP30B	IC8350 IC9350	T9235 T9135	TT8135B TT8135 TT7100	MC6135 MC6035	CA530	AC8035P			
	M	M10	NC9115	GC2015	TM1501	WAM10	KCM15B	IC6015		TT9215	MC7015	CA6515	AC6020M AC610M		JC110V	
		M20	NC9125	GC2220 GC2025	TM2501 TM2000	WMP20S WAM20	KCM25B	IC6025	T6125 T6120	TT9225	MC7025	CA6525	AC6030M	IP100S HG8025	JC525X JC5015	VP5525
		M30	NC9135	GC2035	TM3501 TM4000	WAM20	KCM35B		T6130 T6030	TT9235	US735		AC630M	GM8035	JC5015 JC525X	VC901 V1N
	S	S05	SNC805	S205 S05F		WSM01	KCU10			TT3005	MP9005 US905		AC5005S	IP050S	JC605X	VC929
	K	K05-10	NC6310	GC3205	TK1001	WKP01G WKK10S	KCK05	IC5005	T5105	TT7005	MC5105 MC5005 UC5105	CA305 CA4505	AC4010K AC405K	HG3305 HX3305	JC105V	VP1505
K15		NC6315	GC3210 GC3215	TK1000 TK1001	WAK20 WKK20S	KCK15B	IC5010	T515 T5115	TT7015 LC215K	MC5115 MC5015 UC5115	CA315 CA4515	AC4015K AC415K	HG3315 HX3315	JC110V	VP1510	
K20		NC5320	GC3225	TK2000 TK2001	WAK30 WKP30S	KCK20B		T5125	TT7025		CA320 CA4120	AC420K	HC8010	JC215V	VP1515	
P M K S	15-25	NC5320	GC3225		WKP30S	KCK20B	IC8025	T5125	TT7025		CA4120	AC420K				
	25-35	NC5330			WPP30	KC9140	IC8025		TT5100 TT7100	UE6035		AC630M	IP3000 GM8035	JC325V	SV325 SV230	

### PVD Turning Grades

ISO	Grade	KORLOY	Sandvik	SECO	WALTER	Kennametal	ISCAR	Tungaloy	Taegutec	Mitsubishi	Kyocera	Sumitomo	Hitachi	Dijet	Valenite	
Turning	P	P05	PC8105*								PR1705				VC907	
		P10	PC8110			WSM01 WPP10S								JP5003		
		P15	PC8115*	GC1525	TS2000 CP200		KCS10 KCU10 KC5010	IC807 IC907	AH110 AH710 GH110 AH120 AH330 AH630 GH330 GH725 AH6225 SH725 GH730 SH730		VP10RT VP10MF MS6015	PR930			VC927	
		P20	PC9030		TS2500											
		P25	PC5300		CP500	WSM21	KCU25 KC5025	IC908		TT9080 TT9020	VP15TF MS7025	PR1225 PR1725 PR1535	AC1030U	IP2000	JC5015	VC905
	P35	PC3035*														
	P40	PC5400		CP600			IC830	AH6235 AH645	TT8080 TT8020	VP20RT			IP3000			
	M10	PC8105*			WSM01		IC806	AH110 GH110			VP05RT MP9005 MP9015			IP050S	JC5003	VC929
	M15	PC8110	GC1105 GC1115 GC1205 GC1210	TS2000 CP200		KCS10 KCS10B KCU10 KC5010	IC807 IC907	AH120 AH630 GH330	TT5080		PR930		IP100S	JC8015	VC927	
	M20	PC8115*			WSM10S											
M30-35	M30-35	PC5300 PC9030 PC9035*	GC1125	TS2500 CP500 CP600	WSM20S WSM21	KCU25 KC5025	IC908	AH725 AH6225 GH730 SH730	TT9080 TT9020	VP15TF VP20MF MS7025 MP9025	PR1725 PR1225 PR1535	AC530U AC1030U		JC5015	VC902 VC901 VC905	
	M40	PC5400			WSM30S		IC830	AH6235 AH645	TT8080 TT8020	MP7035		AC6040M				
	S05	PC8105	GC1105 GC1205		WSM01		IC806	AH905		MP9005 VP05RT	PR005S PR1305	AC5005S	JP9105	JC5003		
S	S10	PC8110														
	S15	PC8115	GC1115 GC1210	TS2000 TS2500	WSM10S	KCS10 KCS10B KCU10 KC5010	IC807 IC907	AH110 SH730 GH110	TT5080 TT3010	MP9015 VP10RT	PR015S PR1310	AC5015S AC510U	JP9115	JC8015		
	S20-25	PC5300 PC9035*	GC1125	CP200 CP500 CP600	WSM20S WSM21	KCU25 KC5025	IC908	AH120 AH725	TT3020 TT9080 TT9020	MS9025 MP9025 VP15TF	PR1535 PR1535	AC5025S AC520U		JC5015		
	S30	PC5400			WSM30S				TT8080 TT8020	VP20RT						
K	K10	PC8110		TS2000 TS2500 CP200	WNN10	KCS10 KCS10B KCU10 KC5010	IC807 IC907	AH710 GH110 GH330 AH110	TT6080	VP10RT	PR830				VC929 VC903	
	K20	PC5300		CP500		KCU25 KC5025	IC908	AH120 GH730	TT9080	VP15TF VP20RT	PR1535	AC1030U AC530U			VC902 VC901 VC905	

★ : PVD Coating cermet ★ : New Grade

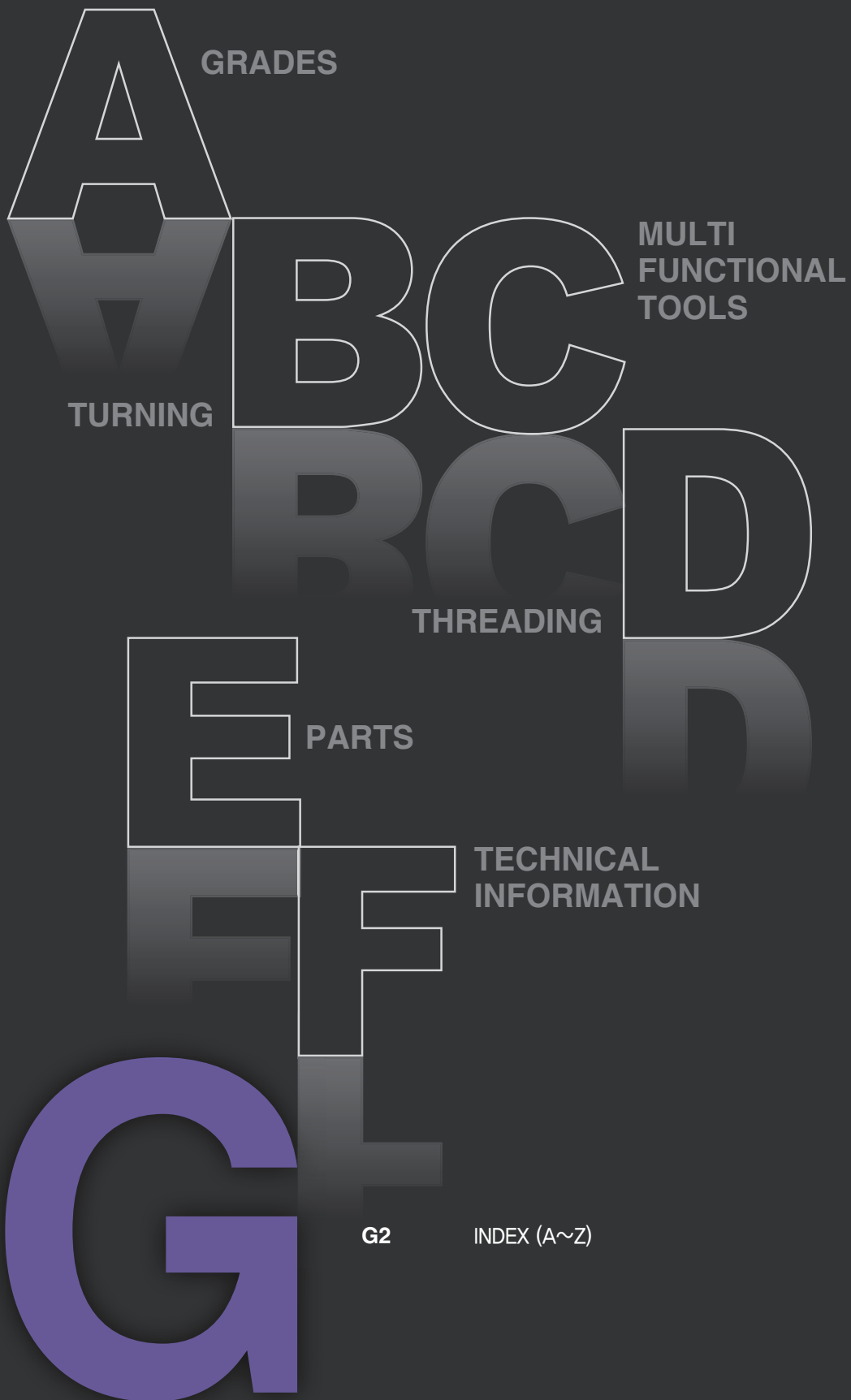
## The Comparison of Grade for Turning

### ➤ Cermet Turning Grades

ISO	Grade	KORLOY	Sandvik	SECO	WALTER	Kennametal	ISCAR	Tungaloy	Taegutec	Mitsubishi	Kyocera	Sumitomo	Hitachi	Dijet	Valenite
Turning	P05					KT1120		NS520						LN10	
	P10	CC1015★ CN1500			WCE10	KT315 KT125	IC20N IC250N		PV3010 CT3000		PV710 TN610 TN6010	T1500Z T1500A		CX50	
	P15		CT5015							AP25N VP25N NX2525		T2000Z		PX75	
	P20	CC1025★ CN2500		TP1020	WTA43 WTA41	KT325 KT1120 KT5020	IC30N IC530N	AT9530 GT9530 J9530 NS9530		NX3035	PV720 PV7020 TN60 TN620 TN6020	T2500Z T2500A	CZ25 CH550	CX75 PX90	VC83
	P25		GC1525							MP3025 VP45N	PV7025				
	P30			TP1030							PV730 PV90 TN90	T3000Z			
	K05										PV7005				
	K10	CC1015 CN1500					KT325 KT125		PV3010 CT3000	AP25N NX2525		T1000A			
	K15	CC1025 CN2500	CT5015					AT9530 GT9530 J9530 NS9530			TN60		CZ25		
	K20												CH550		

★ : PVD Coating cermet    ★ : New Grade

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<b>CCMT-VF</b>	Turning Insert (Positive)	<b>B44</b>
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<b>CNMA</b>	Turning Insert (Negative)	<b>B8</b>
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<b>CNMG-CP</b>	Turning Insert (Negative)	<b>B5</b>
<b>CNMG-GR</b>	Turning Insert (Negative)	<b>B7</b>
<b>CNMG-HA</b>	Turning Insert (Negative)	<b>B10</b>
<b>CNMG-HM</b>	Turning Insert (Negative)	<b>B6</b>
<b>CNMG-LP</b>	Turning Insert (Negative)	<b>B5</b>
<b>CNMG-LW</b>	Turning Insert (Negative)	<b>B11</b>
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<b>CNMG-MM</b>	Turning Insert (Negative)	<b>B9</b>
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<b>CNMG-RK</b>	Turning Insert (Negative)	<b>B8</b>
<b>CNMG-RM</b>	Turning Insert (Negative)	<b>B9</b>
<b>CNMG-VB</b>	Turning Insert (Negative)	<b>B5</b>
<b>CNMG-VC</b>	Turning Insert (Negative)	<b>B5</b>
<b>CNMG-VF</b>	Turning Insert (Negative)	<b>B5</b>
<b>CNMG-VL</b>	Turning Insert (Negative)	<b>B5</b>
<b>CNMG-VM</b>	Turning Insert (Negative)	<b>B6</b>
<b>CNMG-VP1</b>	Turning Insert (Negative)	<b>B9</b>
<b>CNMG-VP2</b>	Turning Insert (Negative)	<b>B10</b>
<b>CNMG-VP3</b>	Turning Insert (Negative)	<b>B10</b>
<b>CNMG-VP4</b>	Turning Insert (Negative)	<b>B10</b>
<b>CNMG-VQ</b>	Turning Insert (Negative)	<b>B7</b>
<b>CNMG-VR</b>	Turning Insert (Negative)	<b>B8</b>
<b>CNMG-VW</b>	Turning Insert (Negative)	<b>B10</b>
<b>CNMM-GH</b>	Turning Insert (Negative)	<b>B11</b>
<b>CNMM-GR</b>	Turning Insert (Negative)	<b>B11</b>
<b>CNMM-HG</b>	Turning Insert (Negative)	<b>B12</b>
<b>CNMM-HL</b>	Turning Insert (Negative)	<b>B11</b>
<b>CNMM-HP</b>	Turning Insert (Negative)	<b>B11</b>
<b>CNMM-HV</b>	Turning Insert (Negative)	<b>B12</b>
<b>CNMM-HX</b>	Turning Insert (Negative)	<b>B12</b>
<b>CNMM-VH</b>	Turning Insert (Negative)	<b>B12</b>
<b>CNMM-VT</b>	Turning Insert (Negative)	<b>B12</b>
<b>CPGT</b>	Turning Insert (Positive)	<b>B49</b>
<b>CPGT-HMP</b>	Turning Insert (Positive)	<b>B49</b>
<b>CPMT-C25</b>	Turning Insert (Positive)	<b>B49</b>
<b>CPMT-VF</b>	Turning Insert (Positive)	<b>B49</b>



## C

<b>CPMT-VL</b>	Turning Insert (Positive)	<b>B49</b>
<b>CSBN...BS</b>	Bearing Solutions	<b>B215</b>
<b>CSDPN</b>	Clamp on System	<b>B105</b>
<b>CSGN...RW</b>	Bearing Solutions	<b>B214</b>
<b>CSKN...BS</b>	Bearing Solutions	<b>B215</b>
<b>CSKP...B</b>	Bearing Solutions	<b>B213</b>
<b>CSKPR/L</b>	Clamp on System	<b>B106</b>
<b>CSKPR/L</b>	Clamp on System	<b>B129</b>
<b>CSKPR/L</b>	Clamp on System	<b>B232</b>
<b>CTFPR/L</b>	Clamp on System	<b>B106</b>
<b>CTFPR/L</b>	Clamp on System	<b>B129</b>
<b>CTFPR/L</b>	Clamp on System	<b>B232</b>
<b>CTGN...BS</b>	Bearing Solutions	<b>B215</b>
<b>CTGPR/L</b>	Clamp on System	<b>B106</b>
<b>CTSPR/L</b>	Clamp on System	<b>B233</b>
<b>CTTPR/L</b>	Clamp on System	<b>B233</b>
<b>CTWPR/L</b>	Clamp on System	<b>B234</b>

## D

<b>DB</b>	Multi Functional Insert (Grooving Tools)	<b>C78</b>
<b>DB1000</b>	cBN Insert Grades	<b>A22</b>
<b>DB2000</b>	cBN Insert Grades	<b>A22</b>
<b>DBH</b>	Multi functional (Grooving Tools)	<b>C78</b>
<b>DC</b>	Multi Functional Insert (Grooving Tools)	<b>C78</b>
<b>DCBNR/L</b>	Double Clamp System	<b>B91</b>
<b>DCET-KF</b>	Turning Insert (Positive)	<b>B52</b>
<b>DCET-KM</b>	Turning Insert (Positive)	<b>B53</b>
<b>DCGT</b>	PCD Insert	<b>B85</b>
<b>DCGT-AK</b>	Aluminum Insert	<b>B76</b>
<b>DCGT-AM</b>	Aluminum Insert	<b>B76</b>
<b>DCGT-AR</b>	Aluminum Insert	<b>B76</b>
<b>DCGT-FS</b>	Turning Insert (Positive)	<b>B51</b>
<b>DCGT-FS</b>	Turning Insert (Positive)	<b>B51</b>
<b>DCGT-KF</b>	Turning Insert (Positive)	<b>B52</b>
<b>DCGT-KM</b>	Turning Insert (Positive)	<b>B53</b>
<b>DCGT-MS</b>	Turning Insert (Positive)	<b>B51</b>
<b>DCGT-VP1</b>	Turning Insert (Positive)	<b>B52</b>
<b>DCGW</b>	cBN Insert	<b>B84</b>
<b>DCKNR/L</b>	Double Clamp System	<b>B91</b>
<b>DCLNR/L</b>	Double Clamp System	<b>B91</b>
<b>DCLNR/L</b>	Double Clamp System	<b>B125</b>
<b>DCLNR/L</b>	HSK Tooling System	<b>B219</b>
<b>DCLNR/L</b>	HSK Tooling System	<b>B223</b>

## D

<b>DCLNR/L</b>	KM Tooling System	<b>B226</b>
<b>DCMNN</b>	HSK Tooling System	<b>B219</b>
<b>DCMNN</b>	KM Tooling System	<b>B226</b>
<b>DCMT</b>	PCD Insert	<b>B85</b>
<b>DCMT-C25</b>	Turning Insert (Positive)	<b>B51</b>
<b>DCMT-FP</b>	Turning Insert (Positive)	<b>B50</b>
<b>DCMT-HMP</b>	Turning Insert (Positive)	<b>B50</b>
<b>DCMT-MP</b>	Turning Insert (Positive)	<b>B50</b>
<b>DCMT-VF</b>	Turning Insert (Positive)	<b>B50</b>
<b>DCMT-VL</b>	Turning Insert (Positive)	<b>B50</b>
<b>DCMT-VP1</b>	Turning Insert (Positive)	<b>B51</b>
<b>DDJNR/L</b>	Double Clamp System	<b>B92</b>
<b>DDJNR/L</b>	HSK Tooling System	<b>B219</b>
<b>DDJNR/L</b>	KM Tooling System	<b>B226</b>
<b>DDNNN</b>	HSK Tooling System	<b>B219</b>
<b>DDNNN</b>	KM Tooling System	<b>B227</b>
<b>DDUNR/L</b>	Double Clamp System	<b>B125</b>
<b>DNC100</b>	cBN Insert Grades	<b>A20</b>
<b>DNC250</b>	cBN Insert Grades	<b>A20</b>
<b>DNC300</b>	cBN Insert Grades	<b>A21</b>
<b>DNC350</b>	cBN Insert Grades	<b>A21</b>
<b>DNGG-VP1</b>	Turning Insert (Negative)	<b>B17</b>
<b>DNGG-VP3</b>	Turning Insert (Negative)	<b>B17</b>
<b>DNMA</b>	Turning Insert (Negative)	<b>B16</b>
<b>DNMA</b>	cBN Insert	<b>B84</b>
<b>DNMG-B25</b>	Turning Insert (Negative)	<b>B15</b>
<b>DNMG-CP</b>	Turning Insert (Negative)	<b>B14</b>
<b>DNMG-GR</b>	Turning Insert (Negative)	<b>B15</b>
<b>DNMG-HA</b>	Turning Insert (Negative)	<b>B18</b>
<b>DNMG-HM</b>	Turning Insert (Negative)	<b>B14</b>
<b>DNMG-LP</b>	Turning Insert (Negative)	<b>B13</b>
<b>DNMG-LW</b>	Turning Insert (Negative)	<b>B18</b>
<b>DNMG-MM</b>	Turning Insert (Negative)	<b>B16</b>
<b>DNMG-MP</b>	Turning Insert (Negative)	<b>B14</b>
<b>DNMG-RK</b>	Turning Insert (Negative)	<b>B16</b>
<b>DNMG-RM</b>	Turning Insert (Negative)	<b>B17</b>
<b>DNMG-VB</b>	Turning Insert (Negative)	<b>B13</b>
<b>DNMG-VC</b>	Turning Insert (Negative)	<b>B14</b>
<b>DNMG-VF</b>	Turning Insert (Negative)	<b>B13</b>
<b>DNMG-VL</b>	Turning Insert (Negative)	<b>B13</b>
<b>DNMG-VM</b>	Turning Insert (Negative)	<b>B15</b>
<b>DNMG-VP1</b>	Turning Insert (Negative)	<b>B17</b>
<b>DNMG-VP2</b>	Turning Insert (Negative)	<b>B17</b>
<b>DNMG-VP3</b>	Turning Insert (Negative)	<b>B17</b>

**D**

<b>DNMG-VP4</b>	Turning Insert (Negative)	<b>B18</b>
<b>DNMG-VQ</b>	Turning Insert (Negative)	<b>B15</b>
<b>DNMG-VR</b>	Turning Insert (Negative)	<b>B16</b>
<b>DNMG-VW</b>	Turning Insert (Negative)	<b>B18</b>
<b>DNMM</b>	PCD Insert	<b>B85</b>
<b>DNMM</b>	PCD Insert	<b>B85</b>
<b>DNMX-SH</b>	Turning Insert (Negative)	<b>B18</b>
<b>DNMX-SR</b>	Turning Insert (Negative)	<b>B18</b>
<b>DSBNR/L</b>	Double Clamp System	<b>B92</b>
<b>DSDNN</b>	Double Clamp System	<b>B93</b>
<b>DSKNR/L</b>	Double Clamp System	<b>B93</b>
<b>DSKNR/L</b>	Double Clamp System	<b>B125</b>
<b>DSSNR/L</b>	Double Clamp System	<b>B93</b>
<b>DTFNR/L</b>	Double Clamp System	<b>B94</b>
<b>DTFNR/L</b>	Double Clamp System	<b>B126</b>
<b>DTGNR/L</b>	Double Clamp System	<b>B94</b>
<b>DVJNR/L</b>	Double Clamp System	<b>B94</b>
<b>DVVNN</b>	Double Clamp System	<b>B95</b>
<b>DWLNR/L</b>	Double Clamp System	<b>B95</b>
<b>DWLNR/L</b>	Double Clamp System	<b>B126</b>

**E**

<b>ER(L)H</b>	Thread External Holder (Screw on system)	<b>D32</b>
<b>ER(L)H-C</b>	Thread External Holder (Clamp on system)	<b>D32</b>
<b>EV2020R/L-105-3</b>	HSK Tooling System	<b>B224</b>
<b>EV2525R/L-112</b>	HSK Tooling System	<b>B224</b>
<b>EV2525R/L-115</b>	HSK Tooling System	<b>B224</b>
<b>Extreme Line Casing</b>	Threading	<b>D31</b>

**F**

<b>FGD</b>	Multi Functional Insert (MGT)	<b>C77</b>
<b>FGHH</b>	Multi functional (Grooving Tools)	<b>C75</b>
<b>FGM</b>	Multi Functional Insert (Grooving Tools)	<b>C77</b>
<b>FGVH</b>	Multi functional (Grooving Tools)	<b>C76</b>
<b>FMM</b>	Multi Functional Insert (Grooving Tools)	<b>C77</b>

**G**

<b>GFIP</b>	Multi functional (Grooving Tools)	<b>C79</b>
<b>GW</b>	Multi Functional Insert (Grooving Tools)	<b>C79</b>

**H**

<b>H01</b>	Uncoated Carbide Grades	<b>A13</b>
<b>H05</b>	Uncoated Carbide Grades	<b>A13</b>
<b>HBEHR/L</b>	Multi functional (Hexa Blade)	<b>C74</b>

**I**

<b>IG</b>	Multi Functional Insert (Grooving Tools)	<b>C77</b>
<b>IGH</b>	Multi functional (Grooving Tools)	<b>C77</b>
<b>IR(L)H</b>	Thread Internal Holder (Screw on system)	<b>D33</b>
<b>IR(L)H-C</b>	Thread Internal Holder (Clamp on system)	<b>D33</b>
<b>ISO Metric</b>	Threading	<b>D13</b>

**K**

<b>KCER/L</b>	Multi functional (KGT Cartridge)	<b>C58</b>
<b>KCFR/L</b>	Multi functional (KGT Cartridge)	<b>C58</b>
<b>KGEHR/L</b>	Multi Functional Insert (KGT)	<b>C31</b>
<b>KGEHR/L-D00A</b>	Auto Tools (KGT) Holder	<b>B183</b>
<b>KGEHR/L-D00A</b>	Multi functional (Auto Tool Holder)	<b>C33</b>
<b>KGEHR/L-D00B</b>	Auto Tools (KGT) Holder	<b>B183</b>
<b>KGEHR/L-D00B</b>	Multi functional (Auto Tool Holder)	<b>C33</b>
<b>KGEHR/L-T00</b>	Multi Functional Insert (KGT)	<b>C34</b>
<b>KGEUR/L</b>	Multi Functional Insert (KGT)	<b>C36</b>
<b>KGEVR/L-T00</b>	Multi Functional Insert (KGT)	<b>C35</b>
<b>KGFHR/L</b>	Multi Functional Insert (KGT)	<b>C39</b>
<b>KGFVR/L</b>	Multi Functional Insert (KGT)	<b>C38</b>
<b>KGGN-A</b>	Multi Functional Insert (KGT)	<b>C28</b>
<b>KGGN-B</b>	Multi Functional Insert (KGT)	<b>C29</b>
<b>KGGN-R</b>	Multi Functional Insert (KGT)	<b>C28</b>
<b>KGGN-R</b>	Multi Functional Insert (KGT)	<b>C29</b>
<b>KGIUR/L</b>	Multi Functional Insert (KGT)	<b>C36</b>
<b>KGIVR/L</b>	Multi Functional Insert (KGT)	<b>C37</b>
<b>KGMI-T</b>	Multi Functional Insert (KGT)	<b>C29</b>
<b>KGML-LP</b>	Auto Tools Inserts (KGT/MGT)	<b>B182</b>
<b>KGML-LP</b>	Multi Functional Insert (KGT)	<b>C30</b>
<b>KGML-RP</b>	Auto Tools Inserts (KGT/MGT)	<b>B182</b>
<b>KGML-RP</b>	Multi Functional Insert (KGT)	<b>C30</b>
<b>KGMN-L</b>	Auto Tools Inserts (KGT/MGT)	<b>B182</b>
<b>KGMN-L</b>	Multi Functional Insert (KGT)	<b>C28</b>
<b>KGMN-R</b>	Auto Tools Inserts (KGT/MGT)	<b>B182</b>
<b>KGMN-R</b>	Multi Functional Insert (KGT)	<b>C28</b>
<b>KGMN-T</b>	Auto Tools Inserts (KGT/MGT)	<b>B182</b>
<b>KGMN-T</b>	Multi Functional Insert (KGT)	<b>C28</b>
<b>KGMN-TL</b>	Multi Functional Insert (KGT)	<b>C28</b>

## K

<b>KGMR-LP</b>	Auto Tools Inserts (KGT/MGT)	<b>B182</b>
<b>KGMR-LP</b>	Multi Functional Insert (KGT)	<b>C29</b>
<b>KGMR-RP</b>	Auto Tools Inserts (KGT/MGT)	<b>B182</b>
<b>KGMR-RP</b>	Multi Functional Insert (KGT)	<b>C29</b>
<b>KGTB</b>	KGT Blades for Parting off	<b>C40</b>
<b>KM<sup>○</sup>-DCLNR/L</b>	KM Tooling System	<b>B229</b>
<b>KNB</b>	Multi Functional Insert (K-Notch, Metric)	<b>C18</b>
<b>KNG</b>	Multi Functional Insert (K-Notch, Metric)	<b>C18</b>
<b>KNG</b>	Multi Functional Insert (K-Notch, Inch)	<b>C19</b>
<b>KNGP</b>	Multi Functional Insert (K-Notch, Metric)	<b>C18</b>
<b>KNGP</b>	Multi Functional Insert (K-Notch, Inch)	<b>C19</b>
<b>KNR</b>	Multi Functional Insert (K-Notch, Inch)	<b>C19</b>
<b>KNRP</b>	Multi Functional Insert (K-Notch, Inch)	<b>C19</b>
<b>KNSR</b>	Multi Functional (K-Notch_Holder)	<b>C20</b>
<b>KNT</b>	Multi Functional Insert (K-Notch, Metric)	<b>C18</b>
<b>KNUX-11</b>	Turning Insert (Negative)	<b>B19</b>
<b>KNUX-12</b>	Turning Insert (Negative)	<b>B19</b>
<b>KRGN-A</b>	Multi Functional Insert (KGT)	<b>C30</b>
<b>KRGN-CM</b>	Multi Functional Insert (KGT)	<b>C30</b>
<b>KRMI-C</b>	Multi Functional Insert (KGT)	<b>C30</b>
<b>KRMN-C</b>	Auto Tools Inserts (KGT/MGT)	<b>B182</b>
<b>KRMN-C</b>	Multi Functional Insert (KGT)	<b>C30</b>
<b>KSEHR/L</b>	Multi Functional (Saw Man-X_Shank-Screw clamping)	<b>C7</b>
<b>KSPB</b>	Multi Functional (Saw Man-X_Blade)	<b>C6</b>
<b>KSPB-KHP</b>	Multi Functional (Saw Man-X_Blade)	<b>C8</b>
<b>KSPH</b>	Multi Functional (Saw Man-X_Shank-Self grip)	<b>C7</b>

## M

<b>MBBR</b>	Auto Tools (MSB Tool)	<b>B206</b>
<b>MBCBR</b>	Auto Tools MSB PLUS	<b>B191</b>
<b>MBCFR</b>	Auto Tools MSB PLUS	<b>B191</b>
<b>MBCR</b>	Auto Tools MSB PLUS	<b>B187</b>
<b>MBCR</b>	Auto Tools (MSB Tool)	<b>B205</b>
<b>MBCR/L</b>	Auto Tools MSB PLUS	<b>B187</b>
<b>MBER</b>	Auto Tools MSB PLUS	<b>B187</b>
<b>MBFR</b>	Auto Tools (MSB Tool)	<b>B206</b>
<b>MBR</b>	Auto Tools (MSB Tool)	<b>B205</b>
<b>MCBLFR/L</b>	Auto Tools MSB PLUS	<b>B192</b>
<b>MCER/L</b>	HSK Tooling System (Cartridge)	<b>B222</b>
<b>MCER/L</b>	KM Tooling System (Cartridge)	<b>B229</b>
<b>MCER/L</b>	Multi functional (KGT Cartridge)	<b>C59</b>
<b>MCFR/L</b>	HSK Tooling System (Cartridge)	<b>B223</b>

## M

<b>MCFR/L</b>	Multi functional (KGT Cartridge)	<b>C59</b>
<b>MCHR/L</b>	HSK Tooling System	<b>B222</b>
<b>MCHR/L</b>	HSK Tooling System	<b>B222</b>
<b>MCHR/L</b>	KM Tooling System	<b>B228</b>
<b>MCHR/L</b>	Multi functional (KGT Cartridge)	<b>C56</b>
<b>MCKNR/L</b>	Multi Lock System	<b>B107</b>
<b>MCLNR/L</b>	Multi Lock System	<b>B107</b>
<b>MCLNR/L</b>	Multi Lock System	<b>B130</b>
<b>MCLR</b>	Auto Tools MSB PLUS	<b>B192</b>
<b>MCMNN</b>	Multi Lock System	<b>B107</b>
<b>MCRNR/L</b>	Multi Lock System	<b>B108</b>
<b>MCVR/L</b>	Multi functional (KGT Cartridge)	<b>C56</b>
<b>MDJNR/L</b>	Multi Lock System	<b>B108</b>
<b>MDNNN</b>	Multi Lock System	<b>B108</b>
<b>MDQNR/L</b>	Multi Lock System	<b>B109</b>
<b>MDUNR/L</b>	Multi Lock System	<b>B130</b>
<b>Metric Buttress</b>	Threading	<b>D30</b>
<b>MFGRR/L</b>	Auto Tools MSB PLUS	<b>B196</b>
<b>MFMN</b>	Multi Functional Insert (MGT)	<b>C47</b>
<b>MFPR/L</b>	Auto Tools MSB PLUS	<b>B197</b>
<b>MGEHR/L</b>	Auto Tools (MGT Plus/MGT) Holder	<b>B184</b>
<b>MGEHR/L</b>	Multi Functional Insert (MGT)	<b>C50</b>
<b>MGEHR/L</b>	Multi functional (MGT for Aluminum Wheel)	<b>C61</b>
<b>MGEHR/L-15</b>	Multi functional (MGT for Aluminum Wheel)	<b>C62</b>
<b>MGEUR/L</b>	Multi Functional Insert (MGT)	<b>C51</b>
<b>MGEVR/L</b>	Multi Functional Insert (MGT)	<b>C52</b>
<b>MGEXR/L</b>	Multi functional (MGT for Aluminum Wheel)	<b>C63</b>
<b>MGFHR/L</b>	Multi Functional Insert (MGT)	<b>C55</b>
<b>MGFR</b>	Auto Tools (MSB Tool)	<b>B208</b>
<b>MGFVR/L</b>	Multi Functional Insert (MGT)	<b>C55</b>
<b>MGGN-A</b>	Multi Functional Insert (MGT)	<b>C48</b>
<b>MGGN-M</b>	Multi Functional Insert (MGT)	<b>C47</b>
<b>MGIUR/L</b>	Multi Functional Insert (MGT)	<b>C53</b>
<b>MGIUR/L-MR</b>	Multi functional (MGT for Aluminum Wheel)	<b>C62</b>
<b>MGIUR/L-MV</b>	Multi functional (MGT for Aluminum Wheel)	<b>C63</b>
<b>MGIVR/L</b>	Multi Functional Insert (MGT)	<b>C54</b>
<b>MGIXR/L-MR</b>	Multi functional (MGT for Aluminum Wheel)	<b>C62</b>
<b>MGML-PS</b>	Multi Functional Insert (MGT)	<b>C49</b>
<b>MGML-PT</b>	Multi Functional Insert (MGT)	<b>C49</b>
<b>MGMN-G</b>	Auto Tools Inserts (MGT Plus/MGT)	<b>B184</b>
<b>MGMN-G</b>	Multi Functional Insert (MGT)	<b>C47</b>
<b>MGMN-L</b>	Multi Functional Insert (MGT)	<b>C47</b>
<b>MGMN-M</b>	Auto Tools Inserts (MGT Plus/MGT)	<b>B184</b>
<b>MGMN-M</b>	Multi Functional Insert (MGT)	<b>C47</b>

**M**

<b>MGMN-R</b>	Multi Functional Insert (MGT)	<b>C48</b>
<b>MGMN-T</b>	Multi Functional Insert (MGT)	<b>C48</b>
<b>MGMR-PS</b>	Multi Functional Insert (MGT)	<b>C49</b>
<b>MGMR-PT</b>	Multi Functional Insert (MGT)	<b>C49</b>
<b>MGR</b>	Auto Tools (MSB Tool)	<b>B207</b>
<b>MGRR</b>	Auto Tools (MSB Tool)	<b>B208</b>
<b>MGSR</b>	Auto Tools MSB PLUS	<b>B193</b>
<b>MGSR/L</b>	Auto Tools MSB PLUS	<b>B194</b>
<b>MHRNC</b>	Auto Tools MSB PLUS	<b>B201</b>
<b>MHRRC</b>	Auto Tools MSB PLUS	<b>B200</b>
<b>MHRSC</b>	Auto Tools MSB PLUS	<b>B199</b>
<b>MPPR</b>	Auto Tools MSB PLUS	<b>B196</b>
<b>MPPR/L</b>	Auto Tools MSB PLUS	<b>B196</b>
<b>MRGN-A</b>	Multi Functional Insert (MGT)	<b>C49</b>
<b>MRGN-A</b>	Multi functional (MGT for Aluminum Wheel)	<b>C61</b>
<b>MRMN-M</b>	Multi Functional Insert (MGT)	<b>C49</b>
<b>MSBNR/L</b>	Multi Lock System	<b>B109</b>
<b>MSDNN</b>	Multi Lock System	<b>B109</b>
<b>MSKNR/L</b>	Multi Lock System	<b>B110</b>
<b>MSKNR/L</b>	Multi Lock System	<b>B130</b>
<b>MSRNR/L</b>	Multi Lock System	<b>B110</b>
<b>MSSNR/L</b>	Multi Lock System	<b>B111</b>
<b>MTENN</b>	Multi Lock System	<b>B111</b>
<b>MTFNR/L</b>	Multi Lock System	<b>B111</b>
<b>MTFNR/L</b>	Multi Lock System	<b>B131</b>
<b>MTGNR/L</b>	Multi Lock System	<b>B112</b>
<b>MTHR</b>	Auto Tools MSB PLUS	<b>B198</b>
<b>MTHR/L</b>	Auto Tools MSB PLUS	<b>B198</b>
<b>MTJNR/L</b>	Multi Lock System	<b>B112</b>
<b>MTR</b>	Auto Tools (MSB Tool)	<b>B209</b>
<b>MVGN</b>	Multi Functional Insert (MGT)	<b>C61</b>
<b>MVJNR/L</b>	Multi Lock System	<b>B112</b>
<b>MVQNR/L</b>	Multi Lock System	<b>B113</b>
<b>MVUNR/L</b>	Multi Lock System	<b>B131</b>
<b>MVVNN</b>	Multi Lock System	<b>B113</b>
<b>MWLNR/L</b>	Multi Lock System	<b>B113</b>
<b>MWLNR/L</b>	Multi Lock System	<b>B131</b>

**N**

<b>National Pipe Thread</b>	Threading	<b>D23</b>
<b>National Pipe Threads-Dryseal</b>	Threading	<b>D24</b>
<b>NC3205</b>	CVD Coated Grades	<b>A5</b>
<b>NC3215</b>	CVD Coated Grades	<b>A5</b>

**N**

<b>NC3225</b>	CVD Coated Grades	<b>A5</b>
<b>NC3235</b>	CVD Coated Grades	<b>A5</b>
<b>NC6310</b>	CVD Coated Grades	<b>A6</b>
<b>NC6315</b>	CVD Coated Grades	<b>A6</b>
<b>NC9115</b>	CVD Coated Grades	<b>A7</b>
<b>NC9125</b>	CVD Coated Grades	<b>A7</b>
<b>NC9135</b>	CVD Coated Grades	<b>A7</b>
<b>ND3000</b>	Diamond Coated Grades	<b>A16</b>
<b>NFTF</b>	Multi Functional Insert (Fine Tool)	<b>C15</b>
<b>NFTG</b>	Multi Functional Insert (Fine Tool)	<b>C14</b>
<b>NFTIH</b>	Multi Functional Insert (Fine Tool)	<b>C15</b>
<b>NFTT</b>	Multi Functional Insert (Fine Tool)	<b>C14</b>

**P**

<b>Partial profile 55°</b>	Threading	<b>D12</b>
<b>Partial profile 60°</b>	Threading	<b>D11</b>
<b>PC5300</b>	PVD Coated Grades	<b>A10</b>
<b>PC8105</b>	PVD Coated Grades	<b>A9</b>
<b>PC8110</b>	PVD Coated Grades	<b>A9</b>
<b>PC8115</b>	PVD Coated Grades	<b>A9</b>
<b>PC9030</b>	PVD Coated Grades	<b>A11</b>
<b>PC9035</b>	PVD Coated Grades	<b>A11</b>
<b>PCBNR/L</b>	Lever Lock System	<b>B96</b>
<b>PCBNR/L</b>	Save Turn Holders	<b>B155</b>
<b>PCKNR/L</b>	Lever Lock System	<b>B96</b>
<b>PCLNR/L</b>	Lever Lock System	<b>B97</b>
<b>PCLNR/L</b>	Lever Lock System	<b>B127</b>
<b>PCLNR/L</b>	KHP Coolant	<b>B148</b>
<b>PCLNR/L</b>	Save Turn Holders	<b>B155</b>
<b>PCLNR/L</b>	Save Turn Boring Bars	<b>B158</b>
<b>PCLNR/L</b>	HSK Tooling System	<b>B220</b>
<b>PCLNR/L</b>	KM Tooling System	<b>B227</b>
<b>PCMNN</b>	HSK Tooling System	<b>B220</b>
<b>PCMNN</b>	KM Tooling System	<b>B227</b>
<b>PD1005</b>	DLC Coated Grades	<b>A17</b>
<b>PD1010</b>	DLC Coated Grades	<b>A17</b>
<b>PDJNR/L</b>	Lever Lock System	<b>B97</b>
<b>PDJNR/L</b>	KHP Coolant	<b>B148</b>
<b>PDJNR/L</b>	Save Turn Holders	<b>B155</b>
<b>PDJNR/L</b>	HSK Tooling System	<b>B220</b>
<b>PDJNR/L</b>	KM Tooling System	<b>B228</b>
<b>PDNNN</b>	HSK Tooling System	<b>B220</b>
<b>PDNNN</b>	KM Tooling System	<b>B228</b>

## P

<b>PDNNR/L</b>	Lever Lock System	<b>B98</b>
<b>PDNNR/L</b>	Save Turn Holders	<b>B156</b>
<b>PDQNR/L</b>	Save Turn Holders	<b>B156</b>
<b>PDSNR/L</b>	Lever Lock System	<b>B127</b>
<b>PDUNR/L</b>	Lever Lock System	<b>B127</b>
<b>PDUNR/L</b>	Save Turn Boring Bars	<b>B158</b>
<b>PDZNR/L</b>	Save Turn Boring Bars	<b>B159</b>
<b>PGMN-GM</b>	Multi Functional Insert (MGT Plus/MGT)	<b>C45</b>
<b>PGMN-MM</b>	Auto Tools Inserts (MGT Plus/MGT)	<b>B184</b>
<b>PGMN-MM</b>	Multi Functional Insert (MGT Plus/MGT)	<b>C45</b>
<b>PGMN-MN</b>	Auto Tools Inserts (MGT Plus/MGT)	<b>B184</b>
<b>PRDCN</b>	Lever Lock System	<b>B98</b>
<b>PRDCN</b>	HSK Tooling System	<b>B221</b>
<b>PRGCR/L</b>	Lever Lock System	<b>B99</b>
<b>PRGCR/L</b>	HSK Tooling System	<b>B221</b>
<b>PRMN-RM</b>	Auto Tools Inserts (MGT Plus/MGT)	<b>B184</b>
<b>PRMN-RM</b>	Multi Functional Insert (MGT Plus/MGT)	<b>C45</b>
<b>PSBNR/L</b>	Lever Lock System	<b>B99</b>
<b>PSBNR/L</b>	Save Turn Holders	<b>B156</b>
<b>PSDNN</b>	Lever Lock System	<b>B100</b>
<b>PSDNN</b>	Save Turn Holders	<b>B157</b>
<b>PSKNR/L</b>	Lever Lock System	<b>B100</b>
<b>PSKNR/L</b>	Lever Lock System	<b>B128</b>
<b>PSKNR/L</b>	Save Turn Holders	<b>B157</b>
<b>PSKNR/L</b>	Save Turn Boring Bars	<b>B159</b>
<b>PSSNR/L</b>	Lever Lock System	<b>B101</b>
<b>PSSNR/L</b>	KHP Coolant	<b>B148</b>
<b>PSSNR/L</b>	Save Turn Holders	<b>B157</b>
<b>PTFNR/L</b>	Lever Lock System	<b>B101</b>
<b>PTFNR/L</b>	Lever Lock System	<b>B128</b>
<b>PTGNR/L</b>	Lever Lock System	<b>B102</b>
<b>PTTNR/L</b>	Lever Lock System	<b>B102</b>
<b>PWLNLR/L</b>	Lever Lock System	<b>B102</b>
<b>PWLNLR/L</b>	Lever Lock System	<b>B128</b>
<b>PWLNLR/L</b>	KHP Coolant	<b>B149</b>
<b>PWLNLR/L</b>	Save Turn Holders	<b>B158</b>

## R

<b>RCGT-AK</b>	Aluminum Insert	<b>B77</b>
<b>RCGT-AR</b>	Aluminum Insert	<b>B77</b>
<b>RCMT-VM</b>	Turning Insert (Positive)	<b>B54</b>
<b>RCMX</b>	Turning Insert (Positive)	<b>B54</b>
<b>RNMG-B25</b>	Turning Insert (Negative)	<b>B19</b>

## R

<b>RNMM-GR</b>	Turning Insert (Negative)	<b>B36</b>
<b>Round DIN405</b>	Threading	<b>D24</b>
<b>RPGR-F</b>	Turning Insert (Positive)	<b>B62</b>
<b>RPMR-M</b>	Turning Insert (Positive)	<b>B62</b>

## S

<b>SBBR/L</b>	Auto Tools Inserts (Blade)	<b>B176</b>
<b>SBCR/L</b>	Auto Tools Inserts (Blade)	<b>B176</b>
<b>SBGR/L</b>	Auto Tools Inserts (Blade)	<b>B176</b>
<b>SBHR/L</b>	Auto Tools (Blade)	<b>B177</b>
<b>SBHR/L-X (Sub spindle)</b>	Auto Tools (Blade)	<b>B177</b>
<b>SBR/L</b>	Auto Tools Inserts (multi utility)	<b>B179</b>
<b>SBTR/L</b>	Auto Tools Inserts (Blade)	<b>B176</b>
<b>SCACR/L</b>	Screw on System	<b>B114</b>
<b>SCACR/L</b>	Auto Tools (ISO) Holder	<b>B168</b>
<b>SCGT-AK</b>	Aluminum Insert	<b>B78</b>
<b>SCGT-AR</b>	Aluminum Insert	<b>B78</b>
<b>SCLCR/L</b>	Screw on System	<b>B114</b>
<b>SCLCR/L</b>	Screw on System	<b>B132</b>
<b>SCLCR/L</b>	Compact Mini	<b>B142</b>
<b>SCLCR/L</b>	Auto Tools (KHP)	<b>B152</b>
<b>SCLCR/L</b>	Auto Tools (ISO) Holder	<b>B168</b>
<b>SCLCR/L</b>	Auto Tools (KHP) Holder	<b>B174</b>
<b>SCLPR/L</b>	Screw on System	<b>B133</b>
<b>SCMT-C25</b>	Turning Insert (Positive)	<b>B55</b>
<b>SCMT-FP</b>	Turning Insert (Positive)	<b>B55</b>
<b>SCMT-HMP</b>	Turning Insert (Positive)	<b>B55</b>
<b>SCMT-MP</b>	Turning Insert (Positive)	<b>B55</b>
<b>SCMT-VF</b>	Turning Insert (Positive)	<b>B55</b>
<b>SCMT-VL</b>	Turning Insert (Positive)	<b>B55</b>
<b>SCR/L</b>	Auto Tools Inserts (multi utility)	<b>B179</b>
<b>SDACR/L</b>	Screw on System	<b>B114</b>
<b>SDJCR/L</b>	Screw on System	<b>B115</b>
<b>SDJCR/L</b>	Auto Tools (KHP)	<b>B152</b>
<b>SDJCR/L</b>	Auto Tools (ISO) Holder	<b>B168</b>
<b>SDJCR/L</b>	Auto Tools (KHP) Holder	<b>B174</b>
<b>SDNCN</b>	Screw on System	<b>B115</b>
<b>SDNCN</b>	Auto Tools (ISO) Holder	<b>B169</b>
<b>SDQCR/L</b>	Screw on System	<b>B134</b>
<b>SDUCR/L</b>	Screw on System	<b>B135</b>
<b>SDZCR/L</b>	Screw on System	<b>B136</b>
<b>SGBR/L</b>	Auto Tools Inserts (multi utility)	<b>B180</b>
<b>SGR/L</b>	Auto Tools Inserts (multi utility)	<b>B179</b>

**S**

<b>SL (Sleeve)</b>	Sleeve	<b>B144</b>
<b>SL (Sleeve)</b>	Auto Tools (MSB Tool)	<b>B209</b>
<b>SMBB</b>	Multi Functional (Saw Man_Blade)	<b>C11</b>
<b>SMBB</b>	Multi Functional (Saw Man-X_Block)	<b>C6</b>
<b>SMBB-KHP</b>	Multi Functional (Saw Man-X_Block)	<b>C8</b>
<b>SNGA</b>	Turning Insert (Negative)	<b>B24</b>
<b>SNGG</b>	Turning Insert (Negative)	<b>B23</b>
<b>SNGG-VP3</b>	Turning Insert (Negative)	<b>B25</b>
<b>SNGN</b>	Turning Insert (Negative)	<b>B26</b>
<b>SNGX</b>	Turning Insert (Negative)	<b>B27</b>
<b>SNMA</b>	Turning Insert (Negative)	<b>B23</b>
<b>SNMG-B25</b>	Turning Insert (Negative)	<b>B22</b>
<b>SNMG-CP</b>	Turning Insert (Negative)	<b>B20</b>
<b>SNMG-GR</b>	Turning Insert (Negative)	<b>B22</b>
<b>SNMG-HA</b>	Turning Insert (Negative)	<b>B26</b>
<b>SNMG-HM</b>	Turning Insert (Negative)	<b>B21</b>
<b>SNMG-LP</b>	Turning Insert (Negative)	<b>B20</b>
<b>SNMG-MK</b>	Turning Insert (Negative)	<b>B23</b>
<b>SNMG-MM</b>	Turning Insert (Negative)	<b>B24</b>
<b>SNMG-MP</b>	Turning Insert (Negative)	<b>B21</b>
<b>SNMG-RK</b>	Turning Insert (Negative)	<b>B24</b>
<b>SNMG-RM</b>	Turning Insert (Negative)	<b>B25</b>
<b>SNMG-VB</b>	Turning Insert (Negative)	<b>B20</b>
<b>SNMG-VC</b>	Turning Insert (Negative)	<b>B20</b>
<b>SNMG-VF</b>	Turning Insert (Negative)	<b>B20</b>
<b>SNMG-VL</b>	Turning Insert (Negative)	<b>B20</b>
<b>SNMG-VM</b>	Turning Insert (Negative)	<b>B21</b>
<b>SNMG-VP2</b>	Turning Insert (Negative)	<b>B25</b>
<b>SNMG-VP3</b>	Turning Insert (Negative)	<b>B25</b>
<b>SNMG-VP4</b>	Turning Insert (Negative)	<b>B25</b>
<b>SNMG-VQ</b>	Turning Insert (Negative)	<b>B22</b>
<b>SNMG-VR</b>	Turning Insert (Negative)	<b>B24</b>
<b>SNMM-GH</b>	Turning Insert (Negative)	<b>B27</b>
<b>SNMM-GR</b>	Turning Insert (Negative)	<b>B27</b>
<b>SNMM-HG</b>	Turning Insert (Negative)	<b>B28</b>
<b>SNMM-HL</b>	Turning Insert (Negative)	<b>B27</b>
<b>SNMM-HP</b>	Turning Insert (Negative)	<b>B27</b>
<b>SNMM-HV</b>	Turning Insert (Negative)	<b>B28</b>
<b>SNMM-HX</b>	Turning Insert (Negative)	<b>B28</b>
<b>SNMM-VH</b>	Turning Insert (Negative)	<b>B28</b>
<b>SNMM-VT</b>	Turning Insert (Negative)	<b>B28</b>
<b>SNMX</b>	Turning Insert (Negative)	<b>B26</b>
<b>SNUN</b>	Turning Insert (Negative)	<b>B26</b>
<b>SPB/SPB-S</b>	Multi Functional Insert (Saw Man_Blade)	<b>C11</b>

**S**

<b>SPGA</b>	Turning Insert (Positive)	<b>B57</b>
<b>SPGN</b>	Turning Insert (Positive)	<b>B57</b>
<b>SPGN</b>	PCD Insert	<b>B85</b>
<b>SPGR-F</b>	Turning Insert (Positive)	<b>B56</b>
<b>SPGR-M</b>	Turning Insert (Positive)	<b>B56</b>
<b>SPGT</b>	Turning Insert (Positive)	<b>B57</b>
<b>SPH/SPH-S</b>	Multi Functional (Saw Man_Holder)	<b>C12</b>
<b>SPMR-F</b>	Turning Insert (Positive)	<b>B56</b>
<b>SPMR-M</b>	Turning Insert (Positive)	<b>B56</b>
<b>SPMT-VF</b>	Turning Insert (Positive)	<b>B56</b>
<b>SPMT-VL</b>	Turning Insert (Positive)	<b>B56</b>
<b>SPUN</b>	Turning Insert (Positive)	<b>B56</b>
<b>SRCP...B</b>	Bearing Solutions	<b>B213</b>
<b>SRDCN</b>	Screw on System	<b>B115</b>
<b>SRGCR/L</b>	Screw on System	<b>B116</b>
<b>SRGCR/L</b>	KHP Coolant	<b>B149</b>
<b>SRGP...E</b>	Bearing Solutions	<b>B212</b>
<b>SRGP...F</b>	Bearing Solutions	<b>B213</b>
<b>SSBCR/L</b>	Screw on System	<b>B116</b>
<b>SSDCN</b>	Screw on System	<b>B116</b>
<b>SSKCR/L</b>	Screw on System	<b>B117</b>
<b>SSKCR/L</b>	Screw on System	<b>B136</b>
<b>SSKCR/L</b>	Screw on System	<b>B234</b>
<b>SSKP...B</b>	Bearing Solutions	<b>B213</b>
<b>SSKPR/L</b>	Screw on System	<b>B136</b>
<b>SSSCR/L</b>	Screw on System	<b>B117</b>
<b>SSSCR/L</b>	Screw on System	<b>B235</b>
<b>STACR/L</b>	Screw on System	<b>B117</b>
<b>STACR/L</b>	Auto Tools (ISO) Holder	<b>B169</b>
<b>STFCR/L</b>	Screw on System	<b>B118</b>
<b>STFCR/L</b>	Screw on System	<b>B137</b>
<b>STFCR/L</b>	Screw on System	<b>B235</b>
<b>STFPR/L</b>	Screw on System	<b>B138</b>
<b>STGCR/L</b>	Screw on System	<b>B118</b>
<b>STLBR/L</b>	Compact Mini	<b>B142</b>
<b>STR/L</b>	Auto Tools Inserts (multi utility)	<b>B180</b>
<b>STTCR/L</b>	Screw on System	<b>B118</b>
<b>STTCR/L</b>	Screw on System	<b>B236</b>
<b>Stub ACME</b>	Threading	<b>D26</b>
<b>STUBR/L</b>	Compact Mini	<b>B142</b>
<b>STUPR/L</b>	Compact Mini	<b>B143</b>
<b>STWCR/L</b>	Screw on System	<b>B236</b>
<b>STWPR/L</b>	Screw on System	<b>B139</b>
<b>SVABR/L</b>	Screw on System	<b>B119</b>

## S

<b>SVACR/L</b>	Auto Tools (ISO) Holder	<b>B169</b>
<b>SVAPR/L</b>	Auto Tools (ISO) Holder	<b>B170</b>
<b>SVHBR/L</b>	Screw on System	<b>B119</b>
<b>SVJBR/L</b>	Screw on System	<b>B119</b>
<b>SVJBR/L</b>	KHP Coolant	<b>B149</b>
<b>SVJBR/L</b>	Auto Tools (ISO) Holder	<b>B170</b>
<b>SVJCR/L</b>	Screw on System	<b>B120</b>
<b>SVJCR/L</b>	Screw on System	<b>B139</b>
<b>SVJCR/L</b>	Auto Tools (KHP)	<b>B152</b>
<b>SVJCR/L</b>	Auto Tools (ISO) Holder	<b>B170</b>
<b>SVJCR/L</b>	Auto Tools (KHP) Holder	<b>B174</b>
<b>SVJPR/L</b>	Auto Tools (ISO) Holder	<b>B171</b>
<b>SVPBR/L</b>	HSK Tooling System	<b>B221</b>
<b>SVQBR/L</b>	Screw on System	<b>B139</b>
<b>SVQCR/L</b>	Screw on System	<b>B140</b>
<b>SVUBR/L</b>	Screw on System	<b>B140</b>
<b>SVUCR/L</b>	Screw on System	<b>B140</b>
<b>SVVBN</b>	Screw on System	<b>B120</b>
<b>SVVBN</b>	HSK Tooling System	<b>B221</b>
<b>SVVCN</b>	Screw on System	<b>B120</b>
<b>SVVPN</b>	Auto Tools (ISO) Holder	<b>B171</b>
<b>SWLCR/L</b>	Screw on System	<b>B141</b>
<b>SWUBR/L</b>	Compact Mini	<b>B144</b>
<b>SXGNR/L</b>	Auto Tools Holder (multi utility)	<b>B180</b>

## T

<b>T-2NU-CNGA</b>	cBN Insert	<b>B82</b>
<b>T-2NU-DCGW</b>	cBN Insert	<b>B83</b>
<b>T-2NU-VBGW</b>	cBN Insert	<b>B83</b>
<b>T-2NU-VCGW</b>	cBN Insert	<b>B83</b>
<b>T-2NU-VNGA</b>	cBN Insert	<b>B82</b>
<b>T-CNMA</b>	cBN Insert	<b>B84</b>
<b>T-DCGW</b>	cBN Insert	<b>B84</b>
<b>T-TPGB</b>	cBN Insert	<b>B84</b>
<b>T-VNMA</b>	cBN Insert	<b>B84</b>
<b>TBGT</b>	Turning Insert (Positive)	<b>B58</b>
<b>TBH</b>	Multi functional (Grooving Tools)	<b>C71</b>
<b>TBMT</b>	Turning Insert (Positive)	<b>B58</b>
<b>TCGT-AK</b>	Aluminum Insert	<b>B79</b>
<b>TCGT-AR</b>	Aluminum Insert	<b>B79</b>
<b>TCGT-FS</b>	Turning Insert (Positive)	<b>B60</b>
<b>TCGT-KF</b>	Turning Insert (Positive)	<b>B60</b>
<b>TCGT-VP1</b>	Turning Insert (Positive)	<b>B60</b>

## T

<b>TCMT-C25</b>	Turning Insert (Positive)	<b>B60</b>
<b>TCMT-FP</b>	Turning Insert (Positive)	<b>B59</b>
<b>TCMT-HMP</b>	Turning Insert (Positive)	<b>B59</b>
<b>TCMT-MP</b>	Turning Insert (Positive)	<b>B59</b>
<b>TCMT-VF</b>	Turning Insert (Positive)	<b>B59</b>
<b>TCMT-VL</b>	Turning Insert (Positive)	<b>B59</b>
<b>TCMT-VP1</b>	Turning Insert (Positive)	<b>B60</b>
<b>TNGA</b>	Turning Insert (Negative)	<b>B32</b>
<b>TNGG</b>	Turning Insert (Negative)	<b>B32</b>
<b>TNGG-SC</b>	Turning Insert (Negative)	<b>B31</b>
<b>TNGG-VP3</b>	Turning Insert (Negative)	<b>B34</b>
<b>TNGN</b>	Turning Insert (Negative)	<b>B35</b>
<b>TNMA</b>	Turning Insert (Negative)	<b>B32</b>
<b>TNMA</b>	cBN Insert	<b>B84</b>
<b>TNMG-B25</b>	Turning Insert (Negative)	<b>B31</b>
<b>TNMG-CP</b>	Turning Insert (Negative)	<b>B29</b>
<b>TNMG-GR</b>	Turning Insert (Negative)	<b>B31</b>
<b>TNMG-HA</b>	Turning Insert (Negative)	<b>B34</b>
<b>TNMG-HM</b>	Turning Insert (Negative)	<b>B30</b>
<b>TNMG-LP</b>	Turning Insert (Negative)	<b>B29</b>
<b>TNMG-LW</b>	Turning Insert (Negative)	<b>B35</b>
<b>TNMG-MK</b>	Turning Insert (Negative)	<b>B32</b>
<b>TNMG-MM</b>	Turning Insert (Negative)	<b>B33</b>
<b>TNMG-MP</b>	Turning Insert (Negative)	<b>B30</b>
<b>TNMG-RK</b>	Turning Insert (Negative)	<b>B33</b>
<b>TNMG-RM</b>	Turning Insert (Negative)	<b>B34</b>
<b>TNMG-VB</b>	Turning Insert (Negative)	<b>B29</b>
<b>TNMG-VC</b>	Turning Insert (Negative)	<b>B30</b>
<b>TNMG-VF</b>	Turning Insert (Negative)	<b>B29</b>
<b>TNMG-VL</b>	Turning Insert (Negative)	<b>B29</b>
<b>TNMG-VM</b>	Turning Insert (Negative)	<b>B30</b>
<b>TNMG-VP2</b>	Turning Insert (Negative)	<b>B34</b>
<b>TNMG-VP3</b>	Turning Insert (Negative)	<b>B34</b>
<b>TNMG-VP4</b>	Turning Insert (Negative)	<b>B34</b>
<b>TNMG-VQ</b>	Turning Insert (Negative)	<b>B31</b>
<b>TNMG-VR</b>	Turning Insert (Negative)	<b>B33</b>
<b>TNMG-VW</b>	Turning Insert (Negative)	<b>B35</b>
<b>TNMM-GH</b>	Turning Insert (Negative)	<b>B36</b>
<b>TNMX</b>	Turning Insert (Negative)	<b>B36</b>
<b>TNMX-SH</b>	Turning Insert (Negative)	<b>B35</b>
<b>TNMX-SR</b>	Turning Insert (Negative)	<b>B35</b>
<b>TOEH</b>	Turning Insert (Positive)	<b>B61</b>
<b>TPGB</b>	cBN Insert	<b>B84</b>
<b>TPGH</b>	Turning Insert (Positive)	<b>B64</b>



**T**

<b>TPGN</b>	Turning Insert (Positive)	<b>B63</b>
<b>TPGN</b>	PCD Insert	<b>B85</b>
<b>TPGR-M</b>	Turning Insert (Positive)	<b>B63</b>
<b>TPGT</b>	Turning Insert (Positive)	<b>B64</b>
<b>TPGW</b>	PCD Insert	<b>B85</b>
<b>TPGX</b>	Turning Insert (Positive)	<b>B64</b>
<b>TPMR-F</b>	Turning Insert (Positive)	<b>B62</b>
<b>TPMT-FP</b>	Turning Insert (Positive)	<b>B61</b>
<b>TPMT-MP</b>	Turning Insert (Positive)	<b>B62</b>
<b>TPMT-VF</b>	Turning Insert (Positive)	<b>B62</b>
<b>TPMT-VL</b>	Turning Insert (Positive)	<b>B62</b>
<b>TPUN</b>	Turning Insert (Positive)	<b>B63</b>
<b>Trapez DIN 103</b>	Threading	<b>D25</b>

**U**

<b>UNJ</b>	Threading	<b>D27</b>
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**V**

<b>VBGT</b>	Turning Insert (Positive)	<b>B66</b>
<b>VBGT-AK</b>	Aluminum Insert	<b>B80</b>
<b>VBGT-AR</b>	Aluminum Insert	<b>B80</b>
<b>VBGT-FS</b>	Turning Insert (Positive)	<b>B66</b>
<b>VBGT-KF</b>	Turning Insert (Positive)	<b>B67</b>
<b>VBGT-KM</b>	Turning Insert (Positive)	<b>B67</b>
<b>VBGT-VP1</b>	Turning Insert (Positive)	<b>B66</b>
<b>VBGW</b>	PCD Insert	<b>B85</b>
<b>VBMT</b>	Turning Insert (Positive)	<b>B66</b>
<b>VBMT</b>	PCD Insert	<b>B85</b>
<b>VBMT-FP</b>	Turning Insert (Positive)	<b>B65</b>
<b>VBMT-HMP</b>	Turning Insert (Positive)	<b>B65</b>
<b>VBMT-MP</b>	Turning Insert (Positive)	<b>B65</b>
<b>VBMT-VB</b>	Turning Insert (Positive)	<b>B65</b>
<b>VBMT-VF</b>	Turning Insert (Positive)	<b>B65</b>
<b>VBMT-VL</b>	Turning Insert (Positive)	<b>B65</b>
<b>VBMT-VP1</b>	Turning Insert (Positive)	<b>B66</b>
<b>VBMW</b>	cBN Insert	<b>B84</b>
<b>VCET-KF</b>	Turning Insert (Positive)	<b>B70</b>
<b>VCET-KM</b>	Turning Insert (Positive)	<b>B70</b>
<b>VCGT-AK</b>	Aluminum Insert	<b>B81</b>
<b>VCGT-AM</b>	Aluminum Insert	<b>B81</b>
<b>VCGT-AR</b>	Aluminum Insert	<b>B81</b>
<b>VCGT-FS</b>	Turning Insert (Positive)	<b>B69</b>

**V**

<b>VCGT-KF</b>	Turning Insert (Positive)	<b>B70</b>
<b>VCGT-KM</b>	Turning Insert (Positive)	<b>B70</b>
<b>VCGT-MS</b>	Turning Insert (Positive)	<b>B69</b>
<b>VCGT-VP1</b>	Turning Insert (Positive)	<b>B69</b>
<b>VCGT-VP1</b>	Turning Insert (Positive)	<b>B70</b>
<b>VCGX-VP1</b>	Turning Insert (Positive)	<b>B70</b>
<b>VCMT</b>	PCD Insert	<b>B85</b>
<b>VCMT-FP</b>	Turning Insert (Positive)	<b>B68</b>
<b>VCMT-HMP</b>	Turning Insert (Positive)	<b>B68</b>
<b>VCMT-MP</b>	Turning Insert (Positive)	<b>B68</b>
<b>VCMT-MP</b>	Turning Insert (Positive)	<b>B68</b>
<b>VCMT-VF</b>	Turning Insert (Positive)	<b>B68</b>
<b>VCMT-VL</b>	Turning Insert (Positive)	<b>B68</b>
<b>VCMT-VP1</b>	Turning Insert (Positive)	<b>B68</b>
<b>VNGG-HA</b>	Turning Insert (Negative)	<b>B38</b>
<b>VNGG-VP3</b>	Turning Insert (Negative)	<b>B38</b>
<b>VNMA</b>	cBN Insert	<b>B84</b>
<b>VNMG-CP</b>	Turning Insert (Negative)	<b>B37</b>
<b>VNMG-HM</b>	Turning Insert (Negative)	<b>B37</b>
<b>VNMG-LP</b>	Turning Insert (Negative)	<b>B37</b>
<b>VNMG-MK</b>	Turning Insert (Negative)	<b>B38</b>
<b>VNMG-MM</b>	Turning Insert (Negative)	<b>B38</b>
<b>VNMG-MP</b>	Turning Insert (Negative)	<b>B37</b>
<b>VNMG-RM</b>	Turning Insert (Negative)	<b>B38</b>
<b>VNMG-VB</b>	Turning Insert (Negative)	<b>B37</b>
<b>VNMG-VC</b>	Turning Insert (Negative)	<b>B37</b>
<b>VNMG-VF</b>	Turning Insert (Negative)	<b>B37</b>
<b>VNMG-VL</b>	Turning Insert (Negative)	<b>B37</b>
<b>VNMG-VM</b>	Turning Insert (Negative)	<b>B38</b>
<b>VNMG-VP3</b>	Turning Insert (Negative)	<b>B38</b>
<b>VNMG-VQ</b>	Turning Insert (Negative)	<b>B38</b>
<b>VPET-KM</b>	Turning Insert (Positive)	<b>B71</b>
<b>VPET-KR</b>	Turning Insert (Positive)	<b>B71</b>
<b>VPGT-VP1</b>	Turning Insert (Positive)	<b>B71</b>
<b>VTH</b>	Vertical Type Holders	<b>D34</b>

**W**

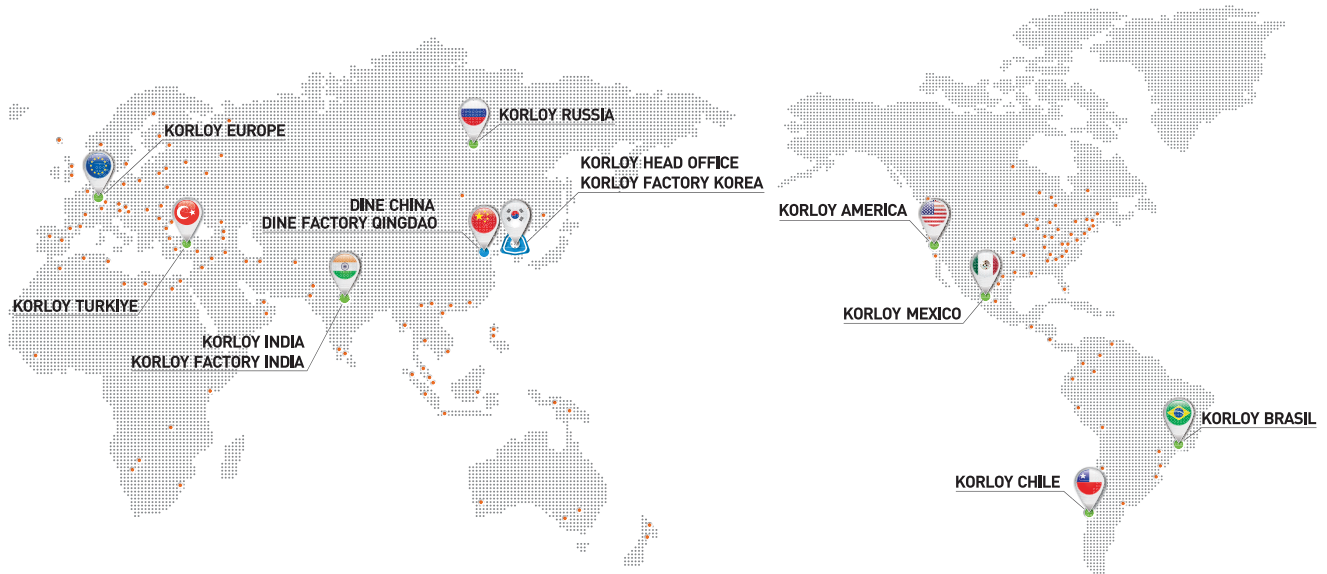
<b>WBGT</b>	Turning Insert (Positive)	<b>B72</b>
<b>Whitworth</b>	Threading	<b>D19</b>
<b>WNGG-VP3</b>	Turning Insert (Negative)	<b>B42</b>
<b>WNMA</b>	Turning Insert (Negative)	<b>B41</b>
<b>WNMG-B25</b>	Turning Insert (Negative)	<b>B40</b>
<b>WNMG-CP</b>	Turning Insert (Negative)	<b>B39</b>

## W

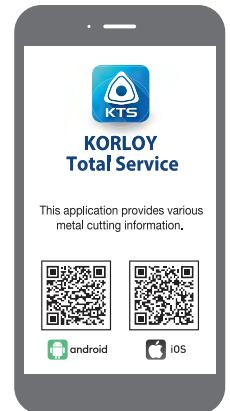
<b>WNMG-GR</b>	Turning Insert (Negative)	<b>B40</b>
<b>WNMG-HA</b>	Turning Insert (Negative)	<b>B43</b>
<b>WNMG-HM</b>	Turning Insert (Negative)	<b>B40</b>
<b>WNMG-LP</b>	Turning Insert (Negative)	<b>B39</b>
<b>WNMG-LW</b>	Turning Insert (Negative)	<b>B43</b>
<b>WNMG-MK</b>	Turning Insert (Negative)	<b>B41</b>
<b>WNMG-MM</b>	Turning Insert (Negative)	<b>B42</b>
<b>WNMG-MP</b>	Turning Insert (Negative)	<b>B40</b>
<b>WNMG-RK</b>	Turning Insert (Negative)	<b>B41</b>
<b>WNMG-RM</b>	Turning Insert (Negative)	<b>B42</b>
<b>WNMG-VB</b>	Turning Insert (Negative)	<b>B39</b>
<b>WNMG-VC</b>	Turning Insert (Negative)	<b>B39</b>
<b>WNMG-VF</b>	Turning Insert (Negative)	<b>B39</b>
<b>WNMG-VL</b>	Turning Insert (Negative)	<b>B39</b>
<b>WNMG-VM</b>	Turning Insert (Negative)	<b>B40</b>
<b>WNMG-VP2</b>	Turning Insert (Negative)	<b>B42</b>
<b>WNMG-VP3</b>	Turning Insert (Negative)	<b>B42</b>
<b>WNMG-VP4</b>	Turning Insert (Negative)	<b>B42</b>
<b>WNMG-VQ</b>	Turning Insert (Negative)	<b>B41</b>
<b>WNMG-VR</b>	Turning Insert (Negative)	<b>B41</b>
<b>WNMG-VW</b>	Turning Insert (Negative)	<b>B43</b>
<b>WNMM-B25</b>	Turning Insert (Negative)	<b>B43</b>
<b>WNMX-SH</b>	Turning Insert (Negative)	<b>B43</b>
<b>WNMX-SR</b>	Turning Insert (Negative)	<b>B43</b>
<b>WTENN</b>	Wedge Clamp System	<b>B103</b>
<b>WTJNR/L</b>	Wedge Clamp System	<b>B103</b>
<b>WTXNR/L</b>	Wedge Clamp System	<b>B103</b>
<b>WWLNR/L</b>	Wedge Clamp System	<b>B104</b>

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