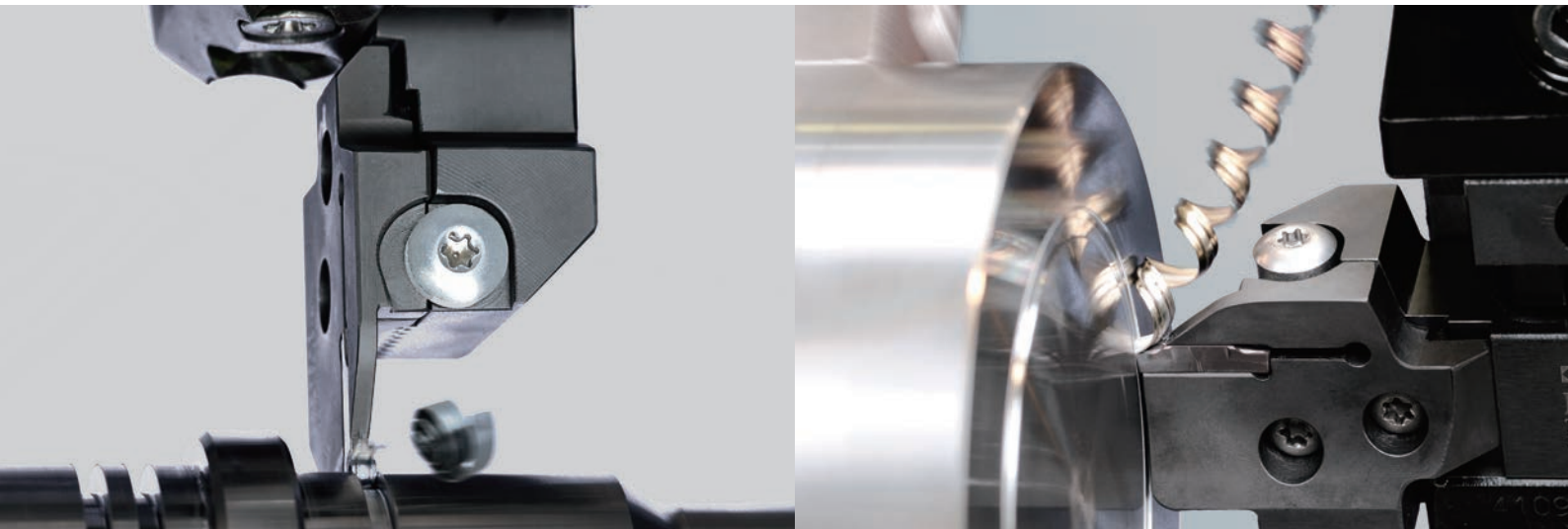


Grooving / Cut-Off

# KGD/KGDF



Improved Grooving Performance with Expansive Lineup of Chipbreakers and Toolholders

Good chip control

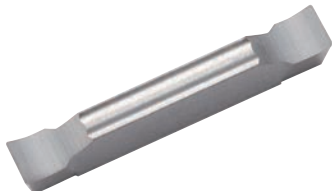
MEGACOAT/MEGACOAT NANO coating technology for long tool life and high efficiency machining

Comprehensive Toolholder Lineup

**NEW**

Inserts for Face Grooving  
(For Aluminum / Non-ferrous metals)

**GS Chipbreaker**



## External Grooving / Cut-Off

# KGD

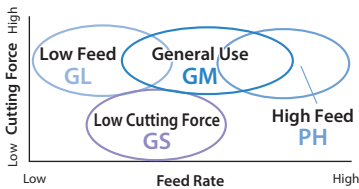
Good chip control

MEGACOAT/MEGACOAT NANO coating technology for long tool life and high efficiency machining

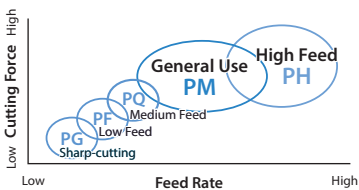
## 1 Wide Range of Chipbreakers

### Application Maps

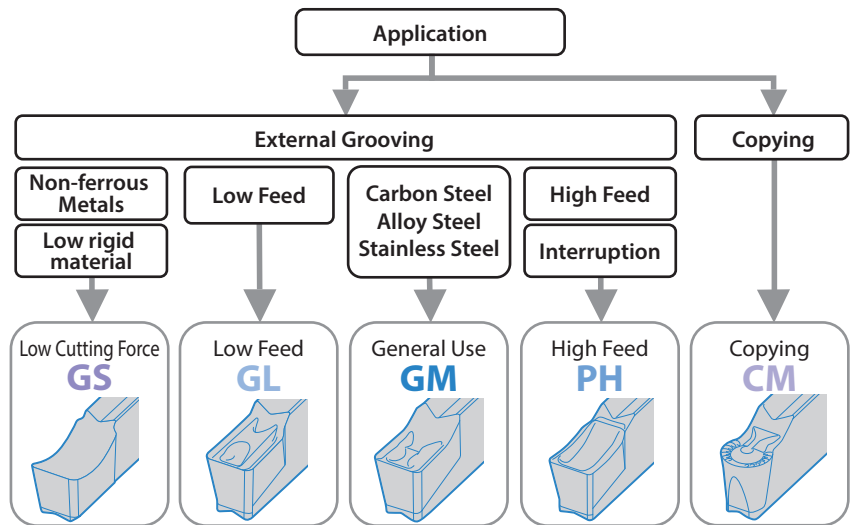
#### External Grooving and Turning



#### Cut-Off



### Chipbreaker Selection(External)

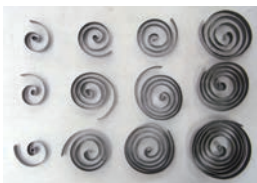


### Comparison of Chip Control (Internal evaluation)

Cutting Conditions :  $V_c = 150 \text{ m/min}$ ,  $f = 0.15 \text{ mm/rev}$  Workpiece : SCM415

Better chip control than competitors. Reduces damage of cutting edge caused by crushing chips

GM Chipbreaker



Competitor A

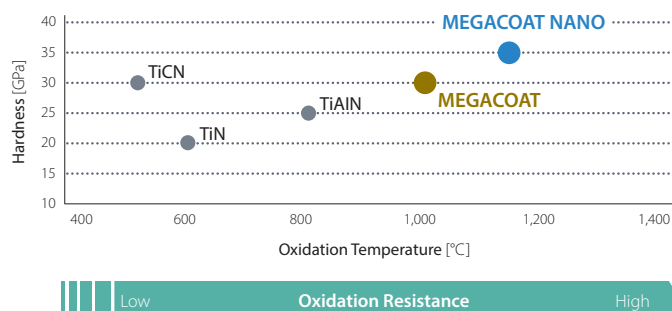


Competitor B



## 2 MEGACOAT/MEGACOAT NANO coating technology for long tool life

### Coating Properties



**PR1225 (MEGACOAT)**  
For Steel Grooving and Cut-off

**PR1215 (MEGACOAT)**  
Superior wear resistance  
For machining of cast iron

**PR1535 (MEGACOAT NANO)**  
For machining of stainless steel

### 3 Various Toolholder Lineup

Available two types of toolholder, Integral type and SwitchBlade type

#### Integral Type



**Integral type toolholder**  
with wide lineup (for various groove width and depth)

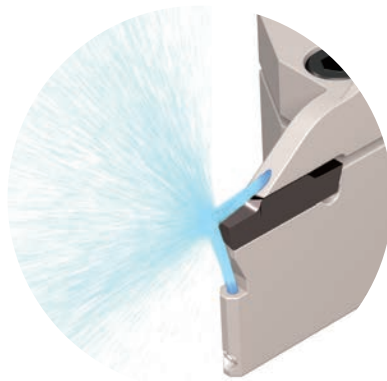
#### SwitchBlade Type



**SwitchBlade type toolholder**  
Applicable for various types of grooving and cut-off, such as external and face grooving by replacing blade parts

#### High Pressure Coolant Toolholder Lineup

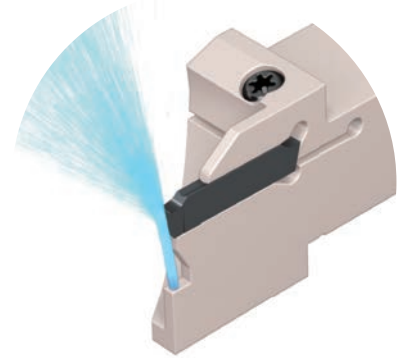
##### JCT



Coolant is directed from two directions

Discharges coolant in two directions toward both the rake surface and the flank face of the insert  
Excellent Chip Control and Long Tool Life

##### JCTM for Small Parts Machining



Delivers coolant directly to front flank face

Cooling the cutting edge leads to longer tool life  
Long Tool Life

#### Integral type / SwitchBlade type Selection Reference

Integral Type	SwitchBlade Type
<ul style="list-style-type: none"> <li>• Various toolholder lineup Available for various groove depth (shallow / medium / deep) Optimum overhang length</li> <li>• Available for low-rigid machine and workpiece</li> <li>• For small machine with limited work space (Automatic lathe, small lathe, etc.)</li> <li>• Coolant-through holders for high pressure coolant</li> </ul>	<ul style="list-style-type: none"> <li>• Suitable for high-mix low-volume production Suitable for grooving with various width Applicable for various groove width by replacing blades</li> <li>• Suitable for difficult-to-cut material Tough cutting conditions Toolholder cost reduction (replaceable blade)</li> <li>• Face grooving is possible by changing blade * Make sure right hand / left hand</li> </ul>

Face Grooving KGDF Toolholder and GDFM Inserts → P21



# GDM/GDMS/GDG (External Grooving and Traversing)

## Applicable Inserts

Insert		Description	Dimensions (mm)				Cermet		MEGACOAT NANO	MEGACOAT	Carbide		
			Edge Width CW	RE	INSL	S	TN620	TN90	PR1535	PR1225	PR1215	GW15	
Grooving and Turning	General Use	GDM 2420N-020GM	2.4	±0.03	20	4.3	●	○	●	○	○	○	
		3020N-020GM	3.0				0.2	●	○	●	○	○	○
		3020N-040GM					0.4	●	○	●	○	○	○
		4020N-020GM	4.0	0.2	●	○	●	○	○	○			
		4020N-040GM		0.4	●	○	●	○	○	○			
		4020N-080GM		0.8	●	○	●	○	○	○			
		5020N-040GM	5.0	0.4	●	○	●	○	○	○			
		5020N-080GM		0.8	●	○	●	○	○	○			
		6020N-040GM	6.0	0.4	●	○	●	○	○	○			
	6020N-080GM	0.8		●	○	●	○	○	○				
	8030N-080GM	8.0	±0.05	30	5.5	●	○	●	○	○			
	General Use 1-edge	GDMS 2220N-020GM	2.2	±0.03	20	4.3	●	○	●	○	○	○	
		3020N-040GM	3.0				0.2	●	○	●	○	○	○
		4020N-040GM	4.0				0.4	●	○	●	○	○	○
		5020N-080GM	5.0	±0.04	0.8	●	○	●	○	○			
6020N-080GM		6.0	0.8	●	○	●	○	○	○				
Low Feed	GDM 2420N-020GL	2.4	±0.03	20	4.3	●	○	●	○	○	○		
	3020N-020GL	3.0				0.2	●	○	●	○	○	○	
	3020N-040GL					0.4	●	○	●	○	○	○	
	4020N-020GL	4.0	0.2	●	○	●	○	○	○				
	4020N-040GL		0.4	●	○	●	○	○	○				
	5020N-040GL	5.0	±0.04	0.4	●	○	●	○	○				
6020N-040GL	6.0	0.4	●	○	●	○	○	○					
Grooving	Low Cutting Force	GDG 2520N-020GS	2.5	±0.02	20	4.3	●	○	●	○	○	○	
		3020N-020GS	3.0				0.2	●	○	●	○	○	○
		3520N-020GS	3.5				0.4	●	○	●	○	○	○
		4020N-040GS	4.0		0.4	●	○	●	○	○	○		
		5020N-040GS	5.0		0.4	●	○	●	○	○	○		
		6020N-040GS	6.0		0.4	●	○	●	○	○	○		
		8030N-040GS	8.0		30	5.5	●	○	●	○	○	○	
Full-R / Copying		GDM 3020N-150R-CM	3.0	±0.03	20	4.3	●	○	●	○	○	○	
		4020N-200R-CM	4.0				2.0	●	○	●	○	○	○
		5020N-250R-CM	5.0	±0.04	*21	●	○	●	○	○	○		
		6020N-300R-CM	6.0	3.0		●	○	●	○	○	○		
Grooving and Cut-Off	High Feed	GDM 2020N-020PH	2.0	±0.03	20	4.3	●	○	●	○	○	○	
		3020N-030PH	3.0				0.2	●	○	●	○	○	○
		4020N-030PH	4.0				0.3	●	○	●	○	○	○
	High Feed 1-edge	GDMS 2020N-020PH	2.0	±0.03	20	4.3	●	○	●	○	○	○	
		3020N-030PH	3.0				0.2	●	○	●	○	○	○
		4020N-030PH	4.0				0.3	●	○	●	○	○	○

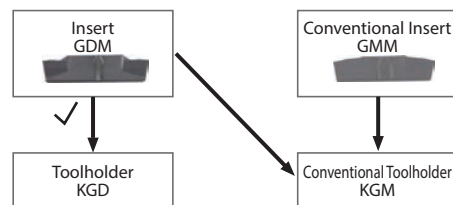
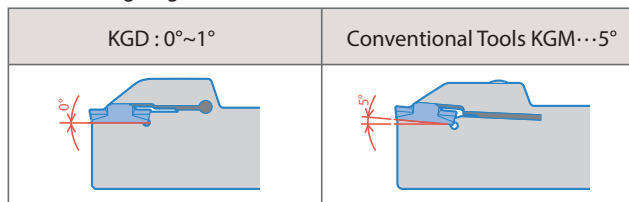
\* GDM50/60-CM differs from other descriptions in length (INSL) to avoid interference of a toolholder with workpiece.

Inserts are sold in 10 piece boxes.

● : Standard Stock

### \* KGD / KGM Combinations

Insert Setting Angle of KGD / KGM Toolholders



Installing conventional inserts to the KGD toolholder is not recommended.

# GDGS (CBN / PCD) / GDM / GDG (Cut-Off)

## Applicable Inserts

Insert		Description	Dimensions (mm)					MEGA COAT CBN	CBN	PCD		
			Edge Width CW	RE	INSL	S	LE					
											Tolerance	
Grooving	CBN	GDGS 2020N-020NB	2.0	0.2	20	4.3	2.9	●	●	●		
		3020N-020NB	3.0	0.2						●		
		3020N-040NB		0.4						●		
		4020N-020NB	4.0	0.2						●		
		4020N-040NB		0.4						●		
		5020N-020NB	5.0	0.2						●		
	5020N-040NB		0.4						●			
	PCD	6020N-020NB	6.0	0.2						●		●
		6020N-040NB		0.4						●		●

CBN & PCD Inserts are sold in 1 piece boxes.  
● : Standard Stock

Insert		Description	Dimensions (mm)				Angle	MEGACOAT NANO	MEGACOAT	DLC Coated Carbide	Carbide
			Edge Width CW	RE	INSL	S					
Cut-Off (Low Feed)	Handed Insert shows Right-hand	GDM 1316N-003PF	1.3	0.03	16	3.7	-	●	●	●	
		1316N-015PF		0.15						●	
		1516N-003PF	1.5	0.03						●	
		1516N-015PF		0.15						●	
		2020N-003PF	2.0	0.03						●	
		2020N-015PF		0.15						●	
	15° Lead Angle	GDM 1316 R/L-003PF-15D	1.3	0.03	16	3.7		●	●	●	
		1516 R/L-003PF-15D	1.5	0.03						●	
		1516R-015PF-15D		0.15						R	
		2020 R/L-003PF-15D	2.0	0.03						●	
		2020R-015PF-15D		0.15						R	
		2520 R/L-003PF-15D	2.5	0.03						●	
Cut-Off (Medium Feed)	Handed Insert shows Right-hand	GDM 2020N-010PQ	2.0	0.1	20	4.3	●	●	●		
		2520N-010PQ	2.5						●		
		3020N-010PQ	3.0						●		
	15° Lead Angle	GDM 2020R-010PQ-15D	2.0	0.1	20	4.3	R	R	R		
		2520R-010PQ-15D	2.5				R	R	R		
		3020R-010PQ-15D	3.0				R	R	R		
Cut-Off (Low Cutting Force)	Handed Insert shows Right-hand	GDG 2020N-005PG	2.0	0.05	20	4.3	●	●	●	●	
		2520N-005PG	2.5						●		
		3020N-005PG	3.0						●		
	15° Lead Angle	GDG 2020R-005PG-15D	2.0	0.05	20	4.3	R	R	R	R	
		2520R-005PG-15D	2.5				R	R	R		
		3020R-005PG-15D	3.0				R	R	R		

PF chipbreaker has a large corner-R (RE)  
Using PF/PM chipbreaker (designed for cut-off) for grooving will not create a flat bottom (Ref. to the right figure)



Groove bottom created by PF/PM chipbreaker

Inserts are sold in 10 piece boxes.  
● : Standard Stock R : Right-hand Only

# GDM/GDMS (Cut-Off)

## Applicable Inserts

Insert		Description	Dimensions (mm)			Angle	MEGACOAT						
			Edge Width CW	RE	INSL		S	PSIR <sup>R/L</sup>	PR1535	PR1225	PR1215		
Cut-Off (General Purpose)	Handed Insert shows Right-hand	GDM 2020N-020PM	2.0	±0.03	20	4.3	-	●	●	●			
		GDM 2520N-020PM	2.5					0.2	●	●	●		
		GDM 3020N-025PM	3.0					0.25	●	●	●		
		GDM 4020N-030PM	4.0					0.3	●	●	●		
	6° Lead Angle	GDM 2020R-020PM-6D	2.0	±0.03	20	4.3	6°	R	R	R			
		GDM 2520R-020PM-6D	2.5					0.2	R	R	R		
		GDM 3020R-025PM-6D	3.0					0.25	R	R	R		
		GDM 4020R-030PM-6D	4.0					0.3	R	R	R		
	1-edge	GDMS 2020N-020PM	2.0	±0.03	20	4.3	-	●	●	●			
		GDMS 3020N-025PM	3.0					0.25	●	●	●		
		GDMS 4020N-030PM	4.0					0.3	●	●	●		
		GDMS 2020R-020PM-6D	2.0					0.2	R	R	R		
6° Lead Angle 1-edge	GDMS 3020R-025PM-6D	3.0	±0.03	20	4.3	6°	R	R	R				
	GDMS 4020R-030PM-6D	4.0					0.3	R	R	R			
	GDMS 2020N-020PH	2.0					±0.03	20	4.3	-	●	●	●
	GDMS 3020N-030PH	3.0									0.3	●	●
GDMS 4020N-030PH	4.0	0.3	●	●	●								
GDMS 2020N-020PH	2.0	0.2	●	●	●								
Cut-Off (High feed rate)	1-edge	GDMS 3020N-030PH	3.0	±0.03	20	4.3	-	●	●	●			
		GDMS 4020N-030PH	4.0					0.3	●	●	●		
		GDMS 2020N-020PH	2.0					0.2	●	●	●		
		GDMS 3020N-030PH	3.0					0.3	●	●	●		

Using PF/PM chipbreaker (designed for cut-off) for grooving will not create a flat bottom (Ref. to the right figure)



Groove bottom created by PF/PM chipbreaker

Inserts are sold in 10 piece boxes.  
● : Standard Stock R : Right-hand Only

## Inserts Identification System

<b>Tolerance</b> M : M-Class G : G-Class	<b>Edge Width</b> 13 : 1.3 mm    25 : 2.5mm 15 : 1.5 mm    30 : 3 mm 20 : 2 mm        40 : 4 mm	<b>Hand of Tool</b> R : Right-hand L : Left-hand N : Neutral	<b>Chipbreaker (External Grooving / Cut-Off)</b> GM : Grooving and Traversing GL : Low Feed GS : Low Cutting Force CM : Copying PH : High Feed PM : Cut-Off (General Purpose) PG : Cut-Off (Low Cutting Force) PF : Cut-Off (Low Feed) PQ : Cut-Off (Medium Feed) NB : Without Chipbreaker							
<b>GD</b>	<b>M</b>	<b>S</b>	<b>30</b>	<b>20</b>	<b>N</b>	<b>-</b>	<b>025</b>	<b>GM</b>	<b>-</b>	<b>6D</b>
<b>Series</b> GD : External Grooving / Cut-Off GDF : Face Grooving	<b>No. of Edges</b> No Indication : 2-edge S : 1-edge	<b>Insert Length</b> 16 : 16 mm 20 : 20 mm 30 : 30 mm	<b>Corner-R(RE)</b> 003 : 0.03 mm    030 : 0.3 mm 015 : 0.15 mm   150R- : 1.5 mm (Full-R) 020 : 0.2 mm	<b>Chipbreaker (Face Grooving)</b> GM : Grooving and Traversing DM : Grooving GH : High Feed CM : Full-R GS : Aluminum / Non-ferrous metals	<b>Lead Angle</b> No Indication : 0° 6D : 6° 15D : 15°					

## Setting the Insert

1. Completely eliminate chips from the insert mounting part. (see Fig.1)
2. Put the insert into the toolholder and push until it contacts the holder's surface for fixing the insert's back end. (see Fig.1, Fig.2)
3. Keeping the insert pushed against the toolholder's locating surface, tighten the insert clamp bolt at an appropriate torque.
4. Make sure there is no gap between the insert and the toolholder's locating surface and that the insert is set straight. (see Fig.2, Fig.3)

Fig.1

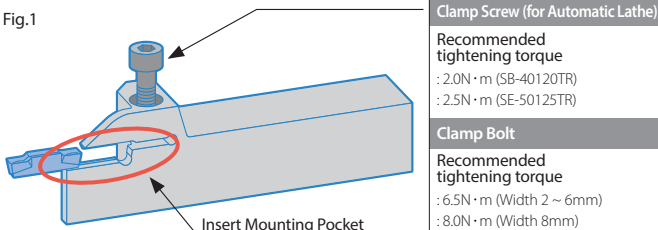


Fig.2

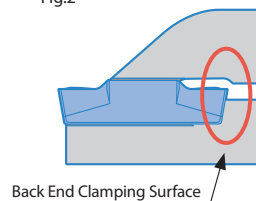
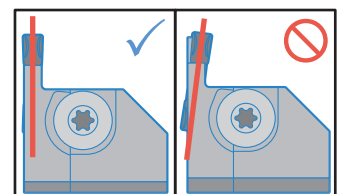
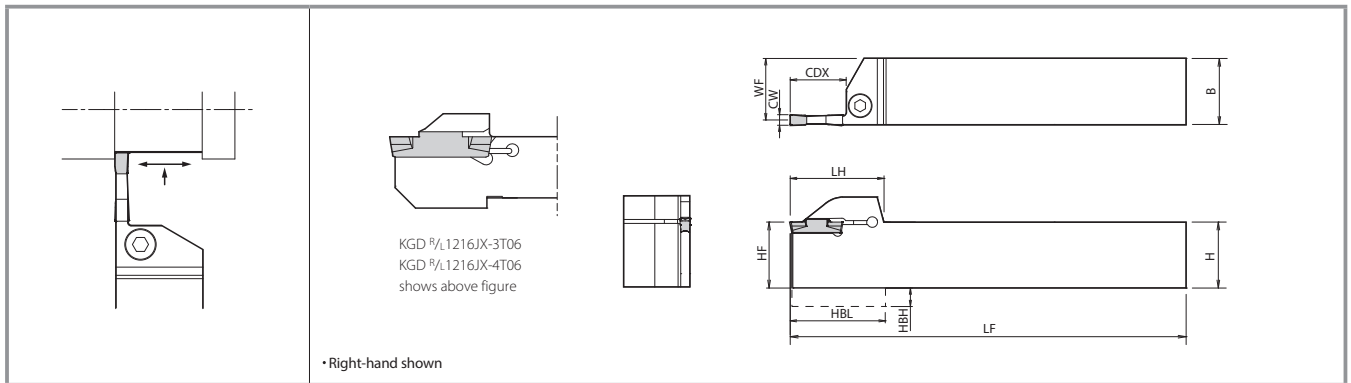


Fig.3



# KGD (Integral Type)



## Toolholder Dimensions

Width (mm)	Max. Grooving Depth (mm)	Description	Stock		Dimensions (mm)									Edge Width CW (mm)		Spare Parts					
			R	L	H	HF	HBH	B	LF	LH	HBL	WF	CDX	MIN.	MAX.	Clamp Bolt	Wrench				
2	6	KGD R/L 1616H-2T06	●	●	16	16	4.0	16	100	27.7	28.0	15.2	6	2.0	3.0	HH5X16	LW-4				
		2020K-2T06	●	●	20	20	-	20	125	28.0	-	19.2									
		2525M-2T06	●	●	25	25	-	25	150	28.0	-	24.2									
	10	KGD R/L 1616H-2T10	●	●	16	16	4.0	16	100	30.2	30.5	15.2	10					HH5X16			
		2020K-2T10	●	●	20	20	-	20	125	30.5	-	19.2									
		2525M-2T10	●	●	25	25	-	25	150	30.5	-	24.2									
	17	KGD R/L 1616H-2T17	●	●	16	16	4.0	16	100	31.2	31.5	15.2	17			HH5X16					
		2012K-2T17	●	●	20	20	-	12	125	32.5	-	11.2									
		2020K-2T17	●	●	20	20	-	20	125	32.5	-	19.2									
	2.4	17	KGD R/L 2012K-2.4T17	●	●	20	20	-	12	125	32.5	-	11.0				17	2.4	3.0	HH5X16	LW-4
			2020K-2.4T17	●	●	20	20	-	20	125	32.5	-	19.0								
3	6	KGD R/L 1216JX-3T06	●	●	12	12	2.0	16	120	19.5	19	14.8	6	3.0	4.0	SE-50125TR	LW-20				
		1616H-3T06	●	●	16	16	4.0	16	100	27.7	28.0	14.8									
		2020K-3T06	●	●	20	20	-	20	125	28.0	-	18.8									
		2525M-3T06	●	●	25	25	-	25	150	28.0	-	23.8									
	10	KGD R/L 1616H-3T10	●	●	16	16	4.0	16	100	30.2	30.5	14.8	10			HH5X16					
		2020K-3T10	●	●	20	20	-	20	125	30.5	-	18.8									
		2525M-3T10	●	●	25	25	-	25	150	30.5	-	23.8									
	20	KGD R/L 1616H-3T20	●	●	16	16	4.0	16	100	34.2	34.5	14.8	20				HH5X16				
		2012K-3T20	●	●	20	20	-	12	125	34.5	-	10.8									
		2020K-3T20	●	●	20	20	-	20	125	34.5	-	18.8									
	6	10	KGD R/L 1216JX-4T06	●	●	12	12	2.0	16	120	19.5	19	14.3			6		4.0	5.0	SE-50125TR	LW-20
			KGD R/L 2020K-4T10	●	●	20	20	-	20	125	30.5	-	18.3								
2525M-4T10			●	●	25	25	-	25	150	30.5	-	23.3									
20	20	KGD R/L 2020K-4T20	●	●	20	20	-	20	125	34.5	-	18.3	20	HH5X16							
		2525M-4T20	●	●	25	25	-	25	150	35.5	-	23.3									
		KGD R/L 2525M-4T25	●	●	25	25	-	25	150	40.5	-	23.3									
5	10	KGD R/L 2020K-5T10	●	●	20	20	-	20	125	30.5	-	17.8	10		5.0	6.0	HH5X16			LW-4	
		2525M-5T10	●	●	25	25	-	25	150	30.5	-	22.8									
	17	KGD R/L 2020K-5T17	●	●	20	20	-	20	125	37.5	-	17.8	17								HH5X25
		2525M-5T17	●	●	25	25	-	25	150	37.5	-	22.8									
	25	KGD R/L 2525M-5T25	●	●	25	25	-	25	150	40.5	-	22.8	25	HH5X25							
6	15	KGD R/L 2525M-6T15	●	●	25	25	-	25	150	32.5	-	22.4	6.0		6.0	HH5X25	LW-4				
	30	KGD R/L 2525M-6T30	●	●	25	25	-	25	150	45.5	-	22.4									
8	25	KGD R/L 2525M-8T25	●	●	25	25	7.0	25	150	43.3	44.2	22.0	25		8.0	8.0	HH6X25	LW-5			
		3232P-8T25	●	●	32	32	-	32	170	43.3	-	29.0									

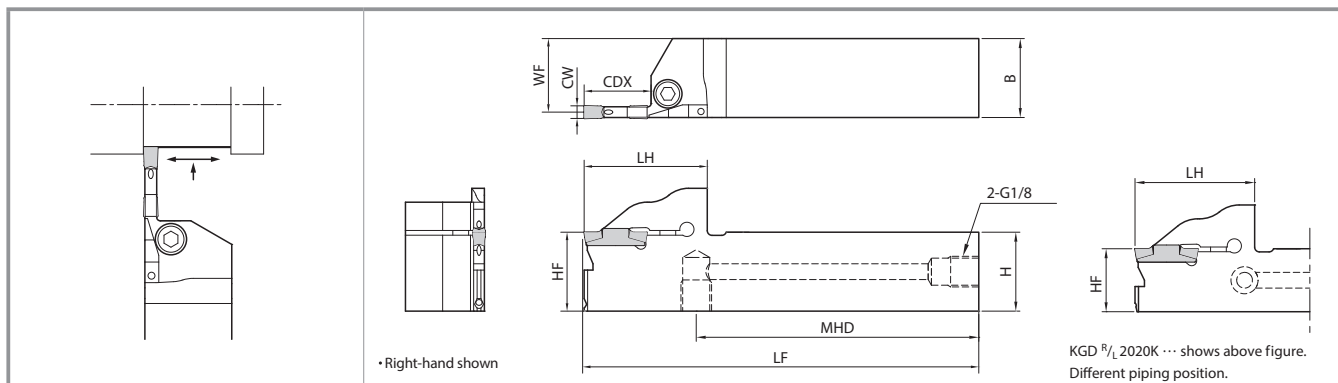
Note 1) CDX : Maximum depth to which grooving can be made. If the CDX is 20mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18mm.

2) Recommended tightening torque for clamp bolt is 6.5N·m for HH5X16, 8.0N·m for HH6X25 and 2.5N·m for SE-50125TR.

3) Above toolholders can also be used for cut-off applications.

● : Standard Stock

Recommended Cutting Conditions → P18 ~ P20



## Toolholder Dimensions

Pressure Resistance : ~ 15MPa

Groove Widths (mm)	Max. Grooving Depth (mm)	Description	Stock		Dimensions (mm)								Edge Width CW (mm)		Spare Parts		
			R	L	H	HF	B	LF	LH	WF	CDX	MHD	MIN.	MAX.	Arbor Bolt	Wrench	Plug
3	6	KGD R/L 2020K-3T06JCT	●	●	20	20	20	125	31.5	18.8	6	96.2	3.0	4.0	HH5X16	LW-4	HSG1/8X8.0
		2525K-3T06JCT	●	●	25	25	25			23.8		96.5			HH5X25		
	10	KGD R/L 2020K-3T10JCT	●	●	20	20	20		34.0	18.8	10	94.2			HH5X16		
		2525K-3T10JCT	●	●	25	25	25		23.8	94.5		HH5X25					
	20	KGD R/L 2020K-3T20JCT	●	●	20	20	20		38.0	18.8	20	90.2			HH5X16		
		2525K-3T20JCT	●	●	25	25	25		39.0	23.8		89.5			HH5X25		
4	10	KGD R/L 2020K-4T10JCT	●	●	20	20	20	125	34.0	18.3	10	94.2	4.0	5.0	HH5X16	LW-4	HSG1/8X8.0
		2525K-4T10JCT	●	●	25	25	25			23.3		94.5			HH5X25		
	20	KGD R/L 2020K-4T20JCT	●	●	20	20	20		38.0	18.3	20	90.2			HH5X16		
		2525K-4T20JCT	●	●	25	25	25		39.0	23.3		89.5			HH5X25		
	25	KGD R/L 2525K-4T25JCT	●	●	25	25	25		44.0	23.3	25	84.5			HH5X25		

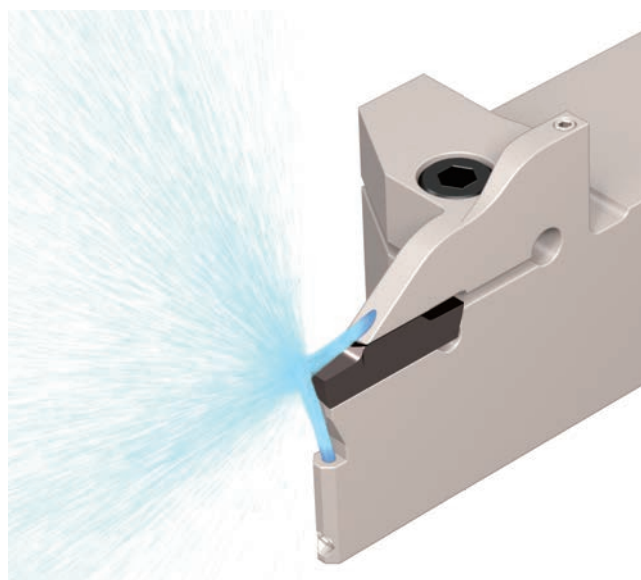
Please see P8 for piping parts.

● : Standard Stock  
 Recommended Cutting Conditions → P18 ~ P20

### Coolant is directed from two directions

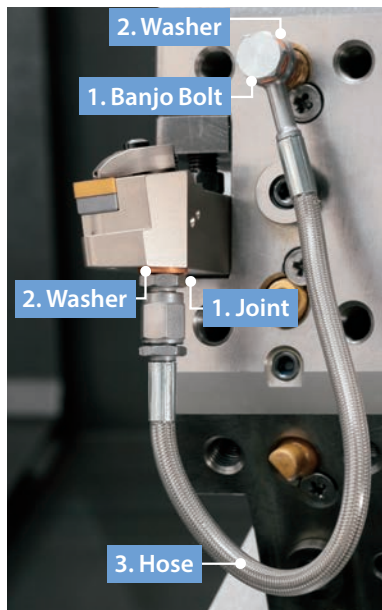
Discharges coolant in two directions toward both the rake surface and the flank face of the insert

Excellent Chip Control and Long Tool Life



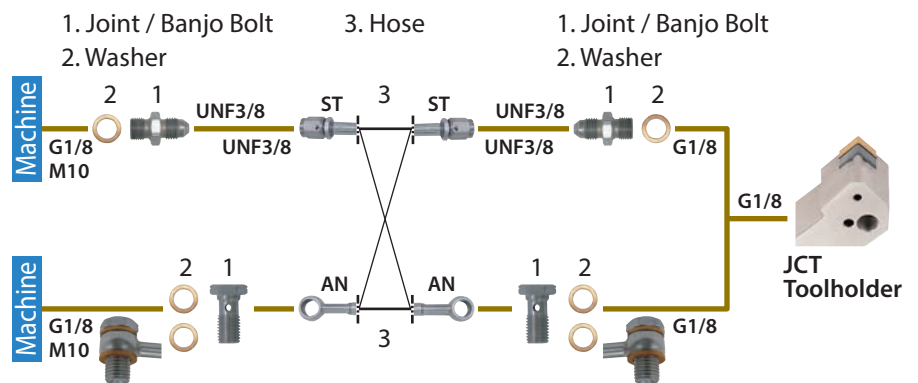


### Easy Connection with High Pressure Hose and Joint



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

#### <Piping Installation Guide>



### Piping Parts

Optional Piping Parts Available.  
Choose from parts below to match your machine specifications.  
**1. Joint / Banjo bolt × 2 2. Washer × 2-4 3. Hose × 1**

#### 1. Joint / Banjo Bolt

Pressure Resistance : ~ 30MPa

Shape	Description	Stock	Thread Standard	
			Thread connection to the machine	
	J-G1/8-UNF3/8	●	G1/8	
	J-M10X1.5-UNF3/8	●	M10X1.5	
Banjo Bolt (For the angle hose)	BB-G1/8	●	G1/8	
	BB-M10X1.5	●	M10X1.5	

#### 2. Washer Pressure Resistance : ~ 30MPa

Shape	Description	Stock
	WS-10	●

\* Use 2 washers for a banjo bolt.

#### 3. Hose

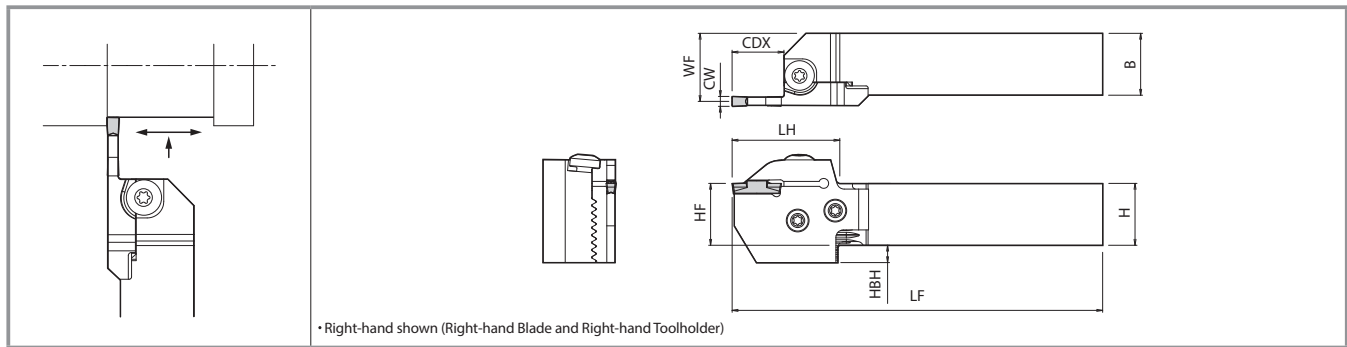
Pressure Resistance : ~ 30MPa

Shape	Description	Stock	Thread Standard		Dimensions (mm)
					L
Straight / Straight	HS-ST-ST-200	●	UNF3/8	UNF3/8	200
	HS-ST-ST-250	●			250
Straight / Angle	HS-ST-AN-200	●	UNF3/8	(Banjo bolt)	200
	HS-ST-AN-250	●			250
Angle / Angle	HS-AN-AN-200	●	(Banjo bolt)	(Banjo bolt)	200
	HS-AN-AN-250	●			250

### Precautions

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

# KGD-S (0° SwitchBlade Type)



## Toolholder Dimensions (Blade + Toolholder)

Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Shank Size (mm)	Unit Description (Standard Stock Description)	Stock		Blade Description → P12	Toolholder Description → P12	Dimensions (mm)							Edge Width CW (mm)		
					R	L			H	HF	HBH	B	LF	LH	WF	CDX	MIN.	MAX.
0°	2	17	□20	KGD <sup>R/L</sup> 2020X-2T17S	●	-	KGD <sup>R/L</sup> -2T17-C	KGD <sup>R/L</sup> 2020-C	20	20	12	20	122	40	23.4	17	2.0	3.0
			□25	2525X-2T17S	●	●		KGD <sup>R/L</sup> 2525-C	25	25	7	25	147		28.4			
			□32	No Unit Description →				KGD <sup>R/L</sup> 3232-C	32	32	-	32	167		35.4			
	3	10	□20	KGD <sup>R/L</sup> 2020X-3T10S	●	-	KGD <sup>R/L</sup> -3T10-C	KGD <sup>R/L</sup> 2020-C	20	20	12	20	115	33	23.0	10	3.0	4.0
			□25	2525X-3T10S	●	-		KGD <sup>R/L</sup> 2525-C	25	25	7	25	140		28.0			
			□32	No Unit Description →				KGD <sup>R/L</sup> 3232-C	32	32	-	32	160		35.0			
	20	□20	KGD <sup>R/L</sup> 2020X-3T20S	●	●	KGD <sup>R/L</sup> -3T20-C	KGD <sup>R/L</sup> 2020-C	20	20	12	20	125	43	23.0	20	3.0	4.0	
		□25	2525X-3T20S	●	●		KGD <sup>R/L</sup> 2525-C	25	25	7	25	150		28.0				
		□32	3232X-3T20S	●	-		KGD <sup>R/L</sup> 3232-C	32	32	-	32	170		35.0				
	4	10	□20	KGD <sup>R/L</sup> 2020X-4T10S	●	-	KGD <sup>R/L</sup> -4T10-C	KGD <sup>R/L</sup> 2020-C	20	20	12	20	115	33	22.5	10	4.0	5.0
			□25	2525X-4T10S	●	-		KGD <sup>R/L</sup> 2525-C	25	25	7	25	140		27.5			
			□32	No Unit Description →				KGD <sup>R/L</sup> 3232-C	32	32	-	32	160		34.5			
		20	□20	KGD <sup>R/L</sup> 2020X-4T20S	●	-	KGD <sup>R/L</sup> -4T20-C	KGD <sup>R/L</sup> 2020-C	20	20	12	20	125	43	22.5	20	4.0	5.0
			□25	2525X-4T20S	●	●		KGD <sup>R/L</sup> 2525-C	25	25	7	25	150		27.5			
			□32	3232X-4T20S	●	-		KGD <sup>R/L</sup> 3232-C	32	32	-	32	170		34.5			
	25	□20	KGD <sup>R/L</sup> 2020X-4T25S	●	●	KGD <sup>R/L</sup> -4T25-C	KGD <sup>R/L</sup> 2020-C	20	20	12	20	130	48	22.5	25	4.0	5.0	
		□25	2525X-4T25S	●	●		KGD <sup>R/L</sup> 2525-C	25	25	7	25	155		27.5				
		□32	3232X-4T25S	●	-		KGD <sup>R/L</sup> 3232-C	32	32	-	32	175		34.5				
	5	10	□20	KGD <sup>R/L</sup> 2020X-5T10S	●	●	KGD <sup>R/L</sup> -5T10-C	KGD <sup>R/L</sup> 2020-C	20	20	12	20	115	33	22.0	10	5.0	6.0
			□25	2525X-5T10S	●	-		KGD <sup>R/L</sup> 2525-C	25	25	7	25	140		27.0			
			□32	No Unit Description →				KGD <sup>R/L</sup> 3232-C	32	32	-	32	160		34.0			
		25	□20	No Unit Description →			KGD <sup>R/L</sup> -5T25-C	KGD <sup>R/L</sup> 2020-C	20	20	12	20	130	48	22.0	25	5.0	6.0
			□25	KGD <sup>R/L</sup> 2525X-5T25S	●	●		KGD <sup>R/L</sup> 2525-C	25	25	7	25	155		27.0			
			□32	3232X-5T25S	●	-		KGD <sup>R/L</sup> 3232-C	32	32	-	32	175		34.0			

Note 1) When using the toolholder in normal mounting position, the lower jaw of toolholder may interfere with the tool presetter.

●: Standard Stock

2) The toolholder and blade descriptions are printed on the toolholder body. (Unit description is not printed.)

Recommended Cutting Conditions → P18 ~ P20




KGD-S: Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.

The toolholder is applicable for all blade with suitable hand.

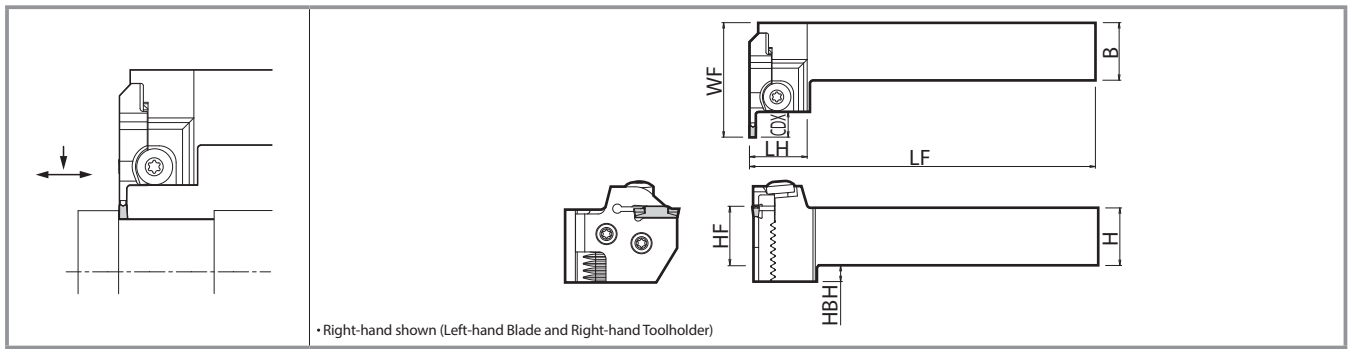
3) In case the unit description is not available (No Unit Description), please purchase toolholder and blade separately.

4) CDX: Maximum depth to which processing can be made. If the dimension CDX is 20mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18mm.

## Spare Parts (Common with separate types) \* The parts are included in the toolholder and unit.

Unit Description	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
KGD <sup>R/L</sup> ... S	 BH6X10TR	 SB-60120TR	 LTW-25

# KGDS-S (90° SwitchBlade Type)



## Toolholder Dimensions (Blade + Toolholder)

Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Shank Size (mm)	Blade Description → P12	Toolholder Description → P12	Unit Description (Standard Stock Description)	Stock		Dimensions (mm)							Edge Width CW (mm)		
							R	L	H	HF	HBH	B	LF	LH	WF	CDX	MIN.	MAX.
90°	2	17	□ 20	KGD 1/2R-2T17-C	KGDS R/L2020-C	-	-	-	20	20	12	20	125	27.7	56.7	17	2.0	3.0
			□ 25	KGDS R/L2525-C	-	-	-	25	25	7	25	150						
	3	10	□ 20	KGD 1/2R-3T10-C	KGDS R/L2020-C	KGDS R/L 2020X-3T10S	●	●	20	20	12	20	125		49.7	10	3.0	4.0
			□ 25		KGDS R/L2525-C		●	●	25	25	7	25	150					
		20	□ 20	KGD 1/2R-3T20-C	KGDS R/L2020-C	-	-	-	20	20	12	20	125		59.7	20		
			□ 25		KGDS R/L2525-C	-	-	-	25	25	7	25	150					
	4	10	□ 20	KGD 1/2R-4T10-C	KGDS R/L2020-C	-	-	-	20	20	12	20	125		49.7	10	4.0	5.0
			□ 25		KGDS R/L2525-C	-	-	-	25	25	7	25	150					
		20	□ 20	KGD 1/2R-4T20-C	KGDS R/L2020-C	-	-	-	20	20	12	20	125		59.7	20		
			□ 25		KGDS R/L2525-C	-	-	-	25	25	7	25	150					
		25	□ 20	KGD 1/2R-4T25-C	KGDS R/L2020-C	-	-	-	20	20	12	20	125		64.7	25		
			□ 25		KGDS R/L2525-C	-	-	-	25	25	7	25	150					
	5	10	□ 20	KGD 1/2R-5T10-C	KGDS R/L2020-C	-	-	-	20	20	12	20	125		49.7	10	5.0	6.0
			□ 25		KGDS R/L2525-C	-	-	-	25	25	7	25	150					
		25	□ 20	KGD 1/2R-5T25-C	KGDS R/L2020-C	-	-	-	20	20	12	20	125		64.7	25		
			□ 25		KGDS R/L2525-C	-	-	-	25	25	7	25	150					

Note 1) When using the toolholder in normal mounting position, the lower jaw of toolholder may interfere with the tool presetter.

2) The toolholder and blade descriptions are printed on the toolholder body. (Unit description is not printed.)

KGDS-S: Left-hand Blade for Right-hand Toolholder, Right-hand Blade for Left-hand Toolholder.




The toolholder is applicable for all blade with suitable hand.

3) CDX : Maximum depth to which processing can be made. If the CDX is 20mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18mm.

● : Standard Stock

Recommended Cutting Conditions → P18 – P20

## Spare Parts (Common with separate types) \* The parts are included in the toolholder and unit.

Unit Description	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
			
KGDS R/L ... S	BH6X10TR	SB-60120TR	LTW-25

## Toolholders Identification System (External Grooving, Cut-Off / Integral Type, SwitchBlade Type)

**KGD**      **R**      **1616**      **H** - **3**      **T**      **06** (Integral Type)

Toolholder hand R: Right-hand L: Left-hand	Shank Size 16 × 16 mm	Toolholder Length H: 100 mm	Applicable Inserts GDM/GDMS 3 ~ 4 mm	Max. Grooving Depth 06 : 6 mm
--	--------------------------	--------------------------------	--	----------------------------------

**KGD**      **R**      **2020**      **K** - **3**      **T**      **06**      **JCT** (Coolant-through Holders)

Toolholder hand R: Right-hand L: Left-hand	Shank Size 20 × 20 mm	Toolholder Length K: 125 mm	Applicable Inserts GDM/GDMS 3 ~ 4 mm	Max. Grooving Depth 06 : 6 mm	Others Coolant-through Holders
--	--------------------------	--------------------------------	--	----------------------------------	-----------------------------------

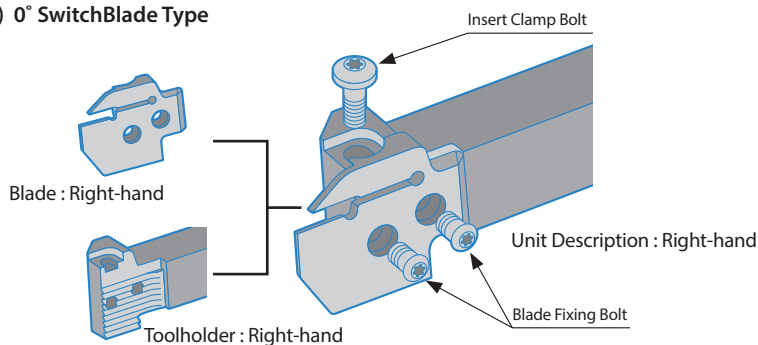
**KGD**      **R**      **2020**      **X** - **3**      **T**      **10**      **S** (SwitchBlade Type / Unit Description)

**KGDS**

Toolholder hand R: Right-hand L: Left-hand	Shank Size 20 × 20 mm	Toolholder Length Unit Description	Applicable Inserts GDM/GDMS 3 ~ 4 mm	Max. Grooving Depth 10 : 10 mm
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## Structure of Toolholder Unit (External Grooving, Cut-Off)

### 1) 0° SwitchBlade Type



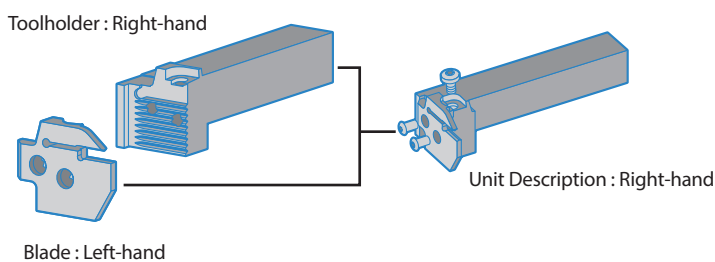
Toolholder (KGD R/L ●●-C)

+

Blade (KGD R/L-●T●●-C)

⇒ Right-hand Blade for Right-hand Toolholder,  
Left-hand Blade for Left-hand Toolholder.

### 2) 90° SwitchBlade Type



Toolholder (KGDS R/L ●●-C)

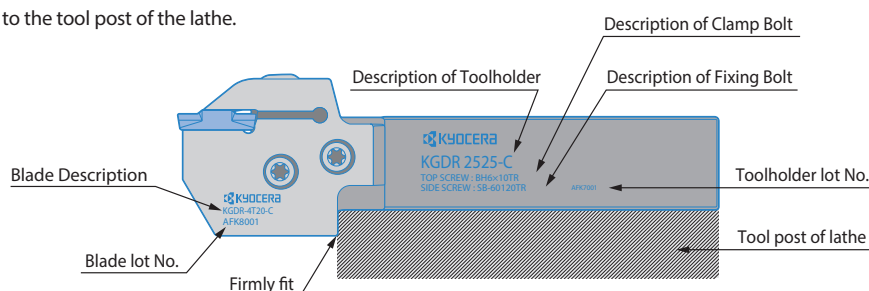
+

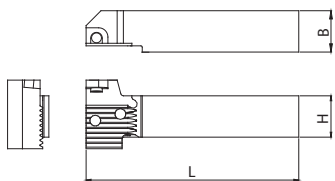
Blade (KGD R/L-●T●●-C)

⇒ Left-hand Blade for Right-hand Toolholder,  
Right-hand Blade for Left-hand Toolholder.

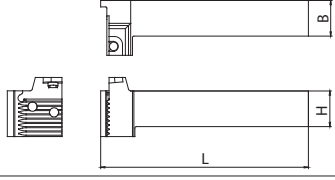
## SwitchBlade Type Toolholder Identification System and Their Setting to Lathe

Firmly fit the lower jaw to the tool post of the lathe.

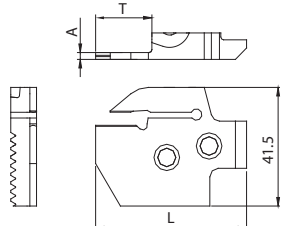


Shape of 0° type Right-hand shown	Toolholder Description	Stock		Dimensions (mm)		
		R	L	L	B	H
	KGDR <sub>L</sub> 2020-C	●	●	104	20	20
	2525-C	●	●	129	25	25
	3232-C	●	●	149	32	32




Shape of 90° type Right-hand shown	Toolholder Description	Stock		Dimensions (mm)		
		R	L	L	B	H
	KGDS <sub>R/L</sub> 2020-C	●	●	122	20	20
	2525-C	●	●	147	25	25

Shape of Blade Right-hand shown	Blade Description	Stock		Dimensions (mm)		
		R	L	L	B	H
	KGDR <sub>L</sub> -2T17-C	●	●	51.2	17.2	1.7
	-3T10-C	●	●	44.2	10.2	2.4
	-3T20-C	●	●	53.2	20.2	
	-4T10-C	●	●	44.2	10.2	3.4
	-4T20-C	●	●	54.2	20.2	
	-4T25-C	●	●	59.2	25.2	
	-5T10-C	●	●	44.2	10.2	4.4
	-5T25-C	●	●	59.2	25.2	

●: Standard Stock

## Spare Parts

Unit Description	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Bolt (for Blade)	Wrench
 KGDR <sub>R/L</sub> ... S KGDS <sub>R/L</sub> ... S	BH6X10TR	 SB-60120TR	 LTW-25

\* The parts are included in the toolholder and unit.

## Setting the Blade (SwitchBlade Type Toolholder)

1. Use compressed air or other measures to remove chips and dust from the serration part. (see Fig.1)
2. Mate and fit the serrations of the blade and toolholder, and also fit the blade end to the toolholder. (see Fig.2)
3. Tighten the blade fixing screws at an appropriate torque. You can tighten them in any order. (see Fig.2) (Recommended tightening torque : 8N·m)
4. Set the insert after setting the blade.

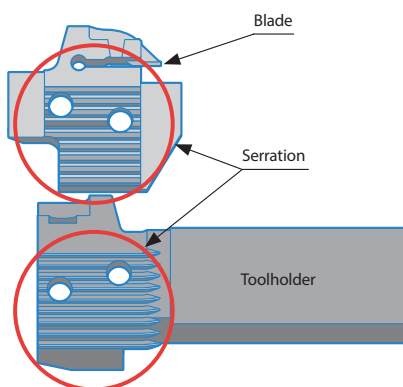


Fig.1

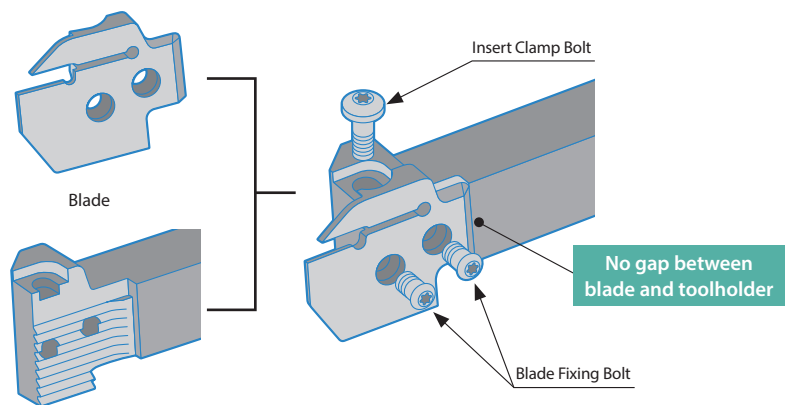
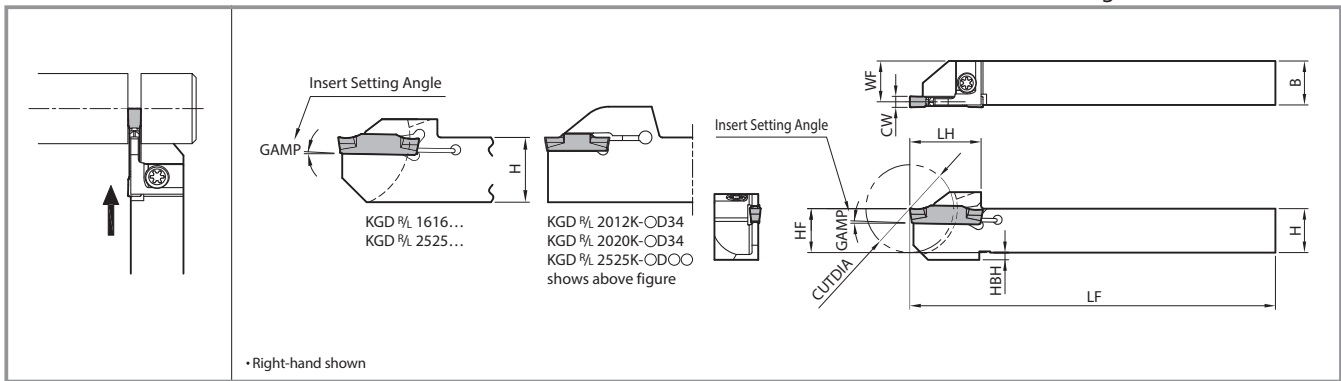


Fig.2

# KGD (Small parts machining)

Edge Width : 1.3 ~ 4.0mm



## Toolholder Dimensions

Description	Stock		Cut-Off Dia. (mm)	Dimensions (mm)							Angle	Edge Width CW (mm)		Spare Parts		
	R	L		CUTDIA	H	HF	HBH	B	LF	LH		WF	MIN.	MAX.	Clamp Screw	Wrench
KGD %L 1010JX-1.3D16	●	●	16	10	10	2	10	120	18	9.9	5°	1.3	1.3	SB-40120TR	LTW-15S	
	●	●	20							9.5						
	●	●	16	12	12		12	85	19.5	11.9						
	●	●						120		11.5						
	●	●	24	85	11.5											
●	●	24	120	11.5												
KGD %L 1010JX-1.5D16	●	●	16	10	10	2	10	120	18	9.7	5°	1.5	1.5	SB-40120TR	LTW-15S	
	●	●	20							9.4						
	●	●	16	12	12		12	85	19.5	11.7						
	●	●						120		11.4						
	●	●	24	85	11.4											
●	●	24	120	11.4												
KGD %L 1010JX-2	●	●	20	10	10	2	10	120	18	9.2	1°	2.0	3.0	SB-40120TR	LTW-15S	
	●	●	24							12						12
	●	●	32	16	16		16	120	24.5	15.2						11.2
	●	●														
	●	●	34	20	20		20	125	32.5	19.2						0°
	●	●	34	25	25	25	25	24.2	24.2	0°						
	●	●	20	10	10	10	120	18	9	9	1°	2.4	3.0	SB-40120TR	LTW-15S	
●	●	24														12
●	●	32	16	16	16	120	24.5	15	11							
●	●									20						20
●	●	34	20	20	20	125	32.5	19	0°							
●	●	34	25	25	25	25	24	24	0°							
KGD %L 1212JX-3	●	●	24	12	12	2	12	120	19.5	10.8	1°	3.0	4.0	SB-40120TR	LTW-15S	
	●	●	32													16
	●	●	38	19	19		13	125	29	11.8						10.8
	●	●														
	●	●	42	20	20		12	120	31	18.8						18.8
	●	●	51			36										
	●	●	42	25	25	20	125	41.5	23.8	0°						
	●	●	51								36					
	●	●	51	25	25	25	125	41.5	23.8	0°						

Note 1) 4mm width insert cannot be installed in KGD %L1212JX-3.

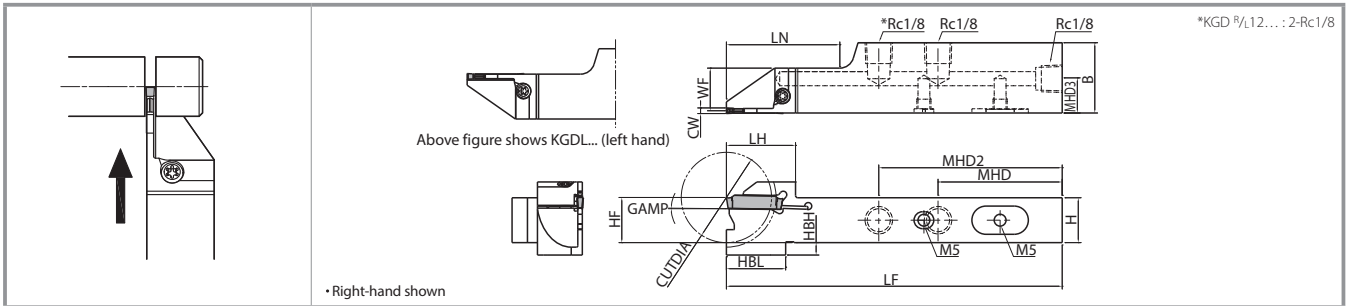
● : Standard Stock

2) Recommended tightening torque for clamp screw is 2.0N·m for SB-40120TR, 2.5N·m for SE-50125TR and 6.5N·m for HH5X16.

Recommended Cutting Conditions → P18 ~ P20

3) When machining material greater than ø36mm with KGD %L/-3D38 or KGD %L/-3D42 or KGD %L/-3D51 toolholders, use 1-edge inserts.

Max. workpiece diameter for 2-edge inserts ø36mm.



## Toolholder Dimensions

Description	Stock		Cutting Dia. (mm)	Dimensions (mm)											Angle	Edge Width CW (mm)		Spare Parts				Applicable Inserts	
	R	L		H=HF	HBH	B	LF	LH	HBL	LN	WF	MHD	MHD2	MHD3		GAMP	MIN.	MAX.	Clamp Screw	Wrench	Plug 1		Plug 2
KGDR 1218JX-2JCTM	●		24	12	8.5	18	120	19.5	21	44	11.2	54	-	8.4	1°	2.0	3.0	SB-40120TR	LTW-15S	GP-1	HS5X4LP	GDM Type GDG Type (GDMS Type) (GDGS Type)	
KGDL 1218JX-2JCTM		●						21.5	7.7														
KGDR 1625JX-2JCTM	●		32	16	4.5	25	120	24.5	21	40	15.2	44	65	12.2	1°	2.4	3.0						4.0
KGDL 1625JX-2JCTM		●						21.5	7.7														
KGDR 1218JX-2.4JCTM	●		24	12	8.5	18	120	19.5	21	44	11	54	-	8.4	1°	2.4	3.0						
KGDL 1218JX-2.4JCTM		●						21.5	7.7														
KGDR 1625JX-2.4JCTM	●		32	16	4.5	25	120	24.5	21	40	15	44	65	12.2	1°	3.0	4.0						
KGDL 1625JX-2.4JCTM		●						21.5	7.7														
KGDR 1218JX-3JCTM	●		24	12	8.5	18	120	19.5	21	44	10.8	54	-	8.6	1°	3.0	4.0						
KGDL 1218JX-3JCTM		●						21.5	7.7														
KGDR 1625JX-3JCTM	●		32	16	4.5	25	120	24.5	21	40	14.8	44	65	12.2	1°	3.0	4.0						
KGDL 1625JX-3JCTM		●						21.5	7.7														

\*For coolant holder piping parts, see pages 15 and 16

●: Standard Stock

Recommended Cutting Conditions ▶ P18 ~ P20

## Applicable to Different Supply Styles. 2 Supports Internal Coolant with/without Piping System

### Internal Coolant without Piping

**\*When the tool turret supports direct coolant**

Coolant is supplied directly from tool turret into the holder. No need for piping just by installing tools

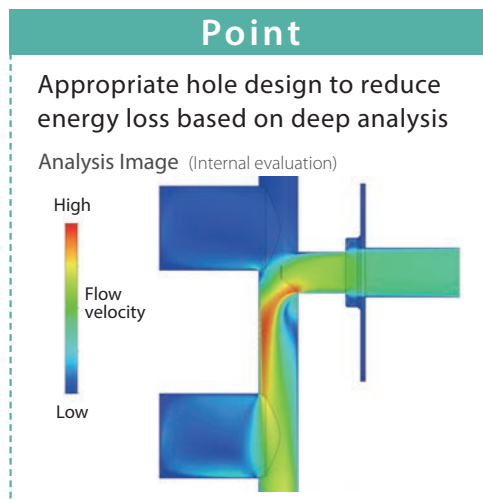
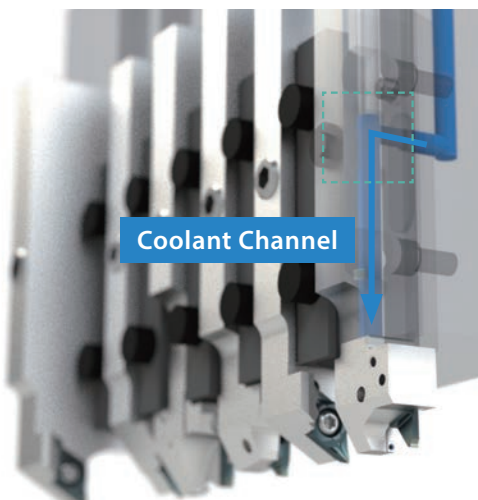
Applicable to Wide Range of Machines

The tool turret is optional. Please contact our company sales representative for details.

CITIZEN MACHINERY CO., LTD. (L20, D25, M32)  
 STAR MICRONICS CO., LTD. (SB-R series, SR series, SV series)  
 TSUGAMI CORPORATION (S205/206-II □ 16 type, S205A/206A-II □ 16 type)

Compatible with various machine including the above. Toolholders can be customized as well.

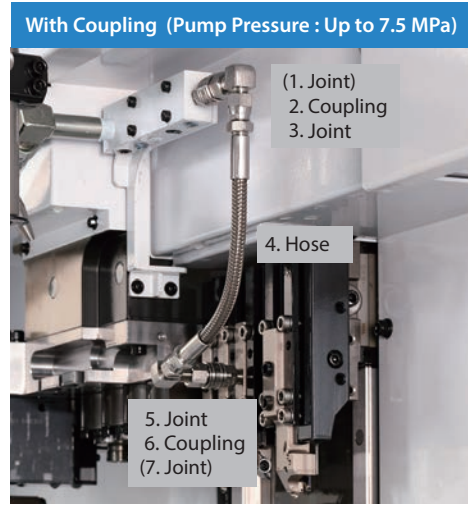
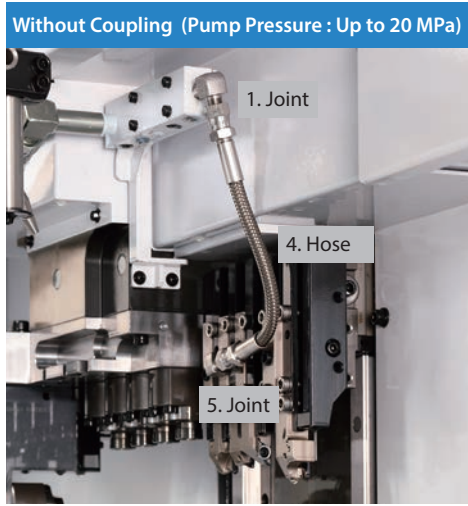
(Random order)  
 Based on Kyocera Survey in January 2021



# Piping Parts

**Pipe parts will be required separately if internal coolant is used.**

Pump Pressure : Up to 20 MPa. Pump Pressure : Up to 7.5 MPa if coupling is used.



## Combination Part Description (Example)

Part	Description
1. Joint	J-ST-R1/8-G1/8
4. Hose	HS-G1/8-G1/8-500
5. Joint	J-ST-R1/8-G1/8

Convert the thread standards on the machine's side (Rc1/4, Rc1/8, NPT1/8, etc.) to the thread standard on the hose side (G1/8) for use.  
Use sealing agents such as seal tapes when installing piping parts.

## Combination Part Description (Example)

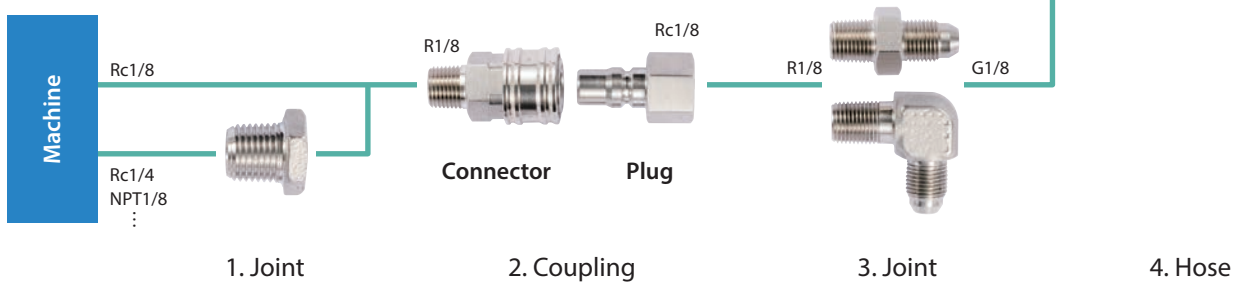
Part	Description
(1. Joint)	-
2. Coupling	CP-ST-R1/8, P-ST-RC1/8
3. Joint	J-ST-R1/8-G1/8
4. Hose	HS-G1/8-G1/8-500
5. Joint	J-ST-R1/8-G1/8
6. Coupling	P-ST-RC1/8, CP-ST-R1/8
(7. Joint)	-

Convert the thread standards on the machine's side (Rc1/4, Rc1/8, NPT1/8, etc.) to thread standards of the coupling (Rc1/8, etc.) or hose (G1/8) for use.  
Use sealing agents such as seal tapes when installing piping parts.

## Without Coupling (Pump Pressure : Up to 20 MPa)



## With Coupling (Pump Pressure : Up to 7.5 MPa)









## Piping Part Dimensions



Joint (1, 3, 5, 7) Pressure Resistance : Up to 20.0 MPa

(Unit : mm)

Shape	Description	Stock	ød1	ød2	L	L1	L2	T1	T2
	J-ST-R1/4-G1/8	●	5.5	4.0	34	13	13	R1/4	G1/8
	J-ST-NPT1/8-G1/8	●	3.5	3.5	29	10	13	NPT1/8	G1/8
	J-ST-R1/8-G1/8	●	4.0	4.0	29	10	13	R1/8	G1/8
	J-AN-R1/8-G1/8	●	4.0	4.0	27	14	13	R1/8	G1/8
	J-ST-R1/4-Rc1/8	●	-	-	17	12	-	R1/4	Rc1/8
	J-ST-NPT1/8-Rc1/8	●	3.5	-	30	10	-	NPT1/8	Rc1/8
	J-ST-R1/8-Rc1/8	●	3.5	-	33	13	-	R1/8	Rc1/8

● : Standard Stock


Coupler (2, 6) Pressure Resistance : Up to 7.5 MPa (Unit : mm)

Shape	Description	Stock
	CP-ST-R1/8	●
	P-ST-Rc1/8	●

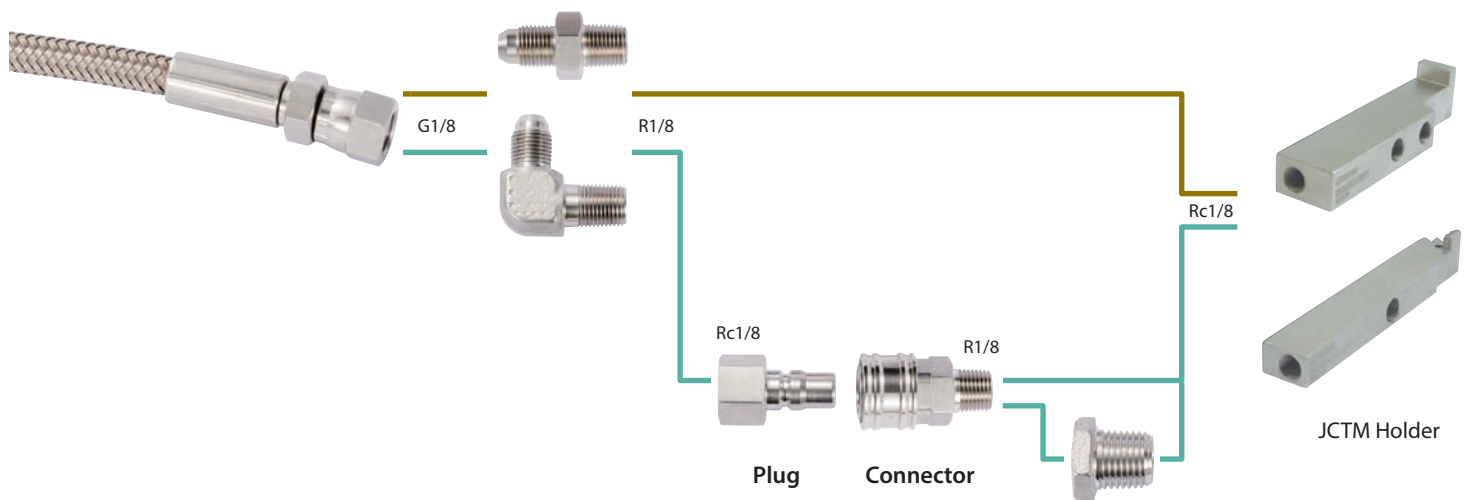
● : Standard Stock

Hose (4) Pressure Resistance : Up to 20.0 MPa

(Unit : mm)

Shape	Description	Stock	L
	HS-G1/8-G1/8-200	●	200
	HS-G1/8-G1/8-300	●	300
	HS-G1/8-G1/8-400	●	400
	HS-G1/8-G1/8-500	●	500
	HS-G1/8-G1/8-600	●	600
	HS-G1/8-G1/8-800	●	800

● : Standard Stock



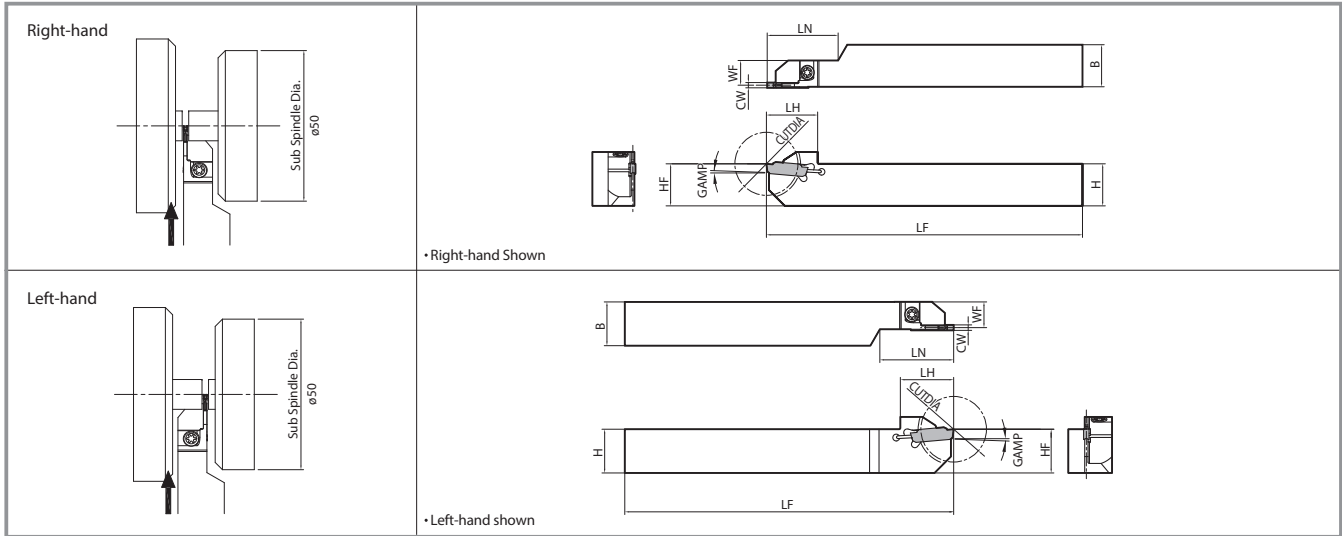
4. Hose

5. Joint

6. Coupling

7. Joint (Extension Joint)

# KGDS (Small Diameter Cut-Off for Sub Spindle)

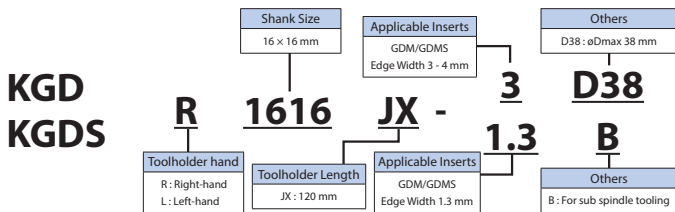


## Toolholder Dimensions

Description	Stock		Cut-Off Dia. (mm)	Dimensions (mm)							Angle	Edge Width CW (mm)		Spare Parts		
	R	L		CUTDIA	H	HF	B	LF	LH	LN		WF	GAMP	MIN.	MAX.	Clamp Screw
KGDS <sup>R/L</sup>	1616JX-1.3B	●	●	24	16	16	16	120	19.5	27	9.5	5°	1.3	1.3	SB-40120TR	LTW-15S
	1616JX-1.5B	●	●										1.5	1.5		
	1616JX-2B	●	●								9.2	1°	2.0	3.0		

● : Standard Stock  
 Recommended Cutting Conditions → P20

## Toolholders Identification System (Small Parts Machining)



## KGDS Selection Reference

### KGDS Standard Type

Both Right-hand and Left-hand types are applicable to gang tool post. Basically Left-hand type is used for cut-off operation using a sub spindle.

KGDS <sup>R</sup> (Right-hand)	KGDS <sup>L</sup> (Left-hand)
1st Recommendation Use insert with lead angle to remove boss • No sub-spindle • Cut-off close to main spindle	1st Recommendation Insert without lead angle • Sub-spindle use • Cut-off close to sub-spindle

### KGDS Sub Spindle Type

When machining workpiece with small diameter, use KGDS to reduce overhang distance from the main spindle.

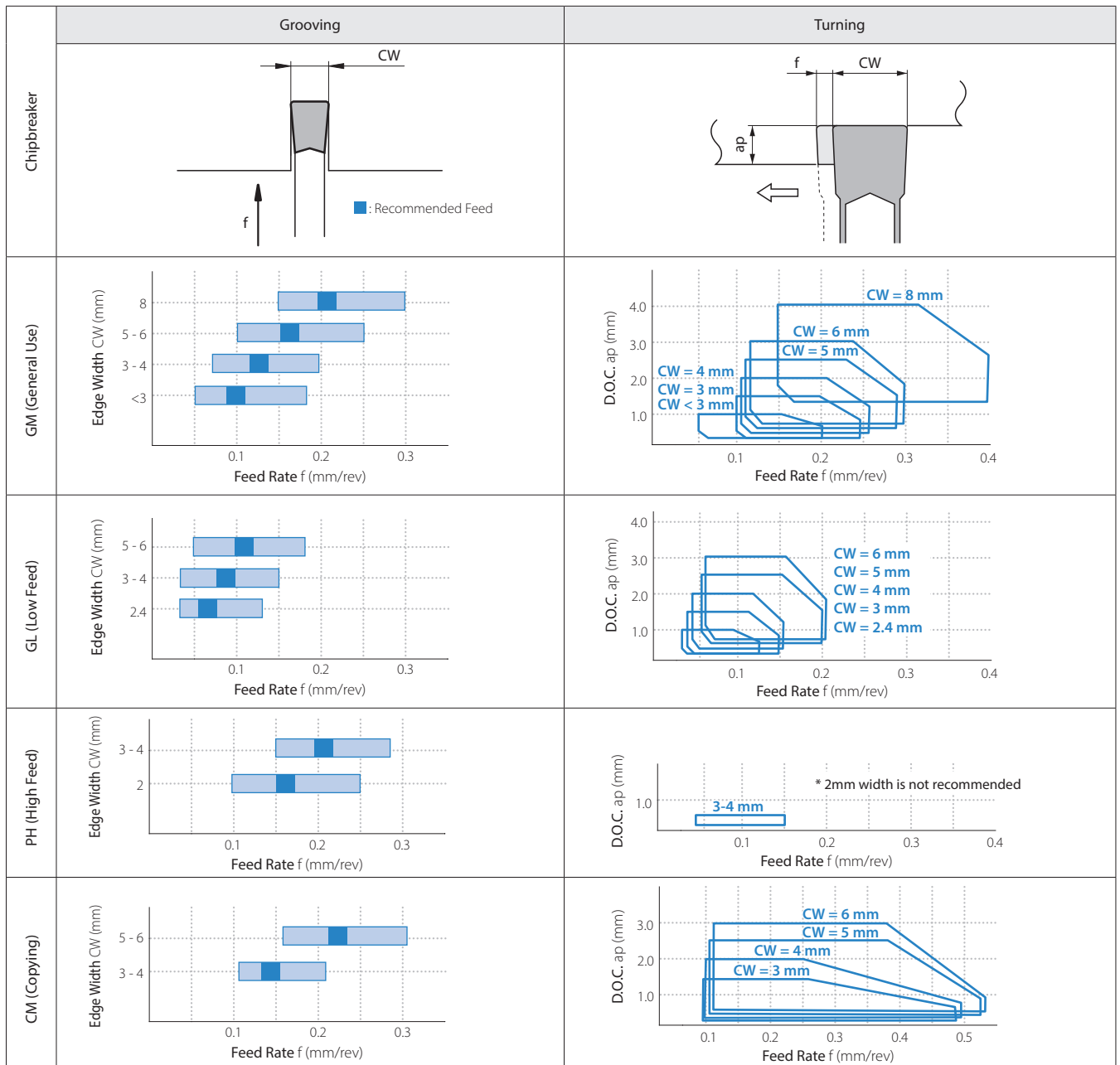
KGDS <sup>SR</sup> (Right-hand)	KGDS <sup>SL</sup> (Left-hand)
• Long workpiece and more rigidity • Cut-off near main spindle	• Short workpiece and less rigidity • Cut-off near sub-spindle

## Recommended Cutting Conditions (External Grooving) ★1st Recommendation ☆2nd Recommendation

Workpiece	Chipbreaker	Recommended Insert Grade (Vc: m/min)								Notes	
		Cermet		MEGACOAT NANO	MEGACOAT		Carbide	MEGACOAT CBN	CBN		PCD
		TN620	TN90	PR1535	PR1225	PR1215	GW15	KBN05M	KBN570		KPD001
Carbon Steel	GM	☆ 80-220	☆ 100-220	☆ 80-200	★ 80-200	☆ 100-200	-	-	-	-	
Alloy Steel	GL	☆ 70-200	☆ 80-200	☆ 70-180	★ 70-180	☆ 80-180	-	-	-	-	
Stainless Steel	CM	-	-	☆ 60-150	☆ 60-150	☆ 60-150	-	-	-	-	
Cast Iron	PH	-	-	-	-	-	-	-	-	-	
Aluminum Alloy	GS	-	-	-	-	★ 100-200	-	-	-	-	
Brass	NB	-	-	-	-	☆ 100-200	-	-	★ 150-2,000	★ 200-800	
Hard materials	NB	-	-	-	-	-	★ 80-150	-	-	-	
Powdered Steel		-	-	-	-	-	-	-	★ 100-250	-	

## Recommended Cutting Conditions (Feed Rate / D.O.C.)

(Workpiece : S50C)

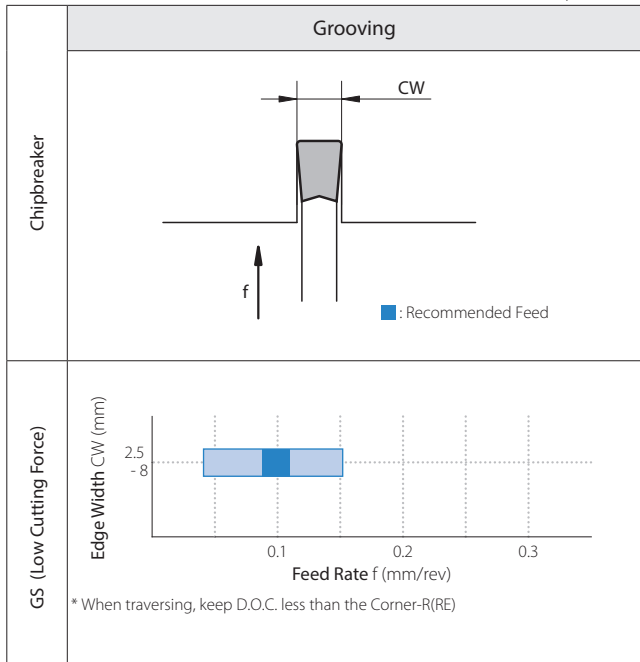


Note 1) The above values are based on the condition that CDX of toolholder is 17 mm or less.

2) If the toolholder is not for the 8mm width insert and its CDX is over 17mm, set the values for turning to less than 90% of recommended cutting conditions above.

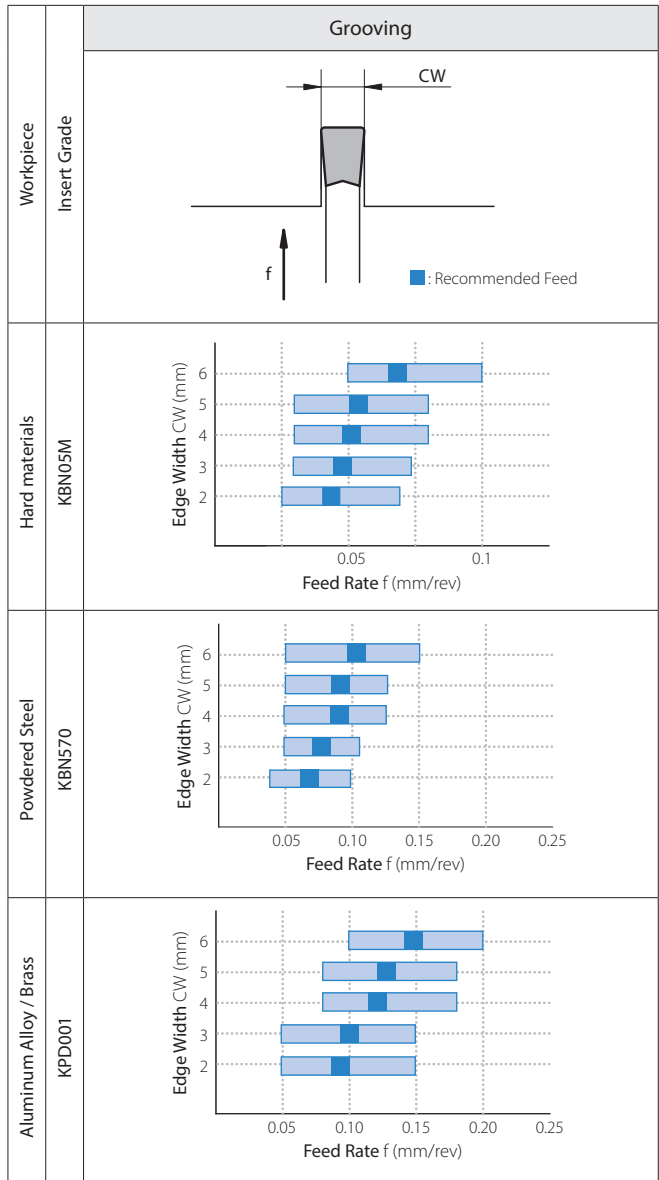
# Recommended Cutting Conditions (External Grooving)

Recommended Cutting Conditions (Feed Rate / D.O.C.) (Workpiece : S50C)



Note 1) The above values are based on the condition that CDX of toolholder is 17 mm or less.

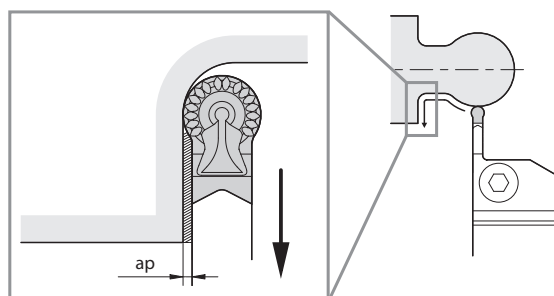
Recommended Cutting Conditions (Feed Rate)



## CM Chipbreaker (Back Turning)

Estimated maximum cutting amount (D.O.C.) for back turning

Description	Max. D.O.C. (ap : mm)				
	Toolholder Description				
	KGD...-2T...	KGD...-3T...	KGD...-4T...	KGD...-5T...	KGD...-6T...
GDM 3020N-150R-CM	0.24	0.20	-	-	-
4020N-200R-CM	-	0.24	0.20	-	-
5020N-250R-CM	-	-	0.30	0.20	-
6020N-300R-CM	-	-	-	0.30	0.25



# Guide for External Grooving

## 1) Turning After Grooving

### 1. Grooving Depth Over 0.5mm : At Roughing (see Fig.1)

Before turning, pull the tool back about 0.1mm after grooving, instead of turning subsequent to grooving.

(Failure to pull the tool back before traverse cutting will result in an unbalanced load applied on only one side of the cutting edge.)

### 2. Grooving Depth Under 0.5mm : At Finishing (see Fig.2)

Turning subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge. (Dwell-motion is not necessary)

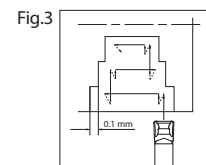
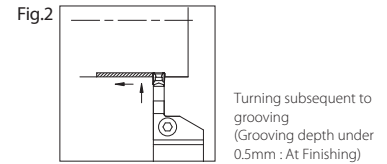
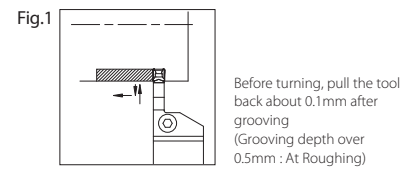
## 2)

### 1. When widening the groove width, apply the "Step Turning" as shown in Fig.3

### 2. The widened groove and side walls should be finished last.

(For better chip control, D.O.C. over 0.5mm is recommended.)

Note : If the workpiece is not supported at the center, reduce the feed rate when grooving towards center



## Recommended Cutting Conditions (Cut-off , PF / PQ / PG Chipbreakers) ★1st Recommendation ☆2nd Recommendation

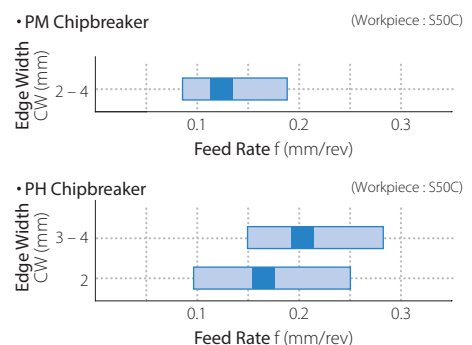
Workpiece	Recommended Insert Grade (Vc : m/min)					Feed Rate f (mm/rev)										Notes
						PF (Corner-R (RE) = 0.03)			PF (Corner-R (RE) = 0.15)			PQ		PG		
	MEGACOAT NANO	MEGACOAT		DLC Coated Carbide	Carbide	Edge Width CW (mm)			Edge Width CW (mm)			Edge Width CW (mm)		Edge Width CW (mm)		
PR1535	PR1225	PR1215	PDL025	GW15	1.3/1.5	2.0	2.5/3.0	1.3/1.5	2.0	2.5/3.0	2.0	2.5/3.0	2.0	2.5/3.0		
Carbon Steel	☆ 70 - 150	★ 70 - 150	☆ 70 - 180	-	-	0.01	0.02	0.02	0.01	0.03	0.04	0.03	0.04	0.01	0.01	
Alloy Steel	☆ 70 - 150	★ 70 - 150	☆ 70 - 180	-	-	-0.04	-0.06	-0.08	-0.05	-0.08	-0.10	-0.1	-0.12	-0.04	-0.05	
Stainless Steel	★ 60 - 120	☆ 60 - 120	☆ 60 - 150	-	-	0.01	0.01	0.01	0.01	0.03	0.04	0.02	0.02	0.01	0.01	
Cast Iron	-	-	★ 80 - 200	-	☆ 50 - 100	0.01	0.02	0.03	0.01	0.03	0.04	0.04	0.04	0.01	0.01	
Aluminum Alloy	-	-	-	★ 200 - 500	☆ 200 - 450	-	-	-	-	-	-	-	-	0.01	0.01	
Brass	-	-	-	-	★ 100 - 200	-	-	-	-	-	-	-	-	0.01	0.01	

## Recommended Cutting Conditions (Cut-off , PM/PH Chipbreakers) ★1st Recommendation ☆2nd Recommendation

Workpiece	Recommended Insert Grade (Vc : m/min)			Feed Rate f (mm/rev)			Notes
				PM	PH		
	MEGACOAT NANO	MEGACOAT		Edge Width CW (mm)	Edge Width CW (mm)		
PR1535	PR1225	PR1215	2.0 - 4.0	2.0	3.0 - 4.0		
Carbon Steel	☆ 80 - 200	★ 80 - 200	☆ 100 - 200	0.08 - 0.18	0.10 - 0.25	0.15 - 0.28	Coolant
Alloy Steel	☆ 70 - 180	★ 70 - 180	☆ 80 - 180				
Stainless Steel	★ 60 - 150	☆ 60 - 150	☆ 60 - 150	0.06 - 0.12	0.05 - 0.12	0.08 - 0.15	
Cast Iron	-	-	★ 100 - 200	0.08 - 0.18	0.10 - 0.25	0.15 - 0.28	

### Example of feed

In the graph below indicates the most recommended value of feed (f)



Caution (Cut-off)

1. Be sure to perform wet processing. Apply enough coolant to the cutting edge.
2. Keep a constant rate during processing so that optimum product life will be achieved.
3. Cut-off as close to the chuck as possible.
4. To prevent impacts, reduce feed rate by 1/2 ~ 1/3 when nearing the center of the workpiece.

## Face Grooving

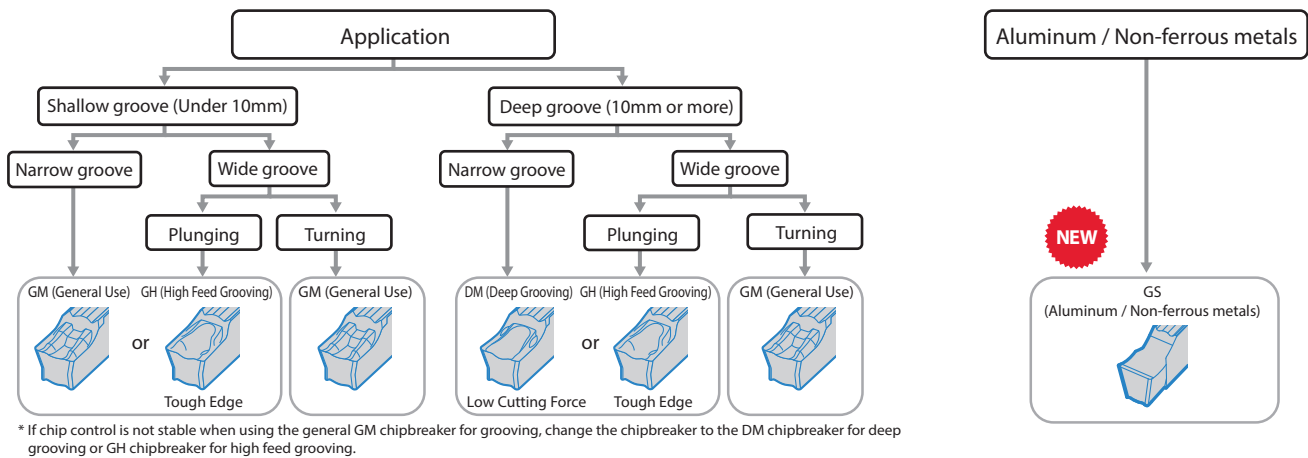
# KGDF

Good chip control

MEGACOAT coating technology for long tool life and high efficiency machining

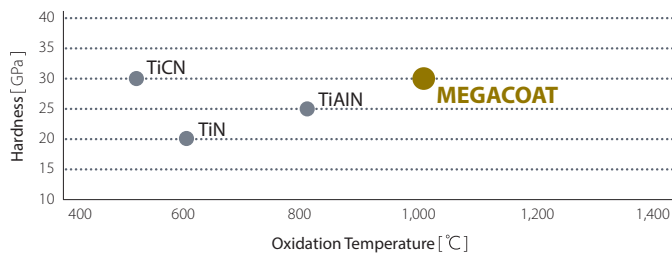
## 1 Wide Range of Chipbreakers Available for Face Grooving

### Chipbreaker Selection



## 2 MEGACOAT Coating Technology for Long Tool Life

### Coating Properties



PR1225(MEGACOAT)

1st. Recommendation for face grooving

PR1215(MEGACOAT)

Superior wear resistance,

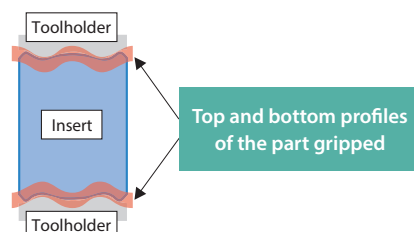
1st. Recommendation for machining of cast iron



## 3 High Clamping Strength

Prevents abnormal machining surface and / or insert breakage resulting from slip of insert  
Improves repetitive installation accuracy of insert

### Insert clamping system "W Grip"



# GDFM/GDFMS (Face Grooving)

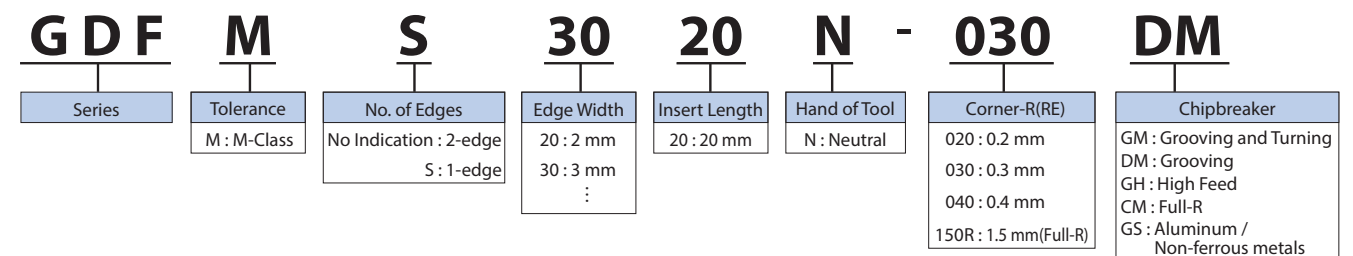
## Applicable Inserts

Insert			Description	Dimensions (mm)			Cermet		MEGACOAT		Carbide			
				Edge Width CW	RE	INSL	S	TN620	TN90	PR1225	PR1215	GW15		
													Tolerance	
Grooving and Turning			GDFM 2020N-020GM	2.0	±0.03	0.2	21	3.9		●	○	●	☺	
			3020N-030GM	3.0		0.3	20	4.5		●	●	●		
			4020N-040GM	4.0		0.4				●	●	●		
			5020N-040GM	5.0	0.8				●	●	●			
			5020N-080GM	5.0	0.4				●	●	●			
			6020N-040GM	6.0	0.4		●	●	●					
			6020N-080GM	6.0	0.8		●	●	●					
Grooving and Turning (High Feed)			GDFM 4020N-040GH	4.0	±0.03	0.4	20	4.5			●	●		
			5020N-040GH	5.0		0.8				●	●			
			5020N-080GH	5.0	0.4				●	●				
			6020N-040GH	6.0	0.4				●	●				
			6020N-080GH	6.0	0.8				●	●				
Deep Grooving and Turning			GDFM 3020N-030DM	3.0	±0.03	0.3	20	4.5		●	●	●		
			4020N-040DM	4.0		0.4				●	●	●		
			5020N-040DM	5.0	±0.04					●	●	●		
			6020N-040DM	6.0					●	●	●			
	1-edge			GDFMS 3020N-030DM	3.0	±0.03	0.3	20	4.5		●	●	●	
				4020N-040DM	4.0		0.4				●	●	●	
				5020N-040DM	5.0	±0.04					●	●	●	
				6020N-040DM	6.0					●	●	●		
Full-R			GDFM 3020N-150R-CM	3.0	±0.03	1.5	20	4.3	●		●	●		
			4020N-200R-CM	4.0		2.0	21	4.5	●		●	●		
			5020N-250R-CM	5.0	±0.04	2.5				●		●	●	
			6020N-300R-CM	6.0		3.0	22	●		●	●			
Aluminum / Non-ferrous metals			GDFG 3020N-020GS	3.0	±0.02	0.2	20	4.5					●	
			4020N-040GS	4.0										●
			5020N-040GS	5.0										●
			6020N-040GS	6.0										●

\* GDFM40/50/60-CM differs from other descriptions in length (INSL) to avoid interference of a toolholder with workpiece.

● : Standard Stock

## Inserts Identification System







# KGDF (Face Grooving / SwitchBlade Type)

## Toolholder Dimensions

Shank Angle	Edge Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Blade Description → P31	Toolholder Description → P12	Unit Description (Standard Stock Description)		Stock		Dimensions (mm)																			
				DAXN [MIN.]	DAXX [MAX.]			R	L	H	HF	HBH	B	LF	LH	WF	CDX														
0°	3	□ 20	13	25	30	KGDF R/L -25-3A-C -30-3A-C -40-3A-C -50-3B-C -65-3B-C -85-3B-C -110-3B-C	KGDF L/r2020-C	KGDF R/L 2020X25-3AS 2020X30-3AS 2020X40-3AS 2020X50-3BS 2020X65-3BS 2020X85-3BS 2020X110-3BS	▲	▲	20	20	12	20	118	36	24.5	13													
				30	40														▲	-											
				40	50														-	-											
			15	50	65										-50-3B-C	2020X50-3BS		▲	-												
				65	85										-65-3B-C	2020X65-3BS		-	-												
				85	110										-85-3B-C	2020X85-3BS		-	-												
			22	110	145										-110-3B-C	2020X110-3BS		-	-												
				50	65										-50-3C-C	2020X50-3CS		▲	-												
				65	85										-65-3C-C	2020X65-3CS		-	-												
			25	85	110										-85-3C-C	2020X85-3CS		-	-												
				110	145										-110-3C-C	2020X110-3CS		-	-												
				25	25										7	25		127	45	22											
		□ 25	13	25	30	KGDF R/L -25-3A-C -30-3A-C -40-3A-C -50-3B-C -65-3B-C -85-3B-C -110-3B-C	KGDF L/r2525-C	KGDF R/L 2525X25-3AS 2525X30-3AS 2525X40-3AS 2525X50-3BS 2525X65-3BS 2525X85-3BS 2525X110-3BS	▲	▲	25	25	7	25	143	36	29.5	15													
				30	40														▲	-											
				40	50														▲	-											
			15	50	65										-50-3B-C	2525X50-3BS		▲	▲												
				65	85										-65-3B-C	2525X65-3BS		▲	▲												
				85	110										-85-3B-C	2525X85-3BS		▲	▲												
			22	110	145										-110-3B-C	2525X110-3BS		▲	-												
				50	65										-50-3C-C	2525X50-3CS		▲	-												
				65	85										-65-3C-C	2525X65-3CS		-	-												
			25	85	110										-85-3C-C	2525X85-3CS		-	-												
				110	145										-110-3C-C	2525X110-3CS		▲	-												
				25	25										7	25		152	45	22											
□ 32	13	25	30	KGDF R/L -25-3A-C -30-3A-C -40-3A-C -50-3B-C -65-3B-C -85-3B-C -110-3B-C	KGDF L/r3232-C	-	-	-	32	32	-	32	163	36	36.5	15															
		30	40														▲	-													
		40	50														▲	-													
	15	50	65										-50-3B-C	-		-	-														
		65	85										-65-3B-C	-		-	-														
		85	110										-85-3B-C	-		-	-														
	22	110	145										-110-3B-C	-		-	-														
		50	65										-50-3C-C	-		-	-														
		65	85										-65-3C-C	-		-	-														
	25	85	110										-85-3C-C	-		-	-														
		110	145										-110-3C-C	-		-	-														
		25	25										7	25		172	45	22													
□ 32	13	25	30	KGDF R/L -25-3A-C -30-3A-C -40-3A-C -50-3B-C -65-3B-C -85-3B-C -110-3B-C	KGDF L/r3232-C	-	-	-	32	32	-	32	163	36	36.5	15															
		30	40														▲	-													
		40	50														▲	-													
	15	50	65										-50-3B-C	-		-	-														
		65	85										-65-3B-C	-		-	-														
		85	110										-85-3B-C	-		-	-														
	22	110	145										-110-3B-C	-		-	-														
		50	65										-50-3C-C	-		-	-														
		65	85										-65-3C-C	-		-	-														
	25	85	110										-85-3C-C	-		-	-														
		110	145										-110-3C-C	-		-	-														
		25	25										7	25		175	48	25													
0°	4	□ 20	13	25	35	KGDF R/L -25-4A-C -35-4B-C -50-4B-C -70-4B-C -100-4B-C -150-4B-C -220-4B-C	KGDF L/r2020-C	KGDF R/L 2020X25-4AS 2020X35-4BS 2020X50-4BS 2020X70-4BS 2020X100-4BS 2020X150-4BS 2020X220-4BS	▲	-	20	20	12	20	118	36	24.5	13													
				35	50														▲	-											
				50	70														-	-											
				70	100														-	-											
				100	150														-	-											
				150	220														-	-											
			15	220	∞										-220-4B-C	2020X220-4BS		-	-												
				35	50										-35-4C-C	2020X35-4CS		-	-												
				50	70										-50-4C-C	2020X50-4CS		-	-												
				70	100										-70-4C-C	2020X70-4CS		-	-												
				100	150										-100-4C-C	2020X100-4CS		-	-												
				150	220										-150-4C-C	2020X150-4CS		-	-												
			25	220	∞										-220-4C-C	2020X220-4CS		-	-												
				35	50										-35-4C-C	2525X35-4CS		▲	-												
				50	70										-50-4C-C	2525X50-4CS		▲	-												
				70	100										-70-4C-C	2525X70-4CS		▲	▲												
				100	150										-100-4C-C	2525X100-4CS		▲	-												
				150	220										-150-4C-C	2525X150-4CS		▲	-												
			□ 25	13	25										35	KGDF R/L -25-4A-C -35-4B-C -50-4B-C -70-4B-C -100-4B-C -150-4B-C -220-4B-C		KGDF L/r2525-C	KGDF R/L 2525X25-4AS 2525X35-4BS 2525X50-4BS 2525X70-4BS 2525X100-4BS 2525X150-4BS 2525X220-4BS	▲	-	25	25	7	25	143	36	29.5	15		
					35										50															▲	▲
					50										70															▲	▲
					70										100															▲	-
					100										150															▲	▲
					150										220															▲	-
		15		220	∞	-220-4B-C	2525X220-4BS	▲	▲																						
				35	50	-35-4C-C	2525X35-4CS	▲	-																						
				50	70	-50-4C-C	2525X50-4CS	▲	-																						
				70	100	-70-4C-C	2525X70-4CS	▲	▲																						
				100	150	-100-4C-C	2525X100-4CS	▲	-																						
				150	220	-150-4C-C	2525X150-4CS	▲	-																						
		25		220	∞	-220-4C-C	2525X220-4CS	▲	▲																						
				35	50	-35-4C-C	2525X35-4CS	▲	-																						
				50	70	-50-4C-C	2525X50-4CS	▲	-																						
				70	100	-70-4C-C	2525X70-4CS	▲	▲																						
				100	150	-100-4C-C	2525X100-4CS	▲	-																						
				150	220	-150-4C-C	2525X150-4CS	▲	-																						
		□ 32		13	25	35	KGDF R/L -25-4A-C -35-4B-C -50-4B-C -70-4B-C -100-4B-C -150-4B-C -220-4B-C	KGDF L/r3232-C	-	-	-	32	32	-	32		163									36	36.5		15		
					35	50																								▲	-
					50	70																								▲	-
					70	100																								▲	-
					100	150																								▲	-
					150	220																								▲	-
			15	220	∞	-220-4B-C										-	-	-													
				35	50	-35-4C-C										-	-	-													
				50	70	-50-4C-C										-	-	-													
				70	100	-70-4C-C										-	-	-													
				100	150	-100-4C-C										-	-	-													
				150	220	-150-4C-C										-	-	-													
25	220		∞	-220-4C-C	-	-										-															
	35		50	-35-4C-C	-	-										-															
	50		70	-50-4C-C	-	-										-															
	70		100	-70-4C-C	-	-										-															
	100		150	-100-4C-C	-	-										-															
	150		220	-150-4C-C	-	-										-															
25	220		∞	-220-4C-C	-	-										-															
	35		50	-35-4C-C	-	-										-															
	50		70	-50-4C-C	-	-										-															
	70		100	-70-4C-C	-	-										-															
	100		150	-100-4C-C	-	-										-															
	150		220	-150-4C-C	-	-										-															
25	220	∞	-220-4C-C	-	-	-																									
	35	50	-35-4C-C	-	-	-																									
	50	70	-50-4C-C	-	-	-																									
	70	100	-70-4C-C	-	-	-																									
	100	150	-100-4C-C	-	-	-																									
	150	220	-150-4C-C	-	-	-																									
25	220	∞	-220-4C-C	-	-	-																									
	35	50	-35-4C-C	-	-	-																									
	50	70	-50-4C-C	-	-	-																									
	70	100	-70-4C-C	-	-	-																									
	100	150	-100-4C-C	-	-	-																									
	150	220	-150-4C-C	-	-	-																									
25	220	∞	-220-4C-C	-	-	-																									
	35	50	-35-4C-C	-	-	-																									
	50	70	-50-4C-C	-	-	-																									
	70	100	-70-4C-C	-	-	-																									
	100	150	-100-4C-C	-	-	-																									
	150	220	-150-4C-C	-	-	-																									
25	220	∞	-220-4C-C	-	-	-																									
	35	50	-35-4C-C	-	-	-																									
	50	70	-50-4C-C	-	-	-																									
	70	100	-70-4C-C	-	-	-																									
	100	150	-100-4C-C	-	-	-																									
	150	220	-150-4C-C	-	-	-																									
25	220	∞	-220-4C-C	-	-	-																									
	35	50	-35-4C-C	-	-	-																									
	50	70	-50-4C-C	-	-	-																									
	70	100	-70-4C-C	-	-	-																									
	100	150	-100-4C-C	-	-	-																									
	150	220	-150-4C-C	-	-	-																									
25	220	∞	-220-4C-C	-	-	-																									
	35	50	-35-4C-C	-	-	-																									
	50	70	-50-4C-C	-	-	-																									
	70	100	-70-4C-C	-	-	-																									
	100	150	-100-4C-C	-	-	-																									
	150	220	-150-4C-C	-	-	-																									
25	220	∞	-220-4C-C	-	-	-																									
	35	50	-35-4C-C	-	-	-																									
	50	70	-50-4C-C	-	-	-																									
	70	100	-70-4C-C	-	-	-																									
	100	150	-100-4C-C	-	-	-																									
	150	220	-150-4C-C	-	-	-																									
25	220	∞	-220-4C-C	-	-	-																									
	35	50	-35-4C-C	-	-	-																									
	50	70	-50-4C-C	-	-	-																									
	70	100	-70-4C-C	-	-	-																									
	100	150	-100-4C-C	-	-	-																									
	150	220	-150-4C-C	-	-	-																									
25	220	∞	-220-4C-C	-	-	-																									
	35	50	-35-4C-C	-	-	-																									
	50	70	-50-4C-C	-	-	-																									
	70	100	-70-4C-C	-	-	-																									
	100	150	-100-4C-C	-	-	-																									
	150	220	-150-4C-C	-	-	-																									
25	220	∞	-220-4C-C	-	-	-																									
	35	50	-35-4C-C	-	-	-																									
	50	70	-50-4C-C	-	-	-																									
	70	100	-70-4C-C	-	-	-																									
	100	150	-100-4C-C	-	-	-																									
	150	220	-150-4C-C	-	-	-																									
25	220	∞	-220-4C-C	-	-	-																									
	35	50	-35-4C-C	-	-	-																									
	50	70	-50-4C-C	-	-	-																									
	70	100	-70-4C-C	-	-	-																									
	100	150	-100-4C-C	-	-	-																									
	150	220	-150-4C-C	-	-	-																									
25	220	∞	-220-4C-C	-	-	-																									
	35	50	-35-4C-C	-	-	-</																									

# KGDF (Face Grooving / SwitchBlade Type)

## Toolholder Dimensions

Shank Angle	Edge Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Blade Description → P31	Toolholder Description → P12	Unit Description (Standard Stock Description)	Stock		Dimensions (mm)							
				DAXN [MIN.]	DAXX [MAX.]				R	L	H	HF	HBH	B	LF	LH	WF	CDX
0°	5	□20	15	25	35	KGDF R/L -25-5B-C	KGD 1/2R2020-C	2020X25-5BS	-	-	20	20	12	20	120	38	15	20
				35	50			2020X35-5BS	-	-								
				50	75			2020X50-5BS	-	-								
				75	115			2020X75-5BS	▲	▲								
				115	180			2020X115-5BS	-	-								
				180	235			2020X180-5BS	-	-								
			235	∞	2020X235-5BS	-		-										
			20	25	35	-25-5C-C		2020X25-5CS	-	-					125	43	24.5	
			35	50	-35-5C-C	2020X35-5CS		-	-									
		50	75	-50-5C-C	2020X50-5CS	-		-										
		75	115	-75-5C-C	2020X75-5CS	-		-										
		115	180	-115-5C-C	2020X115-5CS	-		-										
		180	235	-180-5C-C	2020X180-5CS	-		-										
		235	∞	-235-5C-C	2020X235-5CS	-		-										
		32	75	115	-75-5D-C	-		-	137	55					32			
		115	180	-115-5D-C	-	-												
		180	235	-180-5D-C	-	-												
		235	∞	-235-5D-C	-	-												
	5	□25	15	25	35	KGDF R/L -25-5B-C	KGD 1/2R2525-C	2525X25-5BS	▲	-	25	25	7	25	145	38	15	20
				35	50			2525X35-5BS	-	-								
				50	75			2525X50-5BS	▲	-								
				75	115			2525X75-5BS	▲	▲								
				115	180			2525X115-5BS	-	-								
				180	235			2525X180-5BS	-	-								
			235	∞	2525X235-5BS	▲		-										
			20	25	35	-25-5C-C		2525X25-5CS	-	-					150	43	29.5	
			35	50	-35-5C-C	2525X35-5CS		▲	-									
		50	75	-50-5C-C	2525X50-5CS	▲		-										
		75	115	-75-5C-C	-	-												
		115	180	-115-5C-C	-	-												
		180	235	-180-5C-C	-	-												
		235	∞	-235-5C-C	-	-												
		32	75	115	-75-5D-C	KGDF R/L 2525X75-5DS		▲	-	162					55	32		
		115	180	-115-5D-C	2525X115-5DS	▲		-										
		180	235	-180-5D-C	2525X180-5DS	▲		-										
		235	∞	-235-5D-C	2525X235-5DS	▲		-										
5	□32	15	25	35	KGDF R/L -25-5B-C	KGD 1/2R3232-C	-	-	32	32	-	32	165	38	15	20		
			35	50			-35-5B-C	-									-	
			50	75			-50-5B-C	-									-	
			75	115			-75-5B-C	-									-	
			115	180			-115-5B-C	-									-	
			180	235			-180-5B-C	-									-	
		235	∞	-235-5B-C	-		-											
		20	25	35	-25-5C-C		-	-					170	43	36.5			
		35	50	-35-5C-C	-		-											
	50	75	-50-5C-C	-	-													
	75	115	-75-5C-C	-	-													
	115	180	-115-5C-C	-	-													
	180	235	-180-5C-C	-	-													
	235	∞	-235-5C-C	-	-													
	32	75	115	-75-5D-C	-		-	182					55	32				
	115	180	-115-5D-C	-	-													
	180	235	-180-5D-C	-	-													
	235	∞	-235-5D-C	-	-													

Note 1) When the unit description is not available (the stock is "-"), please purchase toolholder and blade separately.

▲ : To be replaced by a new product  
Applicable Inserts → P22

2) CDX : Maximum depth to which processing can be made. If the CDX is 20mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18mm.

# KGDF (Face Grooving / SwitchBlade Type)

## Toolholder Dimensions

Shank Angle	Edge Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Blade Description → P31	Toolholder Description → P12	Unit Description (Standard Stock Description)	Dimensions (mm)																			
				DAXN [MIN.]	DAXX [MAX.]				H	HF	HBH	B	LF	LH	WF	CDX												
0°	6	□ 20	15	25	35	KGDF R/L -25-6B-C	KGD 1/2R2020-C	-	20	20	12	20	120	38	15													
				35	50											-35-6B-C												
				50	75												-50-6B-C											
				75	115													-75-6B-C										
				115	180														-115-6B-C									
				180	235															-180-6B-C								
			235	∞	-235-6B-C																							
			20	25		35							-25-6C-C	125	43	24.5					20							
			35	50		-35-6C-C																						
			50	75													-50-6C-C											
			75	115														-75-6C-C										
			115	180															-115-6C-C									
		180	235	-180-6C-C																								
		235	∞		-235-6C-C																							
		32	75			115							-75-6D-C	130	48	25												
		115	180			-115-6D-C																						
		180	235														-180-6D-C											
		235	∞															-235-6D-C										
		75	115	-75-6D-C															137	55	32							
		115	180		-115-6D-C																							
		180	235										-180-6D-C															
		235	∞			-235-6D-C																						
		□ 25	15											25	35	KGDF R/L -25-6B-C	KGD 1/2R2525-C					-	25	25	7	25	145	38
														35	50			-35-6B-C										
50	75			-50-6B-C																								
75	115				-75-6B-C																							
115	180						-115-6B-C																					
180	235					-180-6B-C																						
235	∞		-235-6B-C																									
20	25							35	-25-6C-C	150	43	29.5	20															
35	50			-35-6C-C																								
50	75				-50-6C-C																							
75	115						-75-6C-C																					
115	180					-115-6C-C																						
180	235	-180-6C-C																										
235	∞		-235-6C-C																									
32	75			115				-75-6D-C	155	48	25																	
115	180			-115-6D-C																								
180	235				-180-6D-C																							
235	∞					-235-6D-C																						
75	115	-75-6D-C					162					55	32															
115	180		-115-6D-C																									
180	235							-180-6D-C																				
235	∞			-235-6D-C																								
□ 32	15				25				35	KGDF R/L -25-6B-C	KGD 1/2R3232-C			-	32	32		-	32	165	38						15	
					35	50			-35-6B-C																			
		50			75	-50-6B-C																						
		75	115		-75-6B-C																							
		115	180				-115-6B-C																					
		180	235	-180-6B-C																								
	235	∞	-235-6B-C																									
	20	25						35	-25-6C-C	170		43	36.5				20											
	35	50				-35-6C-C																						
	50	75			-50-6C-C																							
	75	115					-75-6C-C																					
	115	180		-115-6C-C																								
180	235	-180-6C-C																										
235	∞		-235-6C-C																									
32	75					115		-75-6D-C	175	48		25																
115	180				-115-6D-C																							
180	235					-180-6D-C																						
235	∞			-235-6D-C																								
75	115	-75-6D-C					182						55				32											
115	180		-115-6D-C																									
180	235							-180-6D-C																				
235	∞				-235-6D-C																							

Note 1) Please purchase toolholder and blade separately.

Applicable Inserts → P22

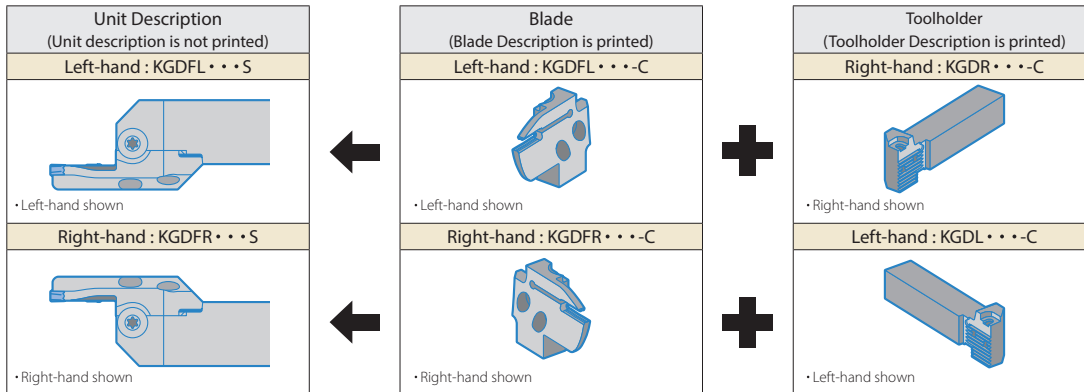
2) CDX : Maximum depth to which processing can be made. If the CDX is 20mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18mm.

## Spare Parts (Common with SwitchBlade types)

Unit Description	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Bolt (for Blade)	Wrench
KGDF R/L · · · S	BH6X10TR	SB-60120TR	LTW-25

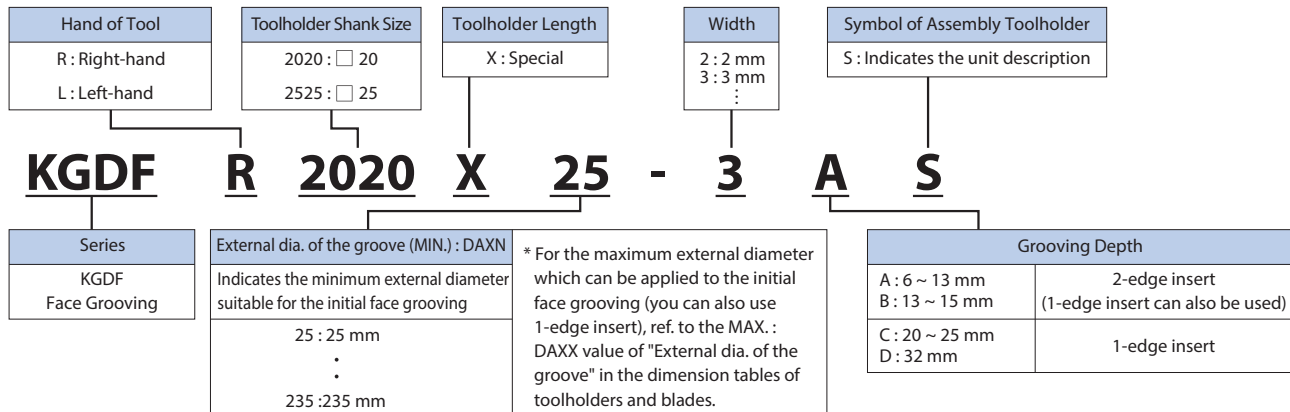
\* The parts are included in the toolholder and unit.

## KGDF Toolholder Assembly Identification (Face Grooving / SwitchBlade Type)



- Right-hand Blade for Left-hand Toolholder, Left-hand Blade for Right-hand Toolholder.
- The Unit Description is not printed on the product. It is printed on the box label.
- Combination of the toolholder and blade (both separately sold) can make up the corresponding assembly.
- The insert clamping bolt (BH6x10TR), blade fixing bolt (SB-60120TR) and wrench (LTW-25) which are included in the toolholder can be used.

## Face Grooving Toolholder Assembly Identification System (Face Grooving / SwitchBlade Type)



## Face Grooving Diameter (DAXN / DAXX)

Face grooving diameter (DAXN~DAXX) is the suitable value for the initial grooving on the unprocessed workpiece (See Fig.1). Then, you can widen it up to the center towards the inside. (excluding the models listed in the below table) and towards the outside according to machine limits.

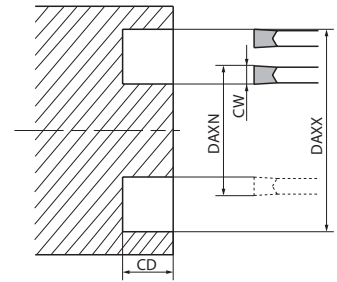
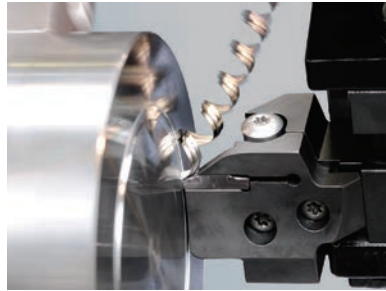
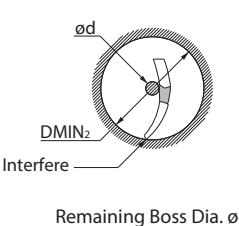


Fig.1

## Limit of Turning toward Center

Turning towards the Center causes the toolholder to interfere with the groove wall depending on the initial cut's diameter.

	Description	DMIN <sub>2</sub>	25	26	27	28 and over
		ød(mm)				
	KGDF <sup>R/L</sup> 2020X25-3AS	4	2	0		
	2525X25-3AS					
	KGDF <sup>R/L</sup> 2020X25-4AS	6	3	0		
	2525X25-4AS					
	KGDF <sup>R/L</sup> 2020X25-5AS	7	4	1		
	2525X25-5AS					
KGDF <sup>R/L</sup> 2020X25-6AS	9	4	1			
2525X25-6AS						

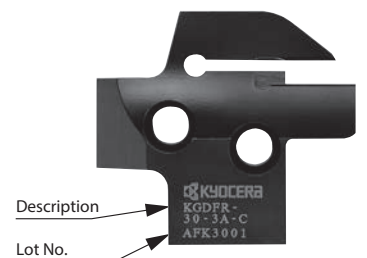
e.g.) If a groove of external diameter ø25mm is created using KGDFR2020X25-3AS and turning is made toward the inside, a ø4mm portion will be left in middle due to interference of toolholder.

## Face Grooving Blade Assembly Identification System

Hand of Tool	Width	Blade Symbol
R : Right-hand L : Left-hand	2 : 2 mm    5 : 5 mm 3 : 3 mm    6 : 6 mm 4 : 4 mm	C : Applicable to toolholder with suffix "-C"

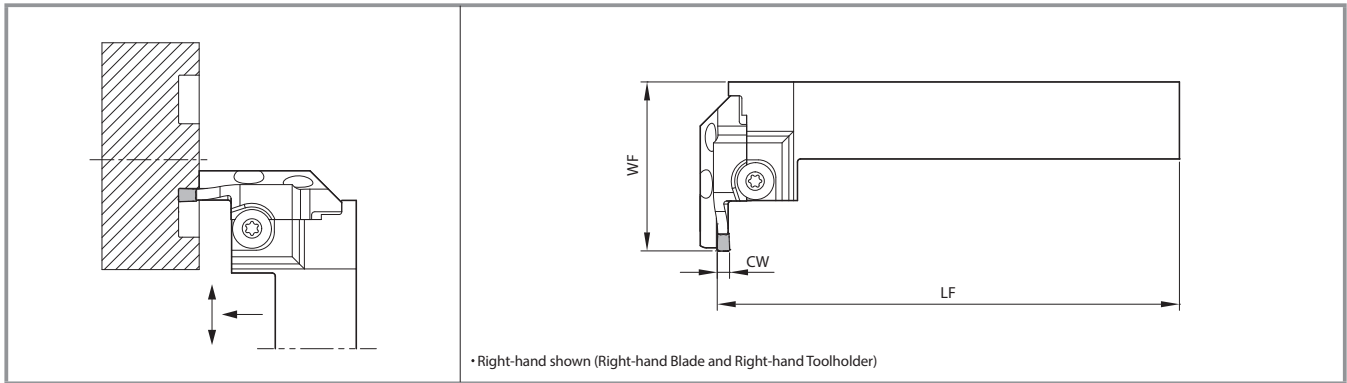
  

Series	External dia. of the groove (MIN.) : DAXN	Grooving Depth	
KGDF Face Grooving	Indicates the minimum external diameter suitable for the initial face grooving 25 : 25 mm 235 : 235 mm	A : 6/13 mm B : 13/15 mm C : 20 mm ~ 25 mm D : 32 mm	2-Edge Insert (1-Edge Insert can also be used)  1-Edge Insert



Example of printing of blade description

# KGDF (Face Grooving / 90° SwitchBlade Type)

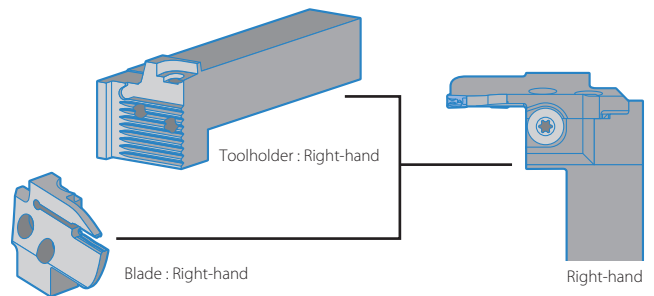


## Toolholder Dimensions

Shank Angle	Edge Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Blade Description → P31	Toolholder Description → P12	Dimensions (mm)			
				DAXN [MIN.]	DAXX [MAX.]			LF	WF		
90°	2	□ 20	6	25	30	KGDFR -25-2A-C	KGDSR2020-C	125	49.7		
				30	35	-30-2A-C					
				35	45	-35-2A-C					
				45	60	-45-2A-C					
				60	80	-60-2A-C					
				80	100	-80-2A-C					
			100	130	-100-2A-C						
			13	25	-25-2B-C	KGDSR2020-C				125	52.7
			30	35	-30-2B-C						
			35	45	-35-2B-C						
			45	60	-45-2B-C						
			60	80	-60-2B-C						
		80	100	-80-2B-C							
		15	100	-100-2B-C	KGDSR2020-C	125	54.7				
		25	25	-25-2A-C							
		30	35	-30-2A-C							
		35	45	-35-2A-C							
		45	60	-45-2A-C							
		60	80	-60-2A-C							
		80	100	-80-2A-C	KGDSR2525-C	150	49.7				
		100	130	-100-2A-C							
		13	25	-25-2B-C							
		30	35	-30-2B-C							
		35	45	-35-2B-C							
45	60	-45-2B-C									
60	80	-60-2B-C	KGDSR2525-C	150	54.7						
80	100	-80-2B-C									
100	130	-100-2B-C									

Shank Angle	Edge Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Blade Description → P31	Toolholder Description → P12	Dimensions (mm)			
				DAXN [MIN.]	DAXX [MAX.]			LF	WF		
90°	4	□ 20	13	25	35	KGDF <sup>R/L</sup> -25-4A-C	KGDS <sup>R/L</sup> 2020-C	125	52.7		
				35	50	-35-4B-C					
				50	70	-50-4B-C					
				70	100	-70-4B-C					
				100	150	-100-4B-C					
				150	220	-150-4B-C					
			220	∞	-220-4B-C	KGDS <sup>R/L</sup> 2020-C				125	54.7
			15	35	-35-4C-C						
			50	70	-50-4C-C						
			70	100	-70-4C-C						
			100	150	-100-4C-C						
			150	220	-150-4C-C						
		220	∞	-220-4C-C	KGDS <sup>R/L</sup> 2525-C	150	64.7				
		25	35	-35-4C-C							
		50	70	-50-4C-C							
		70	100	-70-4C-C							
		100	150	-100-4C-C							
		150	220	-150-4C-C							
		220	∞	-220-4C-C	KGDF <sup>R/L</sup> -25-4A-C	KGDS <sup>R/L</sup> 2525-C	150	52.7			
		13	25	-25-4A-C							
		35	50	-35-4B-C							
		50	70	-50-4B-C							
		70	100	-70-4B-C							
		100	150	-100-4B-C							
150	220	-150-4B-C	KGDS <sup>R/L</sup> 2525-C	150	54.7						
220	∞	-220-4B-C									
25	35	-35-4C-C									
50	70	-50-4C-C									
70	100	-70-4C-C									
100	150	-100-4C-C									
150	220	-150-4C-C	KGDS <sup>R/L</sup> 2525-C	150	64.7						
220	∞	-220-4C-C									

Applicable Inserts → P22



- KGDF 90° SwitchBlade type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
- Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.
- Insert clamp bolt (BH6x10TR), Blade fixing bolt (SB-60120TR) and Wrench (LTW-25) come with toolholder.

Applicable Inserts → P22

# KGDF (Face Grooving / 90° SwitchBlade Type)

## Combination of Blade & Toolholder

Shank Angle	Edge Width CW	Shank Size	Max. Grooving Depth	Face Grooving Dia. (mm)		Blade Description → P31	Toolholder Description → P12	Dimensions (mm)			
				DAXN [MIN.]	DAXX [MAX.]			LF	WF		
				(mm)	(mm)						
90°	5	□ 20	15	25	35	KGDF <sup>R/L</sup> -25-5B-C	KGDS <sup>R/L</sup> 2020-C	125	54.7		
				35	50	-35-5B-C					
				50	75	-50-5B-C					
				75	115	-75-5B-C					
				115	180	-115-5B-C					
				180	235	-180-5B-C					
			235	∞	-235-5B-C						
			20	25	35	-25-5C-C		125	59.7		
				35	50	-35-5C-C					
				50	75	-50-5C-C					
				75	115	-75-5C-C					
				115	180	-115-5C-C					
				180	235	-180-5C-C					
			25	180	235	-180-5C-C		125	64.7		
				235	∞	-235-5C-C					
				75	115	-75-5D-C				125	71.7
				115	180	-115-5D-C					
				180	235	-180-5D-C					
	235	∞		-235-5D-C							
	5	□ 25	15	25	35	KGDF <sup>R/L</sup> -25-5B-C	KGDS <sup>R/L</sup> 2525-C	150	54.7		
				35	50	-35-5B-C					
				50	75	-50-5B-C					
				75	115	-75-5B-C					
				115	180	-115-5B-C					
				180	235	-180-5B-C					
			235	∞	-235-5B-C						
			20	25	35	-25-5C-C		150	59.7		
				35	50	-35-5C-C					
				50	75	-50-5C-C					
				75	115	-75-5C-C					
				115	180	-115-5C-C					
				180	235	-180-5C-C					
			25	180	235	-180-5C-C		150	64.7		
				235	∞	-235-5C-C					
				75	115	-75-5D-C				150	71.7
				115	180	-115-5D-C					
180				235	-180-5D-C						
235	∞	-235-5D-C									

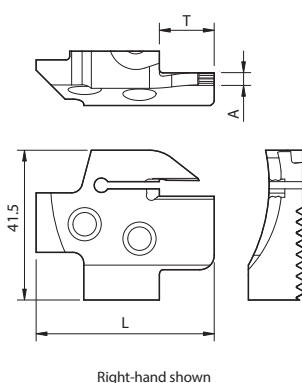
Applicable Inserts → P22

Shank Angle	Edge Width CW	Shank Size	Max. Grooving Depth	Face Grooving Dia. (mm)		Blade Description → P31	Toolholder Description → P12	Dimensions (mm)			
				DAXN [MIN.]	DAXX [MAX.]			LF	WF		
				(mm)	(mm)						
90°	6	□ 20	15	25	35	KGDF <sup>R/L</sup> -25-6B-C	KGDS <sup>R/L</sup> 2020-C	125	54.7		
				35	50	-35-6B-C					
				50	75	-50-6B-C					
				75	115	-75-6B-C					
				115	180	-115-6B-C					
				180	235	-180-6B-C					
			235	∞	-235-6B-C						
			20	25	35	-25-6C-C		125	59.7		
				35	50	-35-6C-C					
				50	75	-50-6C-C					
				75	115	-75-6C-C					
				115	180	-115-6C-C					
				180	235	-180-6C-C					
			25	180	235	-180-6C-C		125	64.7		
				235	∞	-235-6C-C					
				75	115	-75-6D-C				125	71.7
				115	180	-115-6D-C					
				180	235	-180-6D-C					
	235	∞		-235-6D-C							
	6	□ 25	15	25	35	KGDF <sup>R/L</sup> -25-6B-C	KGDS <sup>R/L</sup> 2525-C	150	54.7		
				35	50	-35-6B-C					
				50	75	-50-6B-C					
				75	115	-75-6B-C					
				115	180	-115-6B-C					
				180	235	-180-6B-C					
			235	∞	-235-6B-C						
			20	25	35	-25-6C-C		150	59.7		
				35	50	-35-6C-C					
				50	75	-50-6C-C					
				75	115	-75-6C-C					
				115	180	-115-6C-C					
				180	235	-180-6C-C					
			25	180	235	-180-6C-C		150	64.7		
				235	∞	-235-6C-C					
				75	115	-75-6D-C				150	71.7
				115	180	-115-6D-C					
180				235	-180-6D-C						
235	∞	-235-6D-C									

Applicable Inserts → P22

# Face Grooving Blade

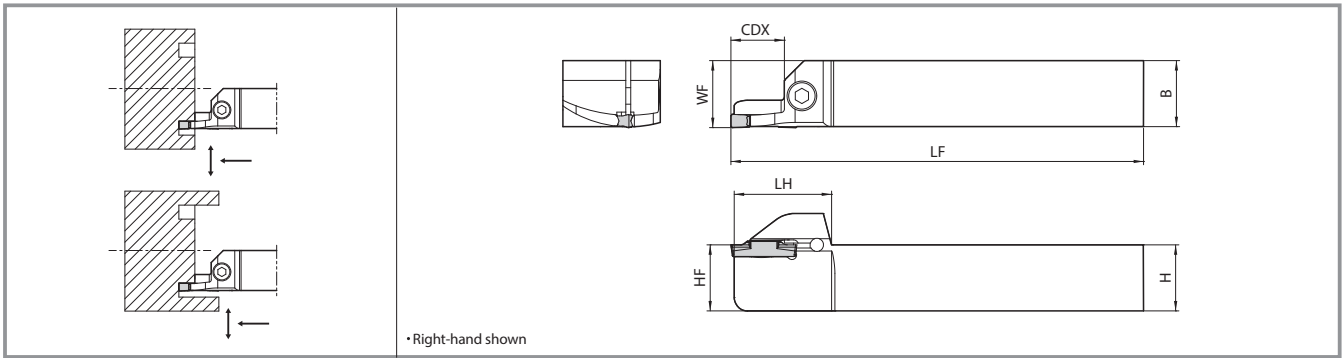
## Blade Dimensions

Shape	Blade Description	Stock		Dimensions (mm)			Face Grooving Dia. (mm)		Edge Width (mm)	Applicable Inserts ➔ P22	Description of Toolholder ➔ P12
		R	L	L	T	A	DAXN [MIN.]	DAXX [MAX.]	CW		
	KGDFR	-25-2A-C	●	-	44.35	6	1.5	25	30	2	GDFM 2020N-020GM
		-30-2A-C	●	-				30	35		
		-35-2A-C	●	-				35	45		
		-45-2A-C	●	-				45	60		
		-60-2A-C	●	-				60	80		
		-80-2A-C	●	-				80	100		
		-100-2A-C	●	-	100	130					
		-25-2B-C	●	-	47.35	13		25	30		
		-30-2B-C	●	-	49.35	15		30	35		
		-35-2B-C	●	-				35	45		
	-45-2B-C	●	-	45			60				
	-60-2B-C	●	-	60			80				
	-80-2B-C	●	-	80			100				
	-100-2B-C	●	-	100			130				
	KGDF <sup>R/L</sup>	-25-3A-C	●	●	47.35	13	2	25	30	3	GDFM 3020N-030GM GDFM 3020N-030DM GDFMS 3020N-030DM GDFM3020N-150R-CM GDFG3020N-020GS
		-30-3A-C	●	●	49.35	15		30	40		
		-40-3A-C	●	●				40	50		
		-50-3B-C	●	●	56.35	22		50	65		
		-65-3B-C	●	●				65	85		
		-85-3B-C	●	●				85	110		
		-110-3B-C	●	●				110	145		
		-50-3C-C	●	●	59.35	25		50	65		
		-65-3C-C	●	●				65	85		
		-85-3C-C	●	●				85	110		
	-110-3C-C	●	●	110			145				
	KGDF <sup>R/L</sup>	-25-4A-C	●	●	47.35	13	3	25	35	4	GDFM 4020N-040GM GDFM 4020N-040GH GDFM 4020N-040DM GDFMS 4020N-040DM GDFM4020N-200R-CM GDFG4020N-040GS
		-35-4B-C	●	●	49.35	15		35	50		
		-50-4B-C	●	●				50	70		
		-70-4B-C	●	●				70	100		
		-100-4B-C	●	●				100	150		
		-150-4B-C	●	●	59.35	25		150	220		
		-220-4B-C	●	●				220	∞		
		-35-4C-C	●	●				35	50		
		-50-4C-C	●	●				50	70		
		-70-4C-C	●	●				70	100		
	-100-4C-C	●	●	100			150				
	-150-4C-C	●	●	150	220						
	-220-4C-C	●	●	220	∞						
	KGDF <sup>R/L</sup>	-25-5B-C	●	●	49.35	15	4	25	35	5	GDFM 5020N-040GM GDFM 5020N-080GM GDFM 5020N-040GH GDFM 5020N-080GH GDFM 5020N-040DM GDFMS 5020N-040DM GDFM5020N-250R-CM GDFG5020N-040GS
		-35-5B-C	●	●				35	50		
		-50-5B-C	●	●				50	75		
		-75-5B-C	●	●				75	115		
		-115-5B-C	●	●				115	180		
		-180-5B-C	●	●	180	235					
		-235-5B-C	●	●	235	∞					
		-25-5C-C	●	●	54.35	20		25	35		
		-35-5C-C	●	●	59.35	25		35	50		
		-50-5C-C	●	●				50	75		
		-75-5C-C	●	●				75	115		
		-115-5C-C	●	●				115	180		
		-180-5C-C	●	●				180	235		
		-235-5C-C	●	●	235	∞					
		-75-5D-C	●	●	66.35	32		75	115		
	-115-5D-C	●	●	115			180				
	-180-5D-C	●	●	180			235				
	-235-5D-C	●	●	235			∞				
	KGDF <sup>R/L</sup>	-25-6B-C	●	●	49.35	15	5	25	35	6	GDFM 6020N-040GM GDFM 6020N-080GM GDFM 6020N-040GH GDFM 6020N-080GH GDFM 6020N-040DM GDFMS 6020N-040DM GDFM6020N-300R-CM GDFG6020N-040GS
		-35-6B-C	●	●				35	50		
		-50-6B-C	●	●				50	75		
		-75-6B-C	●	●				75	115		
		-115-6B-C	●	●				115	180		
		-180-6B-C	●	●	180	235					
		-235-6B-C	●	●	235	∞					
		-25-6C-C	●	●	54.35	20		25	35		
		-35-6C-C	●	●	59.35	25		35	50		
		-50-6C-C	●	●				50	75		
		-75-6C-C	●	●				75	115		
		-115-6C-C	●	●				115	180		
		-180-6C-C	●	●				180	235		
		-235-6C-C	●	●	235	∞					
		-75-6D-C	●	●	66.35	32		75	115		
	-115-6D-C	●	●	115			180				
	-180-6D-C	●	●	180			235				
	-235-6D-C	●	●	235			∞				
	-235-6D-C	●	●	235			∞				

●: Standard Stock



# KGDF-Z (Face Grooving / Integral Type)





## Toolholder Dimensions

Edge Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Description	Stock		Dimensions (mm)							
			DAXN [MIN.]	DAXX [MAX.]		R	L	H	HF	B	LF	LH	WF	CDX	
3	□ 20	15	50	65	KGDF R/L	2020K50-3B-Z	●	●	20	20	20	125	30.5	20.3	15
			65	85		2020K65-3B-Z	●	●							
			85	110		2020K85-3B-Z	●	●							
			110	145		2020K110-3B-Z	●	●							
	□ 25		50	65	KGDF R/L	2525M50-3B-Z	●	●	25	25	25	150	25.3		
			65	85		2525M65-3B-Z	●	●							
			85	110		2525M85-3B-Z	●	●							
			110	145		2525M110-3B-Z	●	●							
4	□ 20	15	50	70	KGDF R/L	2020K50-4B-Z	●	●	20	20	20	125	30.5	20.3	15
			70	100		2020K70-4B-Z	●	●							
			100	150		2020K100-4B-Z	●	●							
			50	70		KGDF R/L	2525M50-4B-Z	●							
	70		100	2525M70-4B-Z	●		●								
	100		150	2525M100-4B-Z	●		●								
	50		75	KGDF R/L	2020K50-5B-Z		●	●	20	20	20	125	20.3		
	75		115		2020K75-5B-Z	●	●								
115	180	2020K115-5B-Z	●		●										
□ 25	50	75	KGDF R/L		2525M50-5B-Z	●	●	25						25	25
	75	115		2525M75-5B-Z	●	●									
	115	180		2525M115-5B-Z	●	●									

● : Standard Stock  
 Applicable Inserts → P22  
 Recommended Cutting Conditions → P33

## Spare Parts

Description	Spare Parts	
	Clamp Bolt	Wrench
KGDF R/L...-Z	 HH5 X 16	 LW-4

## Toolholder Identification System (Integral Type)

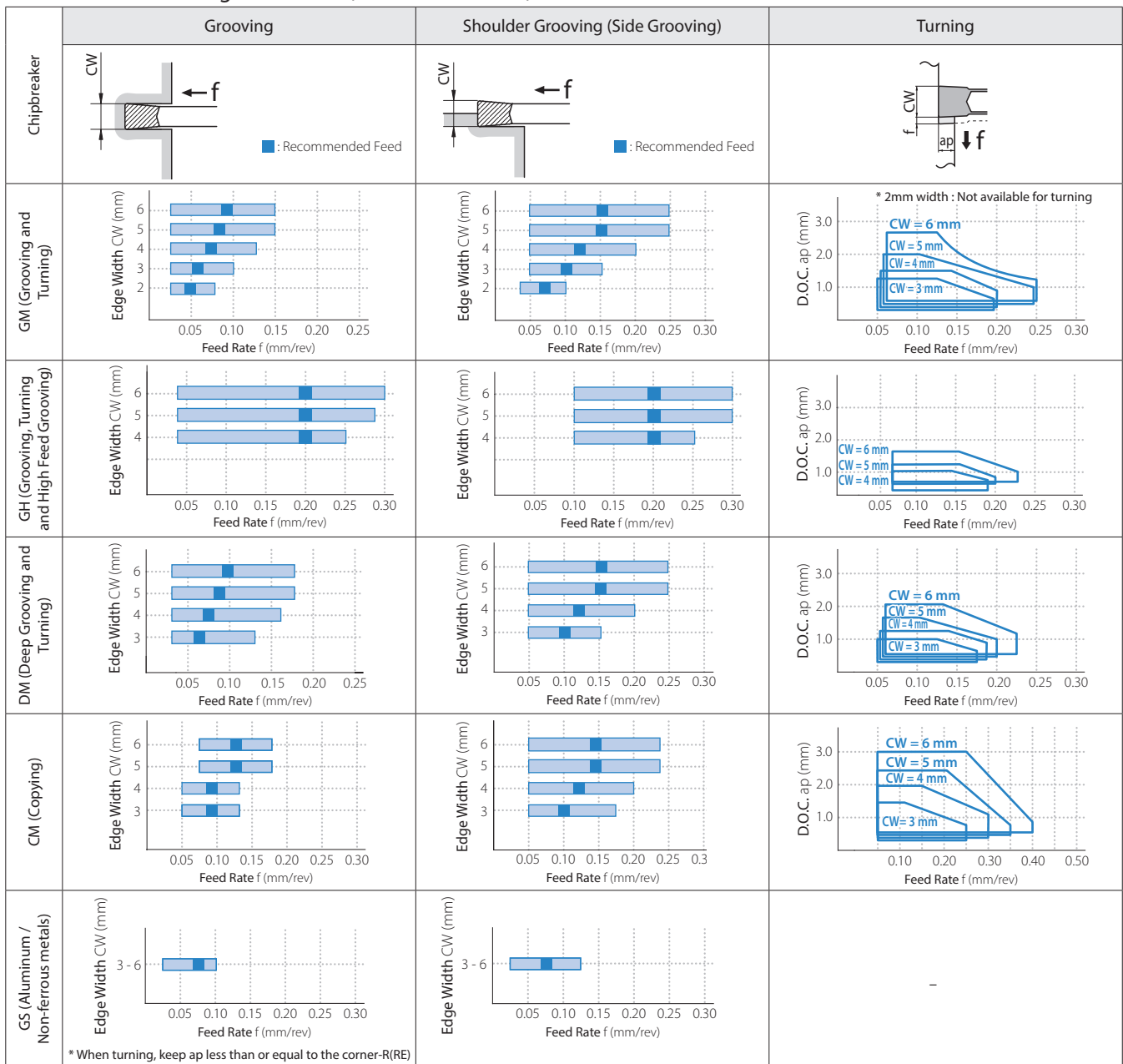
Series	Hand of Tool	Shank Size	Toolholder Length	Min. Face Grooving Dia.	Edge Width	Grooving Depth	Toolholder Type
KGDF Face Grooving	R : Right-hand L : Left-hand	2020 : □ 20 mm 2525 : □ 25 mm	K : 125 mm M : 150 mm	50 : 50 mm ∴ 115 : 115 mm	3 : 3 mm 4 : 4 mm 5 : 5 mm	B : 15 mm	Z : Integral Type

# Recommended Cutting Conditions (Face Grooving) ★1st Recommendation ☆2nd Recommendation

Workpiece	Recommended Insert Grade (Vc : m/min)					Notes
	Cermet		MEGACOAT		Carbide	
	TN620	TN90	PR1225	PR1215	GW15	
Carbon Steel	☆ 60 – 200	☆ 80 – 200	★ 60 – 160	☆ 80 – 160	-	Coolant
Alloy Steel	☆ 60 – 160	☆ 70 – 160	★ 60 – 150	☆ 60 – 150	-	
Stainless Steel	-	-	★ 50 – 120	☆ 50 – 120	-	
Cast Iron	-	-	-	★ 80 – 160	-	
Aluminum Alloy	-	-	-	-	★ 160 – 400	
Brass	-	-	-	-	★ 80 – 160	

## Recommended Cutting Conditions (Feed Rate / D.O.C.)

(Workpiece : S50C)



When shouldering,  
 · If D.O.C. is set smaller, set feed higher.  
 · If D.O.C. is set larger, set feed lower.

1) The above values are based on the condition that the CDX of toolholder is 15 mm or less.  
 2) If the toolholder's CDX is over 15 mm, set the values for turning to 90% or less of those above.

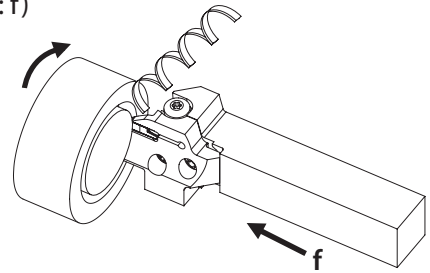
# Guide for Face Grooving

## 1 Toolholder Selection

Check the range of applicable face grooving diameter as well as the groove width and depth.

## 2 Cutting conditions (Feed rate : f)

When machining steel, set the feed rate (f) so that chips are created in a helical form when plunging.



## 3 Expanding Groove Width (Plunging and Turning)

Start machining from the outside and then proceed to the inside. Chip control will be better in this way.

Plunging (Grooving + Side Grooving)	Turning

## 4 Guide for Turning

A. When the cutting amount (D.O.C.) is over 0.5mm

- (1) Plunging
- (2) Return the cutting by 0.1 mm  
(Failure to pull the tool back before traverse cutting will result in an unbalanced load applied on only one side of the cutting edge.)
- (3) Perform turning (see Fig.1)

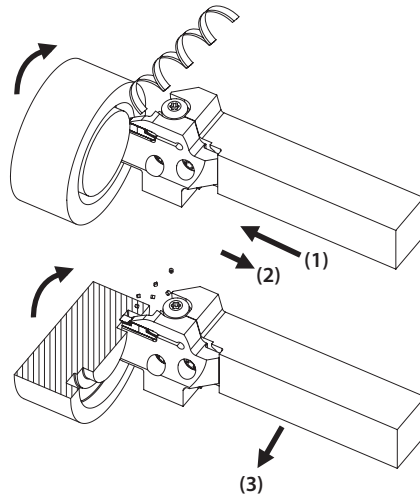
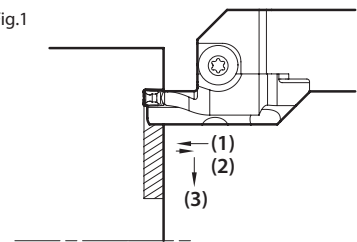
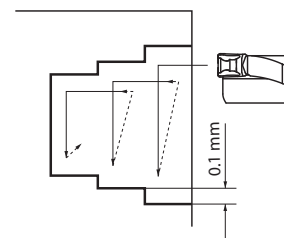


Fig.1



- When widening the face groove width (see Fig.2) Apply the "Step Turning". Then perform finishing.

Fig.2



B. When the cutting amount (D.O.C.) is under 0.5mm

- (1) Plunging
- (2) Perform turning  
Machining without interruption is possible. (see Fig.3)

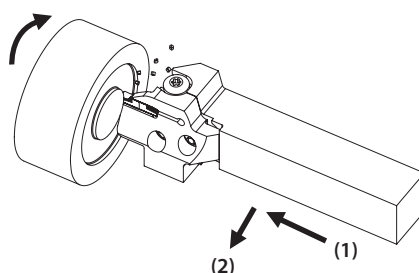
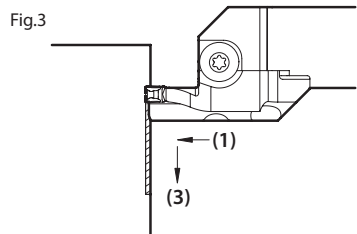


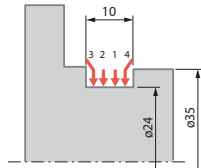
Fig.3



## Case Studies

### Gear SCr420H (Grooving)

Vc = 113 ~ 164 m/min  
f = 0.06 mm/rev  
Wet  
GDM4020N-040GM (PR1225)  
KGDL2525X-3T10S



Tool Life

**GM Chipbreaker**  
(PR1225)

**1,500 pcs/edge**

Tool Life

**6 times**

**Competitor C**  
(PVD Coated Carbide)

**250 pcs/edge**

KGD-type and GM chipbreaker (PR1225) improved tool life to 6 times of Competitor C. No burned chips and good chip control.

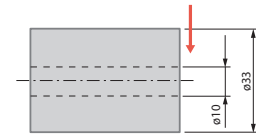
(User evaluation)



GM Chipbreaker Competitor C

### Sleeve S45CF (Cut-off)

Vc = 103 m/min  
f = 0.12 mm/rev  
Wet  
GDM3020N-025PM (PR1225)  
KGDL2525X-3T20S



Tool Life

**PM Chipbreaker**  
(PR1225)

**250 pcs/edge, capable of further machining**

**Competitor D**  
(PVD Coated Carbide)

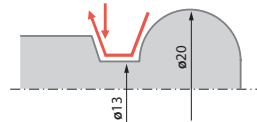
**250 pcs/edge, with chipping**

KGD-type and PM chipbreaker (PR1225) showed good edge condition after machining same number of workpieces as Competitor D. Available for further machining. (Comp. D caused chipping)

(User evaluation)

### Ball Stud SCM435 (Copying)

Vc = 100 ~ 160 m/min  
ap = 0.3 mm  
f = 0.15 ~ 0.25 mm/rev  
Wet  
GDM3020N-150R-CM (PR1225)  
KGDRL2020X-3T10S



Tool Life

**GM Chipbreaker**  
(PR1225)

**800 pcs/edge**

Tool Life

**2 times**

**Conventional A**

**400 pcs/edge**

Resolve issues such as chip-bite and tangled chips due to its superior chip evacuation performance.

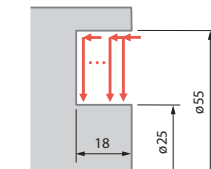
⇒ Resolve breakage of edge caused by chips.

Doubled tool life by reducing damage on the edge.

(User evaluation)

### Piston SCM435H (Face Grooving)

Vc = 150 m/min  
ap = 1, 1.8 mm (Turning)  
f = 0.05 mm/rev (Grooving)  
0.1, 0.15 mm/rev (Turning)  
Wet  
GDFM4020N-040GM (PR1225)  
KGDFL2525X50-4CS



Tool Life

**GM Chipbreaker**  
(PR1225)

**40 pcs/edge, capable of further machining**

**Conventional B**

**40 pcs/edge**

KGDF+GM chipbreaker improved chip evacuation compared to Conventional B. (Resolved frequent breakage of toolholder.)

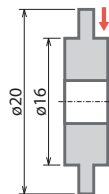
Smaller wear on the edge provided by MEGACOAT make the tool life longer.

(Lower running cost by longer tool life)

(User evaluation)

### Ring SCr415-equivalent

Vc = 160 m/min  
(n = 3,200 min<sup>-1</sup>)  
ap = 2.5 mm  
f = 0.07 mm/rev  
Wet, Normal Pressure  
KGDR2020K-3T10JCT  
GDM3020M-025PM PR1225



Tool Life

**KGD-JCT**  
(Internal Coolant)

**9,000 pcs / edge**

Tool Life

**x1.5**

**Competitor E**  
(External Coolant)

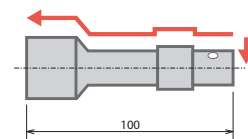
**6,000 pcs/edge**

Change to KGD-JCT (internal coolant) from Competitor E (external coolant) extended tool life by 1.5 times.

(User evaluation)

### Valve SUM-equivalent

Vc = 160 m/min  
ap = 14 mm  
f = 0.12-0.15 mm/rev  
Wet, Normal Pressure  
KGDR2525K-3T20JCT  
GDM3020M-040GM PR1535



Tool Life

**KGD-JCT**  
(Internal Coolant)

**1,000 pcs / edge**

**Chip Control**  
Good

**Surface Finish**  
Good

**Competitor F**  
(Internal Coolant)

**1,000 pcs/edge**

KGD-JCT maintained stable machining for the required number of pieces. Better chip control and surface finish.

(User evaluation)



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