



Grooving and Cut-off Tool Face Grooving Tool

# KGD/KGDF



**1**

## Masters the Grooving Process!

- Superior chip control
- MEGACOAT achieves long tool life and high-efficiency machining

**2**

## A Wide and Varied Toolholder Lineup

- A wide lineup of integrated-type toolholders
- Separate-type toolholder for high-mix, low-volume production

**3**

## Thinnest Cut-off Insert

- Edge widths are available from 1.3mm
- Minimizes wasted material during cut-off operation

※ According to Kyocera's research, as of March 2013



**Face Grooving**

**NEW**

Integrated-type toolholder  
 KGDF-Z  
 For high-feed face grooving  
 GH Chipbreaker

ADVANCING PRODUCTIVITY



# Masters the Grooving Process!

## ● Smooth chip control

➔ A Chipbreaker lineup for a wide variety of workpiece materials

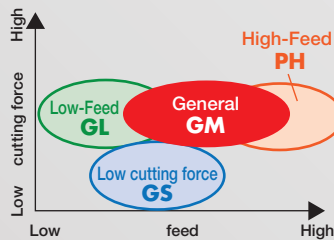
## ● Highly-reputed MEGACOAT and MEGACOAT NANO technology

➔ Long tool life and high efficiency machining by high oxidation resistance and wear resistance.

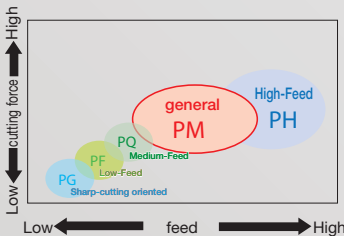
## Insert Lineup for External Grooving, Turning and Cut-Off Processes

### • Application Maps

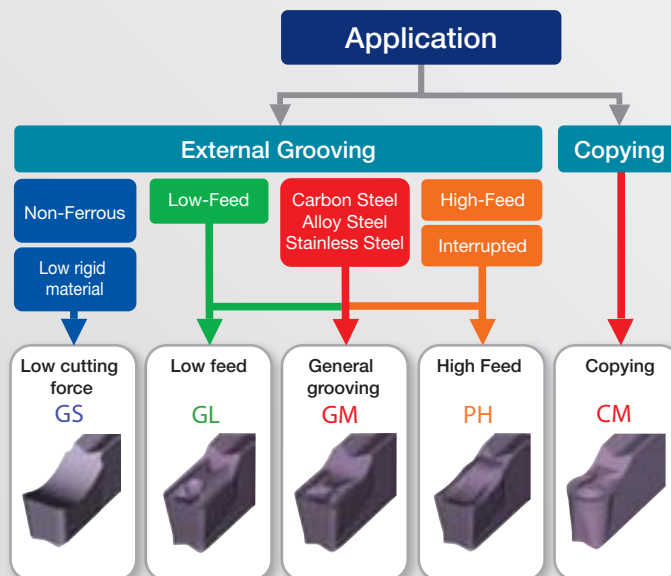
#### External Grooving & Turning



#### Cut-Off

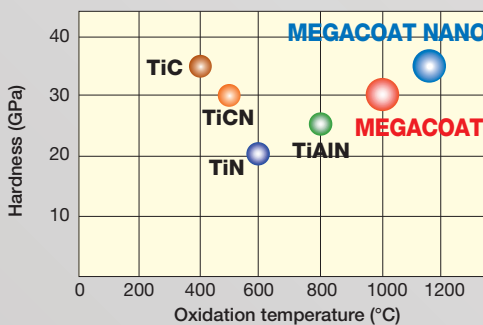


### • Chipbreaker Selection (External)



## Long tool life of "MEGACOAT"/"MEGACOAT NANO" coating

### ● MEGACOAT's superior features



NEW

#### PR1535 (MEGACOAT NANO)

1st recommendation for cutting off stainless steel

#### PR1225 (MEGACOAT)

1st recommendation for cutting off, grooving and turning

#### PR1215 (MEGACOAT)

With superior wear resistance, recommended for grooving and cutting off under the stable conditions.

1st. recommendation for machining of cast iron.



## A wide lineup of toolholders

Available in two types: **Integrated and Separate**



Integrated type  
(Various groove width and depth)



Separate type  
(Suitable for high-mix, low-volume production)

### Toolholder and Inserts for Face Grooving



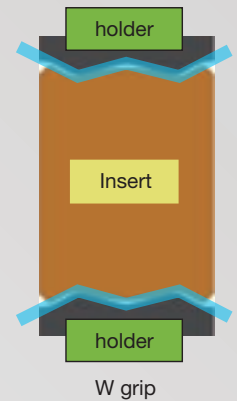
#### ● Features of insert clamping system

The new "W grip" provides more rigid clamping and stable machining.

- 1). Prevents the insert from side-slips that cause unstable machining and insert breakage.
- 2). Improves indexability accuracy.

High rigidity, reliability and clamping strength.

Insert for GDFM/GDFMS is not compatible with KGD holder.



- A wide lineup of integrated-type toolholders (for various groove widths and depths)
- Separate-type toolholders for various types of grooving and cutting off, such as external and face grooving: simply replace the blades!

### ● Integrated-type / Separate-type Selection Reference








Integrated type	Separate type
<ul style="list-style-type: none"> <li>• Various toolholder lineup Available for various groove depths (shallow/medium/deep) Optimum overhang length</li> <li>• Available for low-rigidity machines and workpieces</li> <li>• For small machines with limited work space (automatic lathe, small lathe, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Suitable for high-mix low-volume production Ideal for grooving operations involving a variety of groove widths Grooving of various widths by simply replacing blades</li> <li>• Suitable for difficult-to-cut material Tough cutting conditions Toolholder cost reduction (just replace the blades)</li> <li>• Face grooving is also possible – just change the blades! ※ Please confirm if your holder is right handed or left handed</li> </ul>

# External Grooving & Cutting Off

**NEW**

## ● Applicable Inserts (Grooving & Turning)

Usage Classification		P	M	K	N	S	H
●: Continuous - Interrupted / 1st Choice		●	●	●	●	●	●
☺: Continuous - Interrupted / 2nd Choice		☺	☺	☺	☺	☺	☺
●: Continuous / 1st Choice		●	●	●	●	●	●
P Carbon steel, Alloy steel		●	●	●	●	●	●
M Stainless Steel		●	●	●	●	●	●
K Cast Iron		●	●	●	●	●	●
N Non-Ferrous Materials		●	●	●	●	●	●
S Titanium Alloys		●	●	●	●	●	●
H Hard Materials (under 40HRC)		●	●	●	●	●	●
H Hard Materials (over 40HRC)		●	●	●	●	●	●

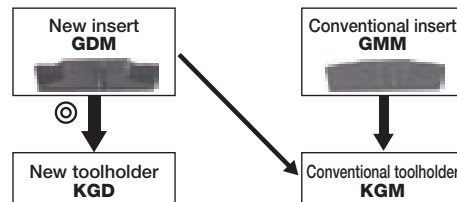
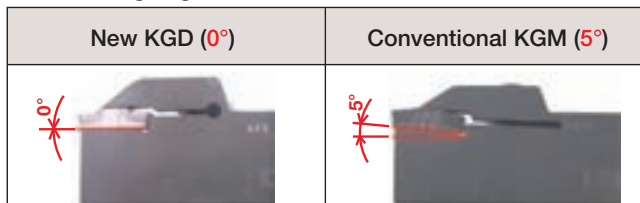
Shape Right-hand Insert shown	Description	Dimension (mm)					Angle (°) θ	Cermet TN90	MEGACOAT NANO PR1535	MEGACOAT PR1225	MEGACOAT PR1215	Carbide GW15					
		W	rε	M	L	H											
		tolerance															
 General Purpose 2-edge	GDM 2420N-020GM	2.4	±0.03	0.2	1.95	20	4.3	-	●	●	●	●					
	3020N-020GM	3.0		0.4	2.3				●	●	●	●					
	3020N-040GM	3.0		0.4	3.3				●	●	●	●					
	4020N-020GM	4.0		0.4	3.3				●	●	●	●					
	4020N-040GM	4.0		0.8	4.2				●	●	●	●					
	5020N-040GM	5.0		0.4	5.2				●	●	●	●					
	5020N-080GM	5.0		0.8	6.0				●	●	●	●					
	6020N-040GM	6.0		0.4	5.2				●	●	●	●					
	6020N-080GM	6.0		0.8	6.0				●	●	●	●					
	8030N-080GM	8.0		0.8	6.0				●	●	●	●					
	 General Purpose 1-edge	GDM 2220N-020GM		2.2	±0.03				0.2	1.75	20	4.3	-	●	●	●	●
		3020N-040GM		3.0					0.4	2.3				●	●	●	●
4020N-040GM		4.0	0.4	3.3		●	●	●	●								
5020N-080GM		5.0	0.8	4.2		●	●	●	●								
6020N-080GM		6.0	0.8	5.2		●	●	●	●								
 Low Feed 2-edge	GDM 2420N-020GL	2.4	±0.03	0.2	1.95	20	4.3	-	●	●	●	●					
	3020N-020GL	3.0		0.4	2.3				●	●	●	●					
	3020N-040GL	3.0		0.4	3.3				●	●	●	●					
	4020N-020GL	4.0		0.4	3.3				●	●	●	●					
	4020N-040GL	4.0		0.4	4.2				●	●	●	●					
	6020N-040GL	6.0		0.4	5.2				●	●	●	●					
 Low cutting force 2-edge	GDM 2520N-020GS	2.5	±0.02	0.2	2.0	20	4.3	-	●	●	●	●					
	3020N-020GS	3.0		0.2	2.3				●	●	●	●					
	3520N-020GS	3.5		0.4	2.8				●	●	●	●					
	4020N-040GS	4.0		0.4	3.3				●	●	●	●					
	5020N-040GS	5.0		0.4	4.2				●	●	●	●					
	6020N-040GS	6.0		0.4	5.2				●	●	●	●					
 Full-R / Copying 2-edge	GDM 3020N-150R-CM	3.0	±0.03	1.5	2.3	20	4.3	-	●	●	●	●					
	4020N-200R-CM	4.0		2.0	3.3				●	●	●	●					
	5020N-250R-CM	5.0		2.5	4.2				●	●	●	●					
	6020N-300R-CM	6.0		3.0	5.2				●	●	●	●					
 High-Feed 2-edge	GDM 2020N-020PH	2.0	±0.03	0.2	1.5	20	4.3	-	●	●	●	●					
	3020N-030PH	3.0		0.3	2.3				●	●	●	●					
	4020N-030PH	4.0		0.3	3.3				●	●	●	●					
	 High-Feed 1-edge	GDM 2020N-020PH		2.0	±0.03				0.2	1.5	20	4.3	-	●	●	●	●
		3020N-030PH		3.0					0.3	2.3				●	●	●	●
		4020N-030PH		4.0					0.3	3.3				●	●	●	●

\*GDM50/60-CM (Full-R) overall length (L) is different, because it is designed to prevent interference with the workpiece with the toolholder contact face.

● Std. Item

## ※ Combination of KGD / KGM toolholder and Insert

Insert setting angle of KGD / KGM toolholder



**We do not recommend installing a conventional insert on a new toolholder.**



● Applicable Inserts  
(Cut-Off)

**NEW**

Usage Classification		P	M	K	N	S	H
Carbon steel, Alloy steel		●	○				
Stainless Steel		○	○				
Cast Iron				●			
Non-Ferrous Materials					●		
Titanium Alloys						●	
Hard Materials (under 40HRC)							
Hard Materials (over 40HRC)							

●: Continuous - Interrupted / 1st Choice  
○: Continuous - Interrupted / 2nd Choice

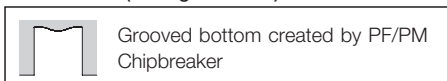
Shape	Right-hand Insert shown	Description	Dimension (mm)					Angle (°)	MEGACOAT NANO		MEGACOAT		Carbide		
			W	rε	M	L	H	θ	PR1535	PR1225	PR1215	GW15			
													tolerance		
Cut-Off	Low-Feed Rate 2-edge	GDM 1316N-003PF	1.3	±0.04	0.03	1.0	16	3.7	-	●	●	●			
		GDM 1316N-015PF			0.15										
		GDM 1516N-003PF	1.5		0.03	1.2									
		GDM 1516N-015PF			0.15										
		GDM 2020N-003PF	2.0		0.03	1.7								20	4.3
		GDM 2520N-003PF	2.5		0.03	2.1									
	GDM 3020N-003PF	3.0	0.03	2.3											
	15° Lead Angle Low-Feed Rate 2-edge	GDM 1316%L-003PF-15D	1.3	±0.04	0.03	1.0	16	3.7	15°	●	●	●			
		GDM 1516%L-003PF-15D	1.5			1.2									
		GDM 2020%L-003PF-15D	2.0			1.7									
GDM 2520%L-003PF-15D		2.5	2.1												
GDM 3020%L-003PF-15D		3.0	2.3												
Medium-Feed Rate 2-edge	GDM 2020N-010PQ	2.0	±0.03	0.1	1.7	20	4.3	-	●	●	●				
	GDM 2520N-010PQ	2.5			2.1										
	GDM 3020N-010PQ	3.0			2.3										
15° Lead Angle Medium-Feed Rate 2-edge	GDM 2020R-010PQ-15D	2.0	±0.03	0.1	1.7	20	4.3	15°	R	R	R				
	GDM 2520R-010PQ-15D	2.5			2.1										
	GDM 3020R-010PQ-15D	3.0			2.3										
Low Cutting Force 2-edge	GDG 2020N-005PG	2.0	±0.02	0.05	1.7	20	4.3	-	●	●		●			
	GDG 2520N-005PG	2.5			2.1										
	GDG 3020N-005PG	3.0			2.3										
15° Lead Angle Low Cutting Force 2-edge	GDG 2020R-005PG-15D	2.0	±0.02	0.05	1.7	20	4.3	15°	R	R		R			
	GDG 2520R-005PG-15D	2.5			2.1										
	GDG 3020R-005PG-15D	3.0			2.3										
2-edge	GDM 2020N-020PM	2.0	±0.03	0.25	1.5	20	4.3	-	●	●	●				
	GDM 2520N-020PM	2.5			1.95										
	GDM 3020N-025PM	3.0			2.3										
	GDM 4020N-030PM	4.0			3.3										
6° Lead Angle 2-edge	GDM 2020R-020PM-6D	2.0	±0.03	0.25	1.5	20	4.3	6°	R	R	R				
	GDM 2520R-020PM-6D	2.5			1.95										
	GDM 3020R-025PM-6D	3.0			2.3										
1-edge	GDMS 2020N-020PM	2.0	±0.03	0.25	1.5	20	4.3	-	●	●	●				
	GDMS 3020N-025PM	3.0			2.3										
	GDMS 4020N-030PM	4.0			3.3										
6° Lead Angle 1-edge	GDMS 2020R-020PM-6D	2.0	±0.03	0.25	1.5	20	4.3	6°	R	R	R				
	GDMS 3020R-025PM-6D	3.0			2.3										
	GDMS 4020R-030PM-6D	4.0			3.3										

- The PQ Chipbreakers are designed for automatic lathes, so the corner-R(rε) is set small.
- The PF Chipbreaker has a large corner R(rε).

◆ For cutting conditions, see page 15.

●: Std. Item  
R: Std. item (R-hand Only)

Note) Using PF/PM Chipbreakers (designed for cutting-off) for grooving cannot give the workpiece a flat bottom (See figure below).



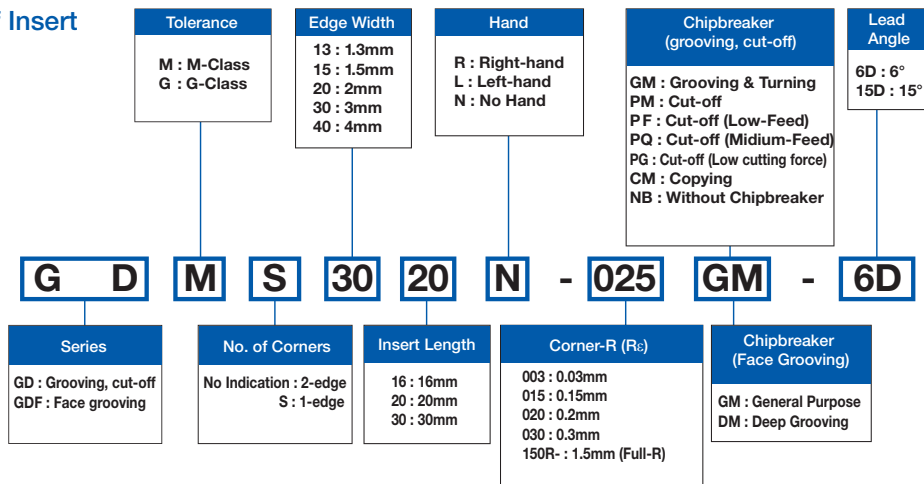
● Applicable Inserts (CBN & PCD)

NEW

Shape		Description	Dimension (mm)						Angle (°)	MEGA CBN	CBN	PCD		
			W	r <sub>ε</sub>	M	L	H	S						
													tolerance	KBN05M
Grooving	1-edge	CBN 	GDGS 2020N-020NB	2.0	±0.03	0.2	1.8	20	4.3	2.9	-	●	●	●
			3020N-020NB	3.0	0.2	2.3	●					●	●	
			3020N-040NB				0.4					●	●	
			4020N-020NB	4.0	0.2	3.3	●					●	●	
			4020N-040NB				0.4					●	●	
			5020N-020NB	5.0	0.2	4.2	●					●	●	
		5020N-040NB	0.4				●	●						
		6020N-020NB	6.0	0.2	5.2	●	●	●						
		6020N-040NB				0.4	●	●						

● Std. Item

● Indication of Insert Description



## ■ Setting the Insert (same procedure for integrated and separate types)

1. Used compressed air or other measures to completely eliminate all chips from the insert mounting part (Fig. 1).
2. Set the insert in the toolholder and push until it contacts the backmost surface of the toolholder (See Fig. 1 and Fig. 2).
3. While keeping the insert pushed against the back surface of the toolholder, tighten the insert clamp bolt to the appropriate torque. (recommended tightening torque: 6.5 N·m (8N·m for 8mm width))
4. Before using the unit, make sure there is no gap between the insert and the back surface of the toolholder, and that the insert is mounted without tilting (See Fig. 2 and Fig. 3).

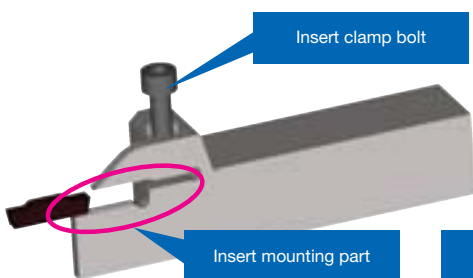


Fig. 1

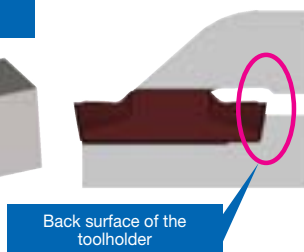


Fig. 2

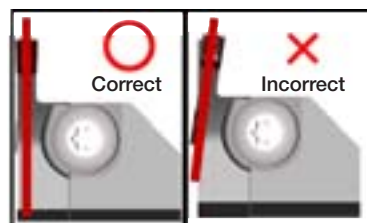
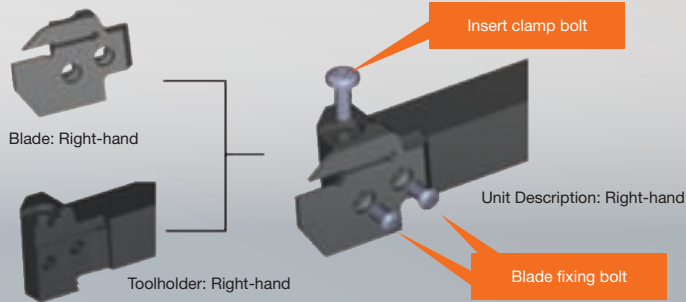


Fig. 3

## Combination of Toolholder & Blade (for grooving, turning, and cutting off)

### ① 0° separate type



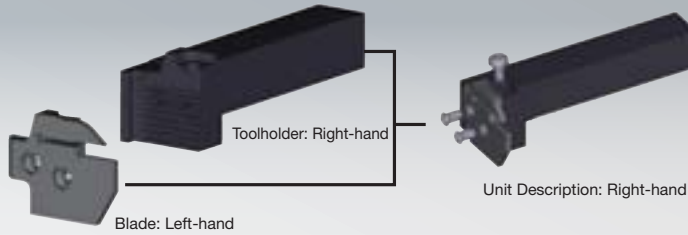
Toolholder (KGD<sup>R/L</sup> ●●-C)

+

Blade (KGD<sup>R/L</sup>-●T●●-C)

⇒ Right-hand blade for right-hand toolholder, left-

### ② 90° separate type



Toolholder (KGDS<sup>R/L</sup> ●●-C)

+

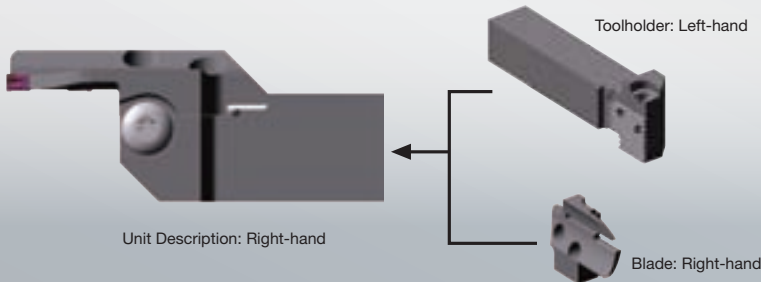
Blade (KGD<sup>L/R</sup>-●T●●-C)

⇒ Left-hand blade for right-hand toolholder, right-hand blade for left-hand toolholder

## Combination of Toolholder & Blade (for face grooving)

### ■ 0° separate type

#### ① Right-hand



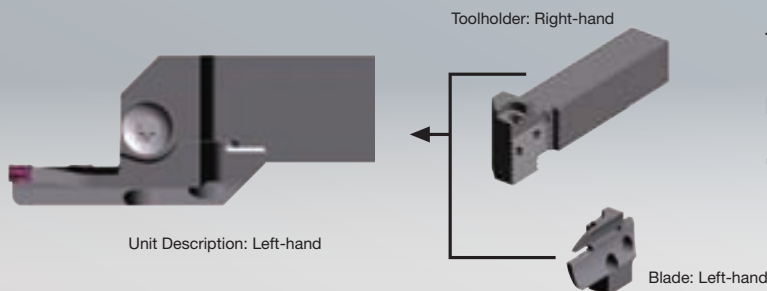
Toolholder (KGD<sub>L</sub>●●-C)

+

Blade (KGDFR-●●-●●-C)

⇒ Right-hand Blade (face grooving) for Left-hand Toolholder

#### ② Left-hand



Toolholder (KGD<sub>R</sub>●●-C)

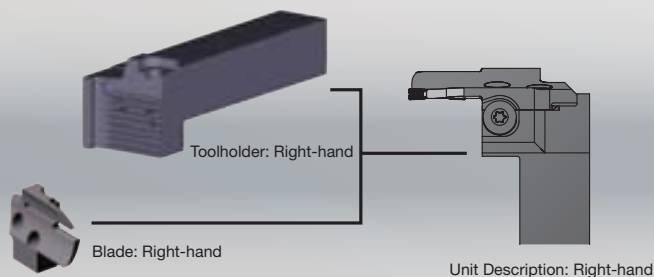
+

Blade (KGDFL-●●-●●-C)

⇒ Left-hand Blade (face grooving) for Right-hand Toolholder

※ Please make sure that the Unit Description hand is opposite to the toolholder hand.

### ■ 90° separate type



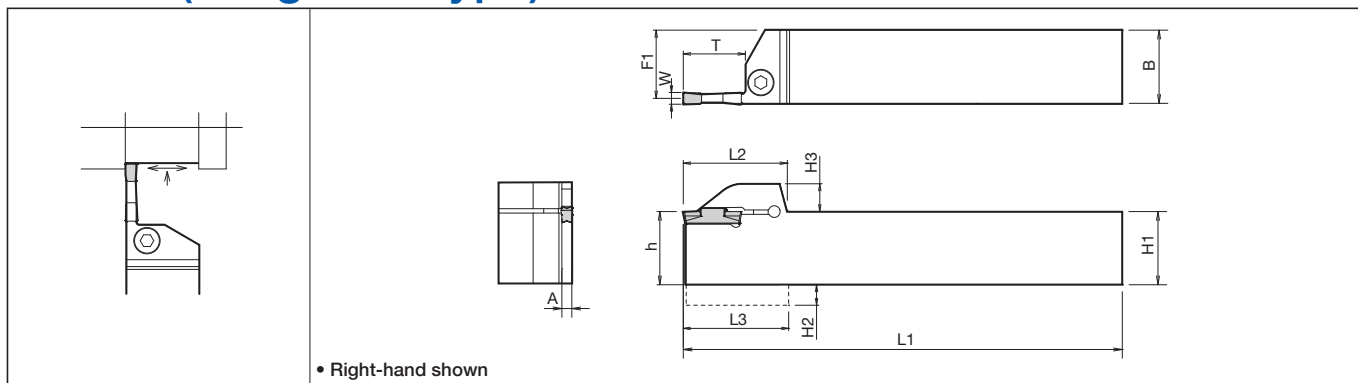
Toolholder (KGDS<sup>R/L</sup> ●●-C)

+

Blade (KGD<sup>R/L</sup>-●●-●●-C)

⇒ Right-hand blade (face grooving) for right-hand toolholder, Left-hand Blade (face grooving) for left-hand toolholder

## KGD (Integrated type)



### Toolholder dimensions

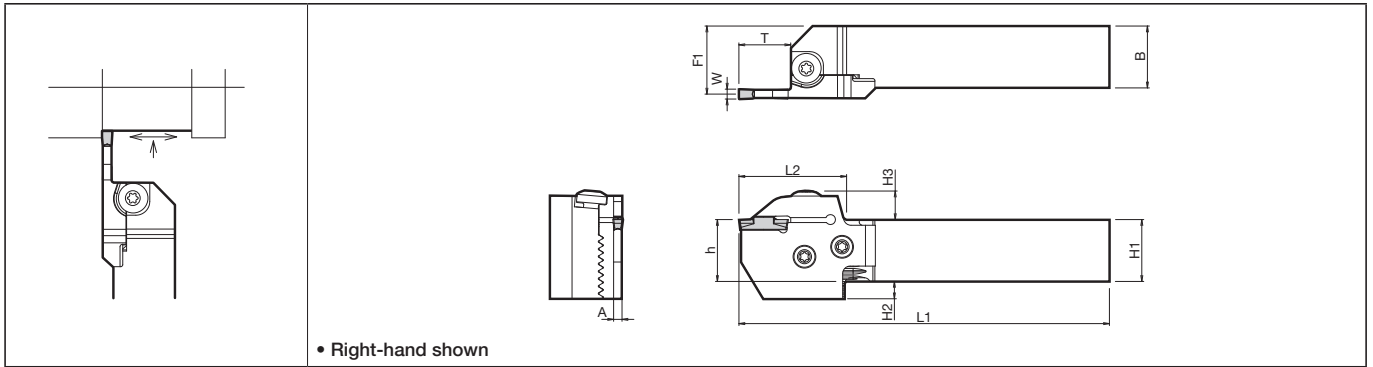
Width (mm)	Max. Grooving Depth (mm)	Description	Stock		Dimension (mm)										W (mm)		Spare parts								
			R	L	H1=h	H2	H3	B	L1	L2	L3	F1	A	T	MIN.	MAX.	Clamp Bolt	Wrench							
2	6	KGD <sup>9/16</sup> 1616H-2T06	●	●	16	4.0	9.5	16	100	27.7	28.0	15.2	1.7	6	2.0	3.0	HH5X16	LW-4							
		2020K-2T06	●	●	20	-		20	125	28.0	-	19.2							24.2						
		2525M-2T06	●	●	25	-		25	150	28.0	-														
	10	KGD <sup>9/16</sup> 1616H-2T10	●	●	16	4.0		16	100	30.2	30.5	15.2							17	10	2.0	3.0	HH5X16	LW-4	
		2020K-2T10	●	●	20	-		20	125	30.5	-	19.2													24.2
		2525M-2T10	●	●	25	-		25	150	30.5	-														
	17	KGD <sup>9/16</sup> 1616H-2T17	●	●	16	4.0		16	100	31.2	31.5	15.2							17	17	2.0	3.0	HH5X16	LW-4	
		2012K-2T17	●	●	20	-		12	125	32.5	-	11.2													19.2
		2020K-2T17	●	●	20	-		20	125	32.5	-	19.2													
	17	2525M-2T17	●	●	25	-		25	150	32.5	-	19.2							17	17	2.0	3.0	HH5X16	LW-4	
		KGD <sup>9/16</sup> 2012K-2.4T17	●	●	20	-		12	125	32.5	-	11.0													19.0
		2020K-2.4T17	●	●	20	-		20	125	32.5	-	19.0													
3	6	KGD <sup>9/16</sup> 1616H-3T06	●	●	16	4.0	9.5	16	100	27.7	28.0	14.8	2.4	6	3.0	4.0	HH5X16	LW-4							
		2020K-3T06	●	●	20	-		20	125	28.0	-	18.8							23.8						
		2525M-3T06	●	●	25	-		25	150	28.0	-														
	10	KGD <sup>9/16</sup> 1616H-3T10	●	●	16	4.0		16	100	30.2	30.5	14.8							20	10	3.0	4.0	HH5X16	LW-4	
		2020K-3T10	●	●	20	-		20	125	30.5	-	18.8													23.8
		2525M-3T10	●	●	25	-		25	150	30.5	-														
	20	KGD <sup>9/16</sup> 1616H-3T20	●	●	16	4.0		16	100	34.2	34.5	14.8							20	20	3.0	4.0	HH5X16	LW-4	
		2012K-3T20	●	●	20	-		12	125	34.5	-	10.8													18.8
		2020K-3T20	●	●	20	-		20	125	34.5	-	18.8													
	20	2525M-3T20	●	●	25	-		25	150	34.5	-	18.8							20	20	3.0	4.0	HH5X16	LW-4	
		KGD <sup>9/16</sup> 2020K-4T10	●	●	20	-		20	125	30.5	-	18.3													23.3
		2525M-4T10	●	●	25	-		25	150	30.5	-	18.3													
4	10	2020K-4T10	●	●	20	-	20	125	30.5	-	18.3	3.4	10	4.0	5.0	HH5X16	LW-4								
		2525M-4T10	●	●	25	-	25	150	30.5	-	18.3														
	20	KGD <sup>9/16</sup> 2020K-4T20	●	●	20	-	20	125	34.5	-	18.3							25	20	4.0	5.0	HH5X16	LW-4		
2525M-4T20		●	●	25	-	25	150	34.5	-	18.3															
5	10	KGD <sup>9/16</sup> 2525M-4T25	●	●	25	-	25	150	40.5	-	23.3	4.4	10	5.0	6.0	HH5X16	LW-4								
		KGD <sup>9/16</sup> 2020K-5T10	●	●	20	-	20	125	30.5	-	17.8							22.8							
	2525M-5T10	●	●	25	-	25	150	30.5	-	17.8	22.8														
	17	KGD <sup>9/16</sup> 2020K-5T17	●	●	20	-	20	125	37.5	-								17.8	25	17	5.0	6.0	HH5X25	LW-4	
		2525M-5T17	●	●	25	-	25	150	37.5	-	17.8														
	25	KGD <sup>9/16</sup> 2525M-5T25	●	●	25	-	25	150	40.5	-	22.8							25	25	5.0	6.0	HH5X25	LW-4		
KGD <sup>9/16</sup> 2525M-6T15		●	●	25	-	25	150	32.5	-	22.4	5.3	15	6.0	6.0	HH5X25	LW-4									
6	30	KGD <sup>9/16</sup> 2525M-6T30	●	●	25	-	25	150	45.5	-							22.4	6.0	30	6.0	6.0	HH5X25	LW-4		
		KGD <sup>9/16</sup> 2525M-8T25	●	●	25	7.0	25	150	43.3	44.2	22.0	6.0	25	8.0	8.0	HH6X25	LW-5								
8	25	3232P-8T25	●	●	32	-	32	170	43.3	-	29.0							6.0	25	8.0	8.0	HH6X25	LW-5		

(Note) T dimension shows the distance from the toolholder to the cutting edge. (When using 2-edge insert, set the groove depth under 18mm.)

●: Std. Item



## ■ KGD-S type (0° separate type)



### ● Toolholder dimensions (blade and toolholder)

Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Shank size (mm)	Unit Description Std. Stock Description	Stock		Blade Description P10	Toolholder Description P10	Dimension (mm)										W (mm)	
					R	L			H1=h	H2	H3	B	L1	L2	L3	F1	A	T	MIN.	MAX.
0°	2	17	□20	KGD% 2020X-2T17S	●	●	KGD% -2T17-C	KGD% 2020-C	20	12	11.6	20	122	40	23.4	1.7	17	2.0	3.0	
			□25	2525X-2T17S	●	●		KGD% 2525-C	25	7		25	147		28.4					
			□32	No unit description →		●		●	KGD% 3232-C	32		-	32		167					35.4
	3	10	10	□20	KGD% 2020X-3T10S	●	●	KGD% -3T10-C	KGD% 2020-C	20	12	20	115	33	23.0	2.4	10	3.0	4.0	
				□25	2525X-3T10S	●	●		KGD% 2525-C	25	7	25	140		28.0					
				□32	3232X-3T10S	●	●		KGD% 3232-C	32	-	32	160		35.0					
		20	20	20	□20	KGD% 2020X-3T20S	●	●	KGD% -3T20-C	KGD% 2020-C	20	12	20	125	43	23.0	20	3.0	4.0	
					□25	2525X-3T20S	●	●		KGD% 2525-C	25	7	25	150		28.0				
					□32	3232X-3T20S	●	●		KGD% 3232-C	32	-	32	170		35.0				
	4	10	10	□20	KGD% 2020X-4T10S	●	●	KGD% -4T10-C	KGD% 2020-C	20	12	20	115	33	22.5	3.4	20	4.0	5.0	
				□25	2525X-4T10S	●	●		KGD% 2525-C	25	7	25	140		27.5					
				□32	3232X-4T10S	●	●		KGD% 3232-C	32	-	32	160		34.5					
		20	20	20	□20	KGD% 2020X-4T20S	●	●	KGD% -4T20-C	KGD% 2020-C	20	12	20	125	43	22.5	25	3.0	4.0	
					□25	2525X-4T20S	●	●		KGD% 2525-C	25	7	25	150		27.5				
					□32	3232X-4T20S	●	●		KGD% 3232-C	32	-	32	170		34.5				
		25	25	25	□20	KGD% 2020X-4T25S	●	●	KGD% -4T25-C	KGD% 2020-C	20	12	20	130	48	22.5	25	3.0	4.0	
					□25	2525X-4T25S	●	●		KGD% 2525-C	25	7	25	155		27.5				
					□32	3232X-4T25S	●	●		KGD% 3232-C	32	-	32	175		34.5				
	5	10	10	□20	KGD% 2020X-5T10S	●	●	KGD% -5T10-C	KGD% 2020-C	20	12	20	115	33	22.0	4.4	10	5.0	6.0	
				□25	2525X-5T10S	●	●		KGD% 2525-C	25	7	25	140		27.0					
				□32	3232X-5T10S	●	●		KGD% 3232-C	32	-	32	160		34.0					
		25	25	25	□20	KGD% 2020X-5T25S	●	●	KGD% -5T25-C	KGD% 2020-C	20	12	20	130	48	22.0	25	3.0	4.0	
					□25	2525X-5T25S	●	●		KGD% 2525-C	25	7	25	155		27.0				
					□32	3232X-5T25S	●	●		KGD% 3232-C	32	-	32	175		34.0				

●: Std. Item

Note) 1. In the normal mounting position, the toolholder body might interfere with the tool presetter.

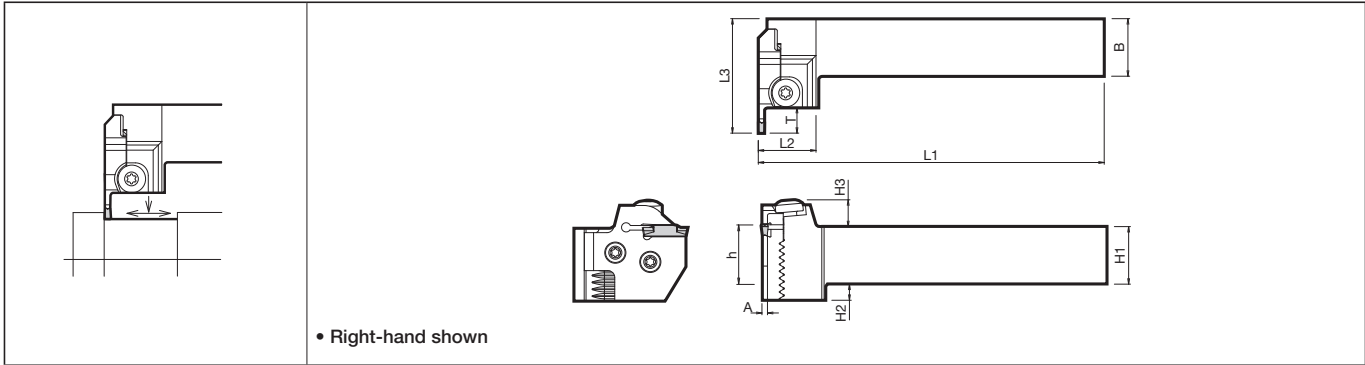
2. Toolholder description and blade description are printed on toolholder body. (Unit description is not indicated.)

KGD-S: Right-hand blade for right-hand toolholder, left-hand blade for left-hand toolholder.

The toolholder can be used with all blades with the appropriate hand.

3. T dimension shows the distance from the toolholder to the cutting edge. (When using 2-edge insert, set the groove depth under 18mm.)

## ■ KGDS-S (90° separate type)



### ● Toolholder dimensions (blade and toolholder)

Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Shank size (mm)	Blade Description P10	Toolholder Description P10	Unit Description Std. Stock Description	Stock		Dimension (mm)										W (mm)									
							R	L	H1=h	H2	H3	B	L1	L2	L3	F1	A	T	MIN.	MAX.								
90°	2	17	□20	KGD <sup>1/8</sup> -2T17-C	KGDS <sup>1/8</sup> 2020-C	-	-	20	12	11.6	20	125	27.7	56.7	-	1.7	17	2.0	3.0									
			□25			KGDS <sup>1/8</sup> 2525-C	-	-	25											7	25	150						
	3	10	□20	KGD <sup>1/8</sup> -3T10-C	KGDS <sup>1/8</sup> 2020-C	KGDS <sup>1/8</sup> 2020X-3T10S	●	●	20		12	20		125		49.7	59.7	-	2.4	10	3.0	4.0						
			□25			KGDS <sup>1/8</sup> 2525-C	2525X-3T10S	●	●		25												7	25	150			
		20	□20	KGD <sup>1/8</sup> -3T20-C	KGDS <sup>1/8</sup> 2020-C	-	-	-	20		12	20		125			59.7		64.7	-	20	-	-	-	-			
			□25			KGDS <sup>1/8</sup> 2525-C	-	-	25		7															25	150	
	4	10	□20	KGD <sup>1/8</sup> -4T10-C	KGDS <sup>1/8</sup> 2020-C	-	-	20	12		11.6	20		125		27.7		49.7	-		3.4		10	4.0	5.0			
			□25			KGDS <sup>1/8</sup> 2525-C	-	-	25																	7	25	150
		20	□20	KGD <sup>1/8</sup> -4T20-C	KGDS <sup>1/8</sup> 2020-C	-	-	20	12			20		125			59.7	64.7		-	25	-	-	-	-			
			□25			KGDS <sup>1/8</sup> 2525-C	-	-	25																	7	25	150
		25	□20	KGD <sup>1/8</sup> -4T25-C	KGDS <sup>1/8</sup> 2020-C	-	-	20	12			20		125				64.7			49.7		-	4.4	-	10	5.0	6.0
			□25			KGDS <sup>1/8</sup> 2525-C	-	-	25																			
	5	10	□20	KGD <sup>1/8</sup> -5T10-C	KGDS <sup>1/8</sup> 2020-C	-	-	20	12		11.6	20		125		27.7			49.7		-			4.4		10	5.0	6.0
			□25			KGDS <sup>1/8</sup> 2525-C	-	-	25																			
		25	□20	KGD <sup>1/8</sup> -5T25-C	KGDS <sup>1/8</sup> 2020-C	-	-	20	12			20		125			64.7		49.7	-		25		-		-	-	-
			□25			KGDS <sup>1/8</sup> 2525-C	-	-	25																			

●: Std. Item

- Note) 1. In the normal mounting position, the toolholder body might interfere with the tool presetter.  
 2. Toolholder description and blade description are printed on toolholder body. (Unit description is not indicated.)  
 KGDS-S: Left-hand blade for right-hand toolholder, right-hand blade for left-hand toolholder.  
 The toolholder can be used with all blades with the appropriate hand.  
 3. T dimension shows the distance from the toolholder to the cutting edge. (When using 2-edge insert, set the groove depth under 18mm.)

0°separate-type shape Right-hand Shown	Toolholder Description	Stock		Dimension (mm)		
		R	L	L	B	H1
	KGDS <sup>®</sup> 2020-C	●	●	104	20	20
	2525-C	●	●	129	25	25
	3232-C	●	●	149	32	32

90°separate-type shape Right-hand Shown	Toolholder Description	Stock		Dimension (mm)		
		R	L	L	B	H1
	KGDS <sup>®</sup> 2020-C	●	●	122	20	20
	2525-C	●	●	147	25	25

Blade shape Right-hand Shown	Toolholder Description	Stock		Dimension (mm)		
		R	L	L	T	A
	KGDS <sup>®</sup> -2T17-C	●	●	51.2	17.2	1.7
	-3T10-C	●	●	44.2	10.2	2.4
	-3T20-C	●	●	53.2	20.2	3.4
	-4T10-C	●	●	44.2	10.2	
	-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	

●: Std. Item

### ● Spare parts

Spare parts		
Clamp bolt (for insert clamp)	Fixing bolt (for blade)	Wrench
BH6X10TR	SB-60120TR	LTW-25

## ■ Setting the blade (separate-type toolholder)

1. Used compressed air or other measures to completely eliminate all chips from the insert mounting part (Fig. 4).
2. Fit the serration joints of the blade and toolholder closely together (See Fig. 5).
3. Tighten the blade fixing bolts to the appropriate torque (recommended tightening torque: 8 N•m).  
You can tighten them in any order (See Fig. 5).
4. Set the insert after setting the blade.

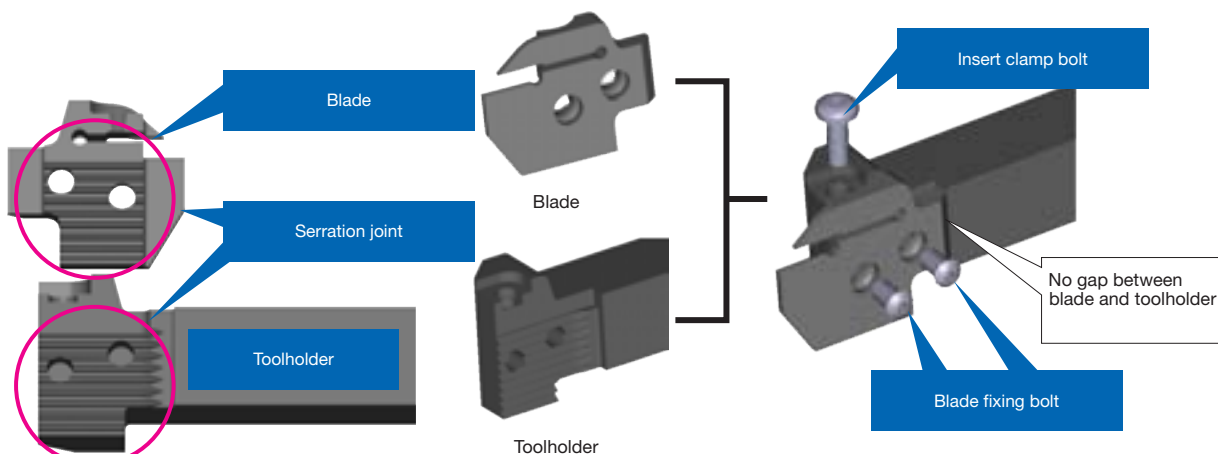
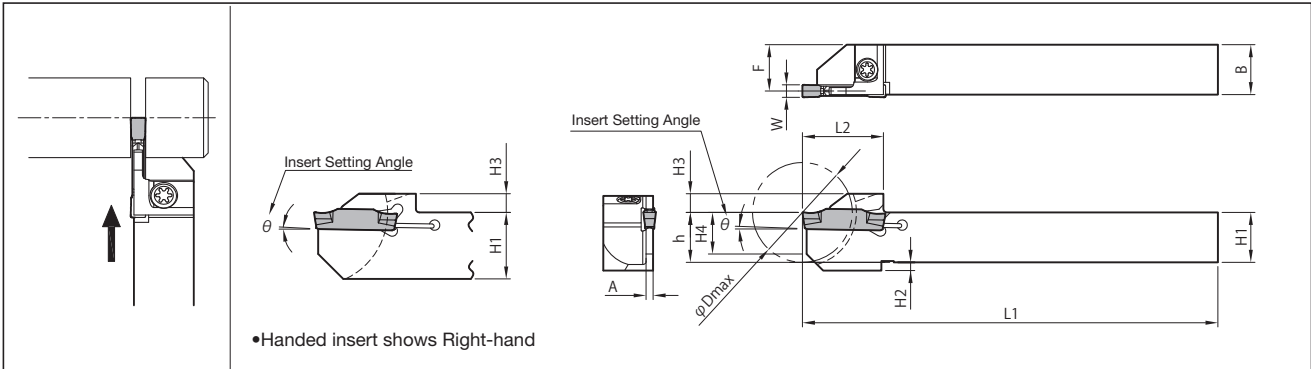


Fig. 4

Fig. 5

# KGD (for automatic lathe)

Edge Width: 1.3~4.0mm

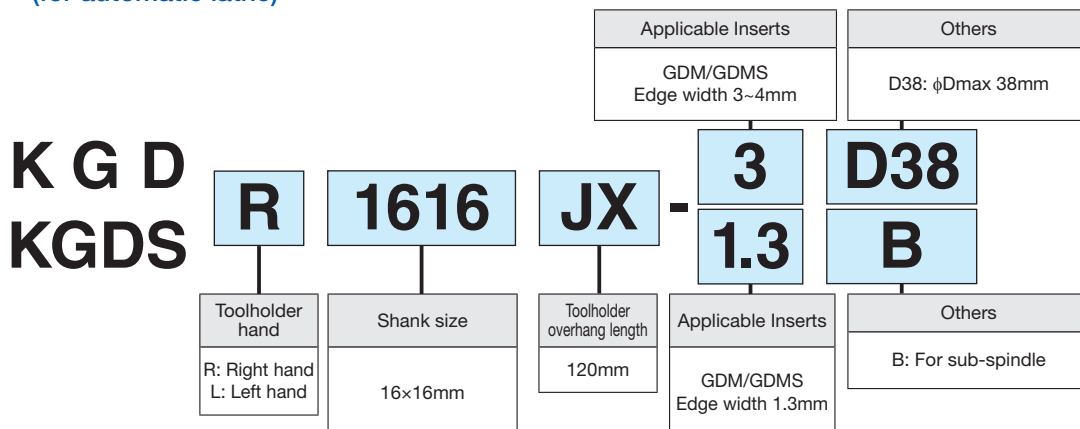


Description	Stock		Cutting Dia.	Dimension (mm)										W (mm)		Spare Parts			
	R	L		φDmax	H1-h	H2	H3	H4	B	L1	L2	F	A	θ(°)	MIN.	MAX.	Screw	Wrench	
KGD <sup>R/L</sup> 1010JX-1.3	●	●	20	10	2	4.5	8	10	120	18	9.5	1.0	5	1.3	1.3	SB-40120TR	LTW-15S		
	●	●	24	12			10	12		19.5	11.5								
KGD <sup>R/L</sup> 1010JX-1.5	●	●	20	10	2	4.5	8	10	120	18	9.4	1.2	5	1.5	1.5	SB-40120TR	LTW-15S		
	●	●	24	12			10	12		19.5	11.4								
KGD <sup>R/L</sup> 1212F-1.3	●	●	24	12	2	4.5	10	12	85	19.5	11.5	1.0	5	1.3	1.3	SB-40120TR	LTW-15S		
	●	●																11.4	1.2
KGD <sup>R/L</sup> 1010JX-2	●	●	20	10	2	4.5	8	10	120	18	9.15	1.7	5	2.0	3.0	SB-40120TR	LTW-15S		
	●	●	24	12			10	12		19.5	11.15								
	●	●	32	16			-	16		24.5	15.15								
KGD <sup>R/L</sup> 1010JX-2.4	●	●	20	10	2	4.5	8	10	120	18	9	2.0	5	2.4	3.0	SB-40120TR	LTW-15S		
	●	●	24	12			10	12		19.5	11								
	●	●	32	16			-	16		24.5	15								
KGD <sup>R/L</sup> 1212JX-3	●	●	24	12	2	4.5	10	12	120	19.5	10.8	2.4	5	3.0	3.0	SB-40120TR	LTW-15S		
	●	●	32	16			-	16		24.5	14.8							4.0	
KGD <sup>R/L</sup> 1212F-2	●	●	24	12	2	4.5	10	12	85	19.5	11.15	1.7	5	2.0	3.0	SB-40120TR	LTW-15S		
	●	●									11							2.0	2.4
KGD <sup>R/L</sup> 1616JX-3D38	●	●	38	16	-	6	10	16	120	29	14.8	2.4	5	3.0	4.0	SE-50125TR	LTW-20		
	●	●	42	20			-	14		12	31							10.8	18.8
	●	●																	

• A 4.0mm-wide insert can be installed in KGDR/L1212JX-3, but is not recommended due to the toolholder's rigidity. ●: Std. Item

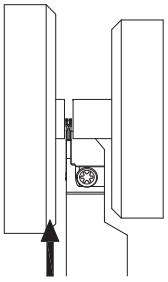
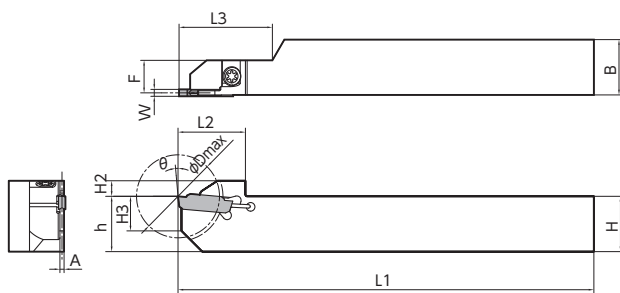
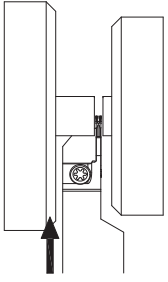
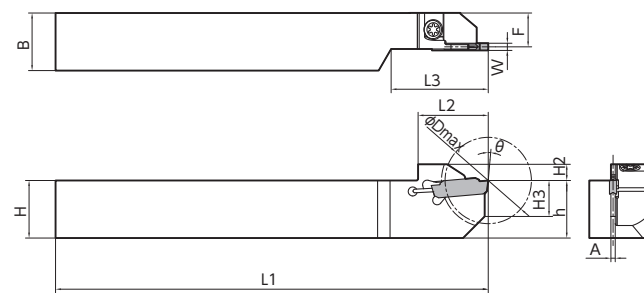
Note) When machining a material greater than φ36mm with KGDR/L...-3D38 or KGDR/L...-3D42 toolholders, please use 1-edge inserts.  
Maximum workpiece diameter for 2-edge inserts is φ36mm.

## Toolholder Identification System (for automatic lathe)





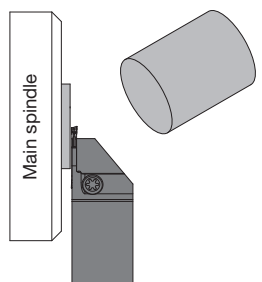
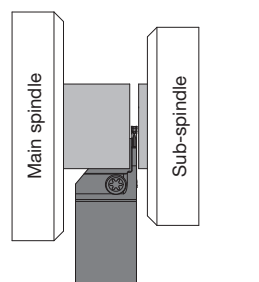
# KGDS (for cut-off operation near sub-spindle side)

<p>•Right-hand</p> 																	
<p>•Left-hand</p> 																	
Description	Stock		Cutting Dia. $\phi D_{max}$	Dimension (mm)										W (mm)		Spare Parts	
	R	L		H=h	H2	H3	B	L1	L2	L3	F	A	$\theta(^{\circ})$	MIN.	MAX.	Screw	Wrench
<b>KGDS<sup>®</sup>/L 1616JX-1.3B</b>	●	●	24	16	4.5	10	16	120	19.5	27	9.50	1.0	5.0	1.3	1.3	SB-40120TR	LTW-15S
<b>1616JX-1.5B</b>	●	●									9.40	1.2		1.5	1.5		
<b>1616JX-2B</b>	●	●									9.15	1.7	1.0	2.0	3.0		

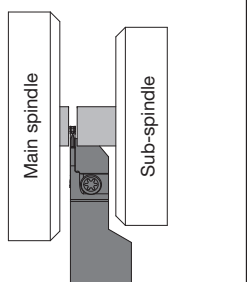
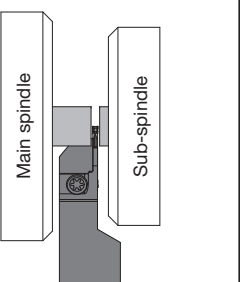
●: Std. Item

## KG D / KGDS Selection Reference

### KG D

Standard type	
<ul style="list-style-type: none"> <li>Both right-hand and left-hand types can be used with a comb-shaped tool post.</li> <li>In principle, the left-hand type is used at cut-off operation using sub-spindle</li> </ul>	
KGDR (Right-hand)	KGDL (Left-hand)
	
<p><b>1st recommendation</b> Use a lead-angled insert to remove boss.</p> <ul style="list-style-type: none"> <li>Not using sub-spindle</li> <li>Cut-off operation near main spindle</li> </ul>	<p><b>1st recommendation</b> Use insert without lead angle</p> <ul style="list-style-type: none"> <li>Using sub-spindle</li> <li>Cut-off operation near sub-spindle side</li> </ul>

### KGDS

Sub-spindle type	
<ul style="list-style-type: none"> <li>When cutting a small-diameter workpiece, use KGDS to reduce the overhang distance from the main spindle.</li> </ul>	
KGDSR (Right-hand)	KGDSL (Left-hand)
	
<ul style="list-style-type: none"> <li>Long workpiece and higher rigidity</li> <li>Cut-off operation near main spindle</li> </ul>	<ul style="list-style-type: none"> <li>Short workpiece and less rigidity</li> <li>Cut-off operation near sub-spindle side</li> </ul>

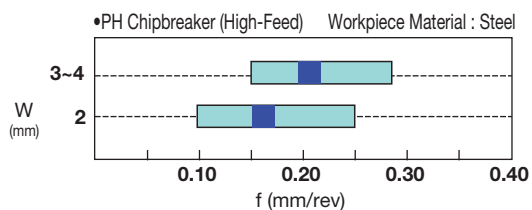
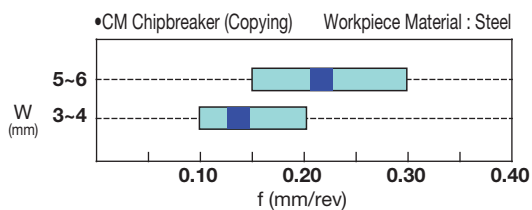
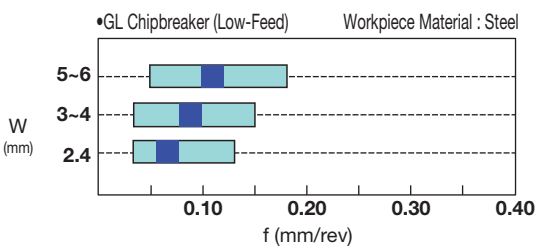
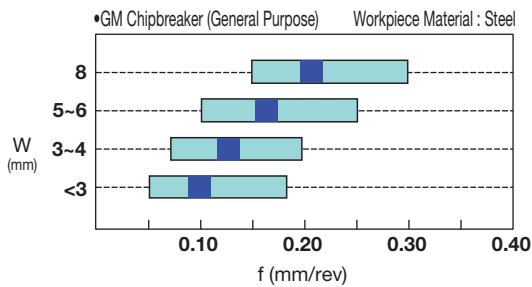
# Recommended Cutting Conditions (Grooving, Cut-Off)

Workpiece Material	Chipbreaker	Recommended Insert Grade (Cutting Speed m/min)								Remarks
		Cermet	MEGACOAT NANO	MEGACOAT		Carbide	MEGACOAT CBN	CBN	PCD	
		TN90	PR1535	PR1225	PR1215	GW15	KBN05M	KBN570	KPD001	
Carbon Steel (SxxC, etc)	GM GL CM PH GS PM	☆ 100~220	☆ 80~200	★ 80~200	☆ 100~200	-	-	-	-	Wet
Alloy Steel (SCM, etc)		☆ 80~200	☆ 70~180	★ 70~180	☆ 80~180	-	-	-	-	
Stainless Steel (SUS304, etc)		☆ 70~180	★ 60~150	☆ 60~150	☆ 60~150	-	-	-	-	
Cast Iron (FC, FCD, etc)		-	-	-	★ 100~200	-	-	-	-	
Aluminum	GS NB	-	-	-	-	☆ 200~500	-	-	★ 150~2000	
Brass		-	-	-	-	☆ 100~200	-	-	★ 200~800	
Hard Materials	NB	-	-	-	-	-	★ 80~150	-	-	
Sintered Steel		-	-	-	-	-	-	★ 100~250	-	

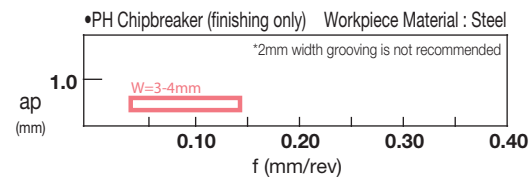
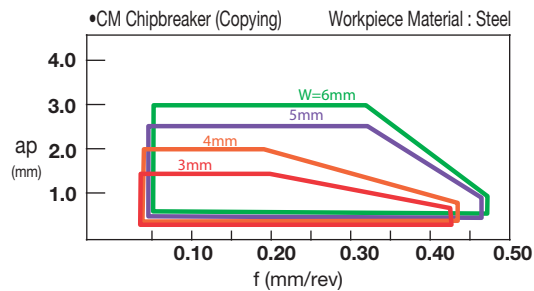
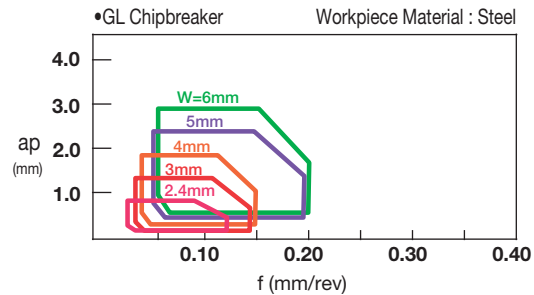
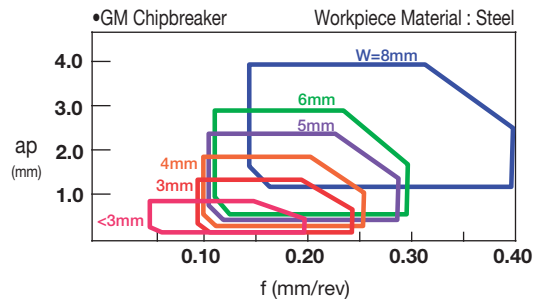
★: 1st. Recommendation ☆: 2nd. Recommendation

## Recommended Cutting Conditions (f, ap)

### Grooving



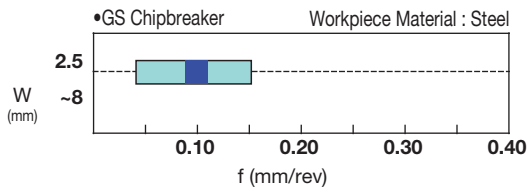
### Turning



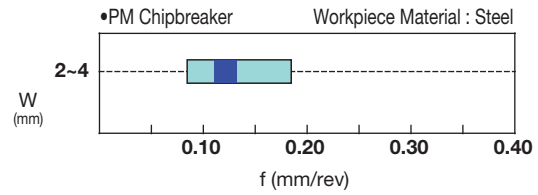
- 1) The above conditions apply in cases where the toolholder's T dimension is no greater than 17mm.
- 2) If the T dimension is greater than 17mm, for traversing use up to 90% of the recommended cutting conditions (except 8mm insert width type).

● Recommended Cutting Conditions (Feed)

■ Grooving

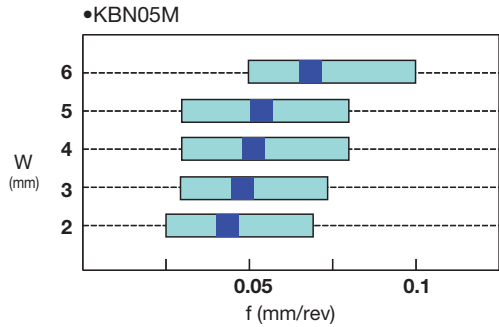


■ Cut-Off

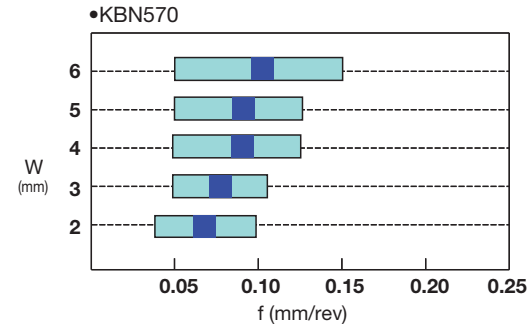


Set the cutting depth ( $a_p$ ) for turning at less than the radius size.

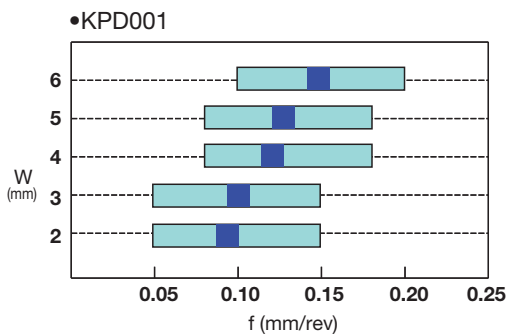
■ Grooving (Hard Materials)



■ Grooving (Sintered Steel)

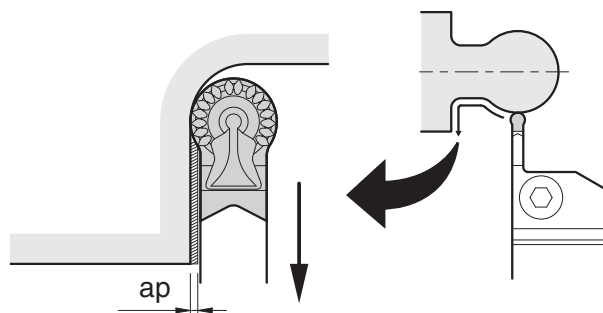


■ Grooving (Aluminum/Brass)



● CM chip-breaker [about max.  $a_p$  for pulling up] Recommended  $a_p$  for pulling up.

Description	Max. $a_p$ (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







## ■ Points to consider regarding OD turning

### ● Point 1 (Turning after grooving)

1) Groove depth less than 0.5mm: For Finishing (See Fig. 1)

Before turning, be sure to pull the tool back by 0.1mm after grooving.  
(Put the load on the edge from a single direction.)

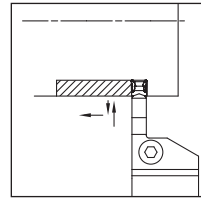


fig. 1

Pull back the tool by 0.1mm before turning  
Groove depth over 0.5mm: For roughing

2) Groove depth less than 0.5mm: For Finishing (See Fig. 2)

Available for turning continuously after grooving.  
(Dwell motion is not required.)

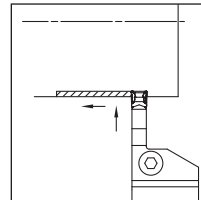


fig. 2

Turning continuously after grooving  
Groove depth less than 0.5mm: For Finishing

### ● Point (2)

#### • Point (2)

1) When expanding groove width (See Fig. 3)

Please program the machine to make cutting steps at each pass.

2) For finishing (To make it easier to control chips, cut more than 0.5mm.)

Caution) When traversing without using the center and cutting in the direction of the center, please reduce the speed.

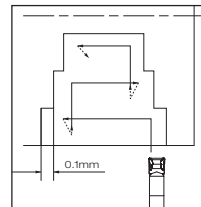
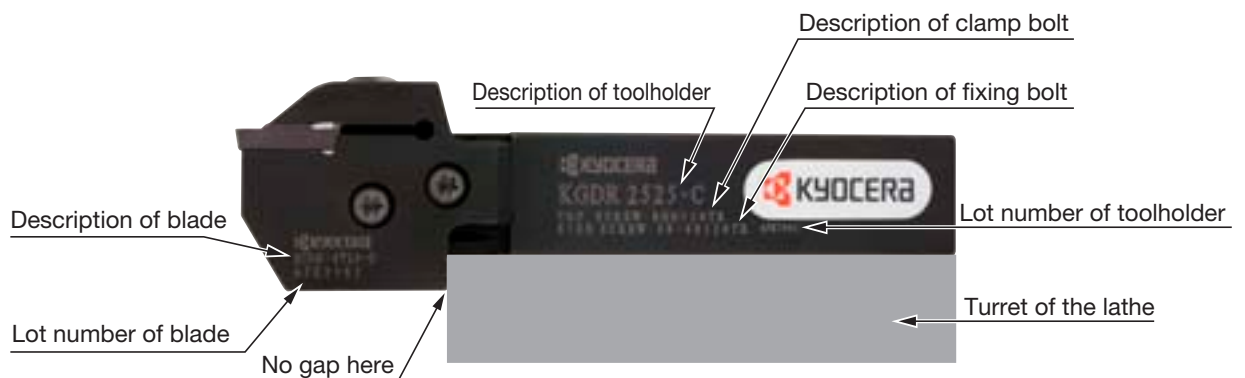


fig. 3

## ■ Descriptions for Separate-Type Toolholder and How to Set Them in the Machine

Please leave no gap between the blade and tool block.

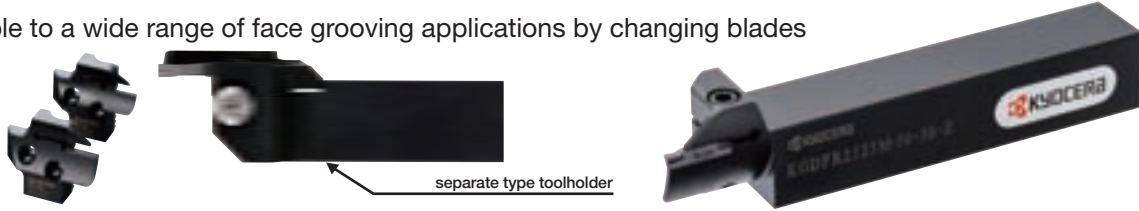


# KGDF Face grooving type

## ■ Features

### ● Separate-type (toolholder + blade) and integrated-type toolholders are available.

Adaptable to a wide range of face grooving applications by changing blades

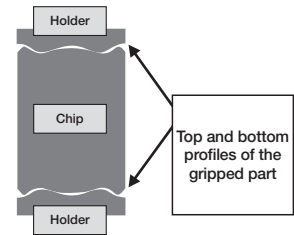


### ● New insert clamping system "W Grip"

Unique "W Grip" (insert anti-slip structure) provides stable machining quality

- 1) Prevents abnormal machining surface and/or insert breakage resulting from slippage of the insert
- 2) Improves repetitive insert installation accuracy

\*GDFM and GDFMS inserts cannot be used with a KGD external grooving toolholder.



W Grip technology

### ● Smooth chip control

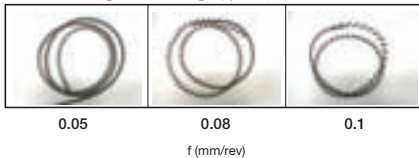
For general-purpose GM Chipbreaker, high-feed GH Chipbreaker, and deep-grooving DM Chipbreaker

## ■ Comparison of chip control (GM chipbreaker)

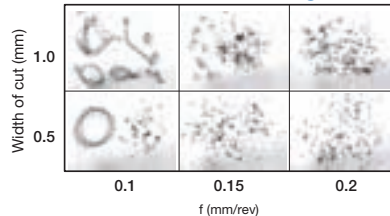
Cutting conditions

Vc=150m/min f=0.05-0.1mm/rev GDFM5020N-040GM SCM415 Wet

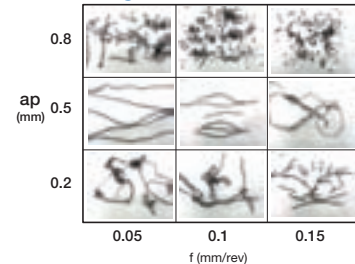
### ● Face grooving ( $\phi 62$ )



### ● Groove wall machining



### ● Turning



### ● High precision edge preparation

High-precision molding technology tolerance  $\pm 0.03\text{mm}$  (edge width 2, 3, 4mm type)

### ● Highly-reputed MEGACOAT technology

Long tool life and high-efficiency machining due to high oxidation resistance and wear resistance.

## ■ Features

General Purpose, GM Chipbreaker

- Smooth wall design from front edge to back side  
Changes chip shape and stabilizes chip evacuation direction
- Front edge wall  
Improves chip control at shouldering
- Gently raised wall shape  
Constantly curled chips
- Flat cutting edge line  
Improves chip control

High-feed, GH Chipbreaker

- Dots juttred out center side  
Changes chip shape smoothly  
Stable chip shape
- Concave part in middle  
Constantly curled chips
- Slope portion  
Constantly curled chips
- Negative cutting edge line  
Improvement of strong edge
- Curved front edge line  
Stabilize chip shape

Deep Grooving, DM Chipbreaker

- Convex wall  
Changes chip shape and stabilizes chip evacuation direction
- Concave portion  
Changes chip shape smoothly
- Smooth wall design from front edge to back side  
Reduces cutting resistance  
Changes chip shape and stabilizes chip evacuation direction

# KGDF Face-grooving insert

## GDFM/GDFMS

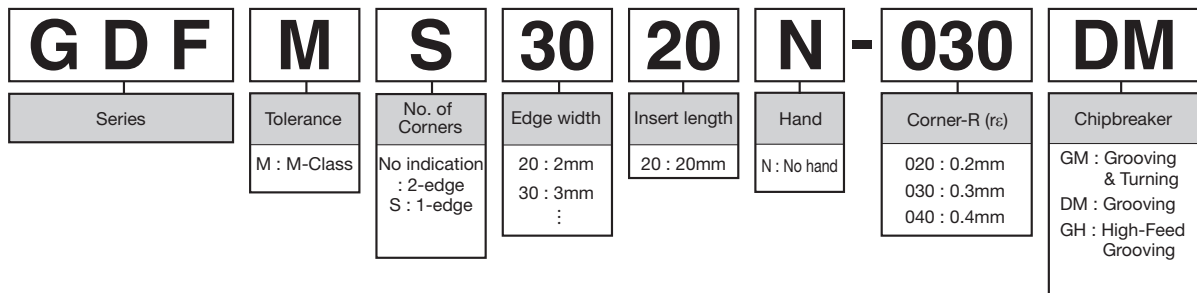
Usage Classification		P	Carbon steel, Alloy steel	●	●	☉
		M	Stainless Steel		●	☉
		K	Cast Iron			●
		N	Non-Ferrous Materials			
		S	Titanium Alloys			
		H	Hard Materials (under 40HRC) Hard Materials (over 40HRC)			

●: Continuous - Interrupted / 1st Choice  
 ☉: Continuous - Interrupted / 2nd Choice  
 ●: Continuous / 1st Choice

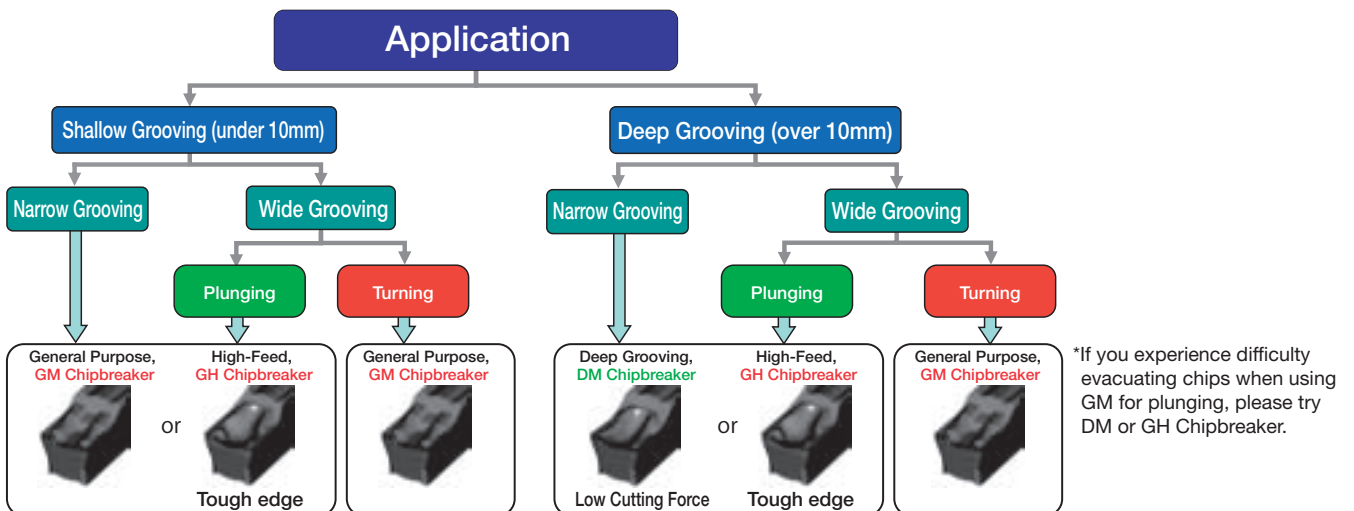
Shape	Description	Dimension (mm)					Cermet			MEGACOAT		
		W	rε	M	L	H	TN90	PR1225	PR1215			
Grooving & Turning 2-edge	GDFM 2020N-020GM	2.0		0.2	1.5	20	4.3	●	●	●		
	3020N-030GM	3.0	±0.03	0.3	2.3			●	●	●		
	4020N-040GM	4.0		0.4	3.3			●	●	●		
	5020N-040GM	5.0	±0.04	0.8	4.2			●	●	●		
	5020N-080GM	5.0		0.4	5.2			●	●	●		
	6020N-080GM	6.0		0.8	5.2			●	●	●		
Grooving & Turning (High-Feed) 2-edge	GDFM 4020N-040GH	4.0	±0.03	0.4	3.3	20	4.3	●	●	●		
	5020N-040GH	5.0	±0.04	0.8	4.2			●	●	●		
	6020N-040GH	6.0		0.4	5.2			●	●	●		
	6020N-080GH	6.0		0.8	5.2			●	●	●		
Deep Grooving, Turning 2-edge	GDFM 3020N-030DM	3.0	±0.03	0.3	2.3	20	4.3	●	●	●		
	4020N-040DM	4.0	±0.04	0.4	3.3			●	●	●		
	5020N-040DM	5.0		4.2	●			●	●			
	6020N-040DM	6.0		5.2	●			●	●			
Deep Grooving, Turning 1-edge	GDFMS 3020N-030DM	3.0	±0.03	0.3	2.3	20	4.3	●	●	●		
	4020N-040DM	4.0	±0.04	0.4	3.3			●	●	●		
	5020N-040DM	5.0		4.2	●			●	●			
	6020N-040DM	6.0		5.2	●			●	●			

●: Std. Item

## Indication of Insert Description



## Chip breaker Selection







● Toolholder dimensions (blade and toolholder)

Shank Angle	Width (mm)	Shank size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. $\phi$ D (mm)		Unit Description (Std. Stock Description)	Stock		Blade Description P28	Toolholder Description P10	Dimension (mm)																									
				MIN.	MAX.		R	L			H1=h	H2	H3	B	L1	L2	F1	T																		
0°	3	□20	13	25	30	KGDF% 2020X25-3AS	●	●	KGDF% -25-3A-C	KGDF%2020-C	20	12	11.6	20	118	36	24.5	13																		
				30	40		2020X30-3AS	●											●	-30-3A-C																
				40	50		2020X40-3AS	●											●	-40-3A-C																
			15	50	65	2020X50-3BS	●	●	-50-3B-C																											
				65	85	2020X65-3BS	●	●	-65-3B-C																											
				85	110	2020X85-3BS	●	●	-85-3B-C																											
			22	110	145	2020X110-3BS	●	●	-110-3B-C																											
				50	65	2020X50-3CS	●	●	-50-3C-C																											
				65	85	2020X65-3CS	●	●	-65-3C-C																											
			25	85	110	2020X85-3CS	●	●	-85-3C-C																											
				110	145	2020X110-3CS	●	●	-110-3C-C																											
		□25	13	25	30	KGDF% 2525X25-3AS	●	●	KGDF% -25-3A-C										KGDF%2525-C	25	7	11.6	25	143	36	29.5	15									
				30	40		2525X30-3AS	●																				●	-30-3A-C							
				40	50		2525X40-3AS	●																				●	-40-3A-C							
			15	50	65	2525X50-3BS	●	●	-50-3B-C																											
				65	85	2525X65-3BS	●	●	-65-3B-C																											
				85	110	2525X85-3BS	●	●	-85-3B-C																											
			22	110	145	2525X110-3BS	●	●	-110-3B-C																											
				50	65	2525X50-3CS	●	●	-50-3C-C																											
				65	85	2525X65-3CS	●	●	-65-3C-C																											
			25	85	110	2525X85-3CS	●	●	-85-3C-C																											
				110	145	2525X110-3CS	●	●	-110-3C-C																											
		□32	13	25	30	No unit description → (Please purchase blade and toolholder separately)			KGDF% -25-3A-C																			KGDF%3232-C	32	-	11.6	32	163	36	36.5	15
				30	40		-30-3A-C																													
				40	50		-40-3A-C																													
			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																													

Note) T dimension shows the distance from the toolholder to the cutting edge. (When using 2-edge insert, set the groove depth under 18mm.)  
 Left-hand toolholder for right-hand blade, right-hand toolholder for left-hand blade.  
 The toolholder is applicable for all blades with the suitable hand

●: Std. Item

● Toolholder dimensions (blade and toolholder)

Shank Angle	Width (mm)	Shank size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. $\phi$ D (mm)		Unit Description (Std. Stock Description)	Stock		Blade Description P28	Toolholder Description P10	Dimension (mm)												
				MIN.	MAX.		R	L			H1=h	H2	H3	B	L1	L2	F1	T					
0°	4	□20	13	25	35	KGDF%	2020X25-4AS	●	●	KGDF%	-25-4A-C	KGD <sub>h</sub> 2020-C	20	12	11.6	20	118	36	24.5	13			
				35	50			2020X35-4BS	●								●	-35-4B-C			120	38	15
				50	70			2020X50-4BS	●								●	-50-4B-C					
			70	100	2020X70-4BS			●	●								-70-4B-C						
			15	100	150			2020X100-4BS	●								●	-100-4B-C			130	48	25
				150	220			2020X150-4BS	●								●	-150-4B-C					
				220	∞			2020X220-4BS	●								●	-220-4B-C					
				35	50			2020X35-4CS	●								●	-35-4C-C					
				50	70			2020X50-4CS	●								●	-50-4C-C					
				70	100			2020X70-4CS	●								●	-70-4C-C					
			25	100	150			2020X100-4CS	●								●	-100-4C-C			155	48	25
				150	220			2020X150-4CS	●								●	-150-4C-C					
		220		∞	2020X220-4CS	●	●	-220-4C-C															
		35		50	2020X35-4CS	●	●	-35-4C-C															
		50		70	2020X50-4CS	●	●	-50-4C-C															
		70		100	2020X70-4CS	●	●	-70-4C-C															
		□25	13	25	35	KGDF%	2525X25-4AS	●	●	KGDF%	-25-4A-C	KGD <sub>h</sub> 2525-C	25	7	11.6	25	143	36	29.5	13			
				35	50			2525X35-4BS	●								●	-35-4B-C			145	38	15
				50	70			2525X50-4BS	●								●	-50-4B-C					
			70	100	2525X70-4BS			●	●								-70-4B-C						
			15	100	150			2525X100-4BS	●								●	-100-4B-C			155	48	25
				150	220			2525X150-4BS	●								●	-150-4B-C					
				220	∞			2525X220-4BS	●								●	-220-4B-C					
				35	50			2525X35-4CS	●								●	-35-4C-C					
				50	70			2525X50-4CS	●								●	-50-4C-C					
				70	100			2525X70-4CS	●								●	-70-4C-C					
			25	100	150			2525X100-4CS	●								●	-100-4C-C			163	36	15
150	220			2525X150-4CS	●			●	-150-4C-C														
220	∞	2525X220-4CS		●	●	-220-4C-C																	
35	50	2525X35-4CS		●	●	-35-4C-C																	
50	70	2525X50-4CS		●	●	-50-4C-C																	
70	100	2525X70-4CS		●	●	-70-4C-C																	
□32	13	25	35	No unit description → (Please purchase blade and toolholder separately)	KGDF%	-25-4A-C	KGD <sub>h</sub> 3232-C	32	-	11.6	32	36.5	13										
		35	50											-35-4B-C	165	38	15						
		50	70											-50-4B-C									
	70	100	-70-4B-C																				
	15	100	150											-100-4B-C	175	48	25						
		150	220											-150-4B-C									
		220	∞											-220-4B-C									
		35	50											-35-4C-C									
		50	70											-50-4C-C									
		70	100											-70-4C-C									
	25	100	150											-100-4C-C									
		150	220											-150-4C-C									
220		∞	-220-4C-C																				

Note) T dimension shows the distance from the toolholder to the cutting edge. (When using 2-edge insert, set the groove depth under 18mm.) ●: Std. Item  
 Left-hand toolholder for right-hand blade, right-hand toolholder for left-hand blade.  
 The toolholder is applicable for all blades with the suitable hand.



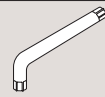


● Toolholder dimensions (blade and toolholder)

Shank Angle	Width (mm)	Shank size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. φD (mm)		Unit Description (Std. Stock Description)	Stock		Blade Description P28	Toolholder Description P10	Dimension (mm)							
				MIN.	MAX.		R	L			H1-h	H2	H3	B	L1	L2	F1	T
0°	6	□20	15	25	35	KGDF <sup>φ</sup> <sub>L</sub> 2020X25-6BS	●	●	KGDF <sup>φ</sup> <sub>L</sub> -25-6B-C	KGD <sup>φ</sup> <sub>r</sub> 2020-C	20	12	11.6	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	2020X25-6CS	●	●	-25-6C-C									
				35	50		●	●	-35-6C-C									
				50	75		●	●	-50-6C-C									
				75	115		●	●	-75-6C-C									
				115	180		●	●	-115-6C-C									
		180		235	●		●	-180-6C-C										
		25	235	∞	2020X235-6CS	●	●	-235-6C-C										
			35	50	2020X35-6CS	●	●	-35-6C-C										
			50	75		●	●	-50-6C-C										
			75	115		●	●	-75-6C-C										
			115	180		●	●	-115-6C-C										
			180	235		●	●	-180-6C-C										
		235	∞	2020X235-6CS		●	●	-235-6C-C										
		32	75	115	No unit description→ (Please purchase blade and toolholder separately)	●	●	-75-6D-C										
			115	180		●	●	-115-6D-C										
			180	235		●	●	-180-6D-C										
			235	∞		●	●	-235-6D-C										
			25	35		2525X25-6CS	●	●	-25-6C-C									
			35	50			●	●	-35-6C-C									
		50	75	●	●		-50-6C-C											
		75	115	●	●		-75-6C-C											
		115	180	●	●		-115-6C-C											
		180	235	●	●		-180-6C-C											
		25	235	∞	2525X235-6CS	●	●	-235-6C-C										
			75	115	No unit description→ (Please purchase blade and toolholder separately)	●	●	-75-6D-C										
			115	180		●	●	-115-6D-C										
			180	235		●	●	-180-6D-C										
			235	∞		●	●	-235-6D-C										
			75	115		KGDF <sup>φ</sup> <sub>L</sub> 2525X75-6DS	●	●	-75-6D-C									
115	180	●	●	-115-6D-C														
180	235	●	●	-180-6D-C														
235	∞	2525X235-6DS	●	●	-235-6D-C													
32	75	115	2525X115-6DS	●	●		-75-6D-C											
	115	180		●	●		-115-6D-C											
	180	235		●	●	-180-6D-C												
	235	∞		2525X180-6DS	●	●	-235-6D-C											
	15	25		35	No unit description→ (Please purchase blade and toolholder separately)	●	●	-25-6B-C										
		35		50		●	●	-35-6B-C										
50		75	●	●		-50-6B-C												
75		115	●	●		-75-6B-C												
115		180	●	●		-115-6B-C												
180		235	●	●		-180-6B-C												
20	235	∞	2525X235-6BS	●	●	-235-6B-C												
	25	35	2525X25-6CS	●	●	-25-6C-C												
	35	50		●	●	-35-6C-C												
	50	75		●	●	-50-6C-C												
	75	115		●	●	-75-6C-C												
	115	180		●	●	-115-6C-C												
180	235	●		●	-180-6C-C													
25	235	∞	2525X235-6CS	●	●	-235-6C-C												
	75	115	No unit description→ (Please purchase blade and toolholder separately)	●	●	-75-6D-C												
	115	180		●	●	-115-6D-C												
	180	235		●	●	-180-6D-C												
	235	∞		●	●	-235-6D-C												
	75	115		KGDF <sup>φ</sup> <sub>L</sub> 2525X75-6DS	●	●	-75-6D-C											
115	180	●			●	-115-6D-C												
180	235	●	●		-180-6D-C													
235	∞	2525X235-6DS	●		●	-235-6D-C												
32	75	115	2525X115-6DS		●	●	-75-6D-C											
	115	180			●	●	-115-6D-C											
	180	235		●	●	-180-6D-C												
	235	∞		2525X180-6DS	●	●	-235-6D-C											
	15	25		35	No unit description→ (Please purchase blade and toolholder separately)	●	●	-25-6B-C										
		35		50		●	●	-35-6B-C										
50		75	●	●		-50-6B-C												
75		115	●	●		-75-6B-C												
115		180	●	●		-115-6B-C												
180		235	●	●		-180-6B-C												
20	235	∞	2525X235-6BS	●	●	-235-6B-C												
	25	35	2525X25-6CS	●	●	-25-6C-C												
	35	50		●	●	-35-6C-C												
	50	75		●	●	-50-6C-C												
	75	115		●	●	-75-6C-C												
	115	180		●	●	-115-6C-C												
180	235	●		●	-180-6C-C													
25	235	∞	2525X235-6CS	●	●	-235-6C-C												
	75	115	No unit description→ (Please purchase blade and toolholder separately)	●	●	-75-6D-C												
	115	180		●	●	-115-6D-C												
	180	235		●	●	-180-6D-C												
	235	∞		●	●	-235-6D-C												
	75	115		KGDF <sup>φ</sup> <sub>L</sub> 2525X75-6DS	●	●	-75-6D-C											
115	180	●			●	-115-6D-C												
180	235	●	●		-180-6D-C													
235	∞	2525X235-6DS	●		●	-235-6D-C												

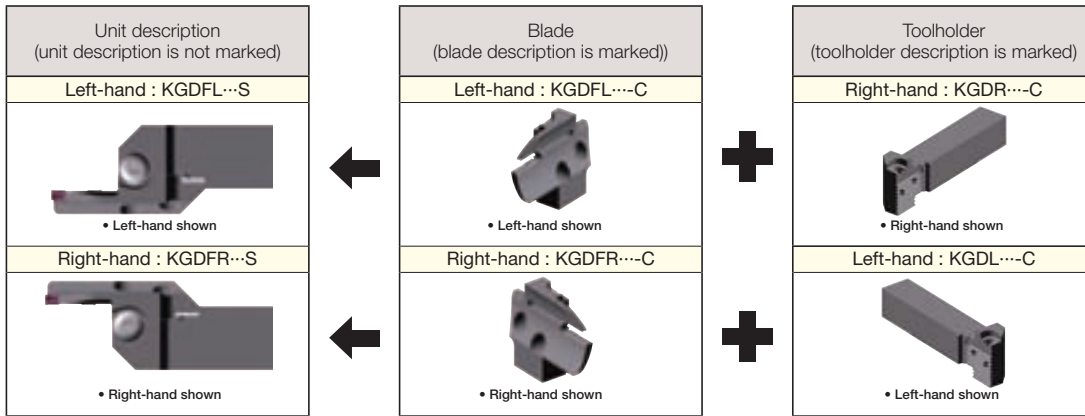
Note) T dimension shows the distance from the toolholder to the cutting edge. (When using 2-edge insert, set the groove depth under 18mm.) ●: Std. Item  
 Left-hand toolholder for right-hand blade, right-hand toolholder for left-hand blade.  
 The toolholder is applicable for all blades with the suitable hand.

● Spare parts

Unit Description	Spare parts		
	Clamp bolt (for insert clamp)	Fixing bolt (for blade)	Wrench
KGDF <sup>φ</sup> <sub>L</sub> ...S	 BH6X10TR	 SB-60120TR	 LTW-25

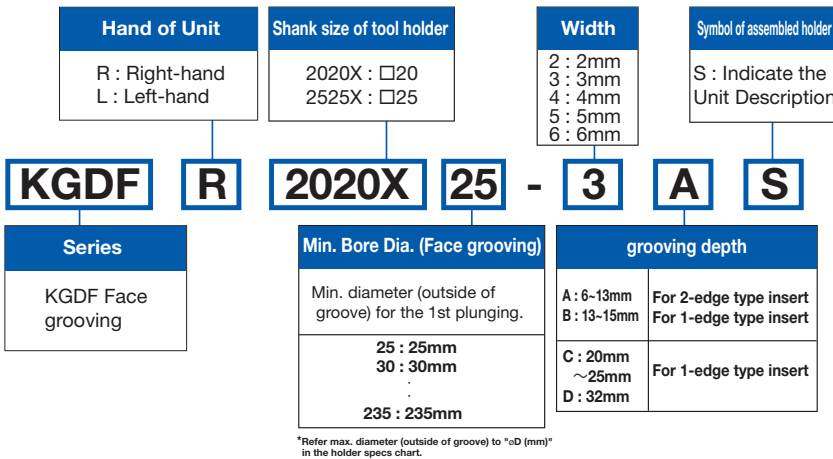
\*These spare parts are included with the toolholder when purchasing the toolholder separately.

## ● Indication of KGDF unit description



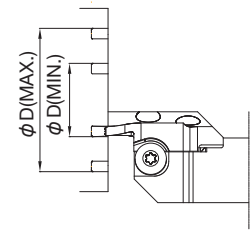
- Left-hand toolholder for right-hand blade, right-hand toolholder for left-hand blade
- The unit description is shown on the packaging label, not on the product.
- Blades and tool holders can be purchased and assembled individually.
- The insert clamp bolt (BH6x10TR) / blade fixing bolt (SB-60120TR) come with the tool holder.

## ● Indication of Face-Grooving Tool Unit Description



## ● What do min. øD and max. øD refer to?

"It indicates the available range for the 1st plunging. Outside diameter of the groove is shown."



Face grooving dia. (outer) minimum (shown in the description) maximum (see spec chart)

## ● Limits of groove expansion for small diameter machining.

Please be aware of the diameter limits when expanding the groove to the center. There is no diameter limit when expanding the groove toward the outside.

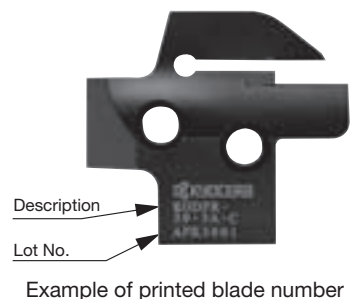
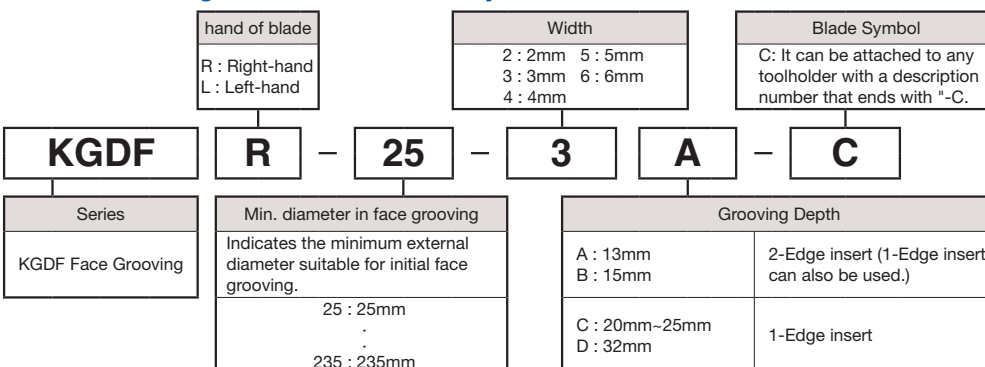
Description	øD				ød
	25	26	27	28 over	
KGDF <sup>R/L</sup>					
2020X25-3AS	4	2	0	0 (No remaining Boss)	
2525X25-3AS					
2020X25-4AS	6	3	0		
2525X25-4AS					
2020X25-5AS	7	4	1		
2525X25-5AS					
2020X25-6AS	9	4	1		
2525X25-6AS					

Interference

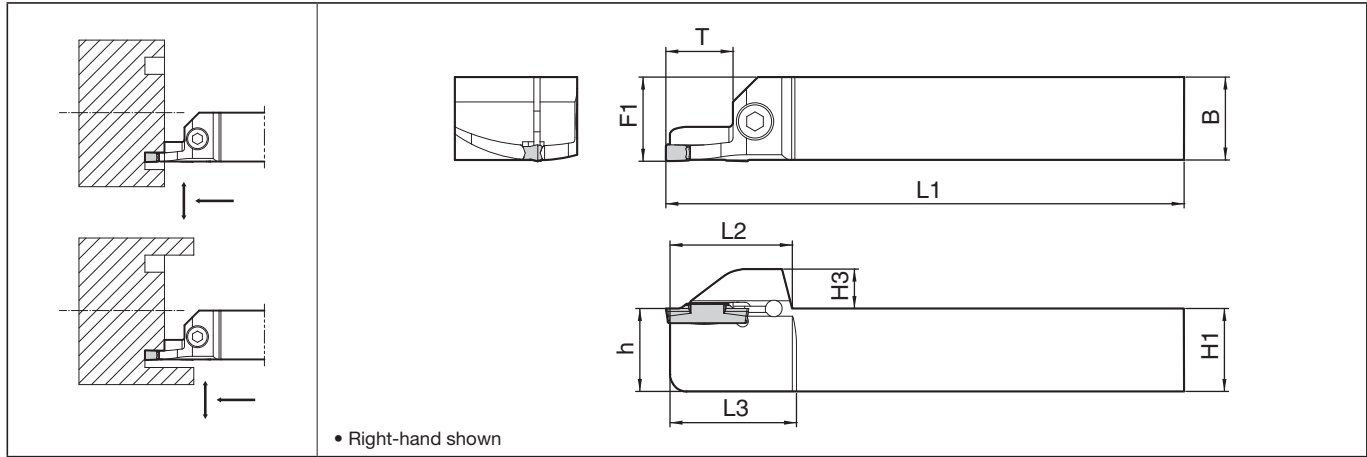
Limits of groove expansion

Note) If a groove of external dia. ø25 is created using KGDFR2020X25-3AS and turning is made toward the inside, a ø4 portion will be left in the middle due to toolholder interference.

## ● Face-Grooving Blade Identification System



# KGDF-Z Face-Grooving Toolholder (Integrated Type) NEW


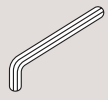


## Toolholder Dimensions

Width (mm)	Shank size (mm)	Max. Grooving Depth (mm)	φD (mm) Face Grooving Dia.		Description	Stock		Dimension (mm)							
			MIN.	MAX.		R	L	H1=h	H3	B	L1	L2	L3	F1	T
3	□20	15	50	65	KGDF <sup>R/L</sup> 2020K50-3B-Z	●	●	20	9.5	20	125	30.5	31	20.3	15
			65	85		●	●								
			85	110		●	●								
	□25		50	65	KGDF <sup>R/L</sup> 2525M50-3B-Z	●	●	25		25	150	25.3			
			65	85		●	●								
			85	110		●	●								
4	□20	15	50	70	KGDF <sup>R/L</sup> 2020K50-4B-Z	●	●	20	9.5	20	125	30.5	31	20.3	
			70	100		●	●								
			100	150		●	●								
	□25		50	70	KGDF <sup>R/L</sup> 2525M50-4B-Z	●	●	25		25	150	25.3			
			70	100		●	●								
			100	150		●	●								
5	□20	15	50	75	KGDF <sup>R/L</sup> 2020K50-5B-Z	●	●	20	9.5	20	125	30.5	31	20.3	
			75	115		●	●								
			115	180		●	●								
	□25		50	75	KGDF <sup>R/L</sup> 2525M50-5B-Z	●	●	25		25	150	25.3			
			75	115		●	●								
			115	180		●	●								

●: Std. Item

## Spare parts

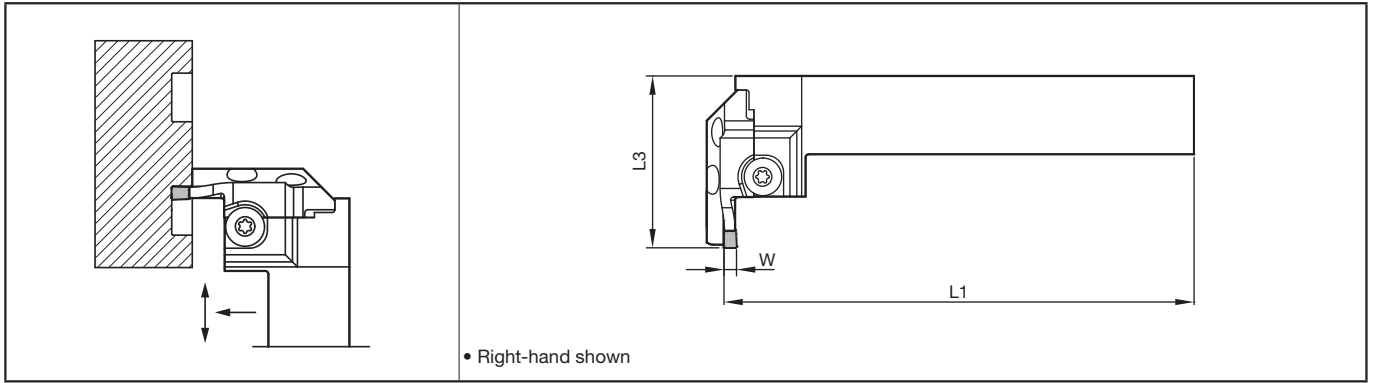
Description	Spare parts	
	Screw	Wrench
KGDF <sup>R/L</sup> .....Z	 HH5 X 16	 LW-4

## Indication of Toolholder Description (Integrated Type)

<b>KGDF</b>	<b>R</b>	<b>2525</b>	<b>M</b>	<b>50</b>	<b>3</b>	<b>B</b>	<b>Z</b>
Series	Hand	Shank size	Length of Toolholder	Min. Face Grooving Dia.	Width	Grooving depth	Toolholder type
"KGDF" face-grooving toolholder	R : Right-hand L : Left-hand	2020 : □20mm 2525 : □25mm	K : 125mm M : 150mm	50 : 50mm : : 115 : 115mm	3 : 3mm 4 : 4mm 5 : 5mm	B : 15mm	Z : Integrated type



## ■ KGDF Face-Grooving Toolholder 90° separate type



### ● Blade and Toolholder Combinations

Shank Angle	Width (mm)	Shank size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. φD (mm)		Blade Description P28	Toolholder Description P10	Dimension (mm)			
				MIN	MAX			L1	L3		
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	30	-25-2B-C		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							
		100	130	-100-2B-C							
		□25	6	25	30	KGDFR-25-2A-C	KGDSR2525-C	150	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	30	-25-2B-C		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									
100	130	-100-2B-C									
90°	3	□20	13	25	30	KGDF <sup>℞</sup> -25-3A-C	KGDS <sup>℞</sup> 2020-C	125	52.7		
				30	40	-30-3A-C					
				40	50	-40-3A-C					
				50	65	-50-3B-C					
				65	85	-65-3B-C					
				85	110	-85-3B-C					
			110	145	-110-3B-C						
			15	50	65	-50-3C-C		54.7			
			65	85	-65-3C-C						
			22	50	65	-50-3C-C			59.7		
			65	85	-65-3C-C						
			25	85	110	-85-3C-C				61.7	
		110	145	-110-3C-C							
		□25	13	25	30	KGDF <sup>℞</sup> -25-3A-C	KGDS <sup>℞</sup> 2525-C	150			52.7
				30	40	-30-3A-C					
				40	50	-40-3A-C					
				50	65	-50-3B-C					
				65	85	-65-3B-C					
				85	110	-85-3B-C					
			110	145	-110-3B-C						
			15	50	65	-50-3C-C		54.7			
			65	85	-65-3C-C						
			22	50	65	-50-3C-C			59.7		
			65	85	-65-3C-C						
25	85		110	-85-3C-C	61.7						
110	145	-110-3C-C									

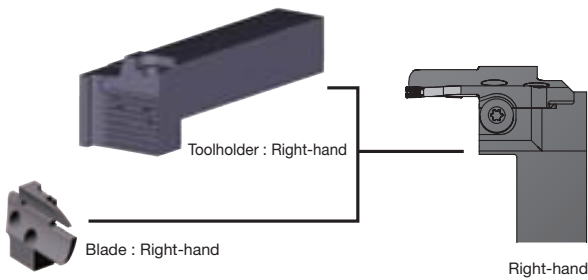
Shank Angle	Width (mm)	Shank size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. φD (mm)		Blade Description P28	Toolholder Description P10	Dimension (mm)	
				MIN	MAX			L1	L3
90°	4	□20	13	25	35	KGDF <sup>℞</sup> -25-4A-C	KGDS <sup>℞</sup> 2020-C	125	52.7
				35	50	-35-4B-C			
				50	70	-50-4B-C			
				70	100	-70-4B-C			
				100	150	-100-4B-C			
				150	220	-150-4B-C			
			220	∞	-220-4B-C				
			15	35	50	-35-4C-C		64.7	
			50	70	-50-4C-C				
			70	100	-70-4C-C				
			100	150	-100-4C-C				
			150	220	-150-4C-C				
		220	∞	-220-4C-C					
		□25	13	25	35	KGDF <sup>℞</sup> -25-4A-C	KGDS <sup>℞</sup> 2525-C	150	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				
			15	35	50	-35-4C-C		64.7	
			50	70	-50-4C-C				
			70	100	-70-4C-C				
			100	150	-100-4C-C				
150	220		-150-4C-C						
220	∞	-220-4C-C							

## ● Combinations of blade and toolholder

Shank Angle	Width (mm)	Shank size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. φD (mm)		Blade Description P28	Toolholder Description P10	Dimension (mm)			
				MIN	MAX			L1	L3		
90°	5	□20	15	25	35	KGDF% -25-5B-C	KGDS% 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	59.7					
		□25	25	35	50	-35-5C-C		KGDS% 2525-C	150	64.7	
				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	32	75	115	-75-5D-C	KGDS% 2525-C	150	71.7			
			115	180	-115-5D-C						
			180	235	-180-5D-C						
			235	∞	-235-5D-C						
			25	35	-25-5B-C				KGDS% 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	59.7							
□25	25	35	50	-35-5C-C	KGDS% 2525-C	150	64.7				
		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	32	75	115	-75-5D-C	KGDS% 2525-C	150	71.7				
		115	180	-115-5D-C							
		180	235	-180-5D-C							
		235	∞	-235-5D-C							

Shank Angle	Width (mm)	Shank size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. φD (mm)		Blade Description P28	Toolholder Description P10	Dimension (mm)			
				MIN	MAX			L1	L3		
90°	6	□20	15	25	35	KGDF% -25-6B-C	KGDS% 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	59.7					
		□25	25	35	50	-35-6C-C		KGDS% 2525-C	150	64.7	
				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	32	75	115	-75-6D-C	KGDS% 2525-C	150	71.7			
			115	180	-115-6D-C						
			180	235	-180-6D-C						
			235	∞	-235-6D-C						
			25	35	-25-6B-C				KGDS% 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	59.7							
□25	25	35	50	-35-6C-C	KGDS% 2525-C	150	64.7				
		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	32	75	115	-75-6D-C	KGDS% 2525-C	150	71.7				
		115	180	-115-6D-C							
		180	235	-180-6D-C							
		235	∞	-235-6D-C							

## ■ 90° separate type



- 1) KGDF 90° type is not available as a unit (toolholder + blade). Please purchase the toolholder and blade separately.
  - Right-hand blade for right-hand toolholder, left-hand blade for left-hand toolholder.
- 2) The insert clamping bolt (BH6X10TR), blade fixing bolt (SB-60120TR) and wrench (LTW-25) that are included with the toolholder can be used.

● Blade dimensions

Shape	Description of Blade	Stock		Dimension (mm)			Face Grooving Dia. $\phi D$ (mm)		Width (mm)	Applicable Inserts P18	Toolholder Description P10
		R	L	L	T	A	MIN	MAX			
	KGDFR	-25-2A-C	●		44.4	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	●		47.4	13		25	30		
		-30-2B-C	●		49.4	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%	-25-3A-C	●	●	47.35	13	2	25	30	3	GDFM 3020N-030GM GDFM 3020N-030DM GDFMS 3020N-030DM
		-30-3A-C	●	●				30	40		
		-40-3A-C	●	●				40	50		
		-50-3B-C	●	●	49.35	15		50	65		
		-65-3B-C	●	●				65	85		
		-85-3B-C	●	●				85	110		
		-110-3B-C	●	●	56.35	22		110	145		
		-50-3C-C	●	●				50	65		
		-65-3C-C	●	●				65	85		
		-85-3C-C	●	●	59.35	25		85	110		
		-110-3C-C	●	●				110	145		
	KGDF%	-25-4A-C	●	●	49.35	15	3	25	35	4	GDFM 4020N-040GM GDFM 4020N-040GH GDFM 4020N-040DM GDFMS 4020N-040DM
		-35-4B-C	●	●				35	50		
		-50-4B-C	●	●				50	70		
		-70-4B-C	●	●				70	100		
		-100-4B-C	●	●				100	150		
		-150-4B-C	●	●				150	220		
		-220-4B-C	●	●	220	∞					
		-35-4C-C	●	●	59.35	25		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%	-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
		-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	●	●				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%	-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
-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		●	●			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	∞					

Right-hand Shown

●: Std. Item

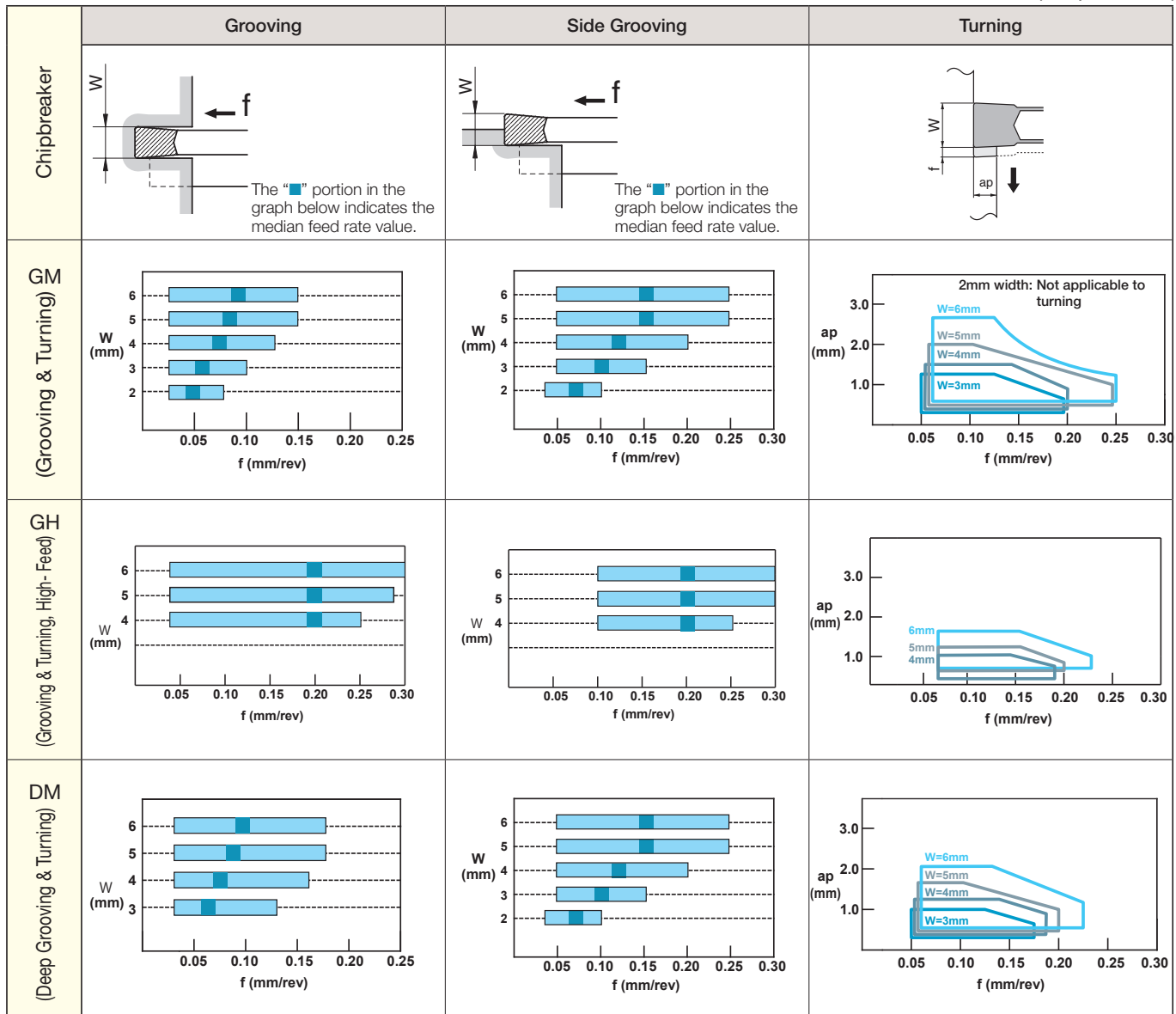
# Recommended Cutting Conditions (Face Grooving)

Workpiece Material	Recommended Insert Grade Cutting Speed (m/min)			Remarks
	Cermet	MEGACOAT		
	TN90	PR1225	PR1215	
Carbon Steel (SxxC, etc)	☆ 80~200	★ 60~160	☆ 80~160	Wet
Alloy Steel (SCM, etc)	☆ 70~160	★ 60~150	☆ 60~150	
Stainless Steel (SUS304, etc)	☆ 60~150	★ 50~120	☆ 50~120	
Cast Iron (FC, FCD, etc)	-	-	★ 80~160	
Aluminum / Brass	-	-	-	

★: 1st recommendation ☆: 2nd recommendation

## Recommended Cutting Conditions (f, ap)

(workpiece : S50C)



- When machining a shoulder wall:
  - If  $a_p$  is set smaller, set feed higher.
  - If  $a_p$  is set larger, set feed lower.

- 1) The above conditions apply in cases where the toolholder's T dimension is no greater than 15mm.
- 2) If the T dimension is greater than 15mm, for traversing use up to 90% of the recommended cutting conditions.

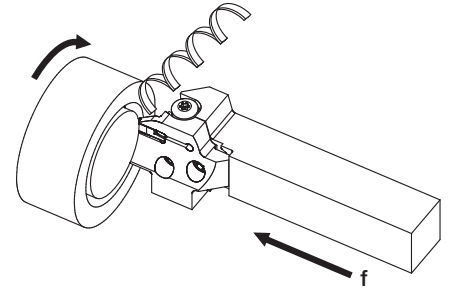
## ● Points for face grooving

### 1) Toolholder Selection

Check available min. and max. dia as well as width and depth.

### 2) Machining conditions (Feed rate : f)

Set proper feed rate to create continuous chips for face grooving on steel.



### 3) To expand groove width

Recommend turning from outside to inside to get better chips evacuation.

Plunging (face + side grooving)	Turning	

## 4) Points for turning

A. To remove over 0.5mm depth of cut (cp), take the following three steps.

- ① Plunging
  - ② Pull back the tool by 0.1mm
  - ③ Turning
- (Refer to fig.1)

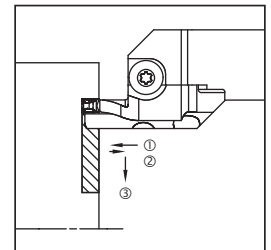
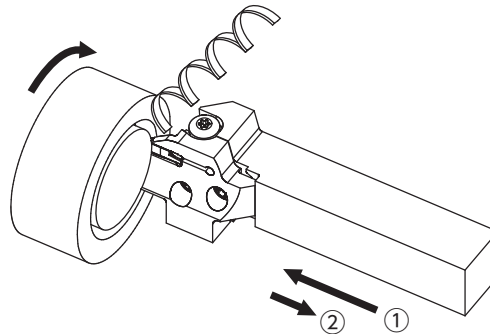


fig 1

- To expand groove width (See Fig. 2)
- Please program the machine to make cutting steps at each pass, and then perform finishing.

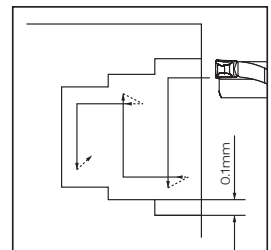
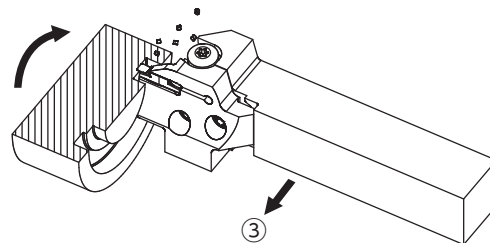


fig 2

B. The following two operations can be carried out in succession when the ap is no greater than 0.5mm:

- ① Plunging
- ② Turning

Turning can be carried out after grooving (See Fig. 3)

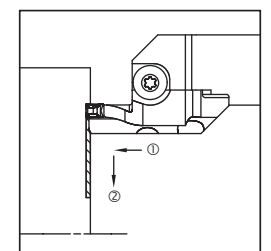
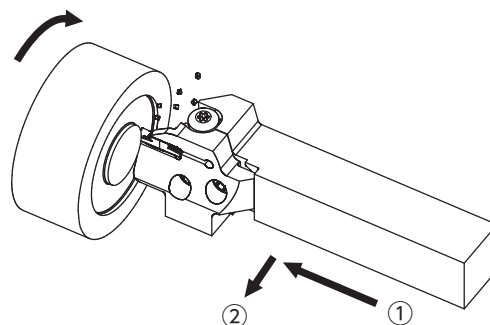


fig 3

## Case Studies

### SCr420H (External Grooving)

<ul style="list-style-type: none"> <li>•Gear</li> <li>•Vc=113~164 m/min</li> <li>•f=0.06 mm/rev</li> <li>•WET</li> <li>•GDM4020N-040GM (PR1225)</li> <li>•KGD L2525X-3T10S</li> </ul>	
<b>GM Chipbreaker (PR1225)</b>	<b>1500 pcs/edge</b>
Competitor K (PVD Coated Carbide)	<b>250pcs/edge</b>
<p>Results</p> <ul style="list-style-type: none"> <li>•KGD and GM Chipbreaker (PR1225) improved tool life to 6 times longer than that of Competitor K.</li> <li>•No burned chips and good chip control.</li> </ul> <p>Competitor K      GM Chipbreaker</p>	

### S45CF (Cut-Off)

<ul style="list-style-type: none"> <li>•Sleeve</li> <li>•Vc=103 m/min</li> <li>•f=0.12 mm/rev</li> <li>•WET</li> <li>•GDM3020N-025PM (PR1225)</li> <li>•KGD L2525X-3T20S</li> </ul>	
<b>PM Chipbreaker (PR1225)</b>	<b>250 pcs/edge, capable of further machining</b>
Competitor L (PVD Coated Carbide)	<b>250 pcs/edge, with chipping</b>
<p>Results</p> <ul style="list-style-type: none"> <li>•KGD and PM Chipbreaker (PR1225) showed good edge condition after machining same number of workpieces as Comp. L.</li> <li>•Further machining possible (Competitor L caused chipping)</li> </ul>	

### SCM435 (Copying)

<ul style="list-style-type: none"> <li>•Ball Stud</li> <li>•Vc=100~160 m/min</li> <li>•f=0.15~0.25 mm/rev</li> <li>•ap=0.3 mm</li> <li>•WET</li> <li>•GDM3020N-150R-CM (PR1225)</li> <li>•KGD R2020X-3T10S</li> </ul>	
<b>CM Chipbreaker (PR1225)</b>	<b>800 pcs/edge</b>
Conventional A	<b>400 pcs/edge</b>
<p>Results</p> <ul style="list-style-type: none"> <li>•Solve problems, such as chip-bite and tangled chips, due to its superior chip evacuation performance ⇒ Eliminates breakage of edge caused by chips.</li> <li>•Double the tool life due to reduced edge damage</li> </ul>	

### SCM435H (Face grooving)

<ul style="list-style-type: none"> <li>•Piston</li> <li>•Vc=150 m/min</li> <li>•f=0.05 mm/rev (Grooving) 0.1, 0.15 mm/rev (Turning)</li> <li>•ap=1, 1.8 mm (Turning)</li> <li>•WET</li> <li>•GDFM4020N-040GM (PR1225)</li> <li>•KGD FL2525X50-4CS</li> </ul>	
<b>GM Chipbreaker (PR1225)</b>	<b>40pcs/edge, capable of further machining</b>
Conventional B	<b>40pcs/edge, with chipping</b>
<p>Results</p> <ul style="list-style-type: none"> <li>•KGD + GM Chipbreaker improved chip evacuation compared to B. (Eliminated frequent breakage of holder, also.)</li> <li>•Reduced wear on the edge provided by MEGACOAT increases the tool life. (Lower running cost as a result of longer tool life)</li> </ul>	

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