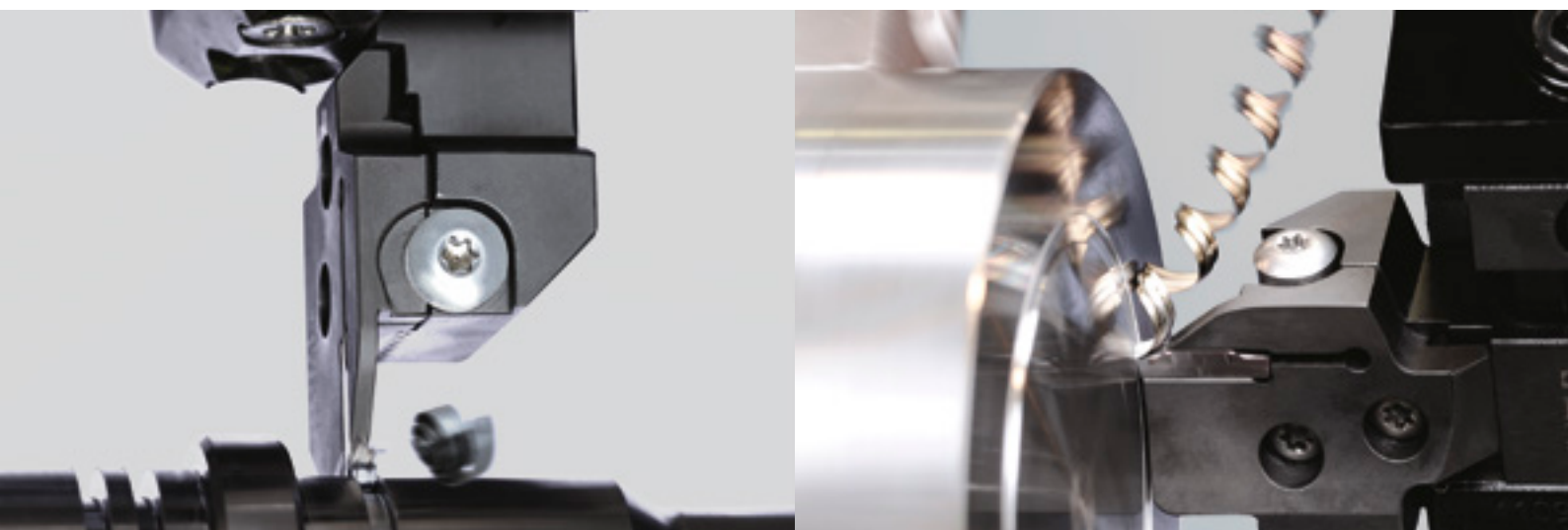


KGD/KGDF



Improved grooving performance

Good chip control

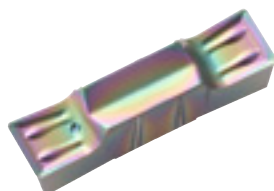
MEGACOAT / MEGACOAT NANO coating technology
for long tool life and high efficiency machining

Expansive line-up of chipbreakers
and toolholders.

NEW

Inserts for external grooving
(For aluminium)

AM chipbreaker



**KEEPS YOU
AHEAD**



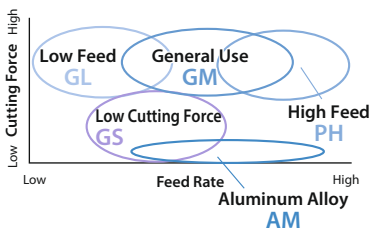
KGD

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

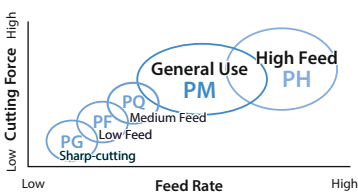
1 Wide range of chipbreakers

Application maps

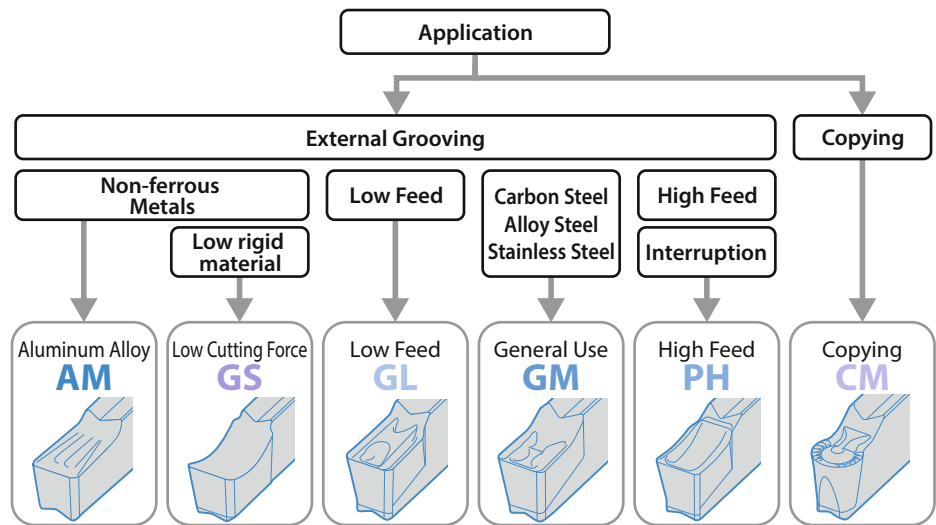
External grooving and traversing



Cut-Off



Chipbreaker selection (external)



Comparison of chip control (Internal evaluation)

Cutting conditions : $V_c = 150$ m/min, $f = 0.15$ mm/rev Workpiece : SCM415

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

GM Chipbreaker



Competitor A

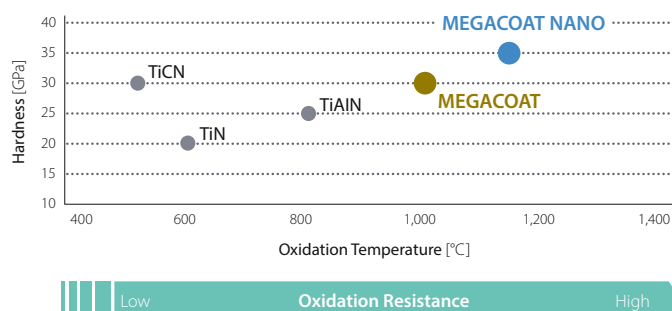


Competitor B



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 line-up

Available two types of toolholder: Monoblock type and separate type

Monoblock type



Monoblock type toolholder

With wide line-up (for various groove width and depth)

Separate type



Separate 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 line-up

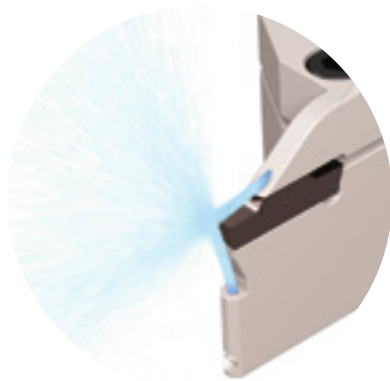
JCT



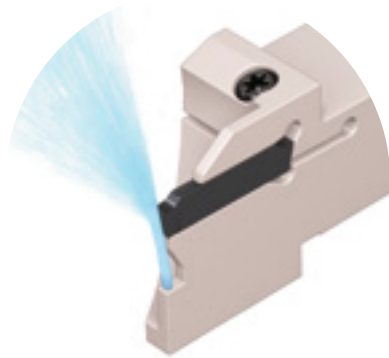
Coolant is directed from two directions

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.

Monoblock type / Separate type selection reference

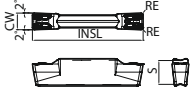
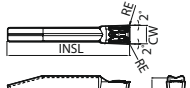
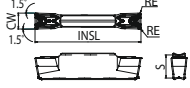
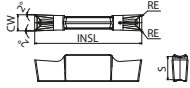
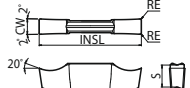
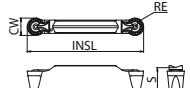
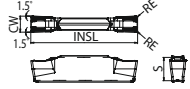
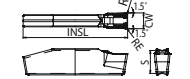
Monoblock type	Separate type
• Various toolholder line-up Available for various groove depth (shallow / medium / deep) Optimum overhang length • Available for low-rigid machine and workpiece • For small machine with limited work space • (Automatic lathe, small lathe, etc.) • Coolant-through holders for high pressure coolant	• Suitable for high-mix low-volume production Suitable for grooving with various width Applicable for various groove width by replacing blades • Suitable for difficult-to-cut material Tough cutting conditions Toolholder cost reduction (replaceable blade) • Face grooving is possible by changing blade * Make sure right hand / left hand

Face grooving KGDF toolholder and GDFM Inserts → P21



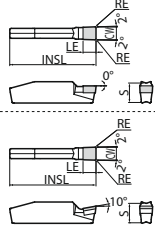
GDM/GDMS/GDG (External grooving and traversing)

Applicable Inserts

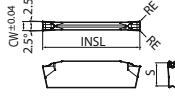
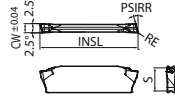
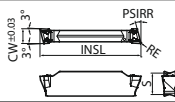
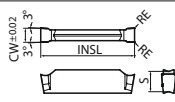
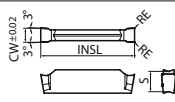
Applicable Inserts			Classification of usage		P Carbon Steel / Alloy Steel		●	○	●	○	●	○	●	○	●	○	
					M Stainless Steel				●	○	●	○	●	○	●	○	
			● : Continuous~Light Interruption / 1st Choice ○ : Continuous~Light Interruption / 2nd Choice		K Cast Iron						●						
					N Non-ferrous Metals									●	○		
			● : Continuous / 1st Choice ○ : Continuous / 2nd Choice		S Titanium Alloy				●					○			
					H Hard materials (In case hardness is under 40HRC)						○						
Insert			Description		Dimensions (mm)				Cermet		MEGAC. NANO	MEGACOAT		DLC	Carbide		
					Edge width CW		RE	INSL	S	TN620	TN90	PR1535	PR1225	PR1215	PDL015	GW15	
						Tolerance											
Grooving and turning	General use		GDM	2420N-020GM	2.4	±0.03	0.2	20	4.3	●	●	●	●	●			
				3020N-020GM	3.0		0.4			●	●	●	●	●			
				3020N-040GM	4.0		0.2			●	●	●	●	●			
				4020N-020GM	4.0		0.4			●	●	●	●	●			
				4020N-040GM	4.0		0.8			●	●	●	●	●			
				4020N-080GM	5.0	0.4	●	●	●	●	●						
				5020N-040GM	6.0	0.8	●	●	●	●	●						
				5020N-080GM	6.0	0.4	●	●	●	●	●						
				6020N-040GM	8.0	±0.05	0.8	30	5.5		●	●	●				
				6020N-080GM													
	8030N-080GM																
	General use • 1-edge		GDMS	2220N-020GM	2.2	±0.03	0.2	20	4.3	●	●	●	●	●			
				3020N-040GM	3.0		0.4			●	●	●	●	●			
				4020N-040GM	4.0		0.8			●	●	●	●	●			
				5020N-080GM	5.0	±0.04	0.8			●	●	●	●	●			
				6020N-080GM	6.0		●			●	●	●	●				
	Low feed		GDM	2420N-020GL	2.4	±0.03	0.2	20	4.3	●	●	●	●	●			
				3020N-020GL	3.0		0.4			●	●	●	●	●			
				3020N-040GL	4.0		0.2			●	●	●	●	●			
				4020N-020GL	4.0		0.4			●	●	●	●	●			
4020N-040GL				5.0	±0.04	0.4	●			●	●	●	●				
5020N-040GL				6.0		●	●			●	●	●					
6020N-040GL				6.0		●	●			●	●	●					
NEW Aluminum alloy		GDG	3020N-020AM	3.0	±0.02	0.2	20	4.3						●	●		
			4020N-040AM	4.0		0.4								●	●		
			5020N-040AM	5.0										●	●		
			6020N-040AM	6.0										●	●		
Grooving	Low cutting force		GDG	2520N-020GS	2.5	±0.02	0.2	20	4.3	●	●	●	●	●		●	
				3020N-020GS	3.0		●			●	●	●	●		●		
				3520N-020GS	3.5		●			●	●	●	●		●		
				4020N-040GS	4.0		●			●	●	●	●		●		
				5020N-040GS	5.0		●			●	●	●	●		●		
				6020N-040GS	6.0			●	●	●		●					
				8030N-040GS	8.0	30	5.5	●	●	●	●		●				
				Full-R / Copying		GDM	3020N-150R-CM	3.0	±0.03	1.5	20	4.3	●	●	●	●	●
4020N-200R-CM	4.0	2.0	●				●	●		●			●				
5020N-250R-CM	5.0	±0.04	2.5				*21	●	●	●	●		●				
6020N-300R-CM	6.0		3.0				●	●	●	●	●						
Grooving and cut-Off	High feed		GDM	2020N-020PH	2.0	±0.03	0.2	20	4.3				●	●			
				3020N-030PH	3.0		0.3						●	●	●		
				4020N-030PH	4.0							●	●	●			
	High feed • 1-edge		GDMS	2020N-020PH	2.0	±0.03	0.2	20					●	●	●		
				3020N-030PH	3.0		0.3						●	●	●		
				4020N-030PH	4.0							●	●	●			

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			
Grooving			Tolerance	±0.03	20	4.3	2.9	KBN05M	KBN570	KPD001
1-edge	CBN	GDGS 2020N-020NB	2.0	0.2	20	4.3	2.9	●	●	●
		3020N-020NB	3.0	0.2						●
		3020N-040NB	4.0	0.4				●	●	
		4020N-020NB		0.2						●
		4020N-040NB	5.0	0.4				●	●	●
	PCD	5020N-020NB		0.2						●
		5020N-040NB	6.0	0.4				●	●	
		6020N-020NB		0.2						●
		6020N-040NB		0.4				●		

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

Insert		Description	Dimensions (mm)				Angle	MEGACOAT NANO	MEGACOAT		DLC Coated Carbide	Carbide
			Edge width CW	RE	INSL	S	PSIR R/L	PR1535	PR1225	PR1215	PDL025	GW15
Handed insert shows right-hand			Tolerance	±0.04	16	3.7	-	●	●	●		
Cut-off (Low feed)		GDM 1316N-003PF	1.3	0.03	16	3.7	-	●	●	●		
		1316N-015PF	1.5	0.15				●	●	●		
		1516N-003PF		0.03				●	●	●		
		1516N-015PF	2.0	0.15				●	●	●		
		2020N-003PF		0.03				●	●	●		
		2020N-015PF	2.0	0.15	20	4.3	-	●	●	●		
		2520N-003PF	2.5	0.03				●	●	●		
		2520N-015PF	3.0	0.15				●	●	●		
		3020N-003PF		0.03				●	●	●		
		3020N-015PF	3.0	0.15				●	●	●		
Cut-off (Medium feed)		GDM 1316 R/L-003PF-15D	1.3	0.03	16	3.7	15°	●	●	●		
		1516 R/L-003PF-15D	1.5	0.03				●	●	●		
		1516R-015PF-15D		0.15				R	R	R		
		2020 R/L-003PF-15D	2.0	0.03				●	●	●		
		2020R-015PF-15D		0.15				R	R	R		
		2520 R/L-003PF-15D	2.5	0.03	20	4.3	15°	●	●	●		
		2520R-015PF-15D	3.0	0.15				R	R	R		
		3020 R/L-003PF-15D		0.03				●	●	●		
		3020R-015PF-15D		0.15				R	R	R		
Cut-off (Low Cutting force)		GDM 2020N-010PQ	2.0	±0.03	0.1	20	4.3	-	●	●	●	
		2520N-010PQ	2.5					●	●	●		
		3020N-010PQ	3.0					●	●	●		
		GDM 2020R-010PQ-15D	2.0	±0.03	0.1	20	4.3	15°	R	R	R	
		2520R-010PQ-15D	2.5					R	R	R		
		3020R-010PQ-15D	3.0					R	R	R		
Cut-off (Low Cutting force)		GDG 2020N-005PG	2.0	±0.02	0.05	20	4.3	-	●	●		●
		2520N-005PG	2.5						●	●		●
		3020N-005PG	3.0						●	●		●
		GDG 2020R-005PG-15D	2.0	±0.02	0.05	20	4.3	15°	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.
● : Available R: Right-hand Only

GDM/GDMS (Cut-off)

Applicable Inserts

Applicable Inserts				Classification of usage				P	Carbon Steel / Alloy Steel					
				 : Continuous~Light Interruption / 1st Choice  : Continuous~Light Interruption / 2nd Choice				M	Stainless Steel					
								N	Non-ferrous Metals					
Insert				Description		Dimensions (mm)				Angle	MEGACOAT NANO		MEGACOAT	
Handed Insert shows Right-hand						Edge width CW		RE	INSL	S	PSIR [°] / _L	PR1535	PR1225	PR1215
				Tolerance										
Cut-Off (general Purpose)														

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.
●: Available R: Right-Hand Only

Inserts identification system

Tolerance		Edge width		Hand of tool		Chipbreaker (External grooving / Cut-off)	
M: M-Class	G: G-Class	13: 1.3 mm	25: 2.5mm	R: Right-hand	L: Left-hand	GM: Grooving and traversing	PH: High feed
		15: 1.5 mm	30: 3 mm			GL: Low feed	PM: Cut-off (General purpose)
		20: 2 mm	40: 4 mm			GS: Low cutting force	PG: Cut-off (Low cutting force)
						CM: Copying	NB: Without chipbreaker
							AM: Aluminum alloy
							PQ: Cut-off (Medium feed)
GD	M	S	30	20	N	-	025
Series	No. of edges	Insert length	Corner-R(RE)	Chipbreaker (Face grooving)	Lead angle		
GD: External grooving / Cut-off	No indication: 2-edge	16 : 16 mm	003: 0.03 mm	GM: Grooving and traversing	No indication: 0°		
GDF: Face grooving	S: 1-edge	20 : 20 mm	015: 0.15 mm	DM: Grooving	6D: 6°		
		30 : 30 mm	020: 0.2 mm	GH: High Feed	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

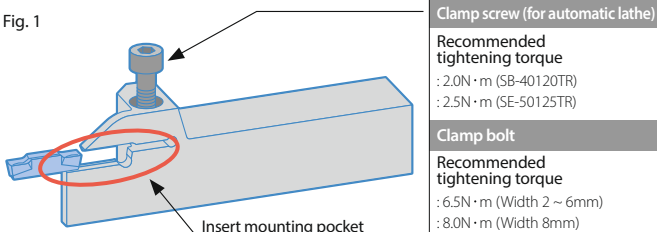


Fig. 2

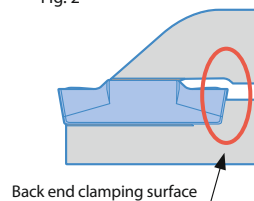
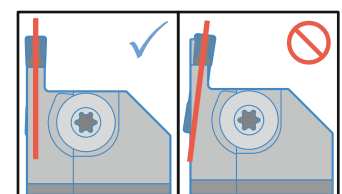
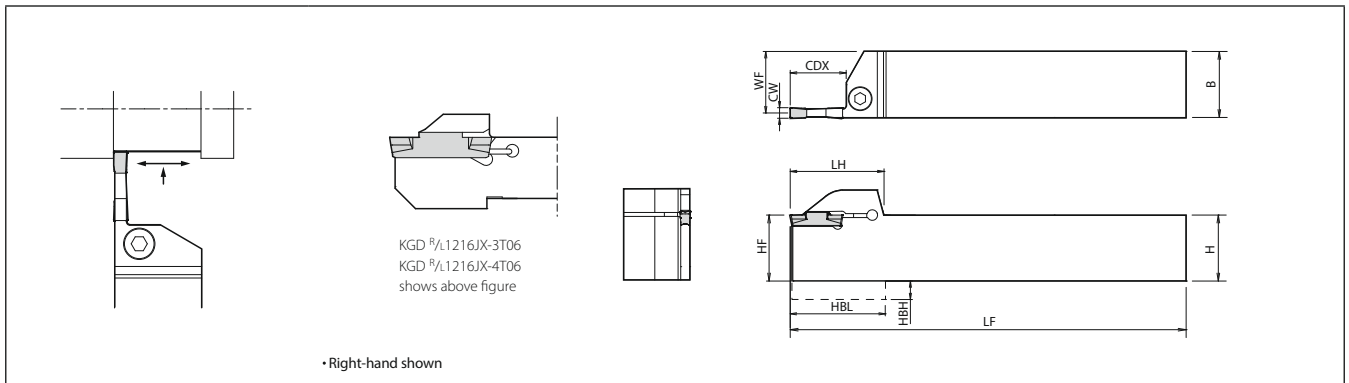


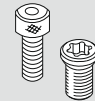
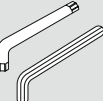
Fig. 3



KGD (Monoblock type)



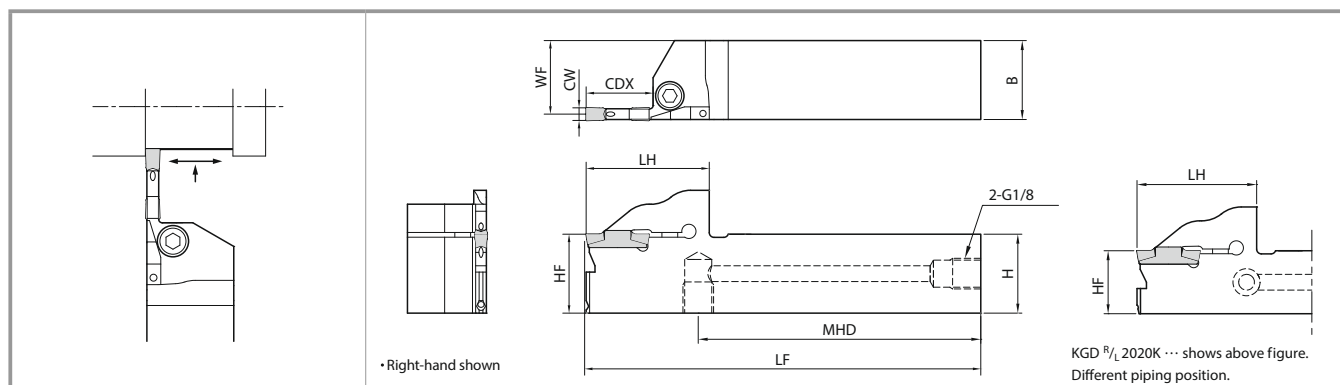
Toolholder dimensions

Width (mm)	Max. grooving depth (mm)	Description	Availability		Dimensions (mm)										Insert width CW (mm)		Spare parts		
																	Clamp bolt	Wrench	
																			
			R	L	H	HF	HBH	B	LF	LH	HBL	WF	CDX	MIN.	MAX.				
2	6	KGD R/L 1616H-2T06	●	●	16	4.0	9.5	16	100	27.7	28.0	15.2	6	2.0	3.0	HH5X16	LW-4		
		2020K-2T06	●	●	20	—		20	125	28.0	—	19.2				HH5X25			
		2525M-2T06	●	●	25	—		25	150	—	—	24.2				HH5X16			
	10	KGD R/L 1616H-2T10	●	●	16	4.0		16	100	30.2	30.5	15.2	10			HH5X25			
		2020K-2T10	●	●	20	—		20	125	30.5	—	19.2				HH5X16			
		2525M-2T10	●	●	25	—		25	150	—	—	24.2				HH5X25			
	17	KGD R/L 1616H-2T17	●	●	16	4.0		16	100	31.2	31.5	15.2	17			HH5X16			
		2012K-2T17	●	●	20	—		12	125	32.5	—	11.2				HH5X25			
		2020K-2T17	●	●				19.2				HH5X16							
		2525M-2T17	●	●				25				24.2				HH5X25			
2.4	17	KGD R/L 2012K-2.4T17	●	●	20	—	9.5	12	125	32.5	—	11.0	17	2.4	3.0	HH5X16	LW-4		
		2020K-2.4T17	●	●				20				19.0				HH5X25			
3	6	KGD R/L 1216JX-3T06	●	●	12	2.0	9.5	16	120	19.5	19	14.8	6	3.0	4.0	SE-50125TR	LW-4		
		1616H-3T06	●	●	16	4.0		16	100	27.7	28.0	14.8				HH5X16			
		2020K-3T06	●	●	20	—		20	125	28.0	—	18.8				HH5X25			
		2525M-3T06	●	●	25	—		25	150	—	—	23.8				HH5X16			
	10	KGD R/L 1616H-3T10	●	●	16	4.0		16	100	30.2	30.5	14.8	10			HH5X25			
		2020K-3T10	●	●	20	—		20	125	30.5	—	18.8				HH5X16			
		2525M-3T10	●	●	25	—		25	150	—	—	23.8				HH5X25			
	20	KGD R/L 1616H-3T20	●	●	16	4.0		16	100	34.2	34.5	14.8	20			HH5X16			
		2012K-3T20	●	●	20	—		12	125	34.5	—	10.8				HH5X25			
		2020K-3T20	●	●				18.8				HH5X16							
		2525M-3T20	●	●				25				23.8				HH5X25			
	4	6	KGD R/L 1216JX-4T06	●	●	12		2.0	9.5	16	120	19.5	19			14.3		6	4.0
10		KGD R/L 2020K-4T10	●	●	20	—	20	125		30.5	—	18.3	HH5X16						
20		2525M-4T10	●	●	25	—	25	150		—	—	23.3	HH5X25						
		KGD R/L 2020K-4T20	●	●	20	—	20	125		34.5	—	18.3	HH5X16						
25		2525M-4T20	●	●	25	—	25	150		35.5	—	23.3	HH5X25						
		KGD R/L 2525M-4T25	●	●	25	—	25	150		40.5	—	23.3	HH5X25						
5	10	KGD R/L 2020K-5T10	●	●	20	—	9.5	20	125	30.5	—	17.8	10	5.0	6.0	HH5X16	LW-4		
		2525M-5T10	●	●	25			—	25	150		—				22.8		HH5X25	
	17	KGD R/L 2020K-5T17	●	●	20			—	20	125		37.5	—			17.8		17	HH5X25
		2525M-5T17	●	●	25			—	25	150		—				22.8			HH5X25
	25	KGD R/L 2525M-5T25	●	●	25			—	25	150		40.5	—			22.8		25	HH5X25
		2525M-5T25	●	●	25			—	25	150		40.5				—		22.8	HH5X25
6	15	KGD R/L 2525M-6T15	●	●	25	—	9.5	25	150	32.5	—	22.4	15	6.0	6.0	HH5X25	LW-4		
	30	KGD R/L 2525M-6T30	●	●	25			—	25	150		45.5				—		22.4	HH5X25
8	25	KGD R/L 2525M-8T25	●	●	25	7.0	9.5	25	150	43.3	44.2	22.0	25	8.0	8.0	HH6X25	LW-5		
		3232P-8T25	●	●	32	—		32	170		—	29.0				HH6X25			

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

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

Recommended cutting conditions → P18 ~ P20



Toolholder dimensions

Pressure resistance : ~ 15MPa

Groove widths (mm)	Max. grooving depth (mm)	Description	Available		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						
	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						

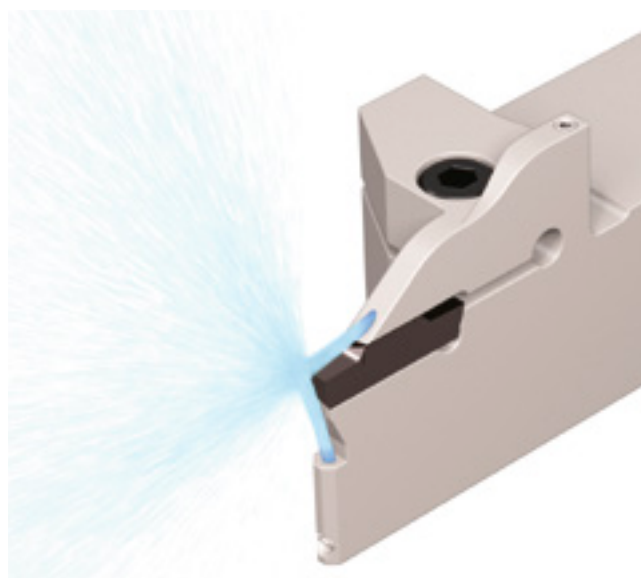
Please see P8 for piping parts.

● : Available
Recommended cutting conditions ➡ P18 ~ P20

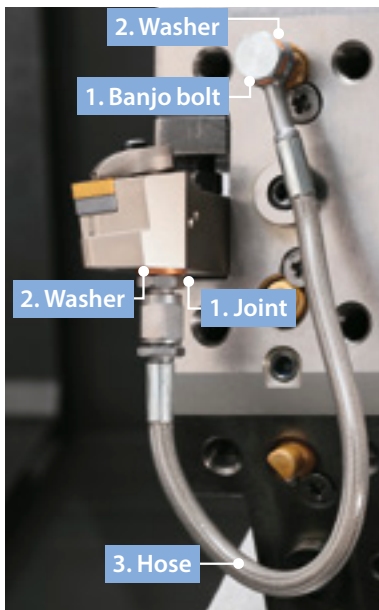
Coolant is directed from two directions

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

Excellent chip control and long tool life.

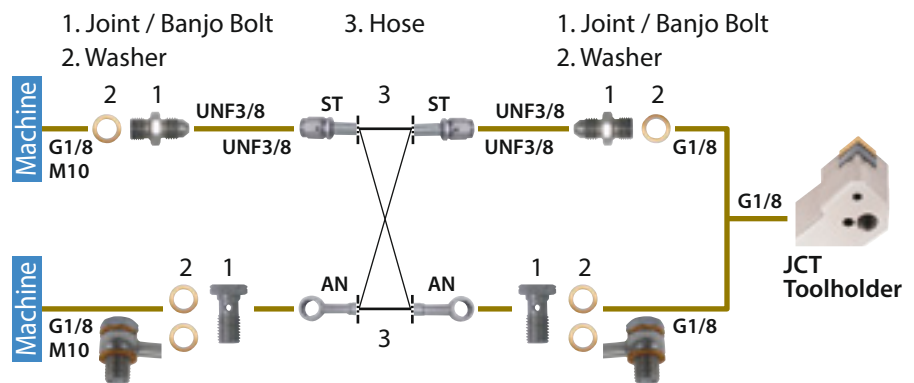


Easy connection with high pressure hose and joint



- 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

KGD-JCT (Grooving/Cut-off)

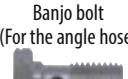
Optional piping parts available.

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	Available	Thread standard
	J-G1/8-UNF3/8	●	G1/8
	J-M10X1.5-UNF3/8	●	M10X1.5
	BB-G1/8	●	G1/8
	BB-M10X1.5	●	M10X1.5

2. Washer pressure resistance : ~ 30MPa

Shape	Description	Available
	WS-10	●

* Use 2 washers for a banjo bolt.

3. Hose

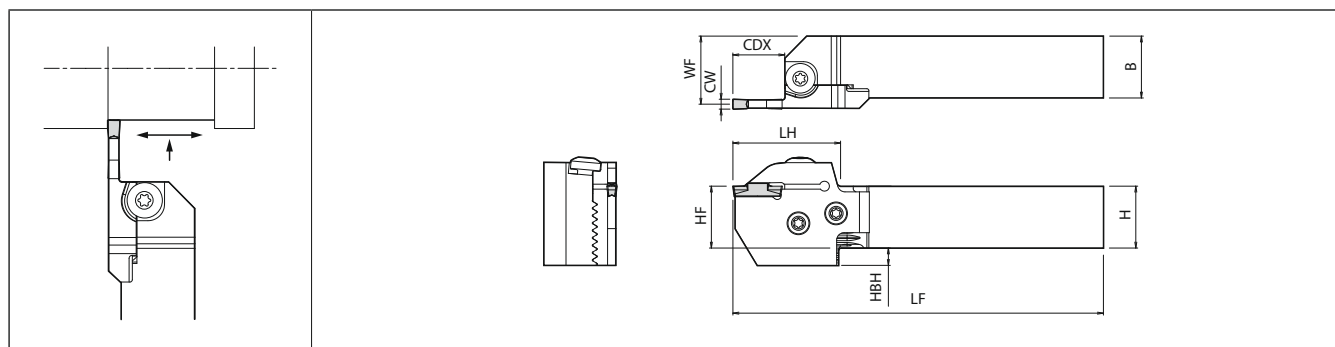
Pressure resistance : ~ 30MPa

Shape	Description	Stock	Thread standard		Dim. (mm)
	HS-ST-ST-200	●	UNF3/8	UNF3/8	200
	HS-ST-ST-250	●			250
	HS-ST-AN-200	●	UNF3/8	(Banjo bolt)	200
	HS-ST-AN-250	●			250
	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° Separate type)



Toolholder dimensions (Blade + toolholder)

Shank angle	Width (mm)	Max. grooving depth (mm)	Shank size (mm)	Unit description (Standard stock description)		Available		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 R/L	2020X-2T17S	●	—	KGD R/L-2T17-C	KGD R/L2020-C	20	20	12	20	122	40	23.4	17	2.0	3.0	
			□ 25		2525X-2T17S	●	●		KGD R/L2525-C	25	25	7	25	147		28.4				
			□ 32	No unit description ➔					KGD R/L3232-C	32	32	—	32	167		35.4				
	3	10	□ 20	KGD R/L	2020X-3T10S	●	—	KGD R/L-3T10-C	KGD R/L2020-C	20	20	12	20	115	33	23.0	10	3.0	4.0	
			□ 25		2525X-3T10S	●	—		KGD R/L2525-C	25	25	7	25	140		28.0				
			□ 32	No unit description ➔					KGD R/L3232-C	32	32	—	32	160		35.0				
		20	□ 20	KGD R/L	2020X-3T20S	●	●	KGD R/L-3T20-C	KGD R/L2020-C	20	20	12	20	125	43	23.0	20			
			□ 25		2525X-3T20S	●	●		KGD R/L2525-C	25	25	7	25	150		28.0				
			□ 32		3232X-3T20S	●	—		KGD R/L3232-C	32	32	—	32	170		35.0				
	4	10	□ 20	KGD R/L	2020X-4T10S	●	—	KGD R/L-4T10-C	KGD R/L2020-C	20	20	12	20	115	33	22.5	10	4.0	5.0	
			□ 25		2525X-4T10S	●	—		KGD R/L2525-C	25	25	7	25	140		27.5				
			□ 32	No unit description ➔					KGD R/L3232-C	32	32	—	32	160		34.5				
		20	□ 20	KGD R/L	2020X-4T20S	●	—	KGD R/L-4T20-C	KGD R/L2020-C	20	20	12	20	125	43	22.5	20			
			□ 25		2525X-4T20S	●	●		KGD R/L2525-C	25	25	7	25	150		27.5				
			□ 32		3232X-4T20S	●	—		KGD R/L3232-C	32	32	—	32	170		34.5				
		25	□ 20	KGD R/L	2020X-4T25S	●	●	KGD R/L-4T25-C	KGD R/L2020-C	20	20	12	20	130	48	22.5	25			
			□ 25		2525X-4T25S	●	●		KGD R/L2525-C	25	25	7	25	155		27.5				
			□ 32		3232X-4T25S	●	—		KGD R/L3232-C	32	32	—	32	175		34.5				
	5	10	□ 20	KGD R/L	2020X-5T10S	●	●	KGD R/L-5T10-C	KGD R/L2020-C	20	20	12	20	115	33	22.0	10	5.0	6.0	
			□ 25		2525X-5T10S	●	—		KGD R/L2525-C	25	25	7	25	140		27.0				
			□ 32	No unit description ➔					KGD R/L3232-C	32	32	—	32	160		34.0				
		25	□ 20	No unit description ➔				KGD R/L-5T25-C	KGD R/L2020-C	20	20	12	20	130	48	22.0	25			
			□ 25	KGD R/L	2525X-5T25S	●	●		KGD R/L2525-C	25	25	7	25	155		27.0				
			□ 32		3232X-5T25S	●	—		KGD R/L3232-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.

● : Available

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.

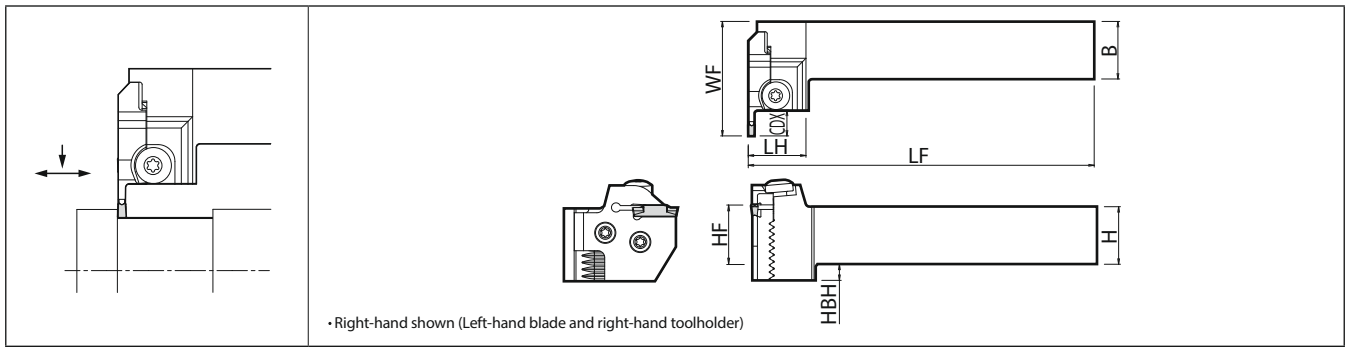
4) CDX: Maximum depth to which processing can be made. If the dimension CDX is 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.

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 R/L ... S	BH6X10TR	SB-60120TR	LTW-25

KGDS-S (90° Separate 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)	Available		Dimensions (mm)								Edge width CW (mm)		
							R	L	H	HF	HBH	B	LF	LH	WF	CDX	MIN.	MAX.	
90°	2	17	□20	KGD 1/8-2T17-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 1/8-3T10-C	KGDS R/L2020-C	KGD S R/L 2020X-3T10S	●	●	20	20	12	20	125		49.7	10	3.0	4.0	
			□25		KGDS R/L2525-C		2525X-3T10S	●	●	25	25	7	25						150
		20	□20	KGD 1/8-3T20-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 1/8-4T10-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 1/8-4T20-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 1/8-4T25-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 1/8-5T10-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 1/8-5T25-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 20 mm or more, the maximum groove-depth of groove made by the 2-edge insert will be 18 mm.

●: Available

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 / Monoblock type, Separate type)

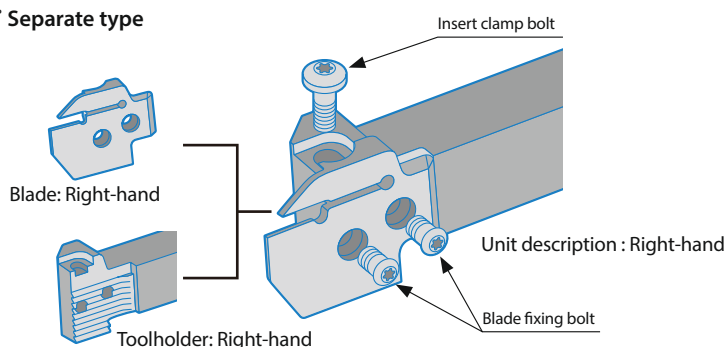
KGD	R	1616	H	-	3	T	06	(Monoblock Type)
	Toolholder hand R : Right-hand L : Left-hand	Shank size 16 × 16 mm	Toolholder length H : 100 mm		Applicable inserts GDM/GDMS 3 ~ 4 mm		Max. grooving depth 06 : 6 mm	

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 KGDS	R	2020	X	-	3	T	10	S	(Separate type / unit description)
	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		

Structure of toolholder unit (External grooving, cut-off)

1) 0° Separate type



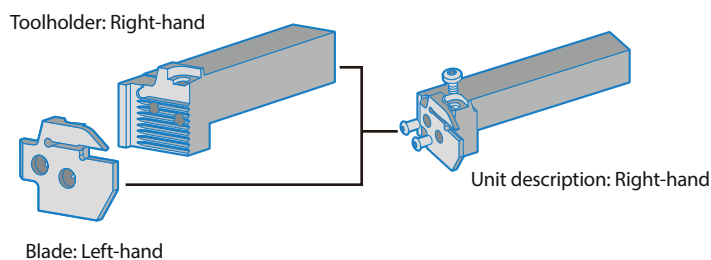
Toolholder (KGD R/L ●●-C)

+

Blade (KGD R/L -●T●●-C)

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

2) 90° Separate type



Toolholder (KGDS R/L ●●-C)

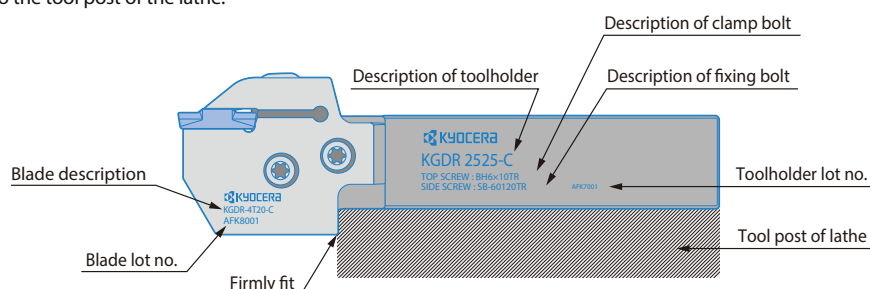
+

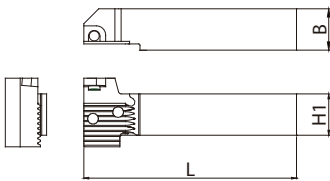
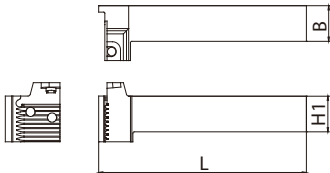
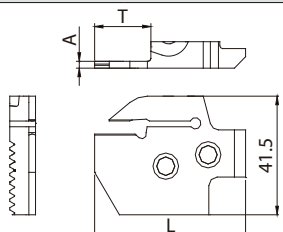
Blade (KGD L/R -●T●●-C)

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

Separate 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	Availability		Dimensions (mm)		
		R	L	L	B	H
	KGD $\frac{R}{L}$ 2020-C	●	●	104	20	20
	2525-C	●	●	129	25	25
	3232-C	●	●	149	32	32
Shape of 90° type Right-hand shown	Toolholder description	Availability		Dimensions (mm)		
		R	L	L	B	H
	KGDS $\frac{R}{L}$ 2020-C	●	●	122	20	20
	2525-C	●	●	147	25	25
Shape of blade Right-hand shown	Blade description	Availability		Dimensions (mm)		
		R	L	L	T	H
	KGD $\frac{R}{L}$ -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	

● : Available

Spare parts

Unit description	Spare parts		
	Clamp bolt (for insert clamp)	Clamp bolt (for blade)	Wrench
			
KGD $\frac{R}{L}$... S KGDS $\frac{R}{L}$... S	BH6X10TR	SB-60120TR	LTW-25

* The parts are included in the toolholder and unit.

Setting the blade (Separate 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: 8 N · m)
4. Set the insert after setting the blade.

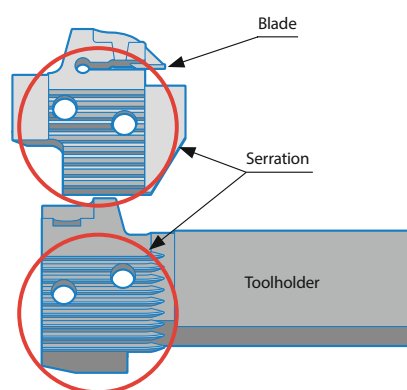


Fig. 1

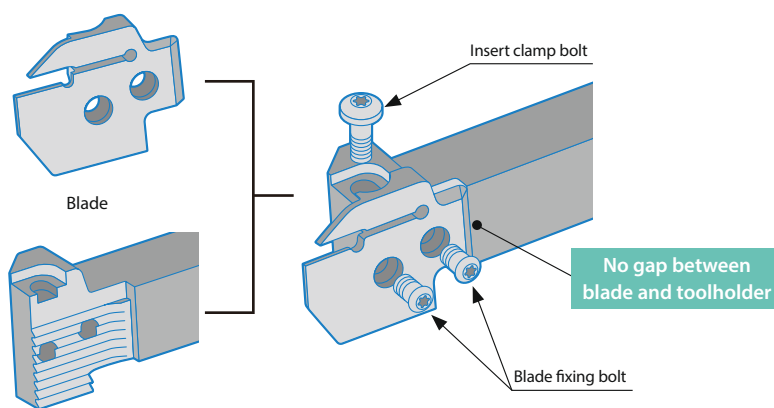
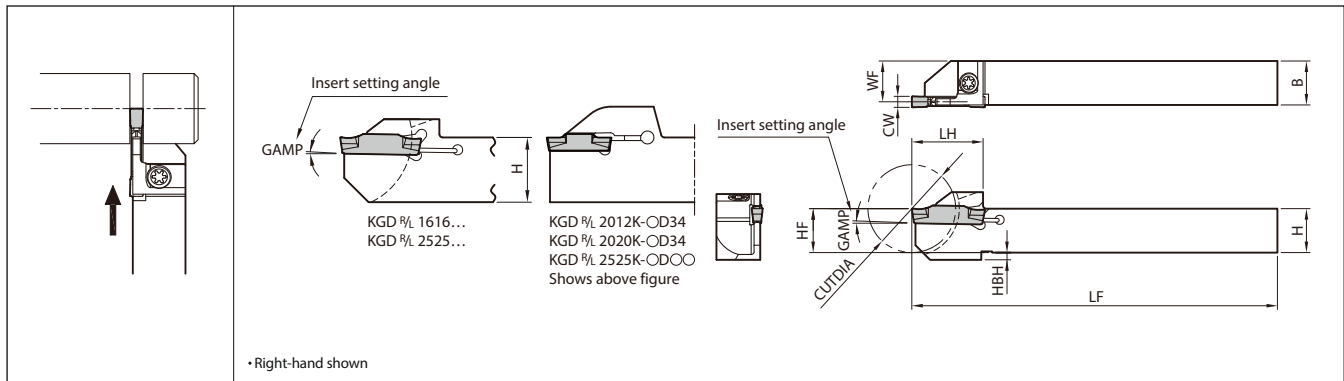


Fig. 2

KGD (Small parts machining)

Edge width : 1.3 ~ 4.0mm



Toolholder dimensions

Description		Available		Cut-off dia. (mm)	Dimensions (mm)							Angle	Edge width CW (mm)		Spare parts				
		R	L		CUTDIA	H	HF	HBH	B	LF	LH		WF	GAMP	MIN.	MAX.	Clamp screw		Wrench
																			
KGD $\frac{R}{L}$	1010JX-1.3D16	●	●	16	10	10	2	10	120	18	9.9	5°	1.3	1.3		SB-40120TR	LTW-15S		
	1010JX-1.3	●	●	20							9.5								
	1212F-1.3D16	●	●	16	12	12		19.5	11.9										
	1212JX-1.3D16	●	●						120	11.5									
	1212F-1.3	●	●	85															
	1212JX-1.3	●	●	120															
KGD $\frac{R}{L}$	1010JX-1.5D16	●	●	16	10	10	2	10	120	18	9.7	5°	1.5	1.5		SB-40120TR	LTW-15S		
	1010JX-1.5	●	●	20							9.4								
	1212F-1.5D16	●	●	16	12	12		19.5	11.7										
	1212JX-1.5D16	●	●						120	11.4									
	1212F-1.5	●	●	85															
	1212JX-1.5	●	●	120															
	KGD $\frac{R}{L}$	1010JX-2	●	●	20	10	10	2	10	120	18	9.2	1°	2.0	3.0		SB-40120TR	LTW-15S	
1212F-2		●	●	24	12							85							19.5
1212JX-2		●	●	120		24.5	15.2												
1616JX-2		●	●	32	16	16	-	16	125	32.5	19.2	0°				HH5X16	LW-4		
2012K-2D34		●	●	34	20	20		12										11.2	
2020K-2D34		●	●					20										19.2	
2525K-2D34		●	●					25										25	25
KGD $\frac{R}{L}$		1010JX-2.4	●	●	20	10	10	2	10	120	18	9	1°			2.4	3.0		SB-40120TR
	1212F-2.4	●	●	24	12									12	85				
	1212JX-2.4	●	●			120	24.5		15										
	1616JX-2.4	●	●	32	16	16	-	16	125	32.5	19	0°		HH5X16	LW-4				
	2012K-2.4D34	●	●	34	20	20		12										11	
	2020K-2.4D34	●	●					20										19	
	2525K-2.4D34	●	●					25										25	25
KGD $\frac{R}{L}$	1212JX-3	●	●	24	12	12	2	12	120	19.5	10.8	1°	3.0	4.0		SB-40120TR	LTW-15S		
	1616JX-3	●	●	32	16	16	16	24.5		14.8									
	1616JX-3D38	●	●	38				19	19	13	125				29	11.8			
	1913K-3D38	●	●		20	20	-								12	120	31	10.8	
	2012JX-3D42	●	●	42				36											
	2012JX-3D51	●	●	51				31	18.8										
	2020JX-3D42	●	●	42				36											
	2020JX-3D51	●	●	51	25	25	-	25	125	41.5	23.8				0°		HH5X16	LW-4	
	2525K-3D51	●	●																

Note 1) 4 mm width insert cannot be installed in KGD R/L 1212JX-3.

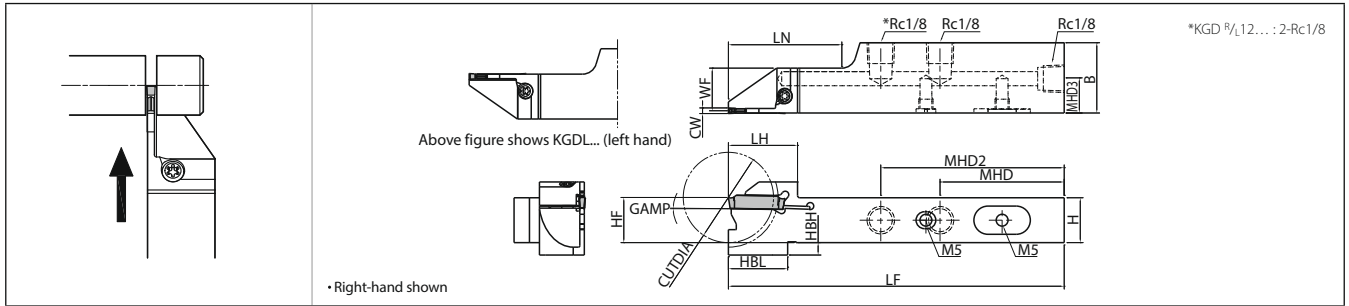
● : Available

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 ø36 mm with KGD R/L...-3D38 or KGD R/L...-3D42 or KGD R/L...-3D51 toolholders, use 1-edge inserts.

Max. workpiece diameter for 2-edge inserts ø36 mm.



Toolholder dimensions

Description	Available		Cutting dia. (mm)	Dimensions (mm)											Angle	Edge width CW (mm)		Spare parts			
	R	L		CUTDIA	H=HF	HBH	B	LF	LH	HBL	LN	WF	MHD	MHD2				MHD3	GAMP	MIN.	MAX.
																					
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	HSSX4LP
KGDL 1218JX-2JCTM		●							21.5					7.7							
KGDR 1625JX-2JCTM	●		32	16	4.5	25		24.5	21	40	15.2	44	65	12.2							
KGDL 1625JX-2JCTM		●												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		24.5	21	40	15	44	65	12.2							
KGDL 1625JX-2.4JCTM		●												7.7							
KGDR 1218JX-3JCTM	●		24	12	8.5	18	120	19.5	21	44	10.8	54	-	8.6	1°	3.0	3.0				
KGDL 1218JX-3JCTM		●							21.5					7.7							
KGDR 1625JX-3JCTM	●		32	16	4.5	25		24.5	21	40	14.8	44	65	12.2			4.0				
KGDL 1625JX-3JCTM		●												7.7							

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

● Available

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.

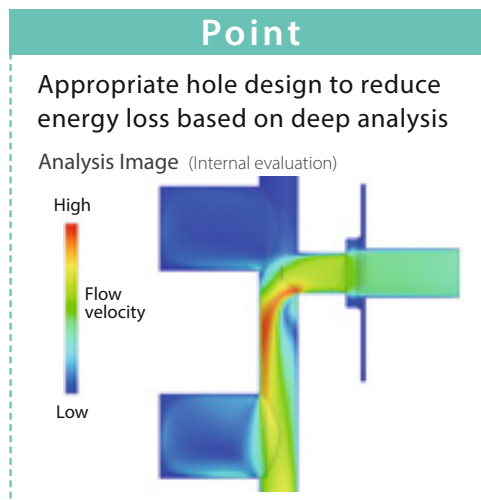
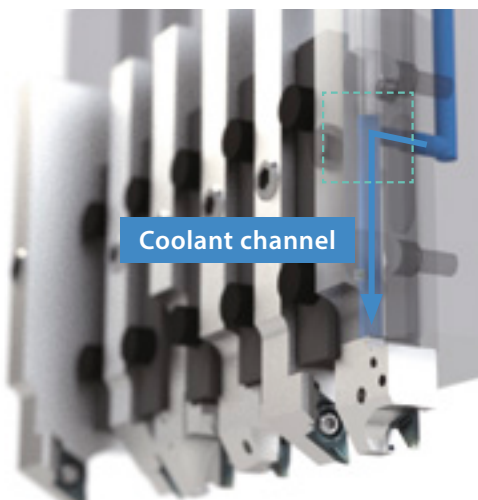
Applicable to wide range of machines

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.

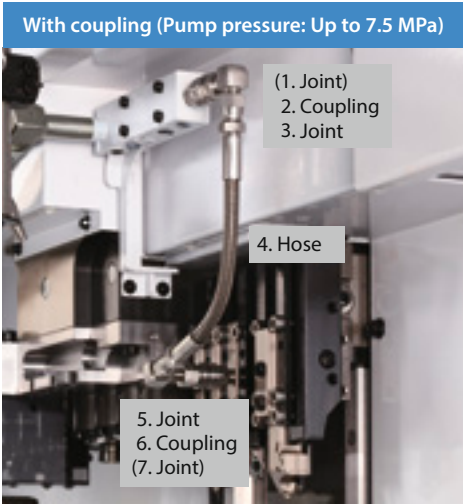
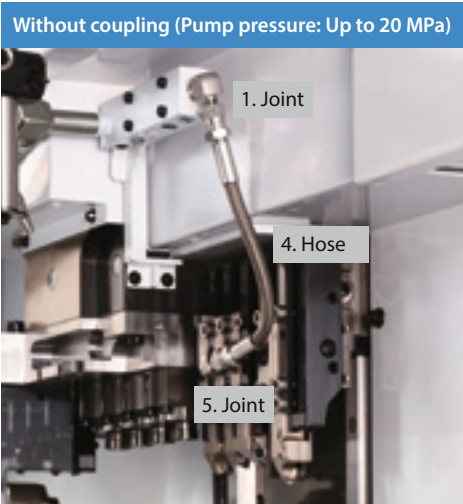
(Random order)
 Based on Kyocera Survey in January 2021



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)

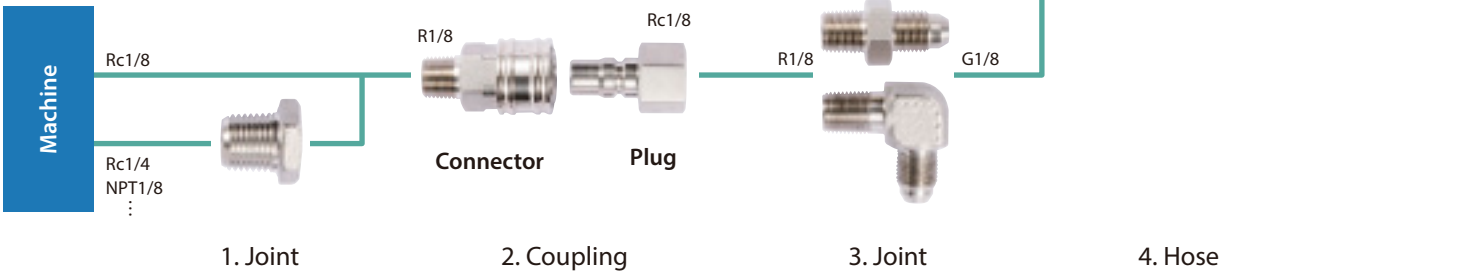
Part	Description
(1. Joint)	-
2. Coupling	CP-ST-R1/8, P-ST-RC1/8
3. Joint	J-ST-R1/8-G1/8
4. Hose	HS-G1/8-G1/8-500
5. Joint	J-ST-R1/8-G1/8
6. Coupling	P-ST-RC1/8, CP-ST-R1/8
(7. Joint)	-

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	Available	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

● : Available

Coupler (2, 6) Pressure resistance: Up to 7.5 MPa

(Unit: mm)

Shape	Description	Availab.
	CP-ST-R1/8	●
	P-ST-RC1/8	●

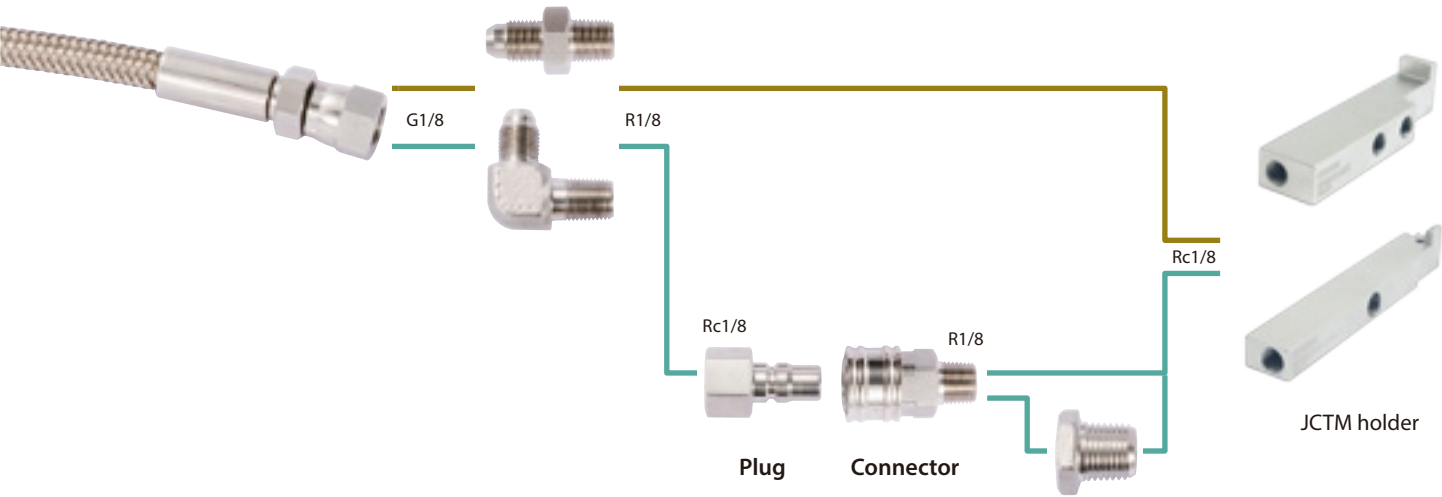
● : Available

Hose (4) Pressure resistance: Up to 20.0 MPa

(Unit: mm)

Shape	Description	Availab.	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

● : Available



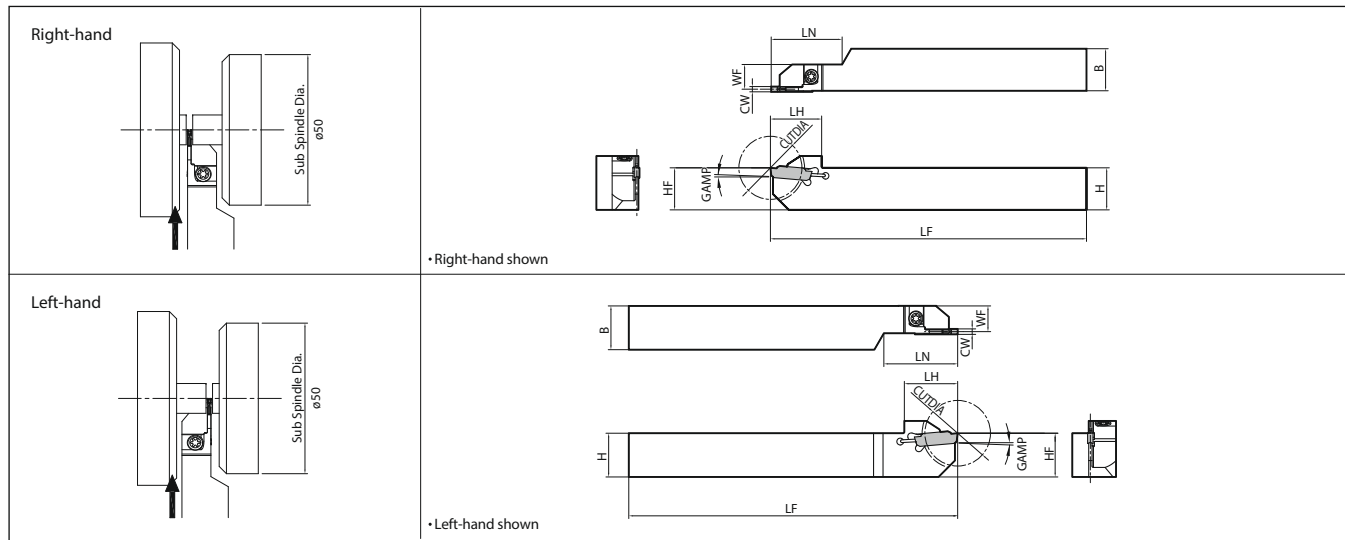
4. Hose

5. Joint

6. Coupling

7. Joint (Extension joint)

KGDS (Small diameter cut-off for sub spindle)



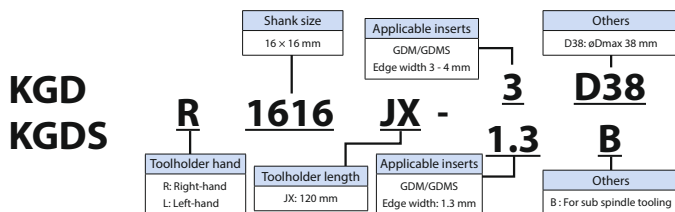
Toolholder dimensions

Description		Available		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.
																
KGDS % _L	1616JX-1.3B	●	●	24	16	16	16	120	19.5	27	9.5	5°	1.3	1.3	SB-40120TR	LTW-155
	1616JX-1.5B	●	●								9.4		1.5	1.5		
	1616JX-2B	●	●								9.2	1°	2.0	3.0		

● : Available

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.

KGDSR (Right-hand)	KGDSL (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.

KGDSR (Right-hand)	KGDSL (Left-hand)
• Long workpiece and more rigidity • Cut-off near main spindle	• Short workpiece and less rigidity • Cut-off near sub-spindle

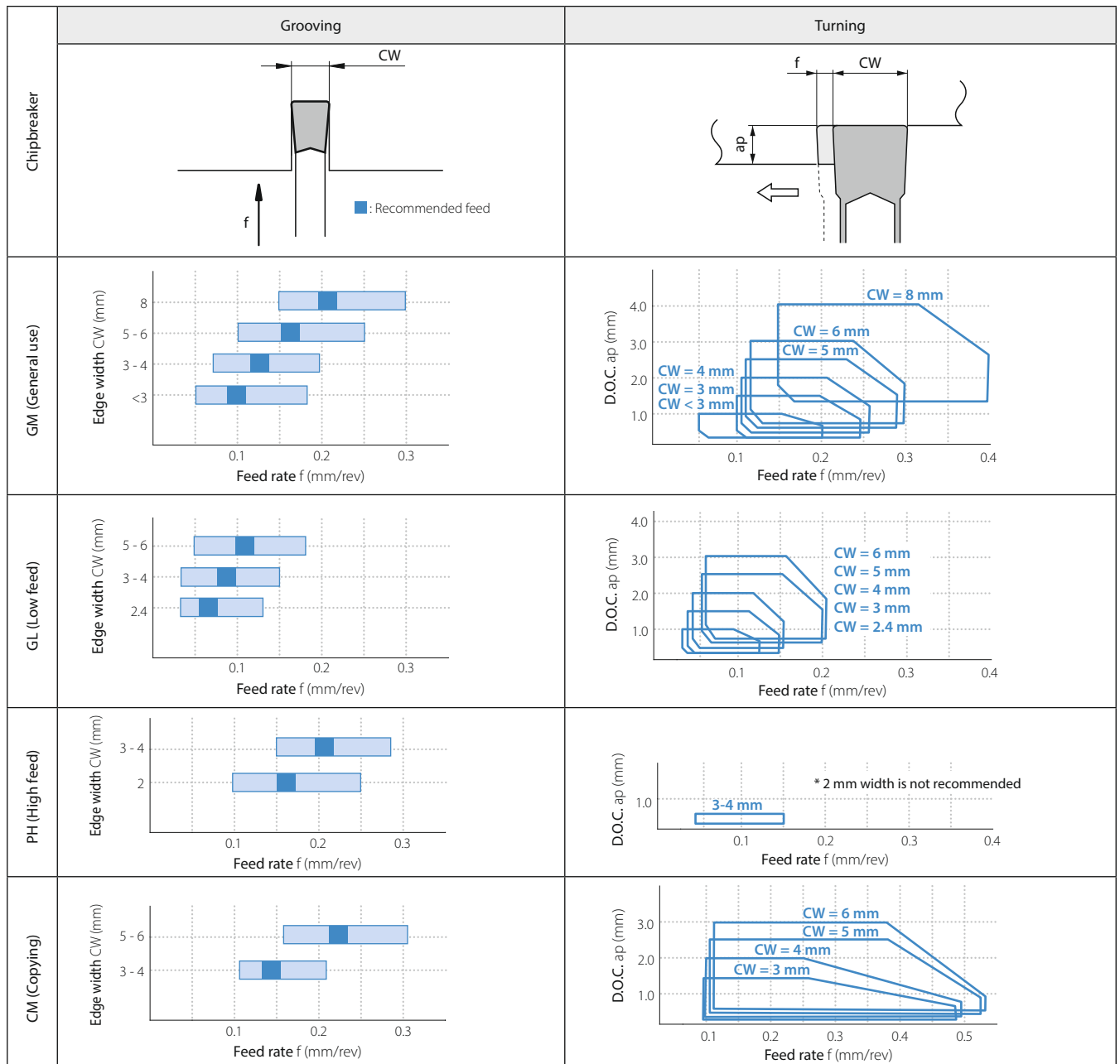
Recommended cutting conditions (External grooving)

★ 1st recommendation ☆ 2nd recommendation

Workpiece	Chipbreaker	Recommended insert grade (Vc: m/min)										Notes
		Cermet		MEGACOAT NANO	MEGACOAT		DLC coating	Carbide	MEGACOAT CBN	CBN	PCD	
		TN620	TN90	PR1535	PR1225	PR1215	PDL025	GW15	KBN05M	KBN570	KPD001	
Carbon steel	GM GL CM PH GS	☆ 80 – 220	☆ 100 – 220	☆ 80 – 200	★ 80 – 200	☆ 100 – 200	—	—	—	—	—	Coolant
Alloy steel		☆ 70 – 200	☆ 80 – 200	☆ 70 – 180	★ 70 – 180	☆ 80 – 180	—	—	—	—	—	
Stainless steel		—	—	★ 60 – 150	☆ 60 – 150	☆ 60 – 150	—	—	—	—	—	
Cast iron		—	—	—	—	★ 100 – 200	—	—	—	—	—	
Aluminum alloy	GS AM NB	—	—	—	—	—	★ 200 – 500	☆ 200 – 500	—	—	★ 150 – 2,000	
Brass		—	—	—	—	—	—	☆ 100 – 200	—	—	★ 200 – 800	
Hard materials	NB	—	—	—	—	—	—	—	★ 80 – 150	—	—	
Powdered steel		—	—	—	—	—	—	—	—	★ 100 – 250	—	

Recommended cutting conditions (Feed rate / D.O.C.)

(Workpiece : S50C)

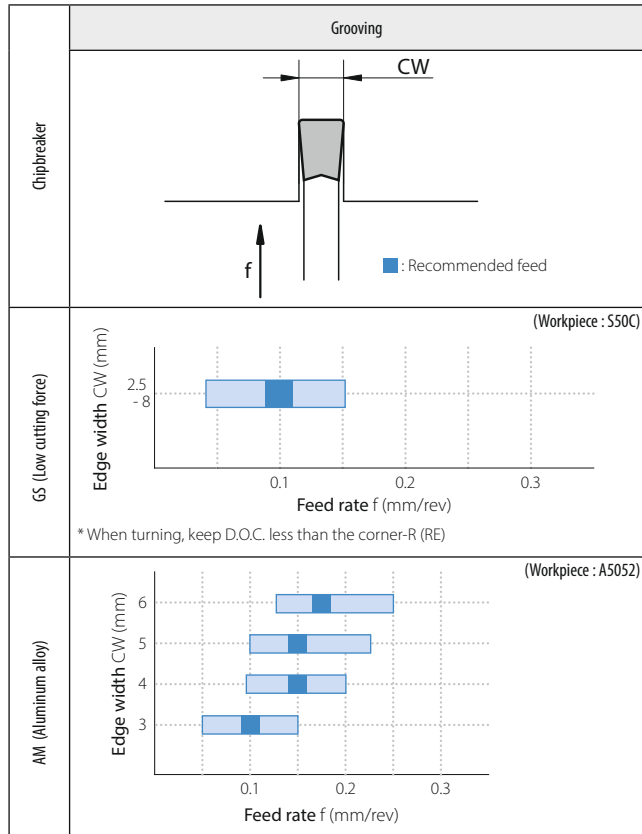


Note 1) The above values are based on the condition that CDX of toolholder is 17 mm or less.

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

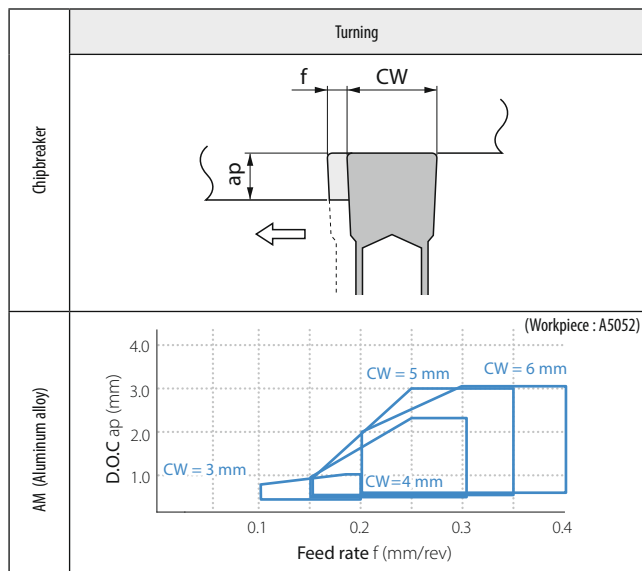
Recommended cutting conditions (External grooving)

Recommended cutting conditions (Feed rate / D.O.C.)



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

Recommended cutting conditions (Feed rate / D.O.C.)

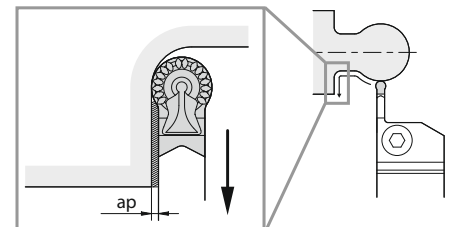


Note 1) The above values are based on the condition that CDX of toolholder is 17 mm or less.

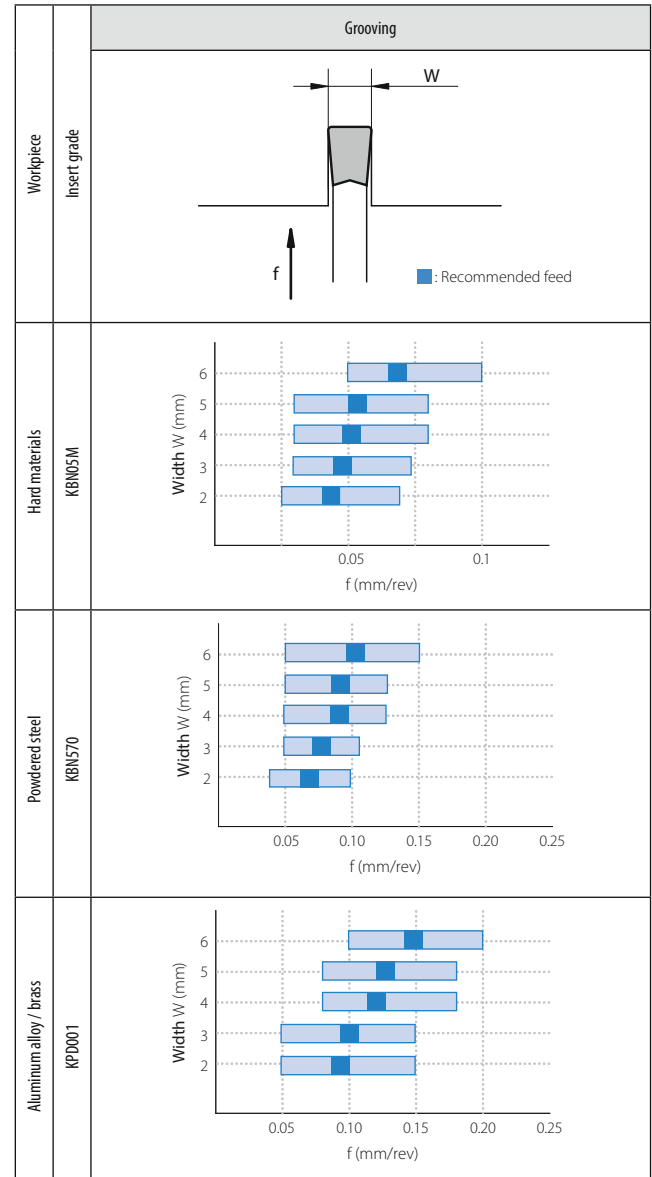
CM chipbreaker (Back turning)

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



Recommended cutting conditions (Feed rate)



Guide for external grooving

1) Turning after grooving

1. Grooving depth over 0.5 mm: At roughing (See Fig. 1)

Before turning, pull the tool back about 0.1 mm 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 0.5 mm: 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)

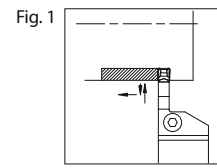
2)

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

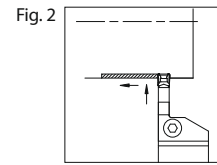
2. The widened groove and side walls should be finished last.

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

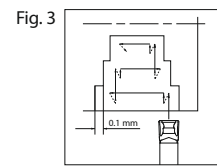
Note: If the workpiece is not supported at the center, reduce the feed rate when grooving towards center



Before turning, pull the tool back about 0.1 mm after grooving.
(Grooving depth over 0.5mm: At roughing)



Turning subsequent to grooving.
(Grooving depth under 0.5 mm: At finishing)



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 – 0.04	0.02 – 0.06	0.02 – 0.08	0.01 – 0.05	0.03 – 0.08	0.04 – 0.10	0.03 – 0.1	0.04 – 0.12	0.01 – 0.04	0.01 – 0.05	Coolant
Alloy steel	☆ 70 – 150	★ 70 – 150	☆ 70 – 180	-	-											
Stainless steel	★ 60 – 120	☆ 60 – 120	☆ 60 – 150	-	-	0.01 – 0.03	0.01 – 0.04	0.01 – 0.05	0.01 – 0.04	0.03 – 0.07	0.04 – 0.08	0.02 – 0.07	0.02 – 0.08	0.01 – 0.03	0.01 – 0.04	
Cast iron	-	-	★ 80 – 200	-	☆ 50 – 100	0.01 – 0.05	0.02 – 0.07	0.03 – 0.08	0.01 – 0.06	0.03 – 0.09	0.04 – 0.10	0.04 – 0.1	0.04 – 0.12	0.01 – 0.04	0.01 – 0.05	
Aluminum alloy	-	-	-	★ 200 – 500	☆ 200 – 450	-	-	-	-	-	-	-	-	0.01 – 0.05	0.01 – 0.06	
Brass	-	-	-	-	★ 100 – 200	-	-	-	-	-	-	-	-	0.01 – 0.07	0.01 – 0.08	

Recommended cutting conditions (Cut-off, PM/PH chipbreakers)

★1st recommendation 2nd recommendation

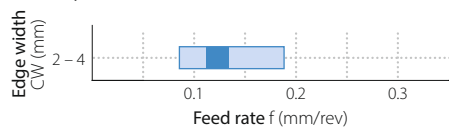
Workpiece	Recommended insert grade (Vc : m/min)			Feed rate f (mm/rev)			Notes
				PM	PH		
	MEGACOAT NANO	MEGACOAT		Edge width CW (mm)	Edge width CW (mm)		
	PR1535	PR1225	PR1215	2.0 – 4.0	2.0	3.0 – 4.0	
Carbon steel	☆ 80 – 200	★ 80 – 200	☆ 100 – 200	0.08 – 0.18	0.10 – 0.25	0.15 – 0.28	Coolant
Alloy steel	☆ 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)

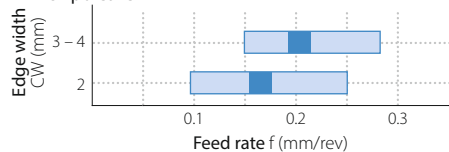
• PM chipbreaker

(Workpiece : S50C)



• PH chipbreaker

(Workpiece : S50C)



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

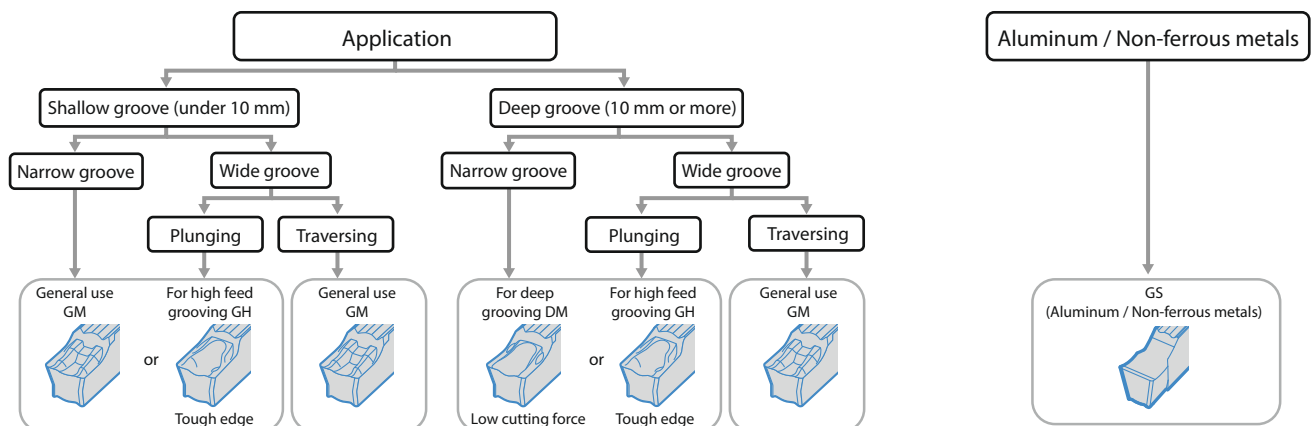
KGDF

Good chip control

MEGACOAT coating technology for long tool life and high efficiency machining

1 Wide range of chipbreakers available for face grooving

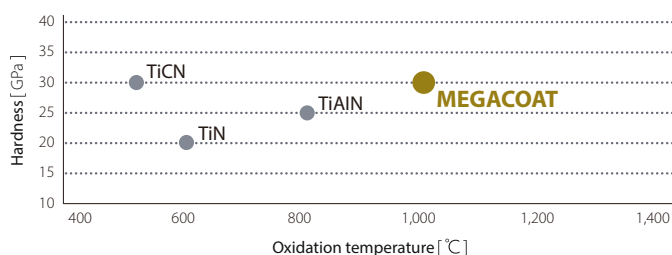
Chipbreaker selection



* If chip control is not stable when using the general GM chipbreaker for grooving, change the chipbreaker to the DM chipbreaker for deep grooving or GH chipbreaker for high feed grooving.

2 MEGACOAT coating technology for long tool life

Coating properties



PR1225 (MEGACOAT)

1st recommendation for face grooving

PR1215 (MEGACOAT)

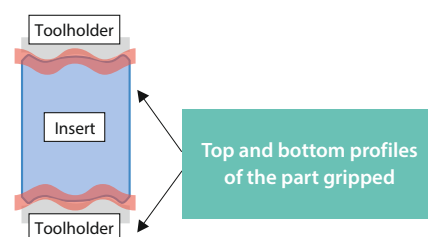
Superior wear resistance

1st recommendation for machining of cast iron

3 High clamping strength

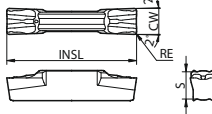
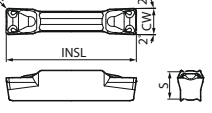
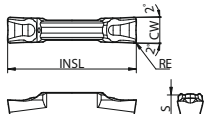
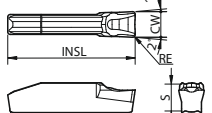
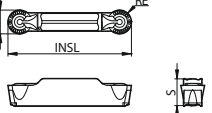
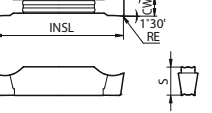
Prevents abnormal machining surface and/or insert breakage resulting from slip of insert.

Improves repetitive installation accuracy of insert.



GDFM/GDFMS (Face grooving)

Applicable inserts

Applicable inserts			Classification of usage		P		M		K		N		S		H	
					Carbonsteel / alloy steel		Stainless steel		Cast iron		Non-ferrous metals		Titanium alloy		Hard materials (In case hardness is under 40 HRC)	
					● : Continuous~light interruption / 1st choice		☺ : Continuous~light interruption / 2nd choice		●● : Continuous / 1st choice		○ : Continuous / 2nd choice					
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		4.3		●	●	●			
				4020N-040GM	4.0		0.4				●	●	●			
				5020N-040GM	5.0	±0.04	0.8	20	4.5		●	●	●			
				5020N-080GM			0.4			●	●	●				
				6020N-040GM	6.0		0.4			●	●	●				
				6020N-080GM		0.8			●	●	●					
Grooving and turning (High feed)			GDFM	4020N-040GH	4.0	±0.03	0.4	20	4.5			●	●			
				5020N-040GH	5.0	±0.04	0.8				●	●				
				5020N-080GH			0.4				●	●				
				6020N-040GH	6.0		0.4				●	●				
				6020N-080GH		0.8				●	●					
Deep grooving and turning			GDFM	3020N-030DM	3.0	±0.03	0.3	20	4.3		●	●	●			
				4020N-040DM	4.0	±0.04	0.4		4.5		●	●	●			
				5020N-040DM	5.0					●	●	●				
				6020N-040DM	6.0				●	●	●					
			GDFMS	3020N-030DM	3.0	±0.03	0.3	20	4.3		●	●	●			
				4020N-040DM	4.0	±0.04	0.4		4.5		●	●	●			
				5020N-040DM	5.0					●	●	●				
				6020N-040DM	6.0				●	●	●					
Full-R			GDFM	3020N-150R-CM	3.0	±0.03	1.5	20	4.3	●		●	●			
				4020N-200R-CM	4.0	±0.04	2.0	21	4.5	●		●	●			
				5020N-250R-CM	5.0		2.5			●		●	●			
				6020N-300R-CM	6.0	3.0	22		●		●	●				
Aluminum / non-ferrous metals			GDFG	3020N-020GS	3.0	±0.02	0.2	20	4.3					●		
				4020N-040GS	4.0		0.4	4.5					●			
				5020N-040GS	5.0								●			
				6020N-040GS	6.0							●				

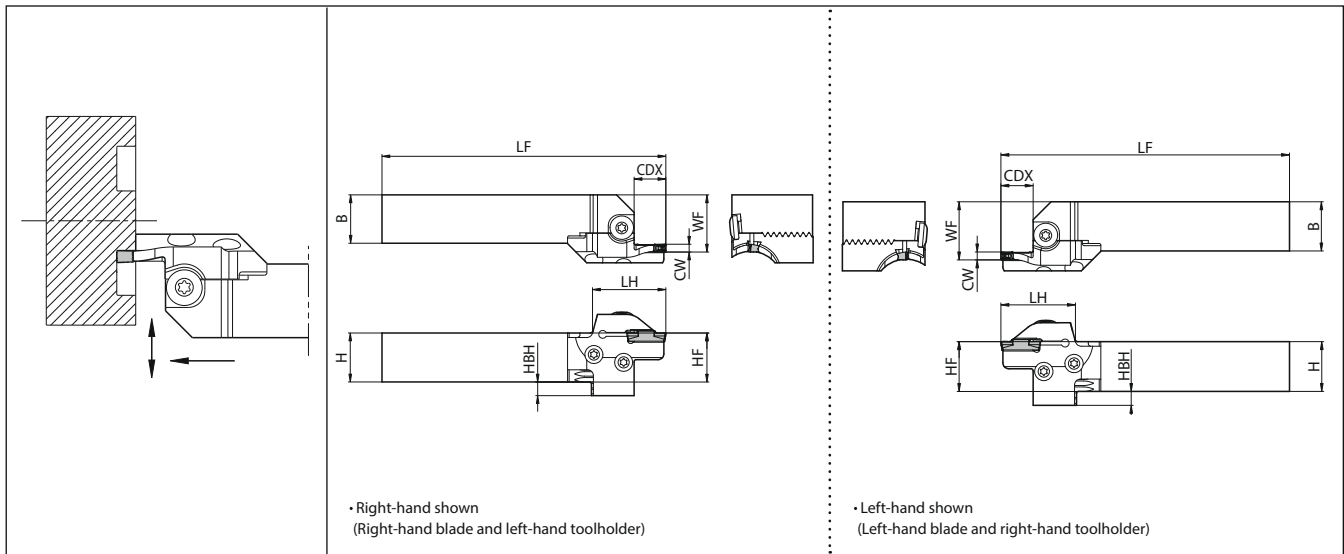
* GDFM40/50/60-CM differs from other descriptions in length (INSL) to avoid interference of a toolholder with workpiece.

●: Available

Inserts identification system

G D F	M	S	30	20	N	-	030	DM
Series	Tolerance M: M-class	No. of edges No indication: 2-edge S: 1-edge	Edge width 20: 2 mm 30: 3 mm :	Insert length 20: 20 mm	Hand of tool N: Neutral		Corner-R (RE) 020: 0.2 mm 030: 0.3 mm 040: 0.4 mm 150R: 1.5 mm (Full-R)	Chipbreaker GM: Grooving and turning DM: Grooving GH: High feed CM: Full-R GS: Aluminum / non-ferrous metals

KGDF (Face grooving / Separate type)



Toolholder dimensions

Shank angle	Edge width CW (mm)	Shank size (mm)	Max. grooving depth (mm)	Face grooving diameter (mm)		Blade description ➡ P31	Toolholder description ➡ P12	Dimensions (mm)																			
				DAXN [MIN.]	DAXX [MAX.]			H	HF	HBH	B	LF	LH	WF	CDX												
0°	2	□ 20	6	25	30	KGDFR -25-2A-C	KGDL2020-C	20	20	12	20	115	33	24.5	6												
				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		118	36					13						
			15	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	KGDL2525-C				25	25	7	25	140	33	29.5
					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	143	36	13															
		15		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																		
		□ 32		6	25					30	KGDFR -25-2A-C	KGDL3232-C	32		32			—	32	160					33	36.5	
					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		163	36			13							
15	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																		

Note 1) Left-hand (L) blade for right-hand toolholder, right-hand (R) blade for left-hand toolholder.

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

▲ : To be replaced by a new product
Applicable inserts ➡ P22

KGDF (Face grooving / Separate type)

Toolholder dimensions

Shank angle	Edge width CW (mm)	Shank size (mm)	Max. grooving depth (mm)	Face grooving diameter (mm)		Blade description ➡ P31	Toolholder description ➡ P12	Dimensions (mm)								
				DAXN [MIN.]	DAXX [MAX.]			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 -50-3C-C -65-3C-C -85-3C-C -110-3C-C	KGD ^L /h2020-C	20	20	12	20	118	36	24.5	13	
				30	40							120	38		25	22
				40	50											
			50	65	130							48				
			65	85									130			48
			85	110	130							48				
			110	145									130		48	
			50	65	130							48				
			65	85									130		48	
			85	110	130							48				
			110	145									130		48	
			25	110	130							48				
		110	145	130		48										
		30	40		145		38	25	22							
		40	50	152		45				25						
		50	65		155		48									
		65	85	155		48										
		85	110		155		48									
		110	145	155		48										
		50	65		155		48									
		65	85	155		48										
		85	110		155		48									
		110	145	155		48										
		25	110		155		48									
110	145	155	48													
30	40			165	38	25	22									
40	50	172	45					25								
50	65			175	48											
65	85	175	48													
85	110			175	48											
110	145	175	48													
50	65			175	48											
65	85	175	48													
85	110			175	48											
110	145	175	48													
25	110			175	48											
110	145	175	48													
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 -35-4C-C -50-4C-C -70-4C-C -100-4C-C -150-4C-C -220-4C-C	KGD ^L /h2020-C	20	20	12	20	118	36	24.5
		35	50			120	38							25	25	
		50	70													
		70	100		130	48										
		100	150				130								48	
		150	220		130	48										
		220	∞				130							48		
		35	50		130	48										
		50	70				130							48		
		70	100		130	48										
		100	150				130							48		
		150	220		130	48										
		220	∞	130			48									
		35	50		145	38		25	25							
		50	70	155			48			25						
		70	100		155	48										
		100	150	155			48									
		150	220		155	48										
		220	∞	155			48									
		35	50		155	48										
		50	70	155			48									
		70	100		155	48										
		100	150	155			48									
		150	220		155	48										
220	∞	155	48													
35	50			165	38	25	25									
50	70	175	48					25								
70	100			175	48											
100	150	175	48													
150	220			175	48											
220	∞	175	48													
35	50			175	48											
50	70	175	48													
70	100			175	48											
100	150	175	48													
150	220			175	48											
220	∞	175	48													

Note 1) Left-hand (L) blade for right-hand toolholder, right-hand (R) blade for left-hand toolholder.

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

▲: To be replaced by a new product

Applicable inserts ➡ P22

KGDF (Face grooving / Separate type)

Toolholder dimensions

Shank angle	Edge width CW (mm)	Shank size (mm)	Max. grooving depth (mm)	Face grooving diamter (mm)		Blade description ➡ P31	Toolholder description ➡ P12	Dimensions (mm)																										
				DAXN [MIN.]	DAXX [MAX.]			H	HF	HBH	B	LF	LH	WF	CDX																			
0°	5	□20	15	25	35	KGDF R/L	-25-SB-C	KGD L/h2020-C	20	20	12	20	120	38	24.5	15																		
				35	50												-35-SB-C																	
				50	75													-50-SB-C																
				75	115														-75-SB-C															
				115	180															-115-SB-C														
				180	235																-180-SB-C													
				235	∞																	-235-SB-C												
			20	25	35	-25-5C-C	125						43	20																				
				25	35											50	-35-5C-C	130	48	25														
					50											75					-50-5C-C													
			75		115	-75-5C-C																												
			115		180		-115-5C-C																											
			180		235								-180-5C-C																					
			235	∞	-235-5C-C	137	55									32																		
			32	75	115								-75-5D-C																					
				115	180												-115-5D-C																	
				180	235													-180-5D-C																
				235	∞														-235-5D-C															
				□25	15	25	35												KGDF R/L		-25-SB-C	KGD L/h2525-C	25	25	7	25	145	38	29.5	15				
		35	50			-35-SB-C																												
		50	75				-50-SB-C																											
		75	115										-75-SB-C																					
		115	180												-115-SB-C																			
		180	235														-180-SB-C																	
		235	∞															-235-SB-C																
		20	25		35	-25-5C-C	150						43		25																			
			25		35									50			-35-5C-C	155	48		25													
					50									75						-50-5C-C														
		75			115	-75-5C-C																												
		115			180		-115-5C-C																											
		180			235								-180-5C-C																					
		235	∞		-235-5C-C	162	55							32																				
		32	75		115								-75-5D-C																					
			115		180											-115-5D-C																		
			180		235												-180-5D-C																	
			235		∞													-235-5D-C																
			□32		15	25	35											KGDF R/L	-25-SB-C	KGD L/h3232-C							32	32		—	32	165	38	36.5
		35		50		-35-SB-C																												
		50		75			-50-SB-C																											
		75		115									-75-SB-C																					
		115		180												-115-SB-C																		
		180		235													-180-SB-C																	
		235		∞																									-235-SB-C					
		20		25	35	-25-5C-C	170						43			32																		
				25	35										50		-35-5C-C	175	48										25					
					50										75						-50-5C-C													
		75			115	-75-5C-C																												
		115			180		-115-5C-C																											
		180			235								-180-5C-C																					
		235		∞	-235-5C-C	182	55								32																			
		32		75	115								-75-5D-C																					
				115	180									-115-5D-C																				
				180	235												-180-5D-C																	
				235	∞													-235-5D-C																

Note 1) Left-hand (L) blade for right-hand toolholder, right-hand (R) blade for left-hand toolholder.

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

▲ : To be replaced by a new product
Applicable inserts ➡ P22

KGDF (Face grooving / Separate type)

Toolholder dimensions

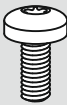
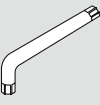
Shank angle	Edge width CW (mm)	Shank size (mm)	Max. grooving depth (mm)	Face grooving diameter (mm)		Blade description ➡ P31		Toolholder description ➡ P12	Dimensions (mm)																																							
				DAXN [MIN.]	DAXX [MAX.]				H	HF	HBH	B	LF	LH	WF	CDX																																
0°	6	□20	15	25	35	KGDF ^R / _L	-25-6B-C	KGD ¹ / ₈ 2020-C	20	20	12	20	120	38	24.5	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							20																									
				25	35																			50	-35-6C-C	130	48	25																				
					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		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 / ₈ 2525-C			25	25	7	25	145	38	29.5	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	150	43	20																				
					25								35																									50	-35-6C-C		155	48	25					
													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	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 / ₈ 3232-C										32	32		—	32	165	38	36.5	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				20																							
					25	35																																					50	-35-6C-C		175	48	25
						50																																					75					
				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	182	55	32																																					
	115	180			-115-6D-C																																											
	180	235										-180-6D-C																																				
	235	∞												-235-6D-C																																		

Note 1) Left-hand (L) blade for right-hand toolholder, right-hand (R) blade for left-hand toolholder.

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

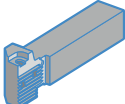
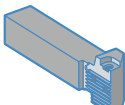
Applicable inserts ➡ P22

Spare parts (Common with separate types)

Unit description	Spare parts		
	Clamp bolt (for insert clamp)	Clamp bolt (for blade)	Wrench
			
KGDF ⅞L . . . S	BH6X10TR	SB-60120TR	LTW-25

* The parts are included in the toolholder and unit.

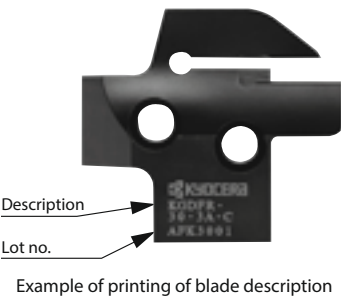
KGDF toolholder assembly identification (Face grooving / Separate type)

	Blade (Blade description is printed)	+	Toolholder (Toolholder description is printed)
	Left-hand : KGDFL . . . -C		Right-hand : KGDR . . . -C
Left-hand	 • Left-hand shown		 • Right-hand shown
	Right-hand : KGDFR . . . -C	+	Left-hand : KGDL . . . -C
	 • Right-hand shown		 • Left-hand shown

- Right-hand (R) blade for left-hand toolholder, left-hand (L) blade for right-hand toolholder.
- Please purchase toolholder and blade separately.
- 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 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"	
KGDF R - 25 - 3 A - 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		2-edge insert (1-edge insert can also be used)	
		25: 25 mm 235: 235 mm		1-edge Insert	



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.

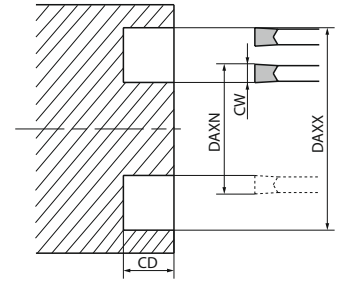
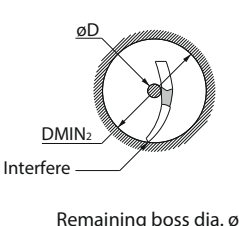


Fig. 1

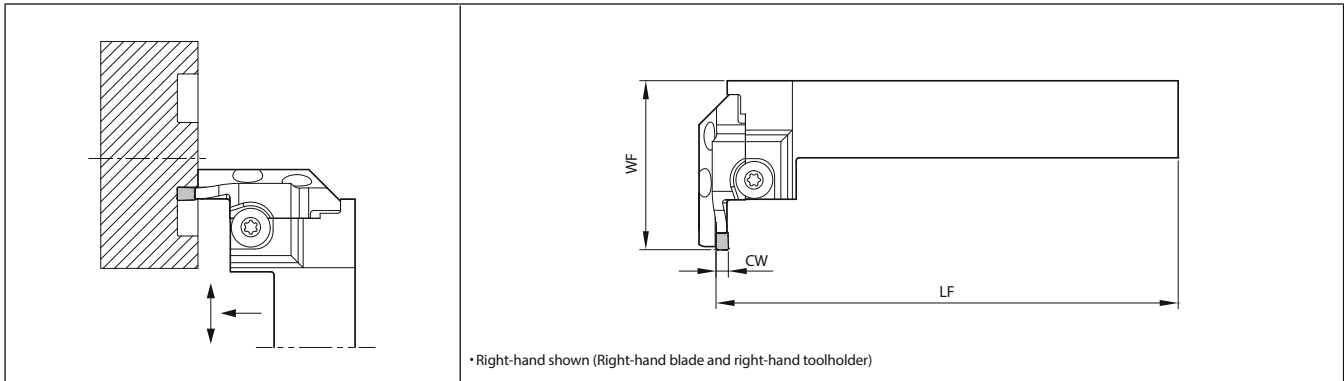
Limit of turning toward center

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

 Remaining boss dia. øD	DMIN ₂	25	26	27	28 and over	
	Description	øD (mm)				0 (No remaining boss)
	KGDF ^R /L-25-3A-C + KGD ^L /R2020-C	4	2	0		
	KGDF ^R /L-25-3A-C + KGD ^L /R2525-C					
	KGDF ^R /L-25-4A-C + KGD ^L /R2020-C	6	3	0		
	KGDF ^R /L-25-4A-C + KGD ^L /R2525-C					
	KGDF ^R /L-25-5B-C + KGD ^L /R2020-C	7	4	1		
	KGDF ^R /L-25-5B-C + KGD ^L /R2525-C					
	KGDF ^R /L-25-6B-C + KGD ^L /R2020-C	9	4	1		
	KGDF ^R /L-25-6B-C + KGD ^L /R2525-C					

E.g.) If a groove of external diameter ø25 mm is created using KGDFR-25-3A-C and KGD^L2020-C and turning is made toward the inside, a ø4 mm portion will be left in middle due to interference of toolholder.

KGDF (Face grooving / 90° Separate type)



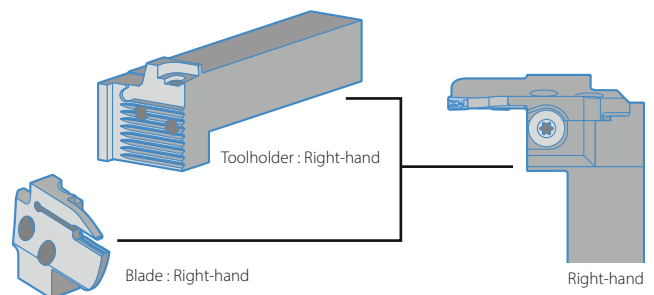
Toolholder dimensions

Shank angle	Edge width CW (mm)	Shank size (mm)	Max. grooving depth (mm)	Face grooving diameter (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	30	-25-2B-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	130	-100-2B-C	150		54.7				
			25	30	KGDFR -25-2A-C							
			30	35	-30-2A-C							
			35	45	-35-2A-C							
			45	60	-45-2A-C							
			60	80	-60-2A-C							
		□ 25	6	80	100	-80-2A-C		KGDSR2525-C	150	49.7		
				100	130	-100-2A-C						
				25	30	-25-2B-C						
				30	35	-30-2B-C						
				35	45	-35-2B-C						
				45	60	-45-2B-C						
60	80			-60-2B-C								
15	80		100	-80-2B-C	150	54.7						
	100		130	-100-2B-C								
	25		30	KGDF ^R / _L -25-3A-C			KGDS ^R / _L 2020-C		125	52.7		
	30		40	-30-3A-C								
	40		50	-40-3A-C								
15	50	65	-50-3B-C	54.7								
	65	85	-65-3B-C									
	85	110	-85-3B-C									
22	110	145	-110-3B-C	59.7								
	50	65	-50-3C-C		61.7							
	65	85	-65-3C-C									
90°	3	□ 20	25	85		110		-85-3C-C		KGDS ^R / _L 2525-C	150	59.7
				110	145	-110-3C-C						
				25	30	KGDF ^R / _L -25-3A-C		52.7				
			30	40	-30-3A-C							
			15	40	50	-40-3A-C						
				50	65	-50-3B-C						
65	85	-65-3B-C										
90°	3	□ 25	22	85	110	-85-3C-C	KGDS ^R / _L 2525-C	150	59.7			
				110	145	-110-3C-C						
				25	30	KGDF ^R / _L -25-3A-C				61.7		
			30	40	-30-3A-C							
			25	40	50	-40-3A-C					61.7	
				50	65	-50-3B-C						
65	85	-65-3B-C										

Applicable inserts → P22

Shank angle	Edge width CW (mm)	Shank size (mm)	Max. grooving depth (mm)	Face grooving diameter (mm)		Blade description ➡ P31	Toolholder description ➡ P12	Dimensions (mm)		
				DAXN [MIN.]	DAXX [MAX.]			LF	WF	
90°	4	□ 20	13	25	35	KGDF ^R /L	-25-4A-C	KGDS ^R /L2020-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			
			15	220	∞		-220-4B-C		54.7	
				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	64.7				
			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	13	25	35	KGDF ^R /L	-25-4A-C	KGDS ^R /L2525-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			
15	220		∞	-220-4B-C	54.7					
	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	64.7						
	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							
			220	∞	-220-4C-C					

Applicable inserts → P22



- KGDF 90° Separate 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.

KGDF (Face grooving / 90° Separate type)

Combination of blade and toolholder

Shank angle	Edge width CW (mm)	Shank size (mm)	Max. grooving depth (mm)	Face grooving diameter (mm)		Blade description ➡ P31	Toolholder description ➡ P12	Dimensions (mm)		
				DAXN [MIN.]	DAXX [MAX.]			LF	WF	
90°	5	□ 20	15	25	35	KGDF R/L	-25-SB-C	KGDS R/L2020-C	125	54.7
				35	50		-35-SB-C			
				50	75		-50-SB-C			
				75	115		-75-SB-C			
				115	180		-115-SB-C			
				180	235		-180-SB-C			
				235	∞		-235-SB-C			
			20	25	35	-25-5C-C			59.7	
				35	50	-35-5C-C				
				50	75	-50-5C-C				
				75	115	-75-5C-C				
				115	180	-115-5C-C			64.7	
				180	235	-180-5C-C				
			25	235	∞	-235-5C-C				
				75	115	-75-5D-C				
				115	180	-115-5D-C				
				180	235	-180-5D-C			71.7	
				235	∞	-235-5D-C				
				□ 25	15	25	35		KGDF R/L	-25-SB-C
		35	50			-35-SB-C				
		50	75			-50-SB-C				
		75	115			-75-SB-C				
		115	180			-115-SB-C				
		180	235			-180-SB-C				
		235	∞			-235-SB-C				
		20	25		35	-25-5C-C		59.7		
			35		50	-35-5C-C				
			50		75	-50-5C-C				
		25	75	115	-75-5C-C			64.7		
			115	180	-115-5C-C					
			180	235	-180-5C-C					
			235	∞	-235-5C-C					
			32	75	115	-75-5D-C			71.7	
				115	180	-115-5D-C				
		180		235	-180-5D-C					
		235		∞	-235-5D-C					

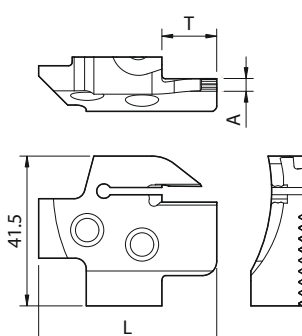
Applicable inserts → P22

Shank angle	Edge width CW	Shank size	Max. grooving depth	Face grooving diameter (mm)		Blade description ➡ P31	Toolholder description ➡ P12	Dimensions (mm)			
				DAXN [MIN.]	DAXX [MAX.]			LF	WF		
				(mm)	(mm)			(mm)			
90°	6	□ 20	15	25	35	KGDF R/L	-25-6B-C	KGDS R/L2020-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	235	∞	-235-6C-C					
				75	115	-75-6D-C					
				115	180	-115-6D-C					
				180	235	-180-6D-C					
				235	∞	-235-6D-C					
				□ 25	15	25				35	KGDF R/L
		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					
		25	75	115	-75-6C-C	150			64.7		
			115	180	-115-6C-C						
			180	235	-180-6C-C						
			235	∞	-235-6C-C						
			75	115	-75-6D-C						
			115	180	-115-6D-C						
		32	180	235	-180-6D-C					150	71.7
			235	∞	-235-6D-C						
			235	∞	-235-6D-C						

Applicable inserts → P22

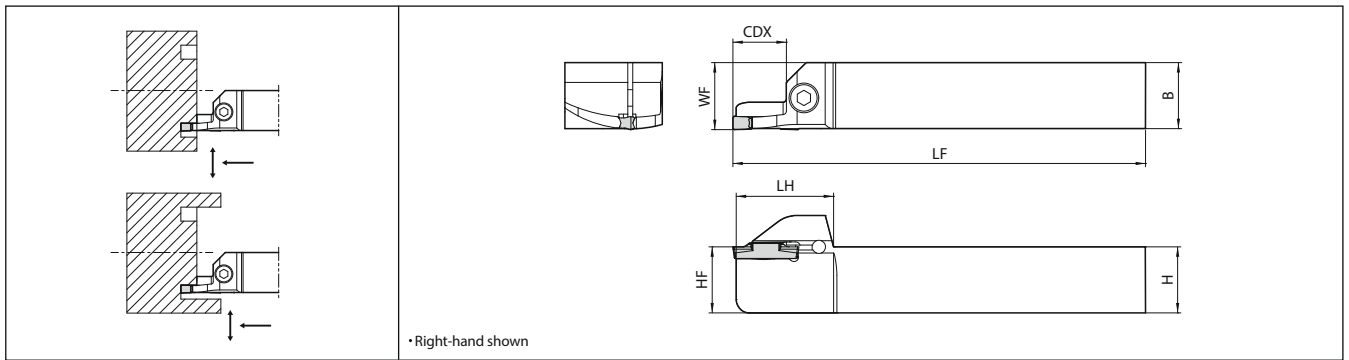
Face grooving blade

Blade dimensions

Shape	Blade description	Availability		Dimensions (mm)			Face grooving diameter øD (mm)		Edge width (mm)	Applicable inserts ➡ P22	Description of toolholder ➡ P12				
		R	L	L	T	A	MIN.	MAX.	W						
 Right-hand shown	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 ^R / _L	-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	●	●				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	●	●				85	110						
		-110-3C-C	●	●	59.35	25		110	145						
	KGDF ^R / _L	-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	●	●				150	220						
		-220-4B-C	●	●	59.35	25		220	∞						
		-35-4C-C	●	●				35	50						
		-50-4C-C	●	●				50	70						
		-70-4C-C	●	●				70	100						
		-100-4C-C	●	●				100	150						
	-150-4C-C	●	●	59.35	25			150	220						
	-220-4C-C	●	●					220	∞						
	KGDF ^R / _L	-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	●	●	54.35	20			115		180				
		-180-5B-C	●	●					180		235				
		-235-5B-C	●	●					235		∞				
		-25-5C-C	●	●	59.35	25			25		35				
		-35-5C-C	●	●					35		50				
		-50-5C-C	●	●					50		75				
		-75-5C-C	●	●					75		115				
		-115-5C-C	●	●	66.35	32			115		180				
		-180-5C-C	●	●					180	235					
		-235-5C-C	●	●					235	∞					
	-75-5D-C	●	●	49.35	15	75		115							
	-115-5D-C	●	●			115		180							
	-180-5D-C	●	●			180		235							
	-235-5D-C	●	●			235		∞							
	KGDF ^R / _L	-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	●	●				35	50						
		-50-6C-C	●	●				50	75						
		-75-6C-C	●	●	59.35	25		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	∞						

● : Available

KGDF-Z (Face grooving / Monoblock type)



Toolholder dimensions

Edge width CW (mm)	Shank size (mm)	Max. grooving depth (mm)	Face grooving diameter (mm)		Description	Available		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	●								●	25	25	25
	70		100	2525M70-4B-Z	●		●											
	100		150	2525M100-4B-Z	●		●											
	5		□ 20	15	50		75	KGDF ^{R/L} 2020K50-5B-Z	●	●	20		20		20			
					75	115	2020K75-5B-Z		●	●								
115		180			2020K115-5B-Z	●	●											
50		75			KGDF ^{R/L} 2525M50-5B-Z	●	●		25	25		25		150		25.3		
75		115	2525M75-5B-Z			●	●											
115		180	2525M115-5B-Z			●	●											

● : Available

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 (Monoblock type)

KGDF	R	2525	M	50	3	B	Z
Series	Hand of tool	Shank size	Toolholder length	Min. face grooving dia.	Insert 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: Monoblock type

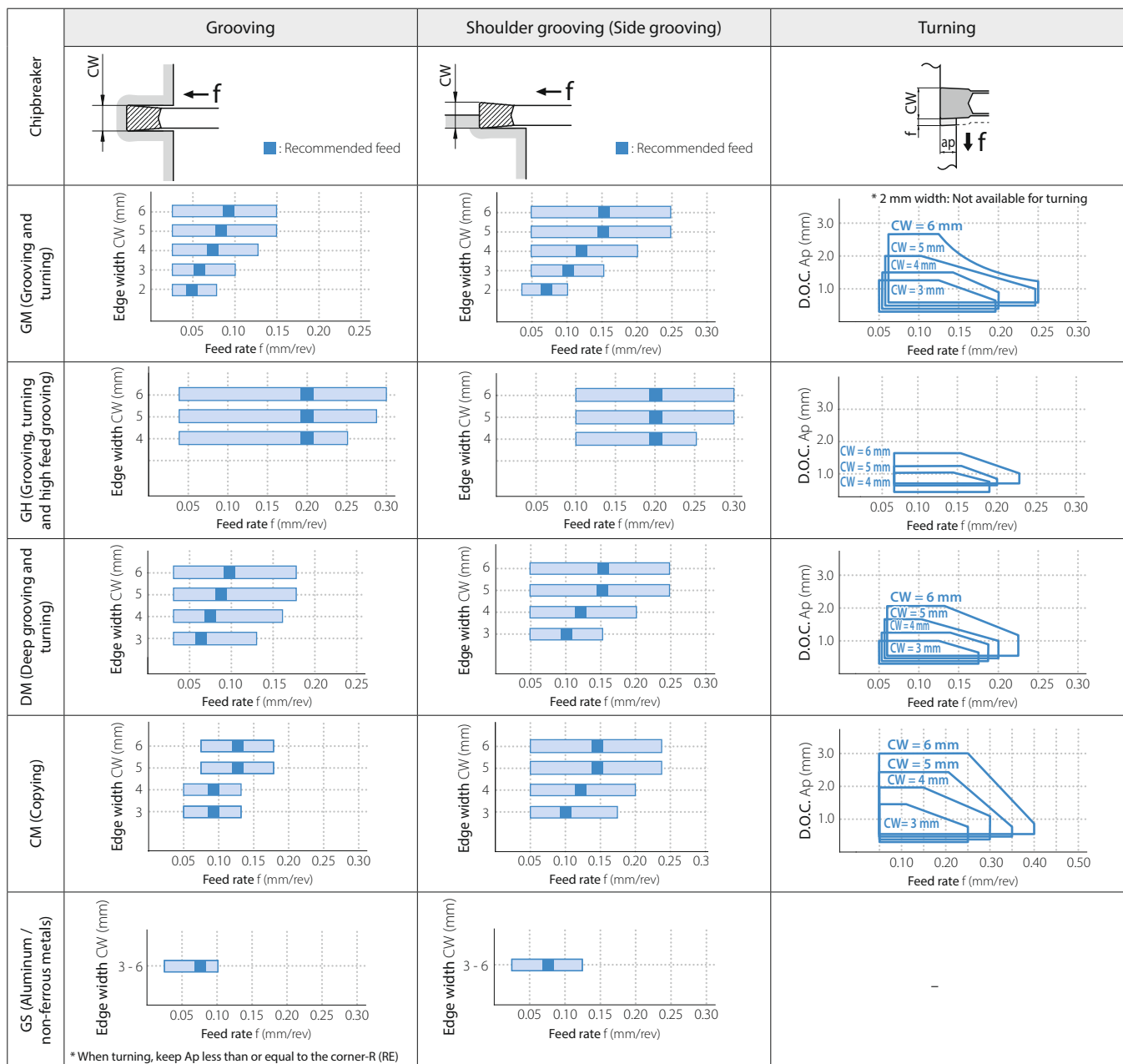
Recommended cutting conditions (Face grooving)

★ 1st recommendation ☆ 2nd recommendation

Workpiece	Recommended insert grade (Vc: m/min)					Notes
	Cermet		MEGACOAT carbide		Carbide	
	TN620	TN90	PR1225	PR1215	PR1215	
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	—	
Aluminium alloy	—	—	—	—	★ 160 – 400	
Brass	—	—	—	—	★ 80 – 160	

Recommended cutting conditions (Feed rate / D.O.C.)

(Workpiece: S50C)



When shouldering:

- If Ap is set smaller, set feed higher.
- If Ap 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.

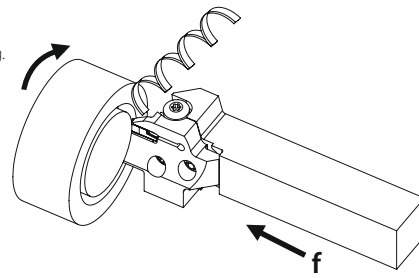
Guide for face grooving

1 Toolholder selection

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

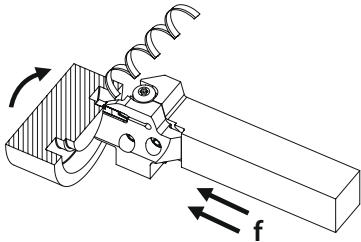
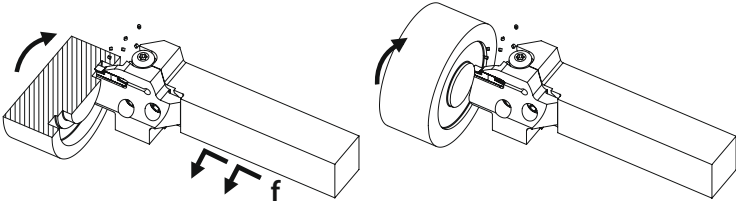
2 Cutting conditions (Feed rate: f)

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 0.5 mm

(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)

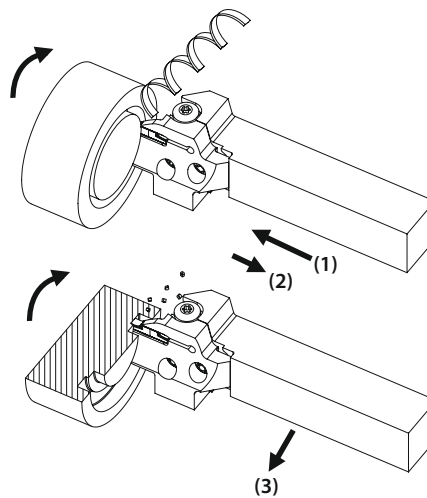
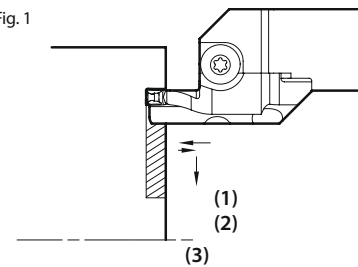
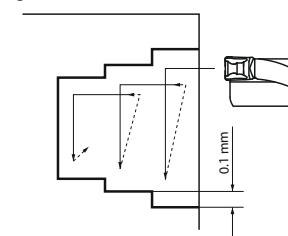


Fig. 1



When widening the face groove width (See Fig. 2)
Apply the "step turning". Then perform finishing.

Fig. 2



B. When the cutting amount (A_p) is under 0.5 mm

(1) Plunging

(2) Perform turning

Machining without interruption is possible (See Fig. 3).

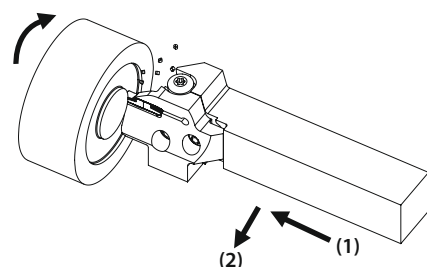
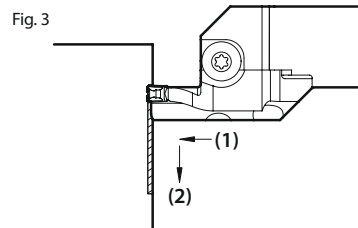


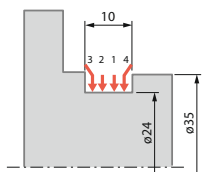
Fig. 3



Case studies

Gear • SCr420H (Grooving)

$V_c = 113 \sim 164$ 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)

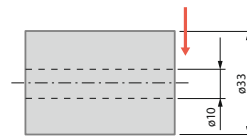
250 pcs/edge

KGDL-type and GM chipbreaker (PR1225) improved tool life to 6 times of competitor C. No burned chips and good chip control. (User evaluation)



Sleeve • S45CF (Cut-off)

$V_c = 103$ 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

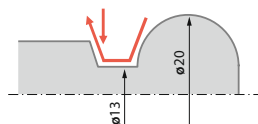
Competitor D
 (PVD coated carbide)

250 pcs/edge, with chipping

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

Ball stud • SCM435 (Copying)

$V_c = 100 \sim 160$ m/min
 $A_p = 0.3$ mm
 $f = 0.15 \sim 0.25$ mm/rev
 Wet
 GDM3020N-150R-CM (PR1225)
 KGDR2020X-3T10S



Tool life

CM chipbreaker
 (PR1225)

800 pcs/edge

Tool life

2 times

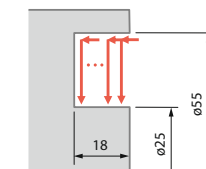
Conventional A

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)

$V_c = 150$ m/min
 $A_p = 1, 1.8$ mm (Turning)
 $f = 0.05$ mm/rev (Grooving)
 0.1, 0.15 mm/rev (Turning)
 Wet
 GDM4020N-040GM (PR1225)
 KGDFL2525X50-4CS



Tool life

GM chipbreaker
 (PR1225)

40 pcs/edge, capable of further machining

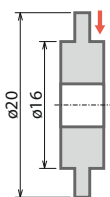
Conventional B

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

$V_c = 160$ m/min
 $(n = 3,200 \text{ min}^{-1})$
 $A_p = 2.5$ mm
 $f = 0.07$ mm/rev
 Wet, normal pressure
 KGDR2020K-3T10JCT
 GDM3020M-025PM PR1225



Tool life

KGJ-JCT
 (Internal coolant)

9,000 pcs/edge

Tool life

x1.5

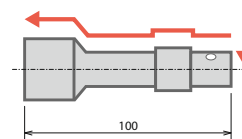
Competitor E
 (External coolant)

6,000 pcs/edge

Change to KGJ-JCT (internal coolant) from competitor E (external coolant) extended tool life by 1.5 times. (User evaluation)

Valve • SUM-equivalent

$V_c = 160$ m/min
 $A_p = 14$ mm
 $f = 0.12-0.15$ mm/rev
 Wet, normal pressure
 KGDR2525K-3T20JCT
 GDM3020M-040GM PR1535



Tool life

KGJ-JCT
 (Internal coolant)

1,000 pcs/edge

Chip control
 Good

Surface finish
 Good

Competitor F
 (Internal coolant)

1,000 pcs/edge

KGJ-JCT maintained stable machining for the required number of pieces. Better chip control and surface finish. (User evaluation)



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