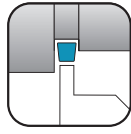


G



External grooving		G2
GBA	KGBA / KGBAS / KGBA-JCT	G13
	KGB / KGBS	G16
GBF	KGBF-F / KGBF-JCTM / KGBFS	G23
	S-KGBF	G26
KGD	KGD (Integral type)	G34
	KGD (Integral type for automatic lathe)	G35
	KGD-JCT (Integral type, coolant-through holder)	G36
	KGD-JCTM (Integral type for automatic lathe, coolant-through holder)	G39
	KGD-S (0° separate type)	G40
KGM	KGM / KGM-T / KGMM / KGMS	G55
	KGMU	G60
KGH	KGH / KGHS	G62
KGA	KGA	G64
KGMW	KGMW	G67
TGF	TGF insert	G68
Internal grooving		G69
EZG	EZG	G71
VNG	VNG	G73
GC	SIGC	G76
GE/GER	SIGE	G81
GIV	GIV / GIV-E / GIV-W	G86
KIGBA	KIGBA	G89
KGDI	KGDI	G91
KGH	KIGH	G93
KGM	KIGM-8 / KIGMU-8	G95
KGIA	KGIA	G97
GMM-V	GMM-V insert	G98
Face grooving		G99
EZFG	EZFG	G103
VNFG	VNFG	G105
TWFG / TWFGT	TWFG	G106
	TWFGT	G108
KGDF	KGDF	G114
	KGDF-Z (Integral type)	G118
GVF-AA	GFVS-AA / GFVT-AA	G125
	GFV	G127
	GFVS / GFVT	G129
	GIFV	G133
KFMS	KFMS	G135
KFMS-8	KFMS-8	G138
KFTB	KFTB-S	G140
Recommended cutting conditions		G141

KGD Grooving (External grooving & turning)

· Integral type

Type	KGD
Edge width (mm)	2.0 ~ 8.0
Max. grooving depth (mm)	6 ~ 30
See Page	G34

· Integral type (Coolant-through holders)

Type	KGD-JCTM
Edge width (mm)	3.0 ~ 5.0
Max. grooving depth (mm)	6 ~ 25
See Page	G39

· Integral type for automatic lathe

Type	KGD
Edge width (mm)	2.0 ~ 4.0
Max. grooving depth (mm)	10 ~ 25.5
See Page	G35

· Integral type for automatic lathe (Coolant-through holders)

Type	KGD-JCTM
Edge width (mm)	2.0 ~ 4.0
Max. grooving depth (mm)	12 ~ 16
See Page	G38

· Separate type

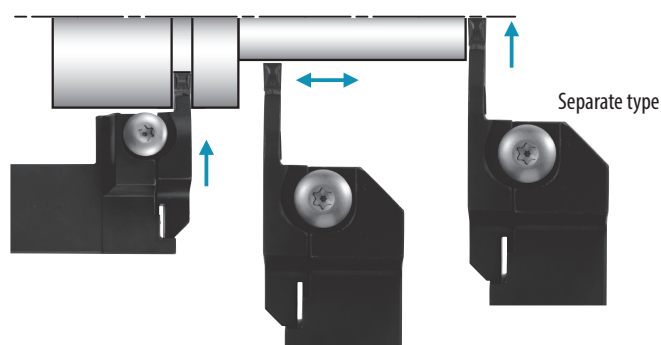
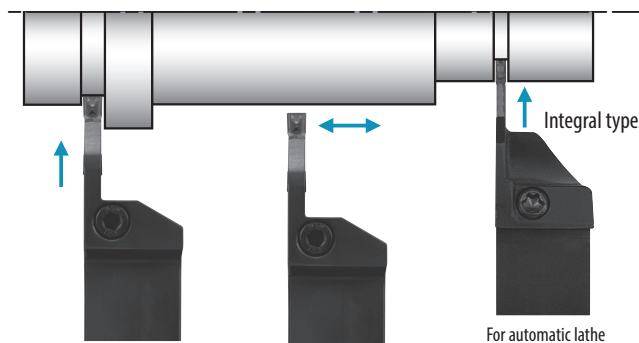
Type	* KGDS-S
Edge width (mm)	3.0
Max. grooving depth (mm)	10
See Page	G41

* The separate type toolholders can accept all the blades if their hand is matching.

· Separate type

Type	* KGD-S
Edge width (mm)	2.0 ~ 5.0
Max. grooving depth (mm)	10 ~ 25
See Page	G40

* The separate type toolholders can accept all the blades if their hand is matching.



Grooving

External

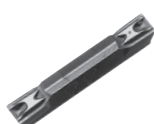
Internal

Face

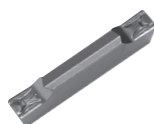
Low cutting force
GS



Low feed
GL



General purpose
GM



High feed
PH

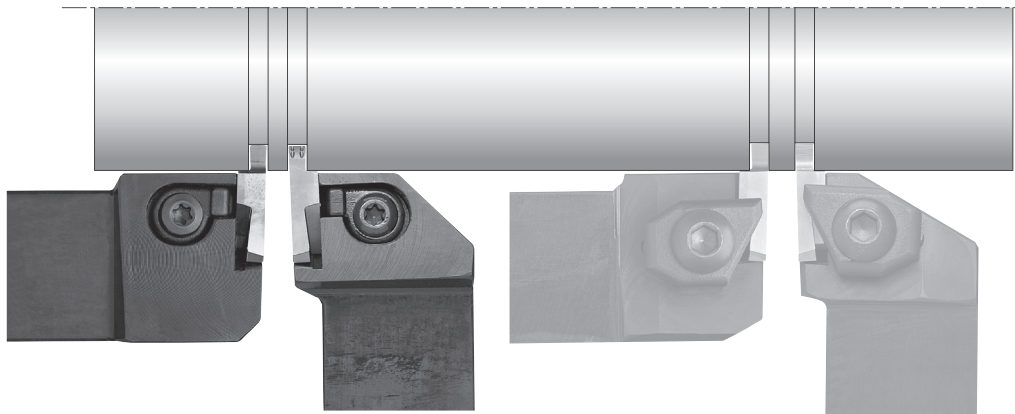


Copying
CM

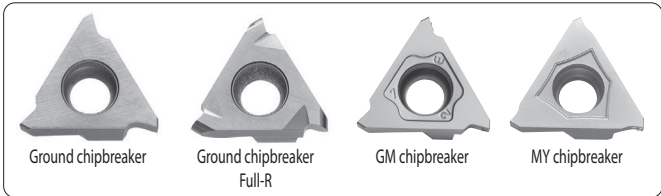


External grooving

Shallow grooving (Grooving depth: ~5 mm)



Type	KGBAS	KGBA (-JCT)	KGBS	KGB
Edge width (mm)	0.33 ~ 4.8	0.33 ~ 4.8	0.33 ~ 4.8	0.33 ~ 4.8
Max. grooving depth (mm)	0.8 ~ 5.0	0.8 ~ 5.0	0.8 ~ 5.0	0.8 ~ 5.0
See Page	G14	G13,G15	G17	G16



Edge shape	General (Square)	Full-R (Round)	GM chipbreaker	MY chipbreaker

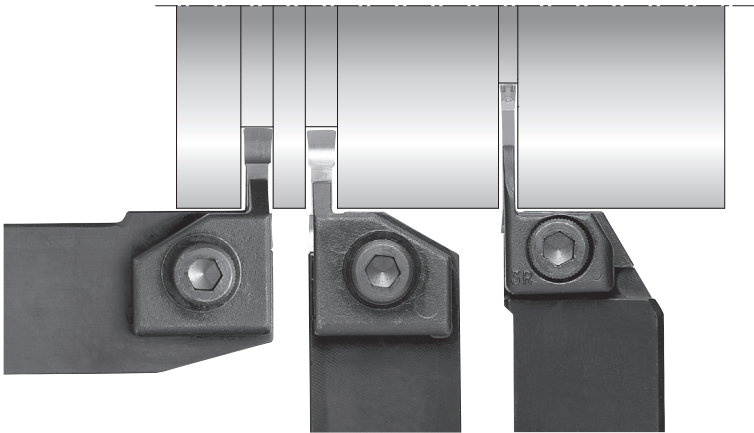
* These shallow groove types of the previous system will be switched to the system on the left.

KGBS → KGBAS
KGB → KGBA

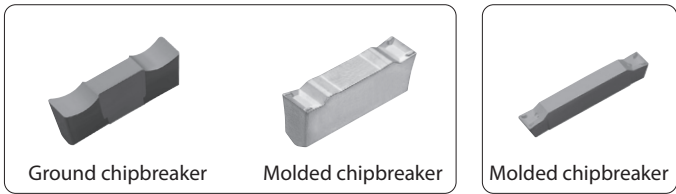


Grooving

Deep grooving (Grooving depth : ~25 mm)



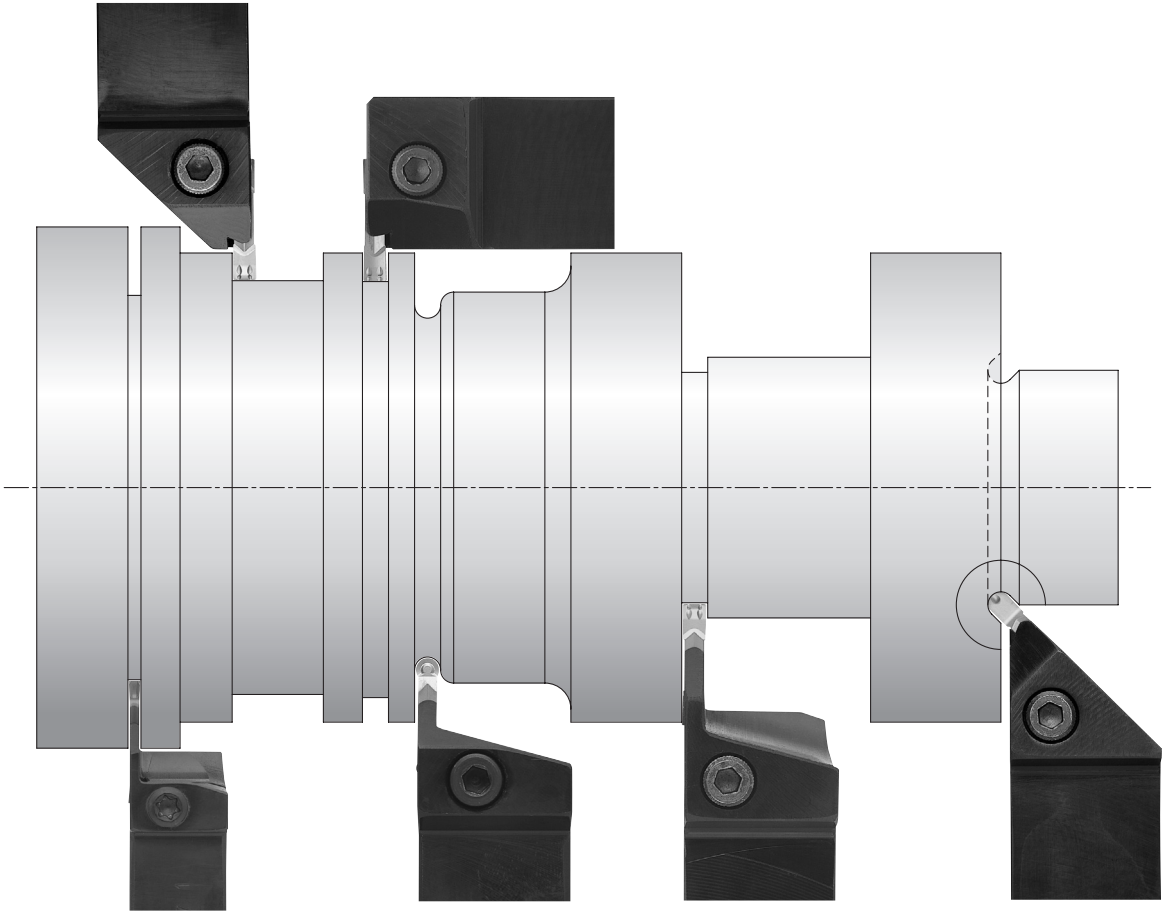
Type	KGHS	KGH	KGA
Edge Width (mm)	4.0 ~ 8.0	4.0 ~ 12.0	3.0 ~ 5.0
Max. grooving depth (mm)	13	13 ~ 17	20 ~ 25
See Page	G63	G62	G64



KGM Grooving (External grooving & turning)

Type	KGMM
Edge width (mm)	3.0 ~ 5.0
Max. grooving depth (mm)	4.8
See Page	G58

Type	KGMS
Edge width (mm)	3.0 ~ 5.0
Max. grooving depth (mm)	4.8
See Page	G58

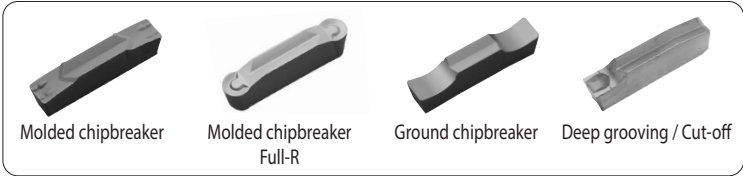


Type	KGM
Edge width (mm)	1.5 ~ 4.0
Max. grooving depth (mm)	10 ~ 16
See Page	G55

Type	KGM
Edge width (mm)	3.0 ~ 8.0
Max. grooving depth (mm)	9 ~ 25
See Page	G56

Type	KGM-T
Edge width (mm)	2.0 ~ 6.0
Max. grooving depth (mm)	17 ~ 30
See Page	G57

Type	KG MU
Edge width (mm)	3.0 ~ 5.0
Max. grooving depth (mm)	3.5 ~ 4.5
See Page	G60



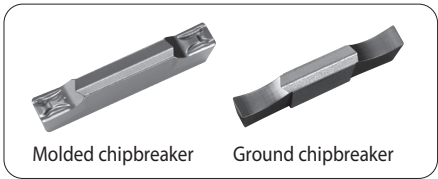
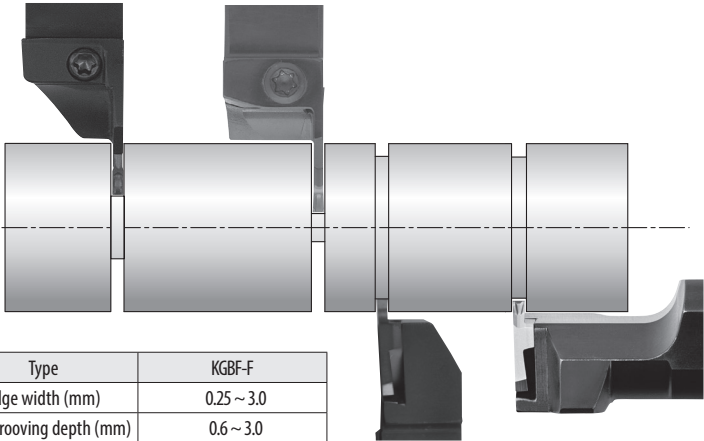
External grooving of precision parts for automatic lathe

· Coolant-through holders

Type	KGD
Edge width (mm)	2.0 ~ 4.0
Max. grooving depth (mm)	10 ~ 25.5
See Page	G35

Type	KGD-JCTM
Edge width (mm)	2.0 ~ 4.0
Max. grooving depth (mm)	12 ~ 16
See Page	G38

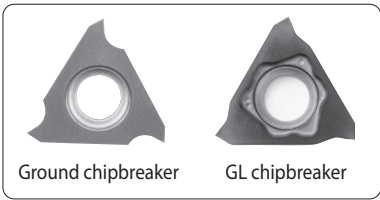
Type	KGM
Edge width (mm)	1.5 ~ 4.0
Max. grooving depth (mm)	10 ~ 16
See Page	G55



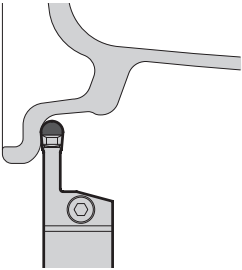
Type	KGBF-F
Edge width (mm)	0.25 ~ 3.0
Max. grooving depth (mm)	0.6 ~ 3.0
See Page	G23

· Coolant-through holders

Type	KGBFS	KGBF-JCTM	S-KGBF
Edge width (mm)	0.25 ~ 3.0	0.25 ~ 3.0	0.25 ~ 3.0
Max. grooving depth (mm)	0.6 ~ 3.0	0.6 ~ 3.0	0.6 ~ 3.0
See Page	G25	G24	G26



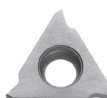
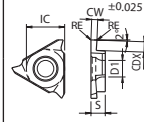
For aluminum wheel external grooving
(External / Facing / Copying)



Type	KGMW
Edge width (mm)	6.0 ~ 8.0
Max. grooving depth (mm)	25
See Page	G67



GBA32

		Carbon steel / Alloy steel										●	●	●	●		P		
		Stainless steel										●	●	●	●		M		
		Cast iron										●	●	●	●		K		
		Non-ferrous metals										●	●	●	●		N		
		Titanium alloy										●	●	●	●		S		
		Hard materials (~ 40HRC)										●	●	●	●		H		
		Hard materials (40HRC ~)										●	●	●	●				
Insert	Description	No. of edges	Dimension (mm)						Tolerance (mm)		Carbide					Cer- met	Applicable toolholder ➡ G13~G17 G89		
			CW	CDX	IC	S	D1	RE	CW min.	CW max.	PVD					-		PVD	-
											PR1215	PR1625	PR905	PR930	KW10	PV7040		TN90	
 	GBA32R 033-005	3	0.33	0.8				0.05	-0.03	+0.02	●	●	●	●	●	●	KGBAR...16 KGBAR...16/JCT KGBASL...16 KIGBAL...16		
	050-005		0.5	1.2				0.05	0	+0.05	●	●	●	●	●	●			
	075-005		0.75	2				0.05	-0.025	+0.025	●	●	●	●	●	●			
	095-005		0.95	2				0.05	-0.025	+0.025	●	●	●	●	●	●			
	100-005		1	2				0.05	-0.025	+0.025	●	●	●	●	●	●			
	110-005		1.1	2				0.05	-0.025	+0.025	●	●	●	●	●	●			
	120-005		1.2	2				0.05	-0.025	+0.025	●	●	●	●	●	●			
	125-020		1.25	2				0.2	-0.025	+0.025	●	●	●	●	●	●			
	130-020		1.3	2				0.2	-0.025	+0.025	●	●	●	●	●	●			
	140-020		1.4	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	145-020		1.45	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	150-020		1.5	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	160-020		1.6	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	170-020		1.7	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	175-020		1.75	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	200-020		2	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	225-020		2.25	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	250-020		2.5	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	300-020		3	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	GBA32L 033-005		0.33	0.8	9.525	3.18	4.4	0.05	-0.03	+0.02	●	●	●	●	●	●	KGBAL...16 KGBAL...16/JCT KGBASR...16 KIGBAR...16		
	050-005		0.5	1.2				0.05	0	+0.05	●	●	●	●	●	●			
	075-005		0.75	2				0.05	-0.025	+0.025	●	●	●	●	●	●			
	095-005		0.95	2				0.05	-0.025	+0.025	●	●	●	●	●	●			
	100-005		1	2				0.05	-0.025	+0.025	●	●	●	●	●	●			
	110-005		1.1	2				0.05	-0.025	+0.025	●	●	●	●	●	●			
	120-005		1.2	2				0.05	-0.025	+0.025	●	●	●	●	●	●			
	125-020		1.25	2				0.2	-0.025	+0.025	●	●	●	●	●	●			
	130-020		1.3	2				0.2	-0.025	+0.025	●	●	●	●	●	●			
	140-020		1.4	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	145-020		1.45	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	150-020		1.5	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	160-020		1.6	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	170-020		1.7	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	175-020		1.75	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	200-020		2	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	225-020		2.25	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	250-020		2.5	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			
	300-020		3	2.5				0.2	-0.025	+0.025	●	●	●	●	●	●			

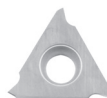
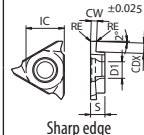
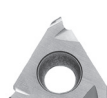
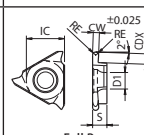
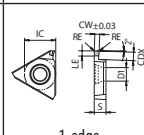
Right-hand shown
CDX shows available grooving depth.

Recommended cutting conditions  G141

● : Standard item

G6

GBA32

			Carbon steel / Alloy steel										●	●	●			P														
			Stainless steel										●	●				M														
			Cast iron										●					K														
			Non-ferrous metals													●		N														
			Titanium alloy													●		S														
			Hard materials (~ 40HRC)										●					H														
			Hard materials (40HRC ~)																													
Insert		Description	No. of edges	Dimension (mm)							Tolerance (mm)		Carbi- de	Cermet	PCD	Applicable toolholder ➡ G13~G17 G89																
				CW	CDX	IC	S	D1	RE	LE	CW min.	CW max.	PVD	-	-																	
													PH1215	PH1625	TiN620		KPD001	KPD010														
		GBA32R	050-005F	3	0.5	1	9.525	3.18	4.4	0.05	-	0	+ 0.05	●	●	●	●	●	●	KGBAR...16 KGBAR...16JCT KGBASL...16 KIGBAL...16												
			075-005F		0.75	2						- 0.025	+ 0.025								●											
			095-005F		0.95	2						- 0.025	+ 0.025								●											
			100-005F		1	2						- 0.025	+ 0.025								●											
			125-020F		1.25	2						- 0.025	+ 0.025								●											
			145-020F		1.45	2						- 0.025	+ 0.025								●											
			150-020F		1.5	2						- 0.025	+ 0.025								●											
			175-020F		1.75	2						- 0.025	+ 0.025								●											
			200-020F		2	2.5						- 0.025	+ 0.025								●											
			250-020F		2.5	2.5						- 0.025	+ 0.025								●											
		GBA32L	050-005F	0.5	1	9.525	3.18	4.4	0.05	-	0	+ 0.05	●	●	●	●	●	●	KGBAL...16 KGBAL...16JCT KGBASR...16 KIGBAR...16													
			075-005F	0.75	2						- 0.025	+ 0.025								●												
			095-005F	0.95	2						- 0.025	+ 0.025								●												
			100-005F	1	2						- 0.025	+ 0.025								●												
			125-020F	1.25	2						- 0.025	+ 0.025								●												
			145-020F	1.45	2						- 0.025	+ 0.025								●												
			150-020F	1.5	2						- 0.025	+ 0.025								●												
			175-020F	1.75	2						- 0.025	+ 0.025								●												
			200-020F	2	2.5						- 0.025	+ 0.025								●												
			250-020F	2.5	2.5						- 0.025	+ 0.025								●												
					GBA32R						200-100R 300-150R	3								2 3	2.5	9.525	3.18	4.4	1 1.5	-	- 0.025	+ 0.025	●	●	●	KGBAR...16 KGBAR...16JCT KGBASL...16 KIGBAL...16
																					GBA32R	125-010 150-010 200-010	1	1.25 1.5 2	2 2 2.5	9.525	3.18	4.4	0.1	1.7	- 0.03	+ 0.03

Right-hand shown
CDX shows available grooving depth.

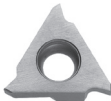
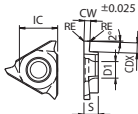
Recommended cutting conditions  G141

● : Standard item

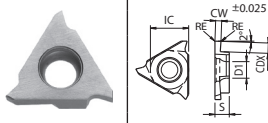
CBN & PCD Inserts are
sold in 1 piece boxes

G7

GBA43

						Carbon steel / Alloy steel										P																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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Insert		Description		No. of fedges	Dimension (mm)						Tolerance (mm)		Carbide			Cermet		Applicable toolholder G13~G17 G89																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
					CW	CDX	IC	S	D1	RE	CW min.	CW max.	PVD			-	PVD			-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
													PR1215	PR1625	PR905		PR930				KW10	PV7040	TC40N	TN90																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
 		GBA43R	125-010	1.25	2		4.76		0.1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

GBA43

				Carbon steel / Alloy steel																P
				Stainless steel																M
				Cast iron																K
				Non-ferrous metals																N
				Titanium alloy																S
				Hard materials (~ 40HRC)								●		○						H
				Hard materials (40HRC ~)																
Insert		Description	No. of edges	Dimension (mm)						Tolerance (mm)		Carbide			Cermet		Applicable toolholder G13~G17 G89			
				CW	CDX	IC	S	D1	RE	CW min.	CW max.	PVD			- PVD	- -				
												PR1215	PR1625	PR905				PR930	KW10	PV7040
	GBA43L	125-010		1.25	2		4.76		0.1			●	●							KGBAL...22-15 KGBAL...22-15JCT KGBASR...22-15 KIGBAR...22
		125-020		1.25	2		4.76		0.2			●	●			●	●	●	●	
		140-020		1.4	3.5		4.76		0.2			●	●							
		145-020		1.45	2		4.76		0.2			●	●			●	●	●	●	
					3.5							●	●							
		150-010		1.5	3.5		4.76		0.1			●	●							
		150-020		1.5	3.5		4.76		0.2			●	●			●	●	●	●	
		170-020		1.7	3.5		4.76		0.2			●	●	●						
		175-020		1.75	3.5		4.76		0.2			●	●			●	●			
		185-020		1.85	3.5		4.76		0.2			●	●			●	●			
		195-020		1.95	3.5		4.76		0.2			●	●					●	●	
		200-010		2	3.5		4.76		0.1			●	●							
		200-020		2	3.5		4.76		0.2			●	●			●	●	●	●	
		225-020		2.25	3.5		4.76		0.2			●	●							
		230-020		2.3	3.5		4.76		0.2			●	●			●	●			
		250-010		2.5	5		4.76		0.1			●	●							
		250-030	3	2.5	4	12.7	4.76	5.5	0.3	-0.025	+0.025	●	●			●	●	●	●	
					5							●	●							
		265-030		2.65	4		4.76		0.3			●	●			●	●			
					5							●	●							
		280-030		2.8	4		4.76		0.3			●	●			●	●			
					5							●	●							
		300-010		3	5		4.76		0.1			●	●							
		300-030		3	4		4.76		0.3			●	●			●	●	●	●	
					5							●	●							
		330-030		3.3	4		4.76		0.3			●	●					●	●	
					5							●	●							
		350-010		3.5	5		4.76		0.1			●	●							
		350-030		3.5	5		4.76		0.3			●	●			●	●	●	●	
		400-010		4	5		4.76		0.1			●	●							
		400-040		4	5		4.76		0.4			●	●			●	●	●	●	
		430-040		4.3	5		4.76		0.4			●	●			●	●			
		450-040		4.5	5		4.76		0.4			●	●			●	●			
	480-040		4.8	5		5		0.4			●	●			●	●				

Right-hand shown

CDX shows available grooving depth.

*3 : KGBAL...22-25T5, KGBAL...22-25JCT, KGBASR...22-25T5, KIGBAR...22

*4 : KGBAL...22-25, KGBAL...22-25T5, KGBAL...22-25JCT, KGBASR...22-25, KGBASR...22-25T5, KIGBAR...22

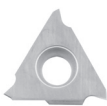
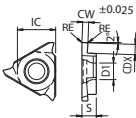
Recommended cutting conditions G141

● : Standard item

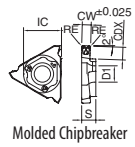
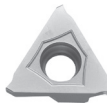
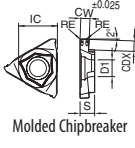


Grooving

GBA43

			Carbon steel / Alloy steel										●	P	
			Stainless steel											M	
			Cast iron											K	
			Non-ferrous metals											N	
			Titanium alloy											S	
			Hard materials (~ 40HRC)											H	
			Hard materials (40HRC ~)												
			Insert		Description	No. of edges	Dimension (mm)						Tolerance (mm)		Cermet
CW	CDX	IC					S	D1	RE	LE	CW min.	CW max.	-	TN620	
		GBA43R	125-020F	1.25	2	12.7	4.76	5.5	0.2	-	- 0.025	+ 0.025	●	KGBAR...22-15 KGBAR...22-15JCT KGBASL...22-15 KIGBAL...22	
			145-020F	1.45	2		4.76		0.2				●		
			150-020F	1.5	3.5		4.76		0.2				●		
			175-020F	1.75	3.5		4.76		0.2				●		
			185-020F	1.85	3.5		4.76		0.2				●		
			200-020F	2	3.5		4.76		0.2				●		
			230-020F	2.3	3.5	4.76	0.2	●						●	
			250-030F	2.5	4	4.76	0.3	●							
			265-030F	2.65	4	4.76	0.3	●							
			280-030F	2.8	4	4.76	0.3	●							
			300-030F	3	4	4.76	0.3	●							
			330-030F	3.3	4	4.76	0.3	●							
			350-030F	3.5	5	4.76	0.3	●							●
			400-040F	4	5	4.76	0.4	●							
			430-040F	4.3	5	4.76	0.4	●							
			450-040F	4.5	5	4.76	0.4	●							
			480-040F	4.8	5	4.76	0.4	●							
			GBA43L	125-020F	1.25	2	4.76	0.2							●
		145-020F		1.45	2	0.2		●							
		150-020F		1.5	3.5	0.2		●							
		175-020F		1.75	3.5	0.2		●							
		185-020F		1.85	3.5	0.2		●							
		200-020F		2	3.5	0.2		●							
		230-020F		2.3	3.5	0.2		●							
		250-030F		2.5	4	0.3		●							
		265-030F		2.65	4	0.3		●							
		280-030F		2.8	4	0.3		●							
		300-030F		3	4	0.3		●							
		330-030F		3.3	4	0.3		●							
		350-030F		3.5	5	0.3		●							
		400-040F		4	5	0.4		●							

GBA43

			Carbon steel / Alloy steel							●●●○			P	
			Stainless steel							●●●●			M	
			Cast iron							●●●●			K	
			Non-ferrous metals							●●●●			N	
			Titanium alloy							●●●●			S	
			Hard materials (~ 40HRC)							●●●●			H	
			Hard materials (40HRC ~)							●●●●				
Insert		Description	No. of edges	Dimension (mm)						Tolerance (mm)		Carbi- de	Cer- met	Applicable toolholder ➡ G13~G17 G89
				CW	CDX	IC	S	D1	RE	CW min.	CW max.	PVD	-	
												PR1215	PR1625	
	 Molded Chipbreaker	GBA43R	140-010GM	1.4	3.5				0.1			●●●●	●●●●	KGBAR...22-15 KGBAR...22-15JCT KGBASL...22-15 KIGBAL...22
			150-020GM	1.5	3.5				0.2			●●●●	●●●●	
			175-020GM	1.75	3.5				0.2			●●●●	●●●●	
			185-020GM	1.85	3.5				0.2			●●●●	●●●●	
			200-020GM	2	3.5				0.2			●●●●	●●●●	
			230-020GM	2.3	3.5				0.2			●●●●	●●●●	
			250-030GM	2.5	5				0.3			●●●●	●●●●	*2
			265-030GM	2.65	5				0.3			●●●●	●●●●	
			300-030GM	3	5				0.3			●●●●	●●●●	
			330-030GM	3.3	5				0.3			●●●●	●●●●	
			350-030GM	3.5	5				0.3			●●●●	●●●●	
		400-040GM	4	5				0.4			●●●●	●●●●	*5	
		GBA43L	140-010GM	1.4	3.5	12.7	4.76	5.5	0.1	-0.025	+0.025	●●●●	●●●●	KGBAL...22-15 KGBAL...22-15JCT KGBASR...22-15 KIGBAL...22
			150-020GM	1.5	3.5				0.2			●●●●	●●●●	
			175-020GM	1.75	3.5				0.2			●●●●	●●●●	
			185-020GM	1.85	3.5				0.2			●●●●	●●●●	
			200-020GM	2	3.5				0.2			●●●●	●●●●	
			230-020GM	2.3	3.5				0.2			●●●●	●●●●	
			250-030GM	2.5	5				0.3			●●●●	●●●●	*4
			265-030GM	2.65	5				0.3			●●●●	●●●●	
			300-030GM	3	5				0.3			●●●●	●●●●	
			330-030GM	3.3	5				0.3			●●●●	●●●●	
			350-030GM	3.5	5				0.3			●●●●	●●●●	
			400-040GM	4	5				0.4			●●●●	●●●●	
	 Molded Chipbreaker		GBA43R	175-020MY	1.75				3.5					
		185-020MY		1.85	3.5				0.2			●●●●	●●●●	
		200-020MY		2	3.5				0.2			●●●●	●●●●	
		230-020MY		2.3	3.5				0.2			●●●●	●●●●	
		250-030MY		2.5	5				0.3			●●●●	●●●●	*2
		265-030MY		2.65	5				0.3			●●●●	●●●●	
		300-030MY		3	5				0.3			●●●●	●●●●	
		330-030MY		3.3	5				0.3			●●●●	●●●●	
		350-030MY		3.5	5				0.3			●●●●	●●●●	
		400-040MY	4	5	12.7	4.76	5.5	0.4	-0.025	+0.025	●●●●	●●●●	*5	
		GBA43L	175-020MY	1.75				3.5			0.2	●●●●	●●●●	KGBAL...22-15 KGBAL...22-15JCT KGBASR...22-15 KIGBAL...22
			185-020MY	1.85				3.5			0.2	●●●●	●●●●	
			200-020MY	2				3.5			0.2	●●●●	●●●●	
			230-020MY	2.3				3.5			0.2	●●●●	●●●●	
			250-030MY	2.5				5			0.3	●●●●	●●●●	*4
			265-030MY	2.65				5			0.3	●●●●	●●●●	
			300-030MY	3				5			0.3	●●●●	●●●●	
			350-030MY	3.5				5			0.3	●●●●	●●●●	
		400-040MY	4	5				0.4			●●●●	●●●●	*6	

Right-hand shown

CDX shows available grooving depth.

*2 : KGBAR...22-25, KGBAR...22-25T5, KGBAR...22-25JCT, KGBASL...22-25, KGBASL...22-25T5, KIGBAL...22

*4 : KGBAL...22-25, KGBAL...22-25T5, KGBAL...22-25JCT, KGBASR...22-25, KGBASR...22-25T5, KIGBAL...22

*5 : KGBAR...22-35, KGBAR...22-35JCT, KGBASL...22-35, KIGBAL...22

*6 : KGBAL...22-35, KGBAL...22-35JCT, KGBASR...22-35, KIGBAL...22

Recommended cutting conditions ➡ G141

● : Standard item

G11

GBA43

		Carbon steel / Alloy steel																					
--	--	----------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Right-hand shown
CDX shows available grooving depth.

*2 : KGBAR...22-25, KGBAR...22-25T5, KGBAR...22-25JCT, KGBASL...22-25, KGBASL...22-25T5, KIGBAL...22

*4 : KGBAL...22-25, KGBAL...22-25T5, KGBAL...22-25JCT, KGBASR...22-25, KGBASR...22-25T5, KIGBAR...22

*5 : KGBAR...22-35, KGBAR...22-35JCT, KGBASL...22-35, KIGBAL...22

*6 : KGBAL...22-35, KGBAL...22-35JCT, KGBASR...22-35, KIGBAR...22

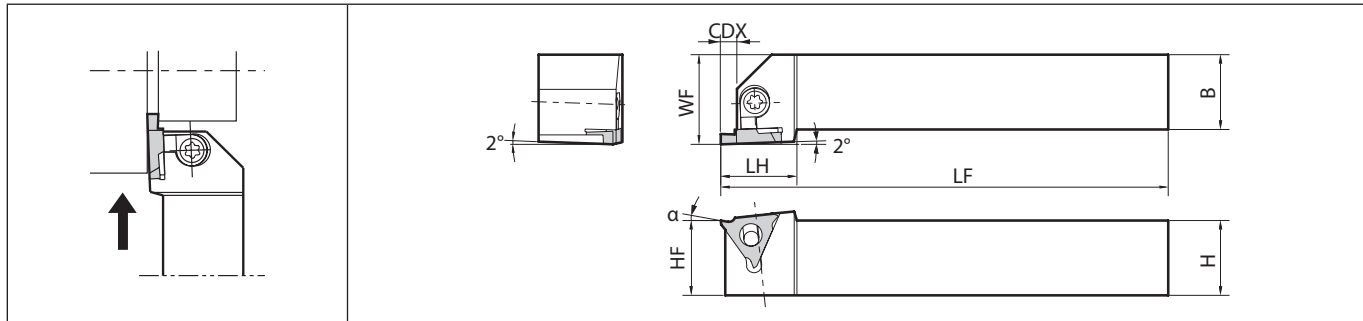
Recommended cutting conditions ➔ G141

● : Standard item

G12

CBN & PCD Inserts are
sold in 1 piece boxes

KGBA (External grooving / Shallow grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability		Dimension (mm)								Spare parts		Applicable inserts G6~G12
											Clamp set	Wrench	
	R	L	CDX	H	B	LH	HF	LF	WF				
KGBA ^{R/L} 2020K-16 2525M-16	●	●	2.5	20 25	20 25	24	20 25	125 150	25 30		LGBA-16 ^{R/L} S	FT-15	GBA32 ^{R/L} type
KGBA ^{R/L} 2020H22-15 2020H22-25 2020H22-35 2020K22-15 2020K22-25 2020K22-25T5 2020K22-35 2525M22-15 2525M22-25 2525M22-25T5 2525M22-35	●	●	4 4.5 5.5 4 4.5 5.5 4 4.5 5.5	20 20 20 20 20 20 20 20 20 20 20	20 20 20 20 20 20 20 20 20 20 20	24 24 24 24 24 24 24 24 24 24 24	20 20 20 20 20 20 20 20 20 20 20	125 150 150 125 125 125 125 125 125 125 125	25 25 25 25 25 25 25 25 25 25 25		LGBA-22RS LGBA-22 ^{R/L} S	FT-15	GBA43 ^{R/L} type

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : „CDX“ of Insert.

Clamp Set : LGBA-○○RS for Right-hand Toolholder and LGBA-○○LS for Left-hand Toolholder.

Rake Angle (α) after Installment of GBA insert

GBA32 ^{R/L} ○○○-○○○			GBA43 ^{R/L} ○○○-○○○			GBA43 ^{R/L} ○○○-○○○R (Full-R)		
α	Insert Grades		α	Insert Grades		α	Insert Grades	
10°	TN620, TN90, PV7040 PR930, PR1215, PR1625, PR905 KPD001, KPD010		0°	KBN510, KBN525		10°	TN620, TN90, PV7040, PR930 PR1215, PR1625, PR905	050R~150R
			10°	TN620, TC40N, TN90, PV7040 PR930, PR1215, PR1625, PR905 KPD001, KPD010		14°	TN620, TN90, PV7040, PR930 PR1215, PR1625, PR905	200R
20°	KW10		20°	KW10			KW10	050R~200R

Rake Angle (α) after Installment of GBA-GM insert

α	Insert Description
10°	GBA43 ^{R/L} 150-020GM
15°	GBA43 ^{R/L} 175-020GM GBA43 ^{R/L} 265-030GM
12°	GBA43 ^{R/L} 300-030GM GBA43 ^{R/L} 400-040GM

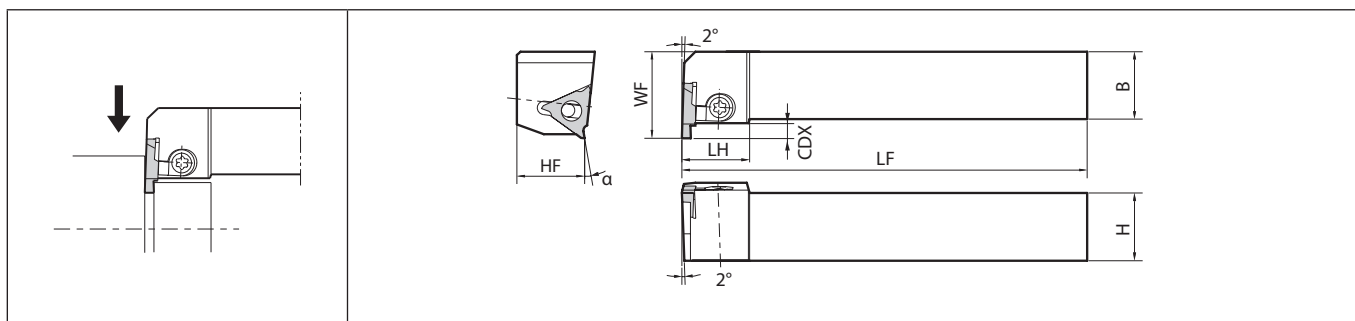
α indicates the rake angle at the center of the edge width, after installing insert.

● : Standard item

Rake Angle (α) after Installment of GBA-MY insert

α	Insert Description
15°	GBA43 ^{R/L} 175-020MY GBA43 ^{R/L} 350-030MY
14°	GBA43 ^{R/L} 400-040MY

α indicates the rake angle at the center of the edge width, after installing insert.

KGBAS (External grooving / Shallow grooving)

Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability		Dimension (mm)								Spare parts		Applicable inserts 🔧 G6~G12	
											Clamp set	Wrench		
	R	L	CDX	H	B	LH	HF	LF	WF					
KGBAS% 2020K-16 2525M-16	●	●	2.5	20	20	25	20	125	25	LGBA-16 $\frac{1}{8}$ S	FT-15	GBA32 $\frac{1}{8}$ type		
KGBAS% 2020K22-15 2020K22-25 2020K22-25T5 2020K22-35 2525M22-15 2525M22-25 2525M22-25T5 2525M22-35	●	●	4	20	20	25	20	125	27	LGBA-22 $\frac{1}{8}$ S	FT-15	GBA43 $\frac{1}{8}$ type		
	●	●	4.5											
	●	●	5.5											
	●	●	5.5	25	25	25	150	32						
	●	●	4											
	●	●	4.5											
	●	●	5.5											
	●	●	5.5											

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : „CDX“ of Insert.

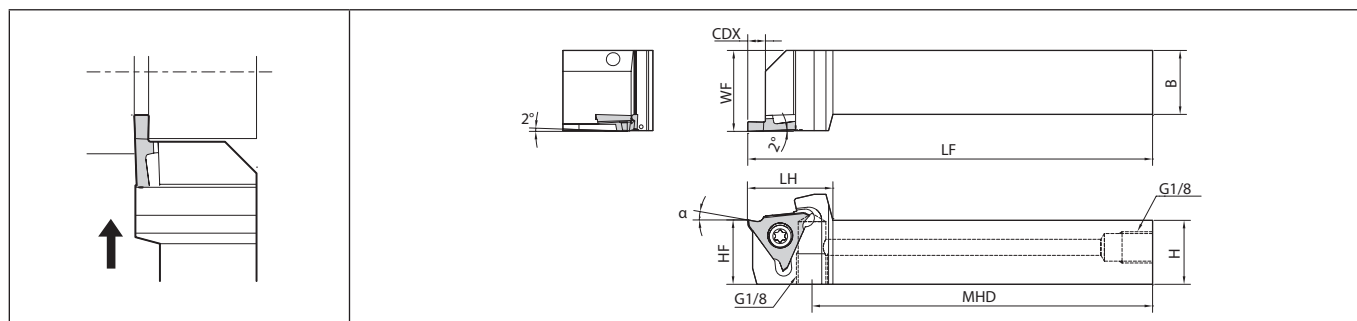
See Page **G13** for Rake Angle (α) after Installment of Insert.

Clamp Set : LGBA-○○LS for Right-hand Toolholder and LGBA-○○RS for Left-hand Toolholder.

● : Standard item

G14

KGBA-JCT (External grooving / Shallow grooving, Coolant-through holder)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability		Dimension (mm)								Coolant hole	Spare parts				Applicable inserts ➡ G6~G12
												Plug	Screw	Wrench	Wrench	
	R	L	CDX	H	B	LH	MHD	HF	LF	WF						
KGBA [®] /L 2020K-16JCT	●	●	2.5	20	20	24	107.5	20	125	25	Yes	HSG1/8X8.0	SB-4085TR	FT-15	-	GBA32 [°] /L type
2525K-16JCT	●	●		25	25			25	30							
KGBA [®] /L 2020K22-15JCT	●	●	4	20	20	26.5	105	20	125	25	Yes	HSG1/8X8.0	SB-5085TR	-	LTW-20	GBA43 [°] /L type
2020K22-25JCT	●	●	5.5					20	25							
2020K22-35JCT	●	●	4	25	25	26.5	105	25	30	Yes	HSG1/8X8.0	SB-5085TR	-	LTW-20	GBA43 [°] /L type	
2525K22-15JCT	●	●														
2525K22-25JCT	●	●	5.5	25	25	26.5	105	25	30	Yes	HSG1/8X8.0	SB-5085TR	-	LTW-20	GBA43 [°] /L type	
2525K22-35JCT	●	●														

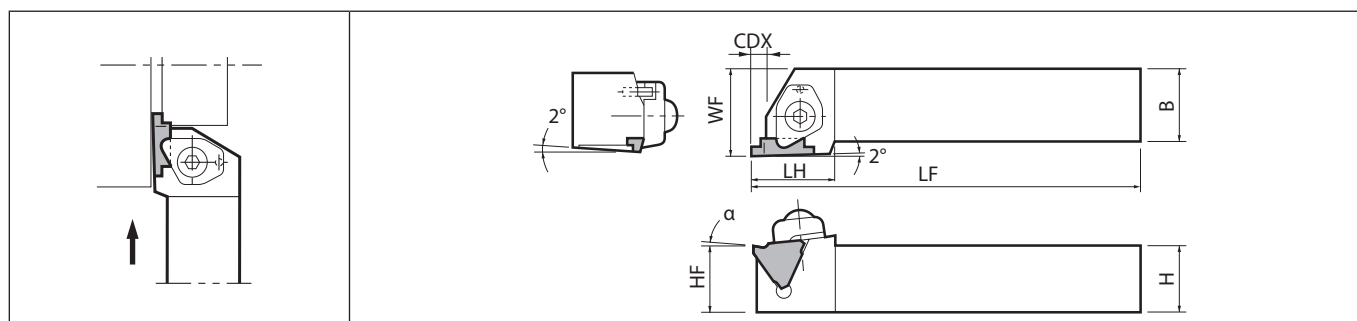
CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : „CDX“ of Insert.

See Page **G13** for Rake Angle (α) after Installment of Insert.

KGBA-JCT toolholder is screw clamp type.

Please see page **H16** and **H17** for piping parts of coolant-through holders.

● : Standard item

KGB (External grooving / Shallow grooving)

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability	Dimension (mm)										Spare parts				Applicable inserts ➔ G6~G12
												Clamp	Clamp bolt	Spring	Wrench	
		R	L	CDX	H	B	LH	HF	LF	WF						
KGB ^{R/L} 2020K-16	○	○		2.5	20	20	24	20	125	25		CGB ^{R/L}	BH6X25	SP-6	LW-4	GBA32 ^{R/L} type
2525M-16	○	○		25	25			25	150	30						
KGB ^{R/L} 2020K22-15	○	○	4		20	20		20	125	25						
2020K22-25	○	○	4.5		20	20		20	125	25						
2020K22-35	○	○	5.5				25.5									
2525M22-15	○	○	4													
2525M22-25	○	○	4.5	25	25			25	150	30						
2525M22-35	○	○	5.5													

KGB will be switched to KGBA=> **G13**

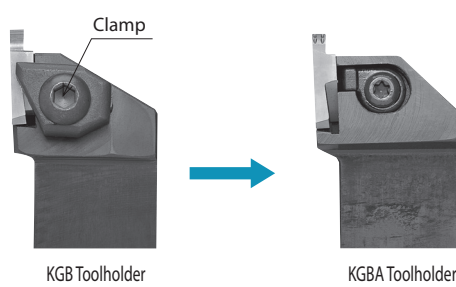
CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : „CDX“ of Insert.

KGB Clamp : CGBR for Right-hand Toolholder and CGBL for Left-hand Toolholder.

Alternative Toolholder Reference Table

KGBA	← (KGB)
KGBA ^{R/L} ...22-15	KGB ^{R/L} ...22-15
KGBA ^{R/L} ...22-25	KGB ^{R/L} ...22-25
KGBA ^{R/L} ...22-35	KGB ^{R/L} ...22-35
KGBA ^{R/L} ...22-25T5	KGB ^{R/L} ...22-25 (Available grooving depth has a limit)

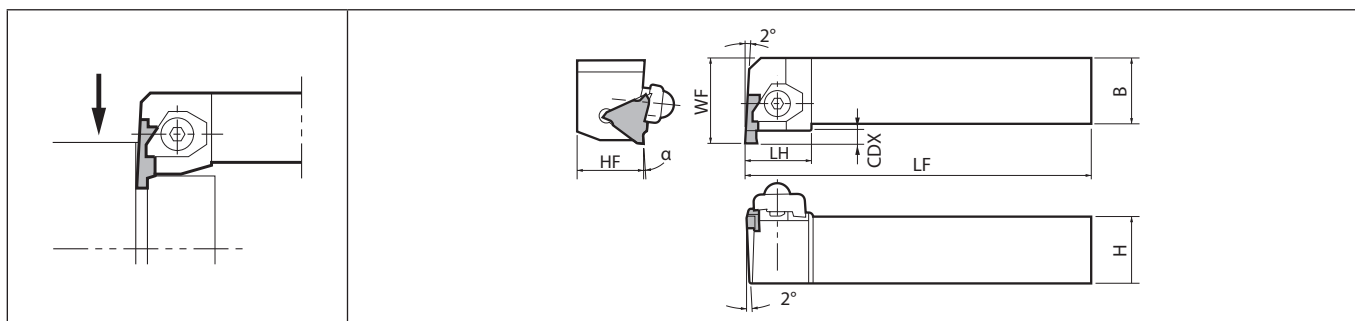
· Short shank type is not available for KGB / KGBS.

* KGB / KGBS toolholder will be switched to KGBA / KGBAS.
Better Chip flow.

○ : Check Availability

G16

KGBS (External grooving / Shallow grooving)



Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability		Dimension (mm)								Spare parts				Applicable inserts ➔ G6~G12
											Clamp	Clamp bolt	Spring	Wrench	
	R	L	CDX	H	B	LH	HF	LF	WF						
KGBS ^{R/L} 2020K-16	○	○	2.5	20	20	25	20	125	25	CGB ^{R/L}	BH6X25	SP-6	LW-4		GBA32 ^{R/L} type
2525M-16	○	○	2.5	25	25	25	25	150	30						
KGBS ^{R/L} 2020K22-15	○	○	4							CGB ^{R/L}	BH6X25	SP-6	LW-4		GBA43 ^{R/L} type
2020K22-25	○	○	4.5	20	20		20	125	27						
2020K22-35	○	○	5.5			25									
2525M22-15	○	○	4												
2525M22-25	○	○	4.5	25	25		25	150	32						
2525M22-35	○	○	5.5												

KGBS will be switched to KGBAS=> **G14**

KGBS Clamp : CGBL for Right-hand Toolholder and CGBR for Left-hand Toolholder.

Alternative Toolholder Reference Table

KGBAS	← (KGBS)
KGBAS ^{R/L} ...22-15	KGBS ^{R/L} ...22-15
KGBAS ^{R/L} ...22-25	KGBS ^{R/L} ...22-25
KGBAS ^{R/L} ...22-35	KGBS ^{R/L} ...22-35
KGBAS ^{R/L} ...22-25T5	KGBS ^{R/L} ...22-25 (Available grooving depth has a limit)

○ : Check Availability

GBF (for automatic lathe)

High precision with edge width tolerance of $\pm 0.02\text{ mm}$
High efficiency MEGACOAT coating technology for long tool life

1 Stable chip control with GL chipbreaker

GL Chipbreaker controls chips stable at both grooving and turning.
(Turning is not recommended for GBF32R075-005GL)

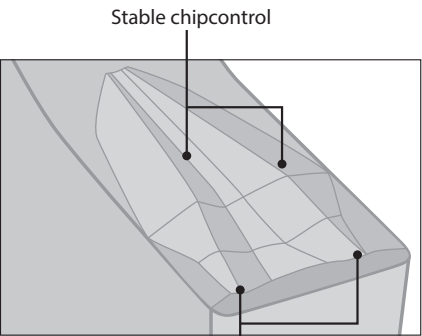
G


Grooving

External

Internal

Face



Chips are short, curled and break evenly in low feed machining.
Prevents chip clogging.

Chip control comparison (internal evaluation)

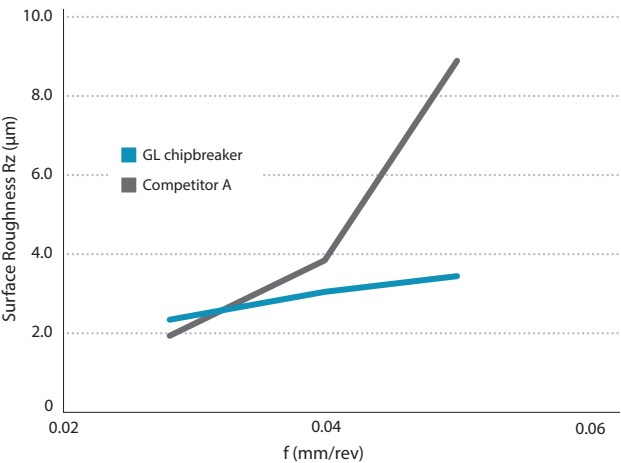
	GL chipbreaker	Competitor A
Grooving $f = 0.05\text{ mm/rev}$ $d = 1.5\text{ mm}$		
Turning $f = 0.04\text{ mm/rev}$ $ap = 0.2\text{ mm}$		

Cutting conditions: $V_c = 80\text{ m/min}$, edge width 1 mm
Workpiece material : SUS304

2 Good surface finish

GL chipbreaker controls chips stable at high feed machining,
Good surface finish of side wall

Surface roughness comparison (internal evaluation)



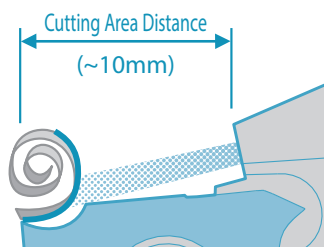
Cutting conditions: $V_c = 80\text{ m/min}$, $d = 1.5\text{ mm}$, $f = 0.03\sim 0.05\text{ mm/rev}$, edge width 1 mm
Workpiece material : SCM415

Chip control comparison (internal evaluation)

	$f = 0.03$	$f = 0.04$	$f = 0.05$
GL chipbreaker			
Competitor A (Molded chipbreaker)			

KGBF-JCTM (for automatic lathe)

Discharges coolant from the top of the insert



Coolant hole

Ample supply of coolant to the cutting edge.
Prevents coolant stream spreading which slows the coolant flow.

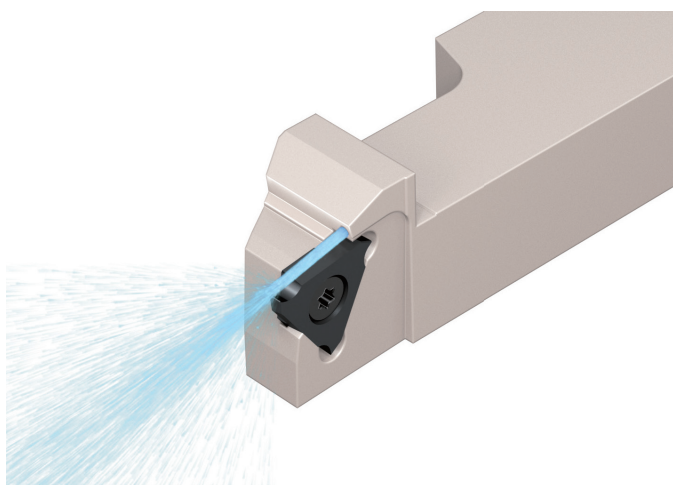
Direction of supply

Sufficient coolant between the chipbreaker and the chips
Stable chip curls and sufficient cooling of the insert

1 Excellent chip control provide long tool life

2 Superior cooling action improves tool life

External Grooving KGBF-JCTM



• Provides Coolant toward the Rake Surface of Insert

• Specification

Edge Width : 0.25 -3 mm

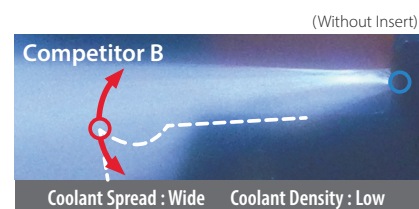
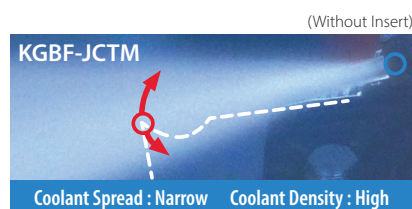
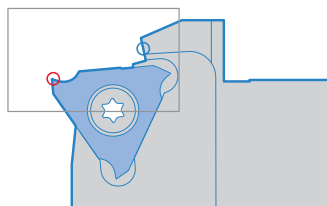
Ground Chipbreaker/Molded GL Chipbreaker

Maximum groove depth : 3 mm

Coolant Discharging Comparison (Internal evaluation)

Small chips and better cooling of the insert leads to longer tool life

○ Cutting Edge
○ Coolant Hole

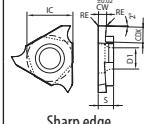
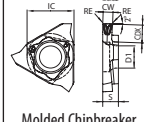


G



Grooving

GBF

			Carbon steel / Alloy steel										P		
			Stainless steel										M		
			Cast iron										K		
			Non-ferrous metals										N		
			Titanium alloy										S		
			Hard materials (~ 40HRC)										H		
			Hard materials (40HRC ~)												
Insert		Description		No. of edges	Dimension (mm)						Tolerance (mm)		Carbide		Applicable toolholder G23~G26
					CW	CDX	IC	S	D1	RE	CW min.	CW max.	PVD		
													PR1215	PR1535	
  Sharp edge	GBF32R	025-000F	0.25	0.6	9.525	3.18	4.4	0	-0.02	+0.02	●	●	KGBFR...-16F KGBFR...-16FJCTM KGBFSL...-16 S...KGBFL16		
		030-000F	0.3	0.8					-0.02	+0.02	●	●			
		033-000F	0.33	0.8					-0.025	+0.015	●	●			
		043-000F	0.43	1					-0.025	+0.015	●	●			
		050-000F	0.5	1.2					-0.02	+0.02	●	●			
		053-000F	0.53	1.2					-0.025	+0.015	●	●			
		065-000F	0.65	1.2					-0.02	+0.02	●	●			
		075-000F	0.75	2					-0.02	+0.02	●	●			
		080-000F	0.8	2					-0.02	+0.02	●	●			
		095-000F	0.95	2					-0.02	+0.02	●	●			
		100-000F	1	2					-0.02	+0.02	●	●			
		110-000F	1.1	2					-0.02	+0.02	●	●			
		120-000F	1.2	2					-0.02	+0.02	●	●			
		125-000F	1.25	2					-0.02	+0.02	●	●			
		130-000F	1.3	2					-0.02	+0.02	●	●			
		140-000F	1.4	2.7					-0.02	+0.02	●	●			
		145-000F	1.45	2.7					-0.02	+0.02	●	●			
		150-000F	1.5	2.7					-0.02	+0.02	●	●			
		165-000F	1.65	2.7					-0.02	+0.02	●	●			
		170-000F	1.7	3					-0.02	+0.02	●	●			
		175-000F	1.75	3					-0.02	+0.02	●	●			
		200-000F	2	3					-0.02	+0.02	●	●			
	GBF32L	025-000F	0.25	0.6	9.525	3.18	4.4	0	-0.02	+0.02	●	●	KGBFL...-16F KGBFSR...-16		
		030-000F	0.3	0.8					-0.02	+0.02	●	●			
		033-000F	0.33	0.8					-0.025	+0.015	●	●			
		043-000F	0.43	1					-0.025	+0.015	●	●			
		050-000F	0.5	1.2					-0.02	+0.02	●	●			
		053-000F	0.53	1.2					-0.025	+0.015	●	●			
		065-000F	0.65	1.2					-0.02	+0.02	●	●			
		075-000F	0.75	2					-0.02	+0.02	●	●			
		080-000F	0.8	2					-0.02	+0.02	●	●			
		095-000F	0.95	2					-0.02	+0.02	●	●			
		100-000F	1	2					-0.02	+0.02	●	●			
		110-000F	1.1	2					-0.02	+0.02	●	●			
120-000F		1.2	2	-0.02					+0.02	●	●				
125-000F		1.25	2	-0.02					+0.02	●	●				
130-000F		1.3	2	-0.02					+0.02	●	●				
140-000F		1.4	2.7	-0.02					+0.02	●	●				
145-000F		1.45	2.7	-0.02					+0.02	●	●				
150-000F		1.5	2.7	-0.02					+0.02	●	●				
165-000F		1.65	2.7	-0.02					+0.02	●	●				
170-000F		1.7	3	-0.02					+0.02	●	●				
175-000F		1.75	3	-0.02					+0.02	●	●				
200-000F		2	3	-0.02					+0.02	●	●				
  Molded Chipbreaker	GBF32R	075-005GL	0.75	2	9.525	3.18	4.4	0.05	-0.02	+0.02	●	●	KGBFR...-16F KGBFR...-16FJCTM KGBFSL...-16 S...KGBFL16		
		095-005GL	0.95	2							●	●			
		100-005GL	1	2							●	●			
		150-010GL	1.5	2.7							●	●			
		200-010GL	2	3							●	●			
		300-010GL	3	3							●	●			

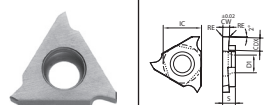
Right-hand shown
Max. Cutting Dia.: See Page G27

Recommended cutting conditions G142

● : Standard item

G20

GBF

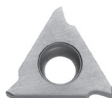
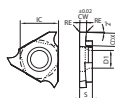
		Carbon steel / Alloy steel										P	
		Stainless steel										M	
		Cast iron										K	
		Non-ferrous metals										N	
		Titanium alloy										S	
		Hard materials (~ 40HRC)										H	
		Hard materials (40HRC ~)											
Insert	Description	No. of edges	Dimension (mm)						Tolerance (mm)		Carbide		Applicable toolholder G23~G26
			CW	CDX	IC	S	D1	RE	CW min.	CW max.	PVD	-	
											PR1215	PR1535	
	GBF32R	025-005	0.25	0.6				0.05	-0.02	+0.02	●	●	KGBFR...-16F KGBFR...-16FJCTM KGBFSL...-16 S...KGBFL16
	030-005	0.3	0.8				0.05	-0.02	+0.02	●	●		
	033-005	0.33	0.8				0.05	-0.025	+0.015	●	●		
	043-005	0.43	1				0.05	-0.025	+0.015	●	●		
	050-005	0.5	1.2				0.05	-0.02	+0.02	●	●		
	053-005	0.53	1.2				0.05	-0.025	+0.015	●	●		
	065-005	0.65	1.2				0.05	-0.02	+0.02	●	●		
	075-005	0.75	2				0.05	-0.02	+0.02	●	●		
	075-010	0.75	2				0.1	-0.02	+0.02	●	●		
	080-005	0.8	2				0.05	-0.02	+0.02	●	●		
	080-010	0.8	2				0.1	-0.02	+0.02	●	●		
	095-005	0.95	2				0.05	-0.02	+0.02	●	●		
	095-010	0.95	2				0.1	-0.02	+0.02	●	●		
	100-005	1	2				0.05	-0.02	+0.02	●	●		
	100-010	1	2				0.1	-0.02	+0.02	●	●		
	110-005	1.1	2				0.05	-0.02	+0.02	●	●		
	110-010	1.1	2				0.1	-0.02	+0.02	●	●		
	120-005	1.2	2				0.05	-0.02	+0.02	●	●		
	120-010	1.2	2				0.1	-0.02	+0.02	●	●		
	125-005	1.25	2				0.05	-0.02	+0.02	●	●		
	125-010	1.25	2				0.1	-0.02	+0.02	●	●		
	130-005	1.3	2	9.525	3.18	4.4	0.05	-0.02	+0.02	●	●		
	130-010	1.3	2				0.1	-0.02	+0.02	●	●		
	140-005	1.4	2.7				0.05	-0.02	+0.02	●	●		
	140-010	1.4	2.7				0.1	-0.02	+0.02	●	●		
	145-005	1.45	2.7				0.05	-0.02	+0.02	●	●		
	145-010	1.45	2.7				0.1	-0.02	+0.02	●	●		
	150-005	1.5	2.7				0.05	-0.02	+0.02	●	●		
	150-010	1.5	2.7				0.1	-0.02	+0.02	●	●		
	165-005	1.65	2.7				0.05	-0.02	+0.02	●	●		
	165-010	1.65	2.7				0.1	-0.02	+0.02	●	●		
	170-005	1.7	3				0.05	-0.02	+0.02	●	●		
	170-010	1.7	3				0.1	-0.02	+0.02	●	●		
	175-005	1.75	3				0.05	-0.02	+0.02	●	●		
	175-010	1.75	3				0.1	-0.02	+0.02	●	●		
	200-005	2	3				0.05	-0.02	+0.02	●	●		
	200-010	2	3				0.1	-0.02	+0.02	●	●		
	225-005	2.25	3				0.05	-0.02	+0.02	●	●		
	225-010	2.25	3				0.1	-0.02	+0.02	●	●		
	250-005	2.5	3				0.05	-0.02	+0.02	●	●		
	250-010	2.5	3				0.1	-0.02	+0.02	●	●		
	300-005	3	3				0.05	-0.02	+0.02	●	●		
	300-010	3	3				0.1	-0.02	+0.02	●	●		

Right-hand shown
Max. Cutting Dia.: See Page G27

Recommended cutting conditions G142

● : Standard item

GBF

		Carbon steel / Alloy steel										P		
		Stainless steel										M		
		Cast iron										K		
		Non-ferrous metals										N		
		Titanium alloy										S		
		Hard materials (~ 40HRC)										H		
		Hard materials (40HRC ~)												
Insert	Description	No. of edges	Dimension (mm)						Tolerance (mm)		Carbide		Applicable toolholder G23,G25	
			CW	CDX	IC	S	D1	RE	CW min.	CW max.	PVD	-		
											PR1215	PR1535		GW15
 	GBF32L 025-005	3	0.25	0.6	9.525	3.18	4.4	0.05	-0.02	+0.02	●	●	KGBFL...-16F KGBFSR...-16	
	030-005		0.3	0.8				0.05	-0.02	+0.02	●	●		●
	033-005		0.33	0.8				0.05	-0.025	+0.015	●	●		●
	043-005		0.43	1				0.05	-0.025	+0.015	●	●		●
	050-005		0.5	1.2				0.05	-0.02	+0.02	●	●		●
	053-005		0.53	1.2				0.05	-0.025	+0.015	●	●		●
	065-005		0.65	1.2				0.05	-0.02	+0.02	●	●		●
	075-005		0.75	2				0.05	-0.02	+0.02	●	●		●
	075-010		0.75	2				0.1	-0.02	+0.02	●	●		●
	080-005		0.8	2				0.05	-0.02	+0.02	●	●		●
	080-010		0.8	2				0.1	-0.02	+0.02	●	●		●
	095-005		0.95	2				0.05	-0.02	+0.02	●	●		●
	095-010		0.95	2				0.1	-0.02	+0.02	●	●		●
	100-005		1	2				0.05	-0.02	+0.02	●	●		●
	100-010		1	2				0.1	-0.02	+0.02	●	●		●
	110-005		1.1	2				0.05	-0.02	+0.02	●	●		●
	110-010		1.1	2				0.1	-0.02	+0.02	●	●		●
	120-005		1.2	2				0.05	-0.02	+0.02	●	●		●
	120-010		1.2	2				0.1	-0.02	+0.02	●	●		●
	125-005		1.25	2				0.05	-0.02	+0.02	●	●		●
	125-010		1.25	2				0.1	-0.02	+0.02	●	●		●
	130-005		1.3	2				0.05	-0.02	+0.02	●	●		●
	130-010		1.3	2				0.1	-0.02	+0.02	●	●		●
	140-005		1.4	2.7				0.05	-0.02	+0.02	●	●		●
	140-010		1.4	2.7				0.1	-0.02	+0.02	●	●		●
	145-005		1.45	2.7				0.05	-0.02	+0.02	●	●		●
	145-010		1.45	2.7				0.1	-0.02	+0.02	●	●		●
	150-005		1.5	2.7				0.05	-0.02	+0.02	●	●		●
	150-010		1.5	2.7				0.1	-0.02	+0.02	●	●		●
	165-005		1.65	2.7				0.05	-0.02	+0.02	●	●		●
	165-010		1.65	2.7				0.1	-0.02	+0.02	●	●		●
	170-005		1.7	3				0.05	-0.02	+0.02	●	●		●
	170-010		1.7	3				0.1	-0.02	+0.02	●	●		●
	175-005		1.75	3				0.05	-0.02	+0.02	●	●		●
	175-010		1.75	3				0.1	-0.02	+0.02	●	●		●
	200-005		2	3				0.05	-0.02	+0.02	●	●		●
	200-010		2	3				0.1	-0.02	+0.02	●	●		●
	225-005		2.25	3				0.05	-0.02	+0.02	●	●		●
	225-010		2.25	3				0.1	-0.02	+0.02	●	●		●
	250-005		2.5	3				0.05	-0.02	+0.02	●	●		●
	250-010		2.5	3				0.1	-0.02	+0.02	●	●		●
	300-005		3	3				0.05	-0.02	+0.02	●	●		●
	300-010		3	3				0.1	-0.02	+0.02	●	●		●

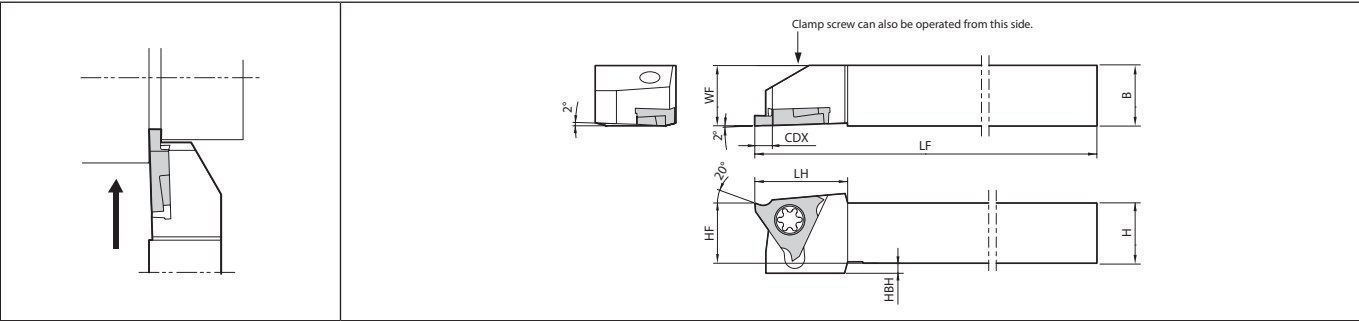
Right-hand shown
Max. Cutting Dia. : See Page G27

Recommended cutting conditions G142

● : Standard item

G22

KGBF-F (External grooving / Shallow grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

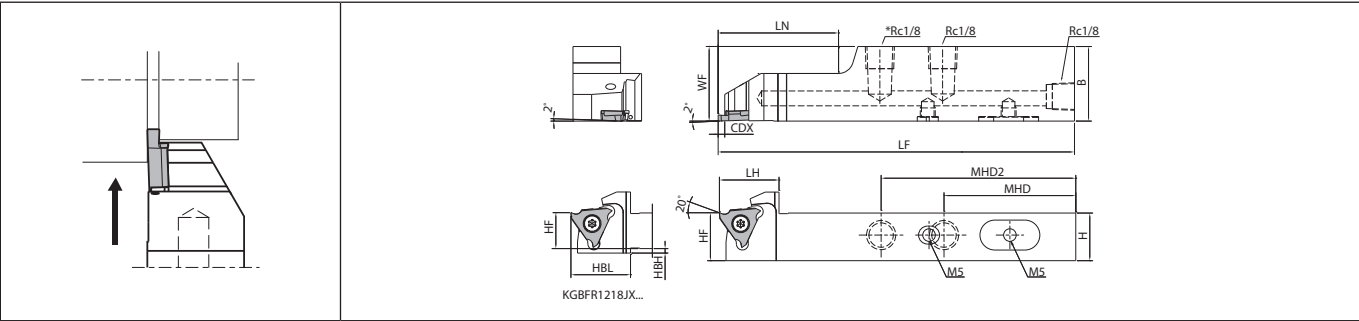
Description	Availabi- lity		Dimension (mm)								Spare parts		Applicable inserts ➡ G20~G22
											Screw	Wrench	
	R	L	CDX	H	B	LH	HF	HBH	LF	WF			
KGBF [®] /L 1010JX-16F 1212JX-16F 1616JX-16F 2020JX-16F	●	●	3	10	10	18.5	10	4	120	10	SB-4070TRW	FT-8	GBF32 [®] /L type
	●	●		12	12		12	2		12			
	●	●		16	16		16	-		16			
	●	●		20	20		20	-		20			

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : „CDX“ of Insert.



● : Standard item

KGBF-JCTM (External grooving / Shallow grooving, Coolant-through holder)



Right-hand shown | Right-hand Insert for Right-hand Toolholder. | KGBFR1218JX-16FJCTM : 2-Rc1/8

Toolholder dimensions

Description	Availability	Dimension (mm)													Coolant hole	Spare parts				Applicable inserts ➡ G20,G21
																Plug	Plug	Screw	Wrench	
		R	CDX	H	B	LH	MHD	MHD2	HF	HBH	HL	LF	LN	WF						
KGBFR 1218JX-16FJCTM	●		12	18		54	-	12	1.5	20		28	12		Yes	GP-1	HSSX4LP	SB-4070TRW	FT-8	GBF32R type
1625JX-16FJCTM	●	3	16	25	20	44	65	16	-	-	120	40	16							
2025JX-16FJCTM	●		20					20					20				-			

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : „CDX“ of Insert.
Please see page H16 and H17 for piping parts of coolant-through holders.

G

Grooving

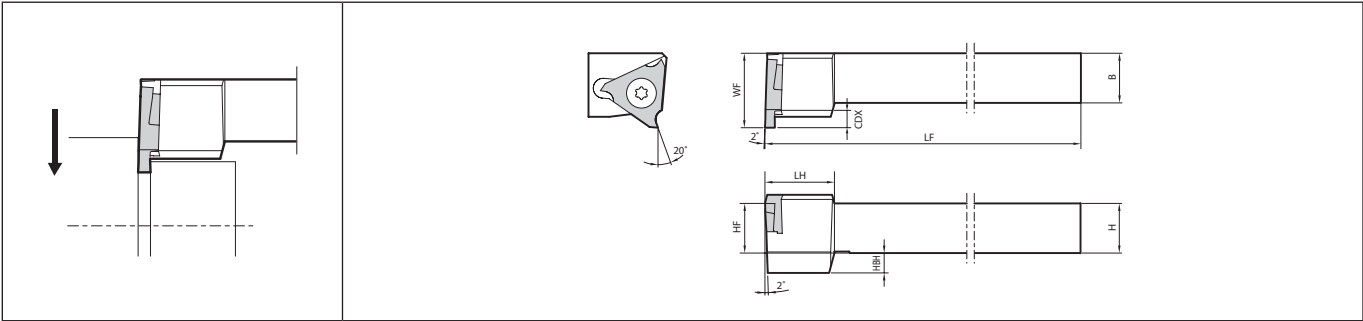
External

Internal

Face

● : Standard item

KGBFS (External grooving / Shallow grooving)



Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder dimensions

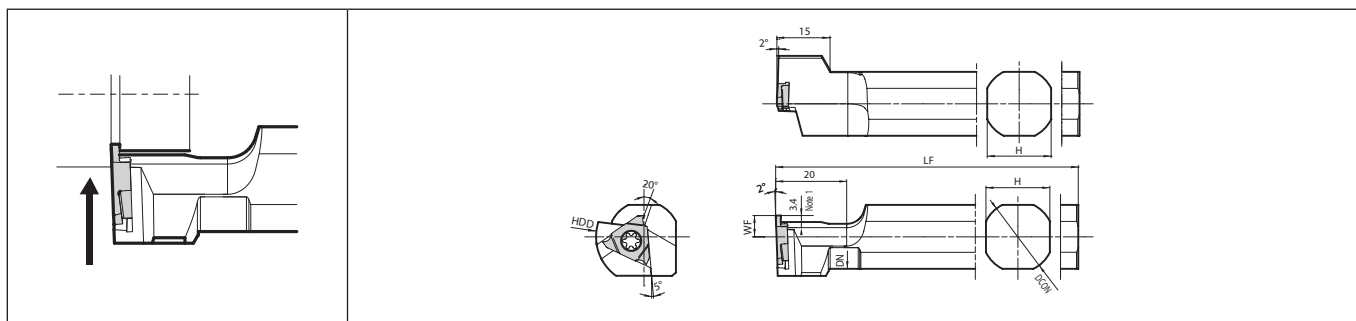
Description	Availabi- lity		Dimension (mm)								Spare parts		Applicable inserts ➡ G20~G22
											Screw	Wrench	
	R	L	CDX	H	B	LH	HF	HBH	LF	WF			
KGBFS [®] /L 1010JX-16	●	●		10	10		10	4		15	SB-4070TRW	FT-8	GBF32 ^L / _R type
1212JX-16	●	●	3	12	12	14	12	2	120	16			
1616JX-16	●	●		16	16		16	-		20			

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : „CDX“ of Insert.



● : Standard item

S-KGBF (External grooving / Shallow grooving)



Left-hand shown | Right-hand Insert for Left-hand Toolholder. | Note 1) CDX shows available grooving depth.

Toolholder dimensions

Description		Availability	Dimension (mm)						Spare parts		Applicable inserts ➡ G20,G21
									Screw	Wrench	
			L	D CON	H	DN	HDD	LF	WF		
S12F-	KGBFL16	●	12	11	11		80	6	SB-4070TRW	FT-8	GBF32R type
S14H-	KGBFL16	●	14	13	13		100				
S15F-	KGBFL16	●	15.875	15	15		85				
S16F-	KGBFL16	●	16								
S19G-	KGBFL16	●	19.05	17	18	27	90				
S19K-	KGBFL16	●					120				
S20G-	KGBFL16	●					90				
S20K-	KGBFL16	●	20	18	19		120				
S22K	KGBFL16	●	22	20	21						
S25.0H-	KGBFL16	●	25	23	24	32	100				
S25K-	KGBFL16	●	25.4								

● : Standard item

G26

Compatibility with GBF and GBA

1. GBF will fit KGBA / KGBAS toolholders.
 - Caution: The maximum groove depth for KGBA / KGBAS toolholders is 2.5 mm
2. GBA inserts will also fit KGBF-F toolholders
 - Caution: The rake angle after installation in the toolholder is 11°

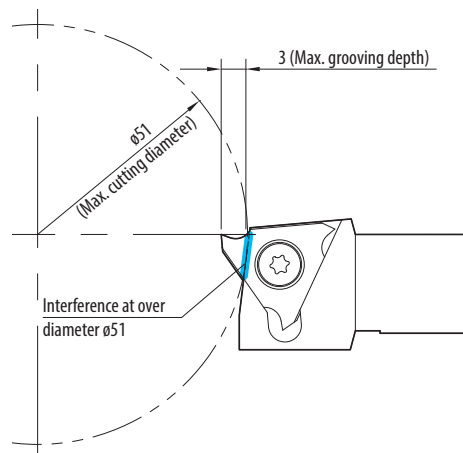
KGBF-F toolholder with GBF insert maximum machining diameter

- 3 mm groove depth is available on workpiece diameters up to $\varnothing 51$ mm.
- 2.7 mm groove depth is available on workpiece diameters up to $\varnothing 100$ mm.
- 2.5 mm or less groove depth is available on workpiece diameters up to $\varnothing 200$ mm

The workpiece will interfere with the holder at maximum diameter or larger

Max. cutting diameter

Max. cutting diameter at 3 mm grooving depth



G



Grooving

Various insert lineup for KGD toolholder

Smooth chip control

» Newly-introduced chipbreakers designed to cover a variety of workpiece materials.

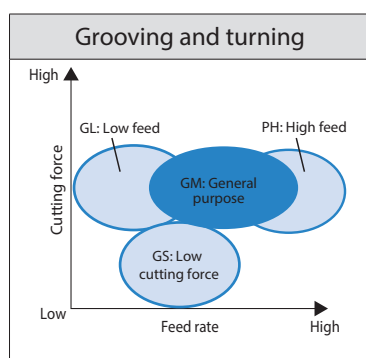
High precision edge preparation

» High precision molding technology with tolerance ± 0.03 mm (Edge width 2, 3, 4 mm types)

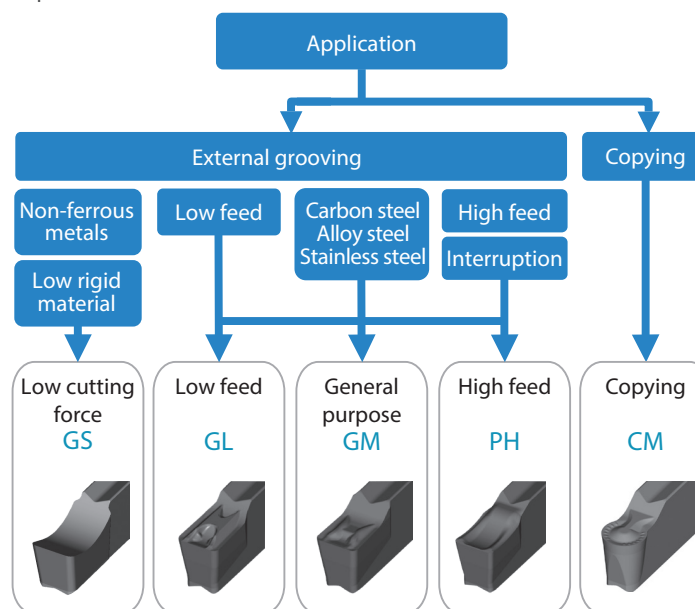
Highly-reputed MEGACOAT technology

» Long tool life and high efficiency machining achieved by superior oxidation resistance and wear resistance.

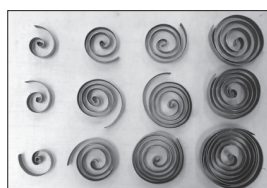
Application map



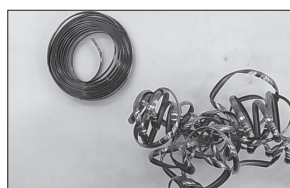
Chipbreaker selection



Comparison of chip control (SCM415, $V_c = 150$ m/min, $f = 0.15$ mm/rev)



GM chipbreaker



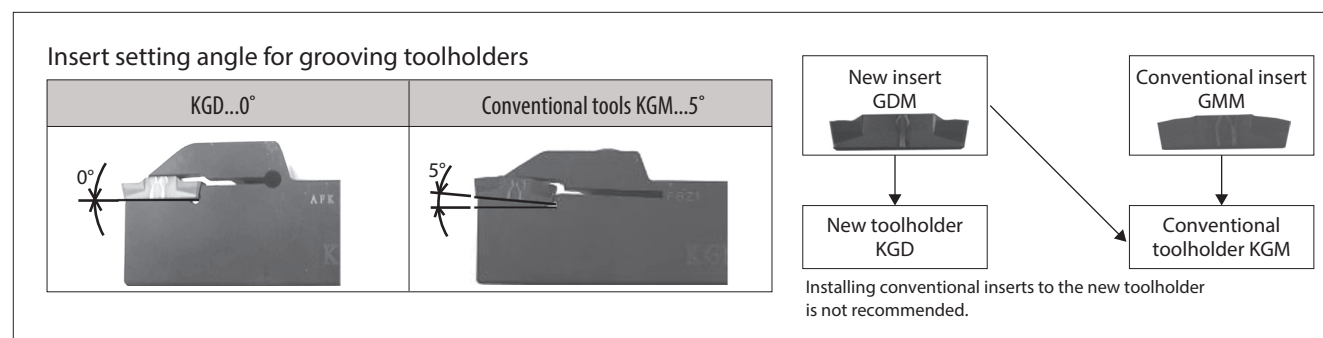
Competitor A



Competitor B

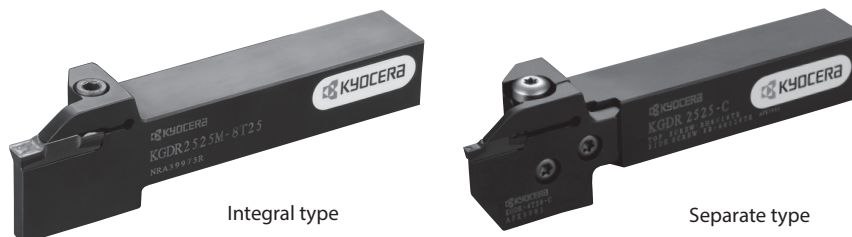
Smooth chip control
» Less chip biting troubles

Toolholder and insert combination of KGD type (new) and KGM type (conventional)



KGD grooving toolholder

Integral type and separate type (toolholder + blade) are available

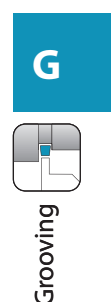
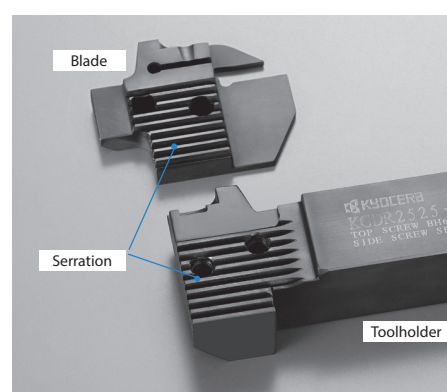


High rigidity separate type toolholder

- Adaptable to wide applications by changing blades.
- Deals with various edge widths and cutting depths by changing the blade and toolholder combination.
- Even if the blade is broken, you only need to replace the broken part.

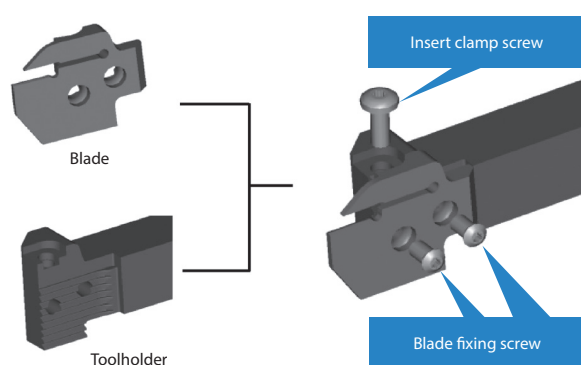
Toolholders for High Pressure Coolant

- Added coolant-through holder KGD-JCTM with superior chip control and long tool life



Structure of toolholder unit (toolholder + blade)

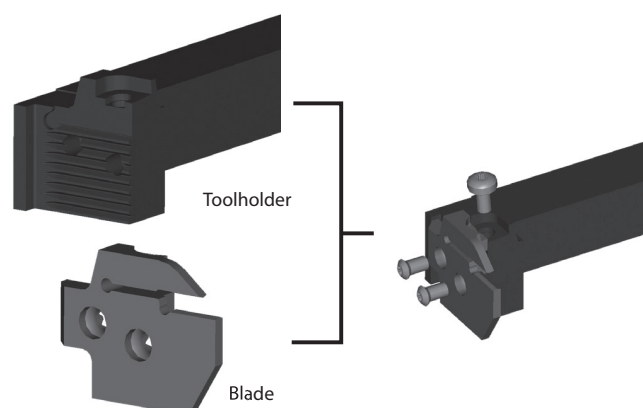
KGD-S (0° separate type)



Note for the toolholder and blade combination of 0° separate type
Toolholder (KGD[®]/L-○○○○-C)
+
Blade (KGD[®]/L-○T○○-C)

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

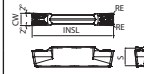
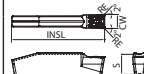
KGDS-S (90° separate type)



Note for the toolholder and blade combination of 90° separate type
Toolholder (KGDS[®]/L-○○○○-C)
+
Blade (KGD[®]/R-○T○○-C)

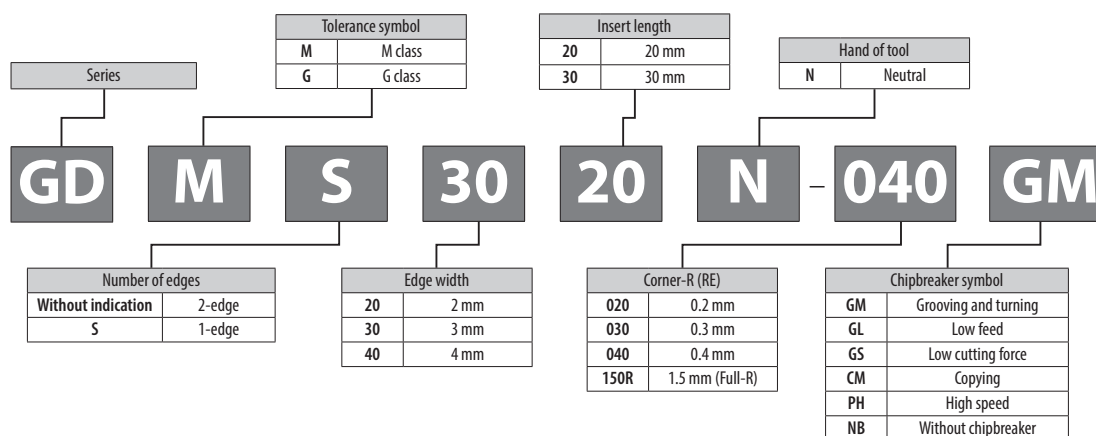
Left-hand blade for right-hand toolholder,
Right-hand blade for left-hand toolholder.

GDM/GDMS/GDG

										Carbon steel / Alloy steel				☺	☺	☹	○	○	P
										Stainless steel				☺	☺	☹			M
										Cast iron				☹					K
										Non-ferrous metals									N
										Titanium alloy						☹			S
										Hard materials (~ 40HRC)					○				H
										Hard materials (40HRC ~)									
Insert		Description		No. of edges	Dimension (mm)				Tolerance (mm)		Carbide		Cer- met	Applicable toolholder ☺ G34~G42					
					CW	S	RE	INSL	CW min.	CW max.	PVD		-						
											PR1215	PR1225	PR1535			TN620	TN90		
	 General purpose	GDM 2420N-020GM	2	2.4	4.3	0.2	20	- 0.03	+ 0.03	☹	●	●	●	●	KGD [®] /L...2.4... KGD [®] /L...2...				
		GDM 3020N-020GM 3020N-040GM	2	3	4.3	0.2 0.4	20	- 0.03	+ 0.03	●	●	●	●	●	KGD [®] /L...3... KGD [®] /L...2.4...				
		GDM 4020N-020GM 4020N-040GM 4020N-080GM	2	4	4.3	0.2 0.4 0.8	20	- 0.03	+ 0.03	●	●	●	●	●	KGD [®] /L...4... KGD [®] /L...3...				
		GDM 5020N-040GM 5020N-080GM	2	5	4.3	0.4 0.8	20	- 0.04	+ 0.04	●	●	●	●	●	KGD [®] /L...5... KGD [®] /L...4...				
		GDM 6020N-040GM 6020N-080GM	2	6	4.3	0.4 0.8	20	- 0.04	+ 0.04	●	●	●	●	●	KGD [®] /L...6... KGD [®] /L...5...				
		GDM 8030N-080GM	2	8	5.5	0.8	30	- 0.05	+ 0.05	☹	●	●			KGD [®] /L...8T25				
	 1-edge / General purpose	GDMS 2220N-020GM	1	2.2	4.3	0.2	20	- 0.03	+ 0.03	☹	●	●	●	●	KGD [®] /L...2...				
		GDMS 3020N-040GM	1	3	4.3	0.4	20	- 0.03	+ 0.03	☹	●	●	●		KGD [®] /L...3... KGD [®] /L...2.4...				
		GDMS 4020N-040GM	1	4	4.3	0.4	20	- 0.03	+ 0.03	☹	●	●	●	●	KGD [®] /L...4... KGD [®] /L...3...				
		GDMS 5020N-080GM	1	5	4.3	0.8	20	- 0.04	+ 0.04	☹	●	●	●		KGD [®] /L...5... KGD [®] /L...4...				
		GDMS 6020N-080GM	1	6	4.3	0.8	20	- 0.04	+ 0.04	☹	●	●	●		KGD [®] /L...6... KGD [®] /L...5...				

Recommended cutting conditions G44

Inserts identification system



● : Standard item

G30

		Material										Applicable toolholder									
		Carbon steel / Alloy steel										P									
		Stainless steel										M									
		Cast iron										K									
		Non-ferrous metals										N									
		Titanium alloy										S									
		Hard materials (~ 40HRC)										H									
Hard materials (40HRC ~)																					
Insert	Description	No. of edges	Dimension (mm)				Tolerance (mm)		Carbide			Cermet		Applicable toolholder ➔ G34~G42							
			CW	S	RE	INSL	CW min.	CW max.	PVD		-	-									
									PR1715	PR1725			PR1535		GW15	TN620	TN90				
Low cutting force	GDG 2520N-020GS	2	2.5	4.3	0.2	20	-0.02	+0.02	●	●	●	●	●	●	KGD [®] /L...2.4... KGD [®] /L...2...						
	GDG 3020N-020GS	2	3	4.3	0.2	20	-0.02	+0.02	●	●	●	●	●	●	KGD [®] /L...3... KGD [®] /L...2.4...						
	GDG 3520N-020GS	2	3.5	4.3	0.2	20	-0.02	+0.02	●	●	●	●	●	●	KGD [®] /L...3...						
	GDG 4020N-040GS	2	4	4.3	0.4	20	-0.02	+0.02	●	●	●	●	●	●	KGD [®] /L...4... KGD [®] /L...3...						
	GDG 5020N-040GS	2	5	4.3	0.4	20	-0.02	+0.02	●	●	●	●	●	●	KGD [®] /L...5... KGD [®] /L...4...						
	GDG 6020N-040GS	2	6	4.3	0.4	20	-0.02	+0.02	●	●	●	●	●	●	KGD [®] /L...6... KGD [®] /L...5...						
	GDG 8030N-040GS	2	8	5.5	0.4	30	-0.02	+0.02	●	●	●	●	●	●	KGD [®] /L...-8T25						
Low feed	GDM 2420N-020GL	2	2.4	4.3	0.2	20	-0.03	+0.03	●	●	●	●	●	●	KGD [®] /L...2.4... KGD [®] /L...2...						
	GDM 3020N-020GL 3020N-040GL	2	3	4.3	0.2 0.4	20	-0.03	+0.03	●	●	●	●	●	●	KGD [®] /L...3... KGD [®] /L...2.4...						
	GDM 4020N-020GL 4020N-040GL	2	4	4.3	0.2 0.4	20	-0.03	+0.03	●	●	●	●	●	●	KGD [®] /L...4... KGD [®] /L...3...						
	GDM 5020N-040GL	2	5	4.3	0.4	20	-0.04	+0.04	●	●	●	●	●	●	KGD [®] /L...5... KGD [®] /L...4...						
	GDM 6020N-040GL	2	6	4.3	0.4	20	-0.04	+0.04	●	●	●	●	●	●	KGD [®] /L...6... KGD [®] /L...5...						

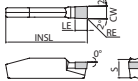
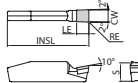
● : Standard item

				Carbon steel / Alloy steel								☺		☹		●		○		P	
				Stainless steel								☺		☹		●		○		M	
				Cast iron								●								K	
				Non-ferrous metals																N	
				Titanium alloy										●						S	
				Hard materials (~ 40HRC)										○						H	
				Hard materials (40HRC ~)																	
Insert		Description		No. of edges	Dimension (mm)				Tolerance (mm)		Carbide		Cer-met		Applicable toolholder ➡ G34~G42						
					CW	S	RE	INSL	CW min.	CW max.	PVD		-								
											PR1215	PR1225	PR1335	TNG20			TN90				
High feed	GDM	2020N-020PH	2	2	4.3	0.2	20	-0.03	+0.03	●	●	●					KGD ⁹ /L...2...				
	GDM	3020N-030PH	2	3	4.3	0.3	20	-0.03	+0.03	●	●	●					KGD ⁹ /L...3... KGD ⁹ /L...2.4...				
	GDM	4020N-030PH	2	4	4.3	0.3	20	-0.03	+0.03	●	●	●					KGD ⁹ /L...4... KGD ⁹ /L...3...				
1-edge / High feed	GDMS	2020N-020PH	1	2	4.3	0.2	20	-0.03	+0.03	●	●	●					KGD ⁹ /L...2...				
	GDMS	3020N-030PH	1	3	4.3	0.3	20	-0.03	+0.03	●	●	●					KGD ⁹ /L...3... KGD ⁹ /L...2.4...				
	GDMS	4020N-030PH	1	4	4.3	0.3	20	-0.03	+0.03	●	●	●					KGD ⁹ /L...4... KGD ⁹ /L...3...				
Full R	GDM	3020N-150R-CM	2	3	4.3	1.5	20	-0.03	+0.03	●	●	●	●	●			KGD ⁹ /L...3... KGD ⁹ /L...2.4...				
	GDM	4020N-200R-CM	2	4	4.3	2	20	-0.03	+0.03	●	●	●	●	●			KGD ⁹ /L...4... KGD ⁹ /L...3...				
	GDM	5020N-250R-CM	2	5	4.3	2.5	21	-0.04	+0.04	●	●	●	●	●			KGD ⁹ /L...5... KGD ⁹ /L...4...				
	GDM	6020N-300R-CM	2	6	4.3	3	21	-0.04	+0.04	●	●	●	●	●			KGD ⁹ /L...6... KGD ⁹ /L...5...				

Recommended cutting conditions ➡ G44

G32

GDGS

Cutting edge preparation				Carbon steel / Alloy steel													P
				Stainless steel													M
				Cast iron													K
				Non-ferrous metals												●	N
				Titanium alloy												●	S
				Hard materials (~ 40HRC)													H
				Hard materials (40HRC ~)											●		
				Sintered steel												●	
Insert		Description		Edge preparation type	No. of edges	Dimension (mm)					Tolerance (mm)		CBN			Applicable toolholder ➡ G34~G42	
						CW	S	RE	INSL	LE	CW min.	CW max.	PVD	-	-		
													KBN05M	KBN570	KPD001		
		GDGS	2020N-020NB	E008	1	2	4.3	0.2	20	2.9	-0.03	+0.03	●	●		KGD [®] /L...2...	
		GDGS	3020N-040NB	E008	1	3	4.3	0.4	20	2.9	-0.03	+0.03	●	●		KGD [®] /L...3... KGD [®] /L...2.4...	
		GDGS	4020N-040NB	E008	1	4	4.3	0.4	20	2.9	-0.03	+0.03	●	●		KGD [®] /L...4... KGD [®] /L...3...	
		GDGS	5020N-040NB	E008	1	5	4.3	0.4	20	2.9	-0.03	+0.03	●	●		KGD [®] /L...5... KGD [®] /L...4...	
		GDGS	6020N-040NB	E008	1	6	4.3	0.4	20	2.9	-0.03	+0.03	●			KGD [®] /L...6... KGD [®] /L...5...	
		GDGS	2020N-020NB	F	1	2	4.3	0.2	20	2.9	-0.03	+0.03			●	KGD [®] /L...2...	
		GDGS	3020N-020NB	F	1	3	4.3	0.2	20	2.9	-0.03	+0.03			●	KGD [®] /L...3... KGD [®] /L...2.4...	
		GDGS	4020N-020NB	F	1	4	4.3	0.2	20	2.9	-0.03	+0.03			●	KGD [®] /L...4... KGD [®] /L...3...	
		GDGS	5020N-020NB	F	1	5	4.3	0.2	20	2.9	-0.03	+0.03			●	KGD [®] /L...5... KGD [®] /L...4...	
		GDGS	6020N-020NB	F	1	6	4.3	0.2	20	2.9	-0.03	+0.03			●	KGD [®] /L...6... KGD [®] /L...5...	

Recommended cutting conditions ➔ G44

● : Standard item

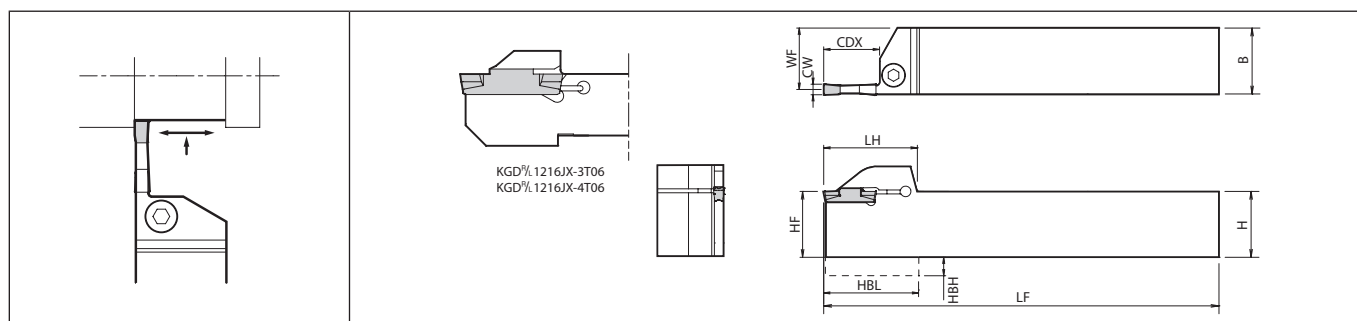
CBN & PCD Inserts are
sold in 1 piece boxes

G33



Grooving

KGD (External grooving)



Right-hand shown

Toolholder dimensions

Description	Availability	Dimension (mm)														Spare parts				Applicable inserts ➡ G30~G33				
																Clamp bolt	Screw	Wrench	Wrench					
		R	L	CDX	H	B	LH	HF	HBH	HBL	LF	WF	CW min.	CW max.										
KGD% 1616H-2T06 1616H-2T10 1616H-2T17 2012K-2T17 2020K-2T06 2020K-2T10 2020K-2T17 2525M-2T06 2525M-2T10 2525M-2T17	●	●	6	16	16	27.7	16	4	28	100	15.2			HH5X16	-	LW-4	-	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...						
	●	●	10			30.2			30.5										19.2	2	3	19.2	HH5X25	
	●	●	17	12	31.2	31.5	11.2																	
	●	●			28	30.5																		125
	●	●	6	20	20	28	20	-	-	125	19.2	2	3											
	●	●	10			30.5																		150
	●	●	10	20	20	32.5	20	-	-	125	19.2	2	3											
	●	●	17			32.5																		150
	●	●	6	25	25	28	25			150	24.2													
	●	●	10			30.5																		
●	●	17	25	25	32.5	25			150	24.2														
●	●	17			32.5														150	24.2	HH5X25			
KGD% 2012K-2.4T17 2020K-2.4T17	●	●	17	20	12 20	32.5	20	-	-	125	11 19	2.4	3	HH5X16	-	LW-4	-	GD..2420... , GD..2520... GD..3020...						
KGD% 1216JX-3T06 1616H-3T06 1616H-3T10 1616H-3T20 2012K-3T20 2020K-3T06 2020K-3T10 2020K-3T20 2525M-3T06 2525M-3T10 2525M-3T20	●	●	6	12	16	19.5	12	2	19	120	14.8			HH5X16	SE-50125TR	-	LW-4	-	GD..3020... GD..3520... GD..4020...					
	●	●				27.7				28										100	10.8	3	4	18.8
	●	●	10	16	16	30.2	16	4	30.5	100	34.5	10.8			HH5X16	-	LW-4	-						
	●	●	20			34.2															34.5	10.8	3	4
	●	●	20	12	34.5	20				125	18.8													
	●	●																			6	28	20	125
	●	●	10	20	20	30.5	20	-	-	150	23.8													
	●	●	10			34.5															150	23.8	HH5X25	
	●	●	6	25	25	28	25			150	23.8													
	●	●	10			30.5															150	23.8	HH5X25	
	●	●	20	25	25	35.5	25			150	23.8													
	●	●	20			35.5															150	23.8	HH5X25	
KGD% 1216JX-4T06 2020K-4T10 2020K-4T20 2525M-4T10 2525M-4T20 2525M-4T25	●	●	6	12	16	19.5	12	2	19	120	14.3	4	5	-	SE-50125TR	-	LTW-20	GD..4020... GD..5020...						
	●	●	10	20	20	30.5	20			125	18.3			HH5X16	-	LW-4	-							
	●	●	20			34.5				150	23.3			HH5X25										
	●	●	10	25	25	30.5	25			150	23.3													
	●	●	20			35.5																		150
	●	●	25	25	25	40.5	25			150	23.3													
●	●	25	40.5			150						23.3	HH5X25											
KGD% 2020K-5T10 2020K-5T17 2525M-5T10 2525M-5T17 2525M-5T25	●	●	10	20	20	30.5	20			125	17.8	5	6	HH5X16	-	LW-4	-	GD..5020... GD..6020...						
	●	●	17			37.5				150	22.8			HH5X25										
	●	●	10	25	25	30.5	25			150	22.8													
	●	●	17			37.5																	150	22.8
	●	●	25	25	40.5	25			150	22.8														
	●	●																						25
KGD% 2525M-6T15 2525M-6T30	●	●	15	25	25	32.5	25	-	-	150	22.4	6	6	HH5X25	-	LW-4	-	GD..6020...						
	●	●	30			45.5				150	22.4			HH5X25										
KGD% 2525M-8T25 3232P-8T25	●	●	25	25	32	43.3	32	7	44.2	150	22	8	8	HH6X25	-	LW-5	-	GD..8030...						
	●	●				32				170	29			HH6X25										

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.)

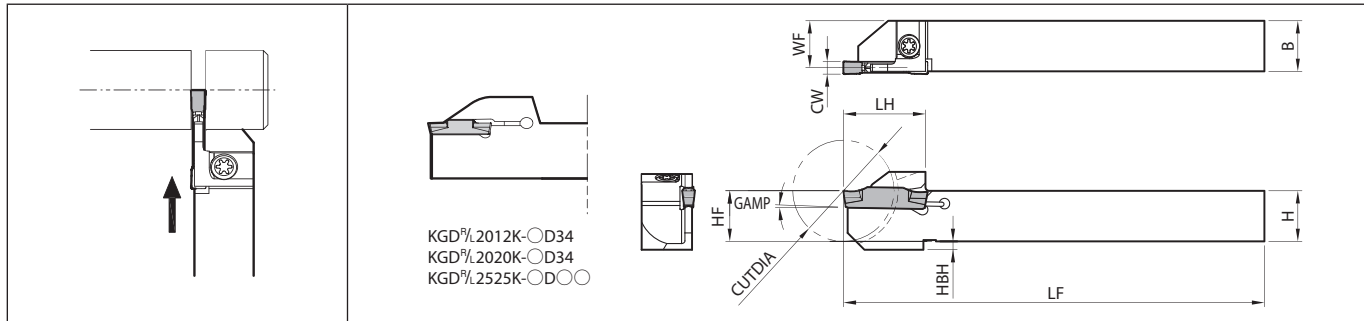
Recommended tightening torque of clamp bolt : 6.5N·m (HH5X○○), 8.0N·m (HH6X25), 2.5N·m (SE-50125TR)

Above toolholders are applicable to Cut-off, too.

● : Standard item

G34

KGD (External grooving)



Right-hand shown

Toolholder dimensions

Description		Availability		Dimension (mm)											Angle (°)	Spare parts					Applicable inserts ➔ G30~G33
																Clamp bolt	Screw	Screw	Wrench	Wrench	
		R	L	CUTDIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	GAMP							
KGD%L	1010JX-2	●	●	20	10	10	18	10	2	120	9.2	2	3	1	-	SB-40120TR	-	-	LTW-15S	GD..2020... GD..2220... GD..2420... GD..2520... GD..3020...	
	1212F-2	●	●	24	12	12	19.5	12		85	11.2				-	SB-40120TR			-		LTW-15S
	1212JX-2	●	●	24	12	12	19.5	12	2	120	15.2	2	3	0	HH5X16	-	LW-4	-			
	1616JX-2	●	●	32	16	16	24.5	16		-	11.2				19.2	24.2		-	-		
	2012K-2D34	●	●	34	20	12	32.5	20	-		125	19.2	24.2	0	HH5X16	-	LW-4	-			
	2020K-2D34	●	●		20	12	32.5	20		-	125	19.2	24.2		0	HH5X16		-	LW-4		-
	2525K-2D34	●	●	25	12	12	19.5	12	2		120	9	2.4	3		1	-	SB-40120TR			-
KGD%L	1010JX-2.4	●	●	20	10	10	18	10		2	85	11			2.4		3	0	HH5X16	-	
1212F-2.4	●	●	24	12	12	19.5	12	2	120		15	2.4	3	1		-			SB-40120TR	-	-
1212JX-2.4	●	●	24	12	12	19.5	12		2	120	15				2.4	3	1	-	SB-40120TR		
1616JX-2.4	●	●	32	16	16	24.5	16	-		11	19	2.4	3	0				HH5X16	-	LW-4	-
2012K-2.4D34	●	●	34	20	12	32.5	20		-	125	19				2.4	3	0	HH5X16	-		LW-4
2020K-2.4D34	●	●		20	12	32.5	20	-		125	19	2.4	3	0				HH5X16	-	LW-4	
2525K-2.4D34	●	●	25	12	12	19.5	12		2	120	10.8				3	3	1	-	SB-40120TR		-
KGD%L	1212JX-3	●	●	24	12	12	19.5	12		2	120	10.8	3	3				1	-	SB-40120TR	-
KGD%L	1616JX-3	●	●	32	16	16	24.5	16	2		120	14.8			3	4	1		-	SB-40120TR	-
1616JX-3D38	●	●	38	16	16	29	16	2		125	11.8	3	4	1				-	SE-50125TR	-	-
1913K-3D38	●	●	19	13	13	19	19		2	120	18.8				3	4	1	-	SE-50125TR	-	
2012JX-3D42	●	●	42	20	12	31	20	2		120	18.8	3	4	1				-	SE-50125TR	-	-
2012JX-3D51	●	●	51	20	12	36	20		2	120	18.8				3	4	1	-	SE-50125TR	-	
2020JX-3D42	●	●	42	20	12	31	20	2		120	18.8	3	4	1				-	SE-50125TR	-	-
2020JX-3D51	●	●	51	20	12	36	20		2	120	18.8				3	4	1	-	SE-50125TR	-	
2525K-3D51	●	●	51	25	25	41.5	25	2		125	23.8	3	4	1				-	SE-50125TR	-	-

4mm width Insert cannot be installed in KGD%L 1212JX-3

Recommended tightening torque of clamp screw : 2.0N·m (SB-40120TR), 2.5N·m (SE-50125TR), 6.5N·m (HH5X16)

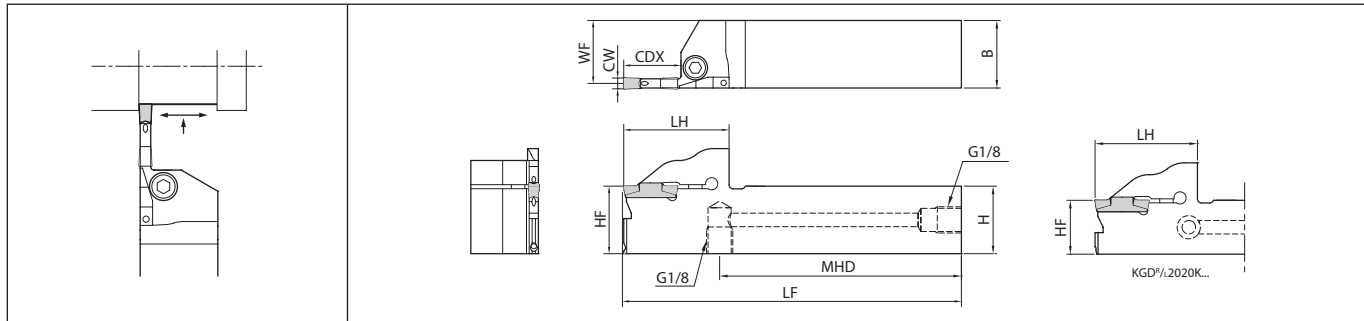
When machining the material greater than ø36 mm with KGD%L...-3D38, KGD%L...-3D42 and KGD%L...-3D51 toolholders, please use 1-edge inserts.

Maximum cutting diameter for 2-edge inserts is ø36 mm.

● : Standard item

G35

KGD-JCT (External grooving, Coolant-through holder)

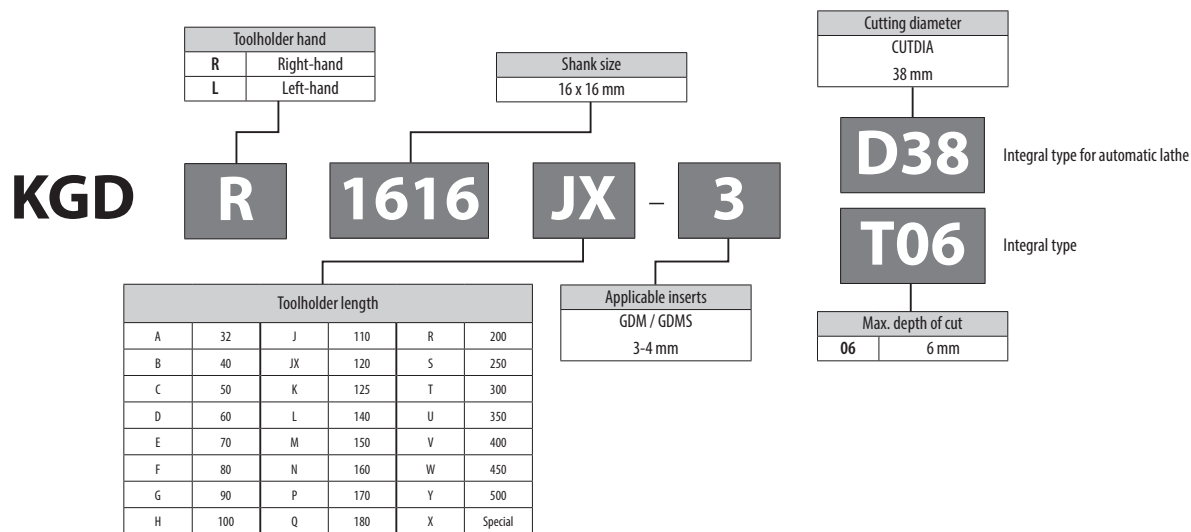


Right-hand shown | Pressure Resistance : ~15MPa

Toolholder dimensions

Description	Availability		Dimension (mm)										Coolant hole	Spare parts			Applicable inserts G30~G33
														Clamp bolt	Plug	Wrench	
	R	L	CDX	H	B	LH	MHD	HF	LF	WF	CW min.	CW max.					
KGD%/ 2020K-3T06JCT	●	●	6	20	20	31.5	96.2	20	125	18.8	3	4	Yes	HH5X16	HSG1/8X8.0	LW-4	GD..3020... GD..3520... GD..4020...
2525K-3T06JCT	●	●		25	25		96.5	25		23.8				HH5X25			
KGD%/ 2020K-3T10JCT	●	●	10	20	20	34	94.2	20	125	18.8	3	4	Yes	HH5X16	HSG1/8X8.0	LW-4	
2525K-3T10JCT	●	●		25	25		94.5	25		23.8				HH5X25			GD..4020... GD..5020...
KGD%/ 2020K-3T20JCT	●	●	20	20	20	38	90.2	20	125	18.8	3	4	Yes	HH5X16	HSG1/8X8.0	LW-4	
2525K-3T20JCT	●	●		25	25	39	89.5	25		23.8				HH5X25			
KGD%/ 2020K-4T10JCT	●	●	10	20	20	34	94.2	20	125	18.3	4	5	Yes	HH5X16	HSG1/8X8.0	LW-4	GD..4020... GD..5020...
2525K-4T10JCT	●	●		25	25		94.5	25		23.3				HH5X25			
KGD%/ 2020K-4T20JCT	●	●	20	20	20	38	90.2	20	125	18.3	4	5	Yes	HH5X16	HSG1/8X8.0	LW-4	
2525K-4T20JCT	●	●		25	25	39	89.5	25		23.3				HH5X25			GD..4020... GD..5020...
KGD%/ 2525K-4T25JCT	●	●	25	25	25	44	84.5	25	125	23.3	4	5	Yes	HH5X25	HSG1/8X8.0	LW-4	

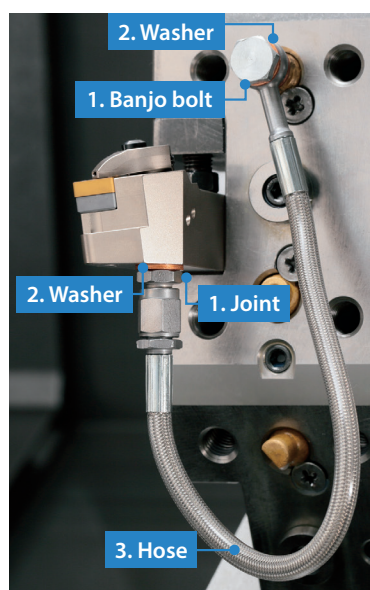
Toolholder identification system



● : Standard item

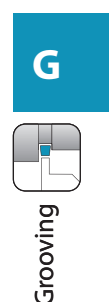
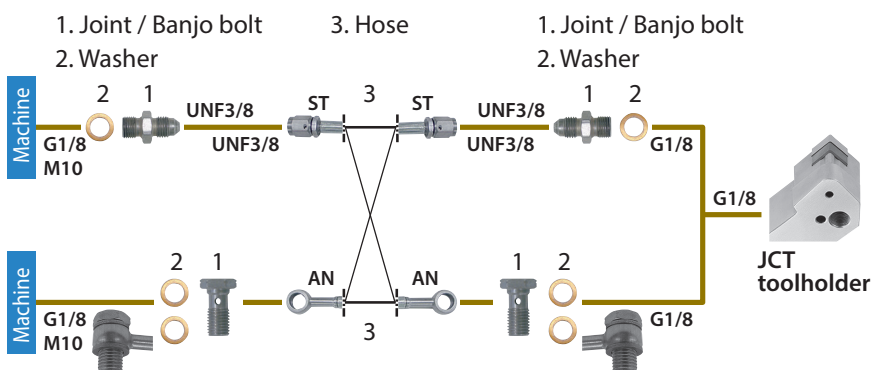
G36

Easy connection with high pressure hose and joint



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

Piping installation guide



Piping parts

Optional piping parts available

Choose from parts below to match your machine specifications

1. Joint / Banjo bolt × 2 2. Washer × 2-4 3. Hose × 1

1. Joint / Banjo bolt

Applicable pressure: ~ 30 MPa

Shape	Description	Availability	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

Applicable pressure: ~ 30 MPa

Shape	Description	Availability
	WS-10	●

* Use 2 washers for a banjo bolt

3. Hose

Applicable pressure: ~ 30 MPa

Shape	Description	Availability	Thread standard	Dimensions (mm)
	HS-ST-ST-200	●	UNF3/8	200
	HS-ST-ST-250	●	UNF3/8	250
	HS-ST-AN-200	●	UNF3/8	200
	HS-ST-AN-250	●	Banjo bolt	250
	HS-AN-AN-200	●	—	200
	HS-AN-AN-250	●	Banjo bolt	250

Precautions

● : Std. Item

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 applicable pressure before use.
6. Regularly changing the coolant filter is recommended.

KGD-JCTM (for automatic lathe)

Cut-off holders for high pressure coolant with long tool life

The optimized coolant hole position effectively cools the cutting edge

1 Optimized coolant hole position

2 Discharge coolant towards the flank face of the insert

G



Grooving

External

Internal

Face

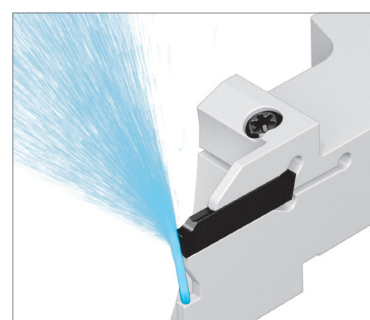
Coolant discharging

KGD-JCTM

Sufficient cooling towards the cutting edge

Competitor A

Coolant does not flow directly towards the cutting edge



Effective cooling of the cutting edge

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.

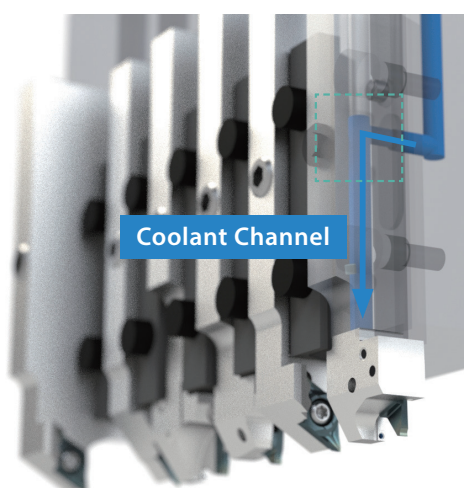
CITIZEN MACHINERY CO., LTD. (L20, D25, M32)

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



Coolant Channel

Point

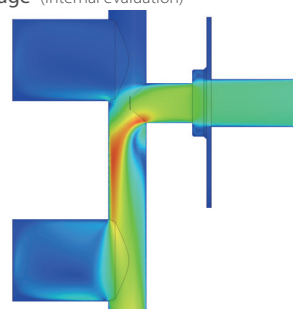
Appropriate hole design to reduce energy loss based on deep analysis

Analysis Image (Internal evaluation)

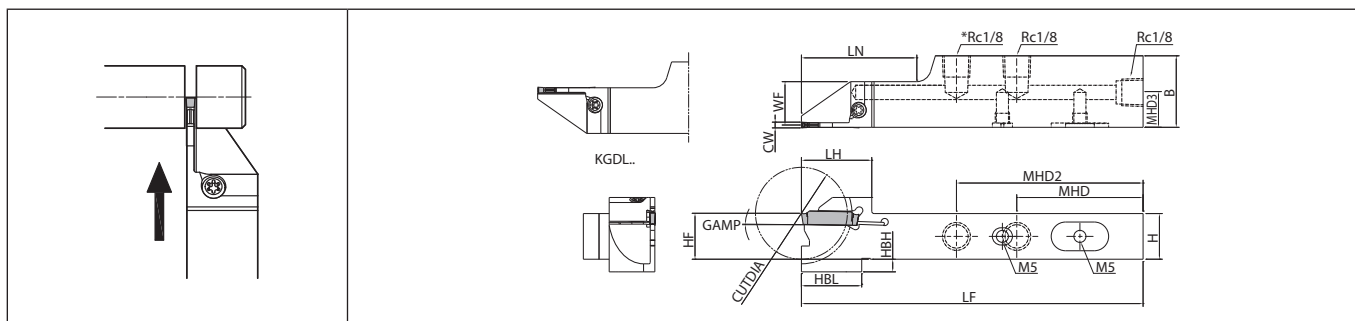
High

Flow velocity

Low



KGD-JCTM (External grooving, Coolant-through holder)



Right-hand shown | KGD[®]/L 12-JCTM : 2-Rc1/8

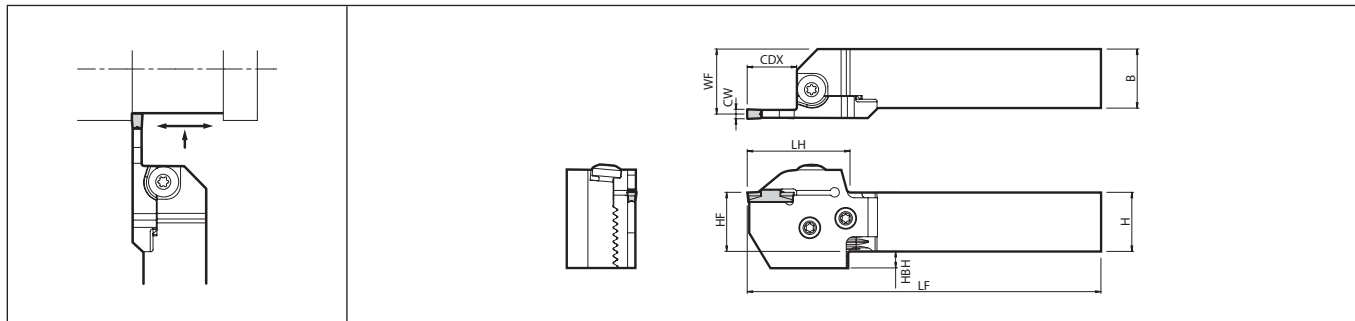
Toolholder dimensions

Description		Availabi- lity		Dimension (mm)														Angle (°)		Coolant hole	Applicable inserts ➡ G30~G33
		R	L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HBL	LF	LN	WF	CW min.	CW max.	GAMP		
KGDR	1218JX-2JCTM	●		24	12	18	19.5	54	-	8.4	12	8.5	21	120	44	11.2	2	3	1	Yes	
KGDL	1218JX-2JCTM		●							7.7		21.5									
KGDR	1625JX-2JCTM	●		32	16	25	24.5	44	65	12.2	16	4.5	21	120	40	15.2	2	3	1	Yes	
KGDL	1625JX-2JCTM		●							7.7											
KGDR	1218JX-2.4JCTM	●		24	12	18	19.5	54	-	8.4	12	8.5	21	120	44	11	2.4	3	1	Yes	GD..2420... GD..2520... GD..3020...
KGDL	1218JX-2.4JCTM		●							7.7			21.5								
KGDR	1625JX-2.4JCTM	●		32	16	25	24.5	44	65	12.2	16	4.5	21	120	40	15			1	Yes	
KGDL	1625JX-2.4JCTM		●							7.7											
KGDR	1218JX-3JCTM	●		24	12	18	19.5	54	-	8.6	12	8.5	21	120	44	10.8	3	3	1	Yes	GD..3020... GD..3520... GD..4020...
KGDL	1218JX-3JCTM		●							7.7			21.5								
KGDR	1625JX-3JCTM	●		32	16	25	24.5	44	65	12.2	16	4.5	21	120	40	14.8	3	4	1	Yes	
KGDL	1625JX-3JCTM		●							7.7											

Description	Spare parts			
	Plug	Plug	Screw	Wrench
KGDR 1218JX-2JCTM	GP-1	HS5X4LP	SB-40120TR	LTW-15S
KGDL 1218JX-2JCTM				
KGDR 1625JX-2JCTM				
KGDL 1625JX-2JCTM				
KGDR 1218JX-2.4JCTM	GP-1	HS5X4LP	SB-40120TR	LTW-15S
KGDL 1218JX-2.4JCTM				
KGDR 1625JX-2.4JCTM				
KGDL 1625JX-2.4JCTM				
KGDR 1218JX-3JCTM	GP-1	HS5X4LP	SB-40120TR	LTW-15S
KGDL 1218JX-3JCTM				
KGDR 1625JX-3JCTM				
KGDL 1625JX-3JCTM				

● : Standard item

G39

KGD-S (External grooving / 0° separate type)

Right-hand shown (Right-hand blade and right-hand toolholder)

Toolholder dimensions (Blade and toolholder)

Shank angle	Width (mm)	Max. depth of cut (mm)	Shank size (mm)	Unit description	Availability		Blade description G42	Toolholder description G42	Dimension (mm)										Spare parts		
					R	L			CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Clamp bolt (for insert clamp)	Screw (for blade)	Wrench
0°	2	17	20	KGD%L 2020X-2T17S	●		KGD%L-2T17-C	KGD%L 2020-C	17	20	20		20	12	122	23.4	2	3	BH6X10TR	SB-60120TR	LTW-25
			25	2525X-2T17S	●	●		KGD%L 2525-C		25	25	40	25	7	147	28.4					
			32	No unit description ⇨				KGD%L 3232-C		32	32		32	-	167	35.4					
	3	10	20	KGD%L 2020X-3T10S	●		KGD%L-3T10-C	KGD%L 2020-C	10	20	20		20	12	115	23	3	4			
			25	2525X-3T10S	●			KGD%L 2525-C		25	25	33	25	7	140	28					
			32	No unit description ⇨				KGD%L 3232-C		32	32		32	-	160	35					
		20	20	KGD%L 2020X-3T20S	●	●	KGD%L-3T20-C	KGD%L 2020-C	20	20	20		20	12	125	23					
			25	2525X-3T20S	●	●		KGD%L 2525-C		25	25	43	25	7	150	28					
			32	3232X-3T20S	●			KGD%L 3232-C		32	32		32	-	170	35					
	4	10	20	KGD%L 2020X-4T10S	●		KGD%L-4T10-C	KGD%L 2020-C	10	20	20		20	12	115	22.5	4	5			
			25	2525X-4T10S	●			KGD%L 2525-C		25	25	33	25	7	140	27.5					
			32	No unit description ⇨				KGD%L 3232-C		32	32		32	-	160	34.5					
		20	20	KGD%L 2020X-4T20S	●		KGD%L-4T20-C	KGD%L 2020-C	20	20	20		20	12	125	22.5					
			25	2525X-4T20S	●	●		KGD%L 2525-C		25	25	43	25	7	150	27.5					
			32	3232X-4T20S	●			KGD%L 3232-C		32	32		32	-	170	34.5					
		25	20	KGD%L 2020X-4T25S	●	●	KGD%L-4T25-C	KGD%L 2020-C	25	20	20		20	12	130	22.5					
			25	2525X-4T25S	●	●		KGD%L 2525-C		25	25	48	25	7	155	27.5					
			32	3232X-4T25S	●			KGD%L 3232-C		32	32		32	-	175	34.5					
	5	10	20	KGD%L 2020X-5T10S	●	●	KGD%L-5T10-C	KGD%L 2020-C	10	20	20		20	12	115	22	5	6			
			25	2525X-5T10S	●			KGD%L 2525-C		25	25	33	25	7	140	27					
			32	No unit description ⇨				KGD%L 3232-C		32	32		32	-	160	34					
		25	20	No unit description ⇨				KGD%L 2020-C	25	20	20		20	12	130	22					
			25	KGD%L 2525X-5T25S	●	●	KGD%L 2525-C	25		25	48	25	7	155	27						
			32	3232X-5T25S	●		KGD%L 3232-C	32		32		32	-	175	34						

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

Applicable inserts G30~G33

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

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.

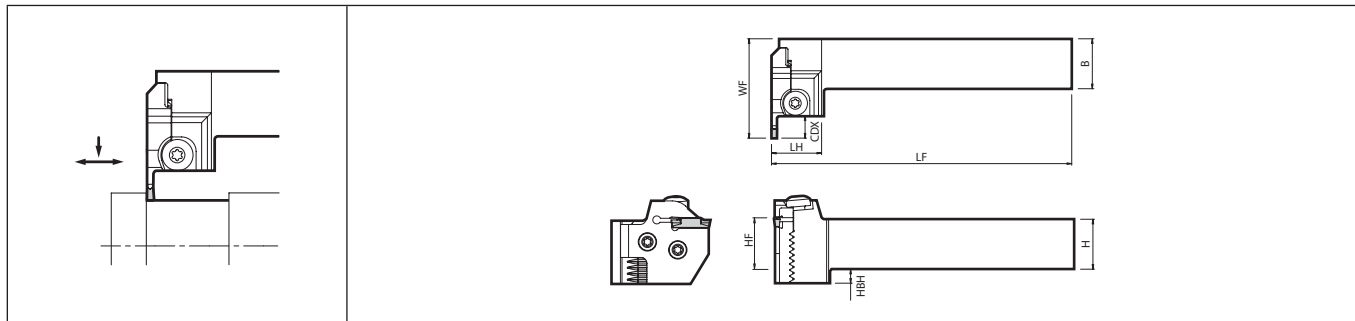
3. When the unit description is not available (No unit description) and/or stock status is "-", please purchase toolholder and blade separately.

4. 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.)

Above toolholders are applicable to Cut-off, too.

● : Standard item

G40

KGDS-S (External grooving / 90° separate type)

Right-hand shown (Left-hand blade and right-hand toolholder)

Toolholder dimensions (Blade and toolholder)

Shank angle	Width (mm)	Max. depth of cut (mm)	Shank size (mm)	Blade description ➡ G42	Toolholder description ➡ G42	Unit description	Availability		Dimension (mm)												Spare parts		
							R	L	CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.	Clamp bolt (for insert clamp)	Screw (for blade)	Wrench		
90°	2	17	20	KGDS% _R -2T17-C	KGDS% _L 2020-C	-			17	20	20	20	12	125	56.7	2	3	BH6X10TR	SB-60120TR	LTW-25			
			25	KGDS% _R -2T17-C	KGDS% _L 2525-C	-				25	25		25	7							150		
	3	10	20	KGDS% _R -3T10-C	KGDS% _L 2020-C	KGDS% _L 2020X-3T10S	●	●	10	20	20	20	12	125	49.7	3	4						
			25	KGDS% _R -3T10-C	KGDS% _L 2525-C	2525X-3T10S	●	●		25	25	25	7	150									
		20	20	KGDS% _R -3T20-C	KGDS% _L 2020-C	-			20	20	20	20	12	125	59.7								
			25	KGDS% _R -3T20-C	KGDS% _L 2525-C	-				25	25	25	7	150									
	4	10	20	KGDS% _R -4T10-C	KGDS% _L 2020-C	-			10	20	20	20	12	125	49.7	4	5						
			25	KGDS% _R -4T10-C	KGDS% _L 2525-C	-				25	25	27.7	25	7							150		
		20	20	KGDS% _R -4T20-C	KGDS% _L 2020-C	-			20	20	20	20	12	125	59.7								
			25	KGDS% _R -4T20-C	KGDS% _L 2525-C	-				25	25	25	7	150									
		25	20	KGDS% _R -4T25-C	KGDS% _L 2020-C	-			25	20	20	20	12	125	64.7								
			25	KGDS% _R -4T25-C	KGDS% _L 2525-C	-				25	25	25	7	150									
	5	10	20	KGDS% _R -5T10-C	KGDS% _L 2020-C	-			10	20	20	20	12	125	49.7	5	6						
			25	KGDS% _R -5T10-C	KGDS% _L 2525-C	-				25	25	25	7	150									
		25	20	KGDS% _R -5T25-C	KGDS% _L 2020-C	-			25	20	20	20	12	125	64.7								
			25	KGDS% _R -5T25-C	KGDS% _L 2525-C	-				25	25	25	7	150									

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.)

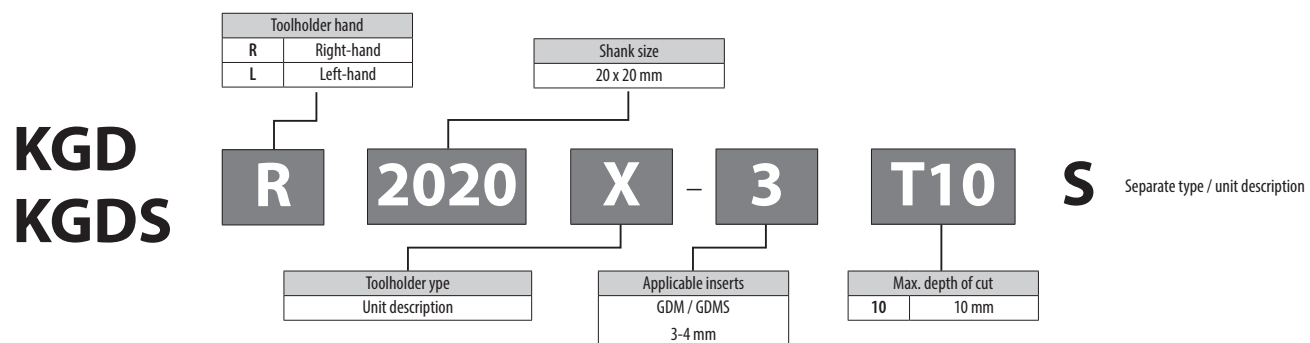
KGDS-S : Left-hand Blade for Right-hand Toolholder, Right-hand Blade for Left-hand Toolholder.

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.)

Applicable inserts ➡ G30~G33

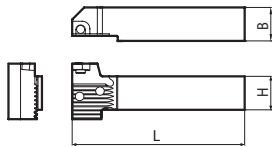
Toolholder identification system



● : Standard item

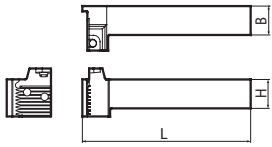
Toolholder dimensions (Blade and toolholder)

KGD-C (0° Separate Type)

Drawing of 0° type Right-hand shown	Toolholder description	Availability		Dimension (mm)		
		R	L	L	B	H
	KGD [®] /L 2020-C	●	●	104	20	20
	2525-C	●	●	129	25	25
	3232-C	●	●	149	32	32

G

KGDS-C (90° Separate Type)

Drawing of 90° type Right-hand shown	Toolholder description	Availability		Dimension (mm)		
		R	L	L	B	H
	KGDS [®] /L 2020-C	●	●	122	20	20
	2525-C	●	●	147	25	25

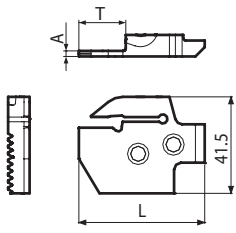
Grooving

External

Internal

Face

Blade

Drawing of blade Right-hand shown	Blade description	Availability		Dimension (mm)		
		R	L	L	T	A
	KGD [®] /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	
	-4T20-C	●	●	54.2	20.2	3.4
	-4T25-C	●	●	59.2	25.2	
	-5T10-C	●	●	44.2	10.2	4.4
	-5T25-C	●	●	59.2	25.2	

Spare parts

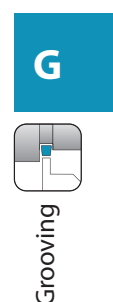
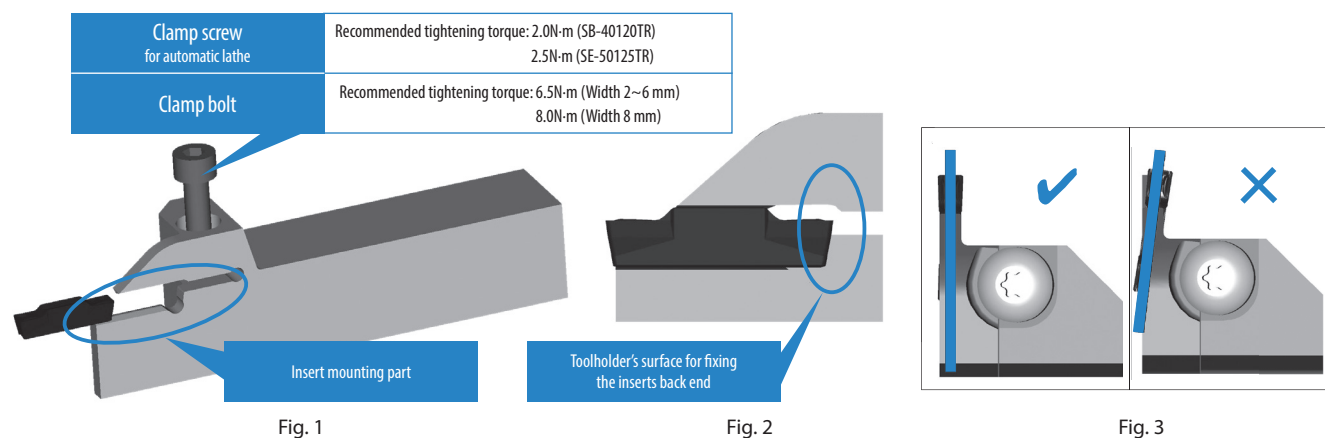
Unit description	Spare parts		
	Clamp bolt (for insert clamp)	Screw (for blade)	Wrench
 KGD [®] /L ...S KGDS [®] /L ...S	 BH6X10TR	 SB-60120TR	 LTW-25

● : Standard item

G42

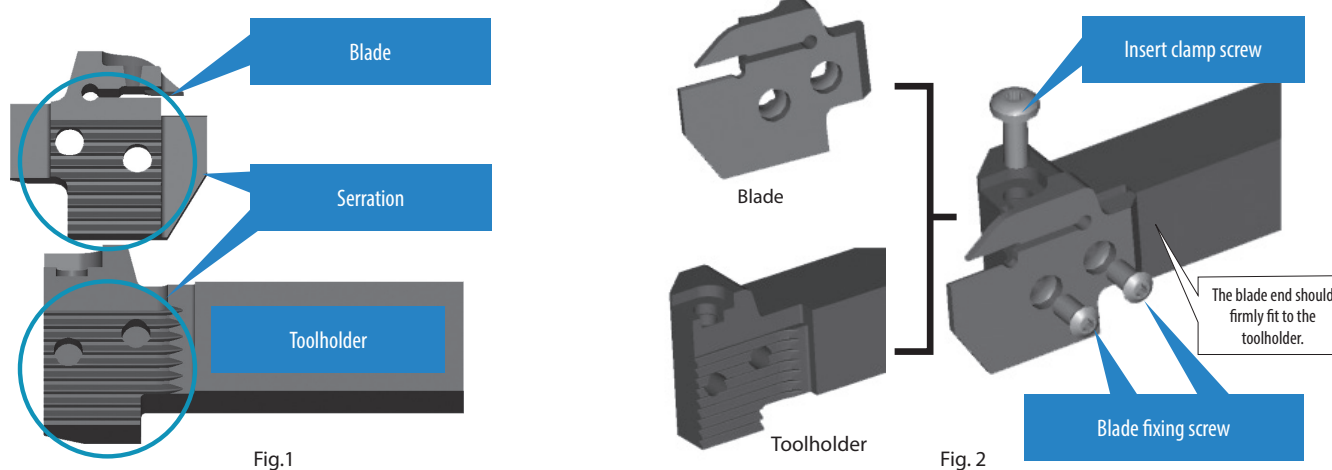
Setting the inserts

1. Use compressed air or other measures to remove chips from the insert mounting part (Ref. to Fig. 1).
2. Put the insert into the toolholder and push it makes contact with the back end of toolholder's surface (Ref. to Fig. 1 and 2).
3. Keeping the insert fit to the surface, tighten the insert clamp screw at an appropriate torque.
4. Make sure that there is no gap between the insert and the back end of the toolholder's surface and that the insert is set straight (Ref. to Fig. 2 and 3).



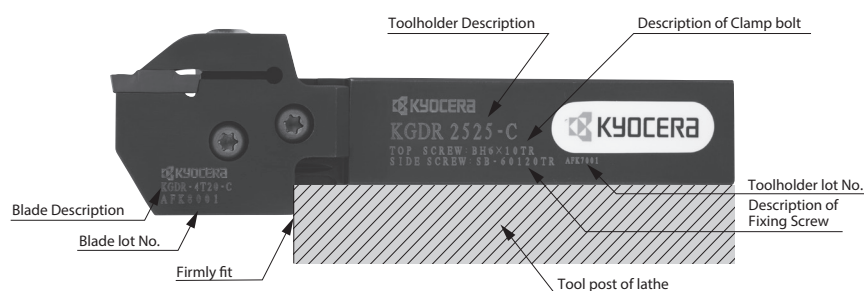
Setting the blade (Separate type toolholder)

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



Separate type toolholder identification system and their setting to lathe

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



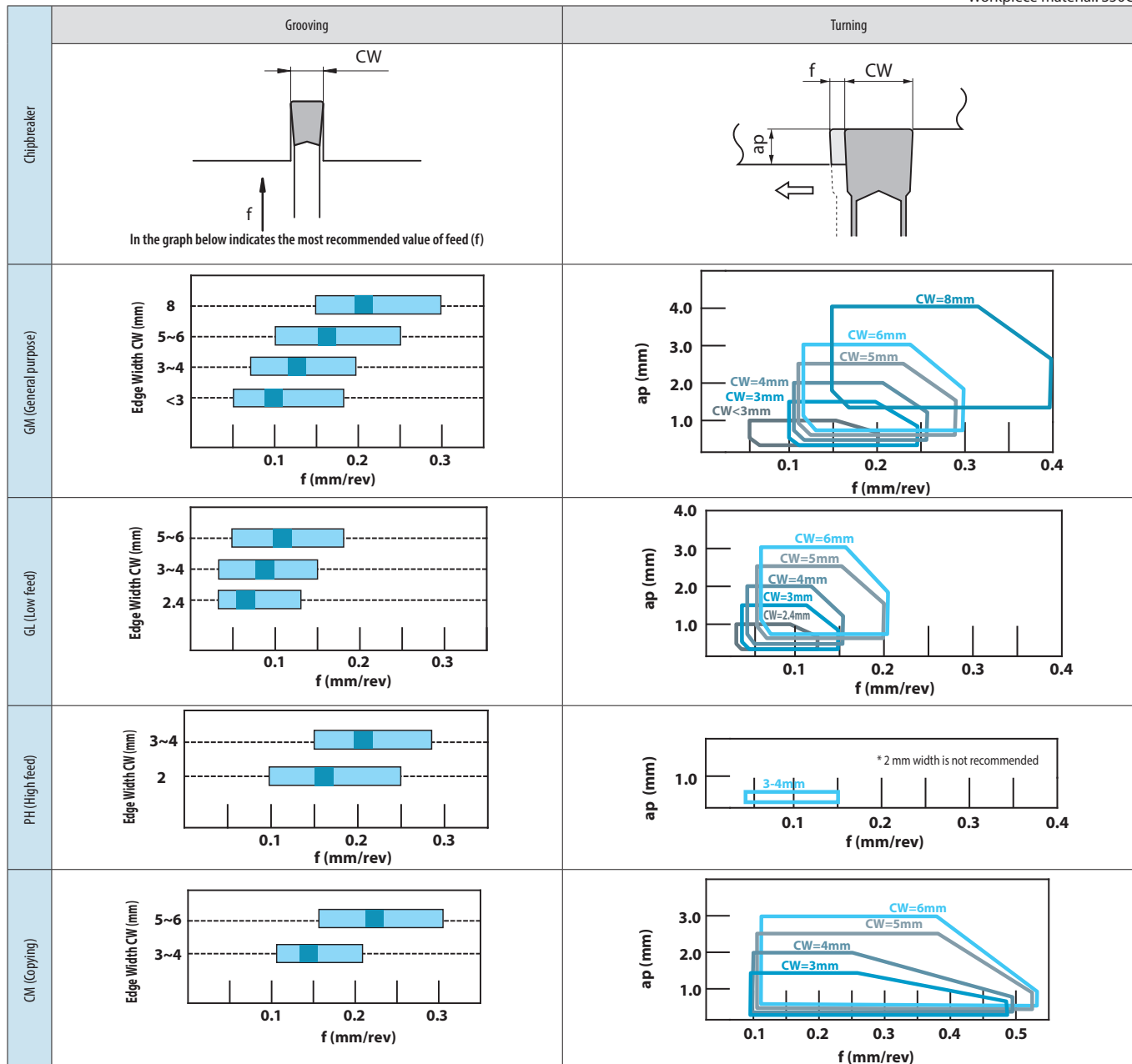
Recommended cutting conditions (cutting speed Vc)

Workpiece material	Chipbreaker	Recommended insert grades (Vc: m/min)									Remarks
		Cermet		MEGACOAT NANO	MEGACOAT		Carbide	MEGACOAT CBN	CBN	PCD	
		TN620	TN90	PR1535	PR1225	PR1215	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	GS NB	-	-	-	-	-	☆ 200~500	-	-	★ 150~2,000	
Brass		-	-	-	-	-	☆ 100~200	-	-	★ 200~800	
Hard materials	NB	-	-	-	-	-	-	★ 80~150	-	-	
Sintered steel		-	-	-	-	-	-	-	★ 100~250	-	

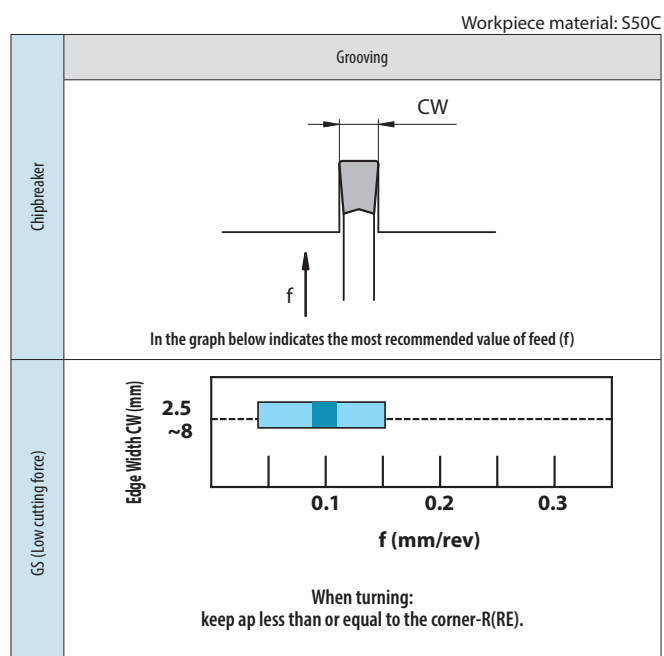
★:1st recommendation ☆:2nd recommendation

Recommended cutting conditions (feed rate / ap)

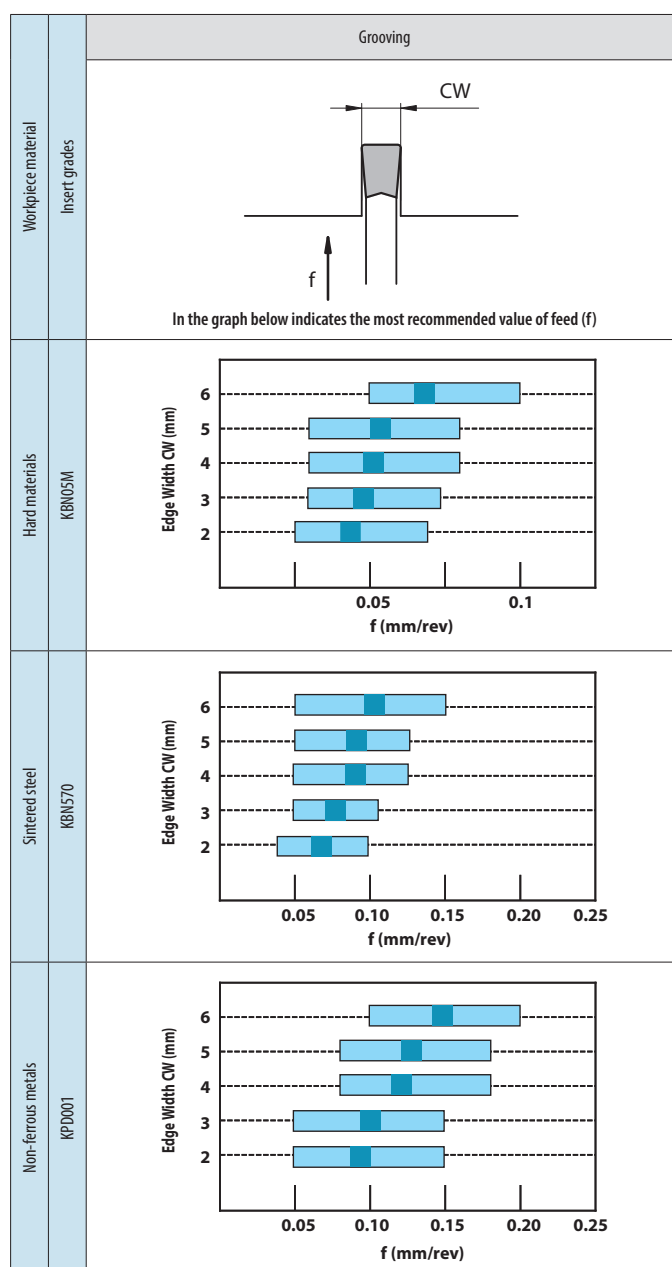
Workpiece material: S50C



Recommended cutting conditions (feed rate / ap)



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



Grooving

CM chipbreaker [Cutting amount (ap) in back copying]

Maximum ap in back copying

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

Guide for external grooving

Point 1 - Turning after grooving

1. Grooving depth over 0.5 mm: For roughing - refer to fig. 1

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

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

2. Grooving depth under 0.5 mm: For finishing - refer to fig. 2

Turning subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.

Retention time is not necessary.

Point 2

1. When widening the groove width (Refer to Fig.3), apply the "Step Turning."

2. The widened groove and side walls should be finished last. For better chip control, ap over 0.5 mm is recommended. Note: If the workpiece is not supported at the center, reduce the feed rate when grooving towards center.



Grooving

External

Internal

Face

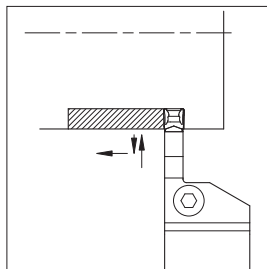


Fig. 1

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

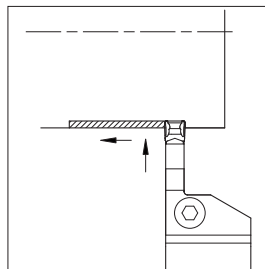


Fig. 2

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

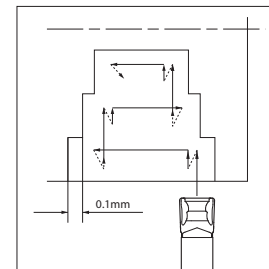


Fig. 3

Case Studies

SCr420H (Grooving)	
Gear $V_c = 113 \sim 164$ m/min $f = 0.06$ mm/rev Wet GDM4020N-040GM (PR1225) KGDL2525X-3T10S	
GM chipbreaker (PR1225)	1,500 pcs/c
Competitor K (PVD coated carbide)	250 pcs/c
• GM chipbreaker (PR1225) showed 6 times longer tool life than that of Competitor K. • Good chip control without burned chips. GM chipbreaker Competitor K	

Evaluation by the user

SCM420 (Grooving / Turning)	
Gear $V_c = 170$ m/min $f = 0.15$ mm/rev (Roughing) 0.10 mm/rev (Finishing) $a_p = 0.2$ mm (Finishing) Wet GDM4020N-040GM (PR1215) KGDR2525X-4T20S	
GM chipbreaker (PR1215)	250 pcs/c
Competitor L (Roughing: PVD coated carbide; Finishing: cermet)	200 pcs/c
• GM chipbreaker reduced occurrence rate of tangle of chips (occurrence rate 80% to 10%). The problem was persistent with Competitor L. • Machining productivity is improved. GM Chipbreaker (Finishing) Smooth chip control Competitor L (Finishing) Chips easily tangled	

Evaluation by the user

G



Grooving

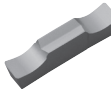
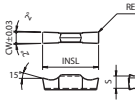
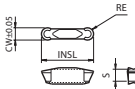
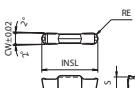
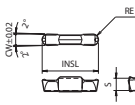
		Carbon steel / Alloy steel							☺		☹		P		
		Stainless steel							☺		☹		M		
		Cast iron							☹		☹		K		
		Non-ferrous metals							☹		☹		N		
		Titanium alloy							☹		☹		S		
		Hard materials (~ 40HRC)							○		●		H		
		Hard materials (40HRC ~)													
Insert	Description	No. of edges	Dimension (mm)				Tolerance (mm)		Carbide				Cermet	Applicable toolholder ☺ G55~G58 G95	
			CW	S	RE	INSL	CW min.	CW max.	CVD	PVD		-			-
										CP9025	PR905				
 Chip control oriented / M class	GMM 2420-020MW	2	2.4	4.3	0.2	20	- 0.05	+ 0.05	○	○		○	○		KGM...2.5(...) KGM...2(...)
	GMM 3020-020MW 3020-040MW	2	3	4.3	0.2 0.4	20	- 0.05	+ 0.05	○	○		○	○	○	KGM...3(...) KGM...2(...)
	GMM 4020-020MW 4020-040MW 4020-080MW	2	4	4.3	0.2 0.4 0.8	20	- 0.05	+ 0.05	○	○		○	○	○	KGM...4(...) KGM...3(...)
	GMM 5020-040MW 5020-080MW	2	5	4.3	0.4 0.8	20	- 0.05	+ 0.05	○	○		○	○	○	KGM...5(...) KGM...4(...)
	GMM 6020-040MW 6020-080MW	2	6	4.3	0.4 0.8	20	- 0.05	+ 0.05	○	○		○	○	○	KGMR...6T30 KGM...5(...)
	GMM 8030-080MW	2	8	5.5	0.8	30	- 0.05	+ 0.05	○	○		○	○	○	KGM%L 2525M-8 KIGM...6540B-8 KFMS...-8
 Sharp cutting oriented / M class	GMM 3020-020MS 3020-040MS	2	3	4.3	0.2 0.4	20	- 0.05	+ 0.05	○		○	○	○	○	KGM...3(...) KGM...2(...)
	GMM 4020-040MS	2	4	4.3	0.4	20	- 0.05	+ 0.05	○		○	○	○	○	KGM...4(...) KGM...3(...)
	GMM 5020-040MS	2	5	4.3	0.4	20	- 0.05	+ 0.05	○		○	○	○	○	KGM...5(...) KGM...4(...)
	GMM 6020-040MS	2	6	4.3	0.4	20	- 0.05	+ 0.05				○			KGMR...6T30 KGM...5(...)
 Sharp cutting oriented / Precision class	GMG 3020-000MS 3020-020MS 3020-040MS	2	3	4.3	0 0.2 0.4	20	- 0.02	+ 0.02	○		○	○	○	○	KGM...3(...) KGM...2(...)
	GMG 4020-020MS 4020-040MS 4020-080MS	2	4	4.3	0.2 0.4 0.8	20	- 0.02	+ 0.02	○		○	○	○	○	KGM...4(...) KGM...3(...)
	GMG 5020-040MS 5020-080MS	2	5	4.3	0.4 0.8	20	- 0.02	+ 0.02			○	○			KGM...5(...) KGM...4(...)
	GMG 6020-080MS	2	6	4.3	0.8	20	- 0.02	+ 0.02				○			KGMR...6T30 KGM...5(...)

Recommended cutting conditions ➡ **G143**

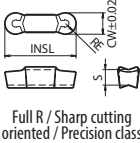
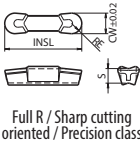
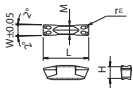
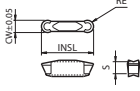
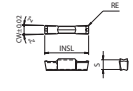
○: Check availability

G48

GM/GMN/GMM/GMG/GMGA/FGG

		Material										P				
		Carbon steel / Alloy steel										M				
		Stainless steel										K				
		Cast iron										N				
		Non-ferrous metals										S				
		Titanium alloy										H				
		Hard materials (~ 40HRC)										H				
		Hard materials (40HRC ~)														
Insert	Description	No. of edges	Dimension (mm)				Tolerance (mm)		Carbide				Cermat	Applicable toolholder ➡ G55~G60		
			CW	S	RE	INSL	CW min.	CW max.	CVD							
									CR9025	PR905	PR915	PR930			KW10	TN90
	 Sharp cutting oriented / Precision class (ground chipbreaker)	GMG 2520-030MG	2	2.5	4.3	0.3	20	- 0.03	+ 0.03							KGM...2.5(...) KGM...2(...)
		GMG 3020-030MG	2	3	4.3	0.3	20	- 0.03	+ 0.03							KGM...3(...) KGM...2(...)
		GMG 3520-030MG	2	3.5	4.3	0.3	20	- 0.03	+ 0.03							KGM...3(...)
		GMG 4020-040MG	2	4	4.3	0.4	20	- 0.03	+ 0.03							KGM...4(...) KGM...3(...)
		GMG 5020-040MG	2	5	4.3	0.4	20	- 0.03	+ 0.03							KGM...5(...) KGM...4(...)
		GMG 6020-040MG	2	6	4.3	0.4	20	- 0.03	+ 0.03							KGMR...6T30 KGM...5(...)
		GMG 8030-050MG	2	8	5.5	0.5	30	- 0.03	+ 0.03							KGM®/L 2525M-8 KIGM...6540B-8 KFMS...-8
	 Chip control oriented / M class / Full R	GMM 3020-150R	2	3	4.3	1.5	20	- 0.05	+ 0.05							KGM...3(...) KGM...2(...)
		GMM 4020-200R	2	4	4.3	2	20	- 0.05	+ 0.05							KGM...4(...) KGM...3(...)
		GMM 5020-250R	2	5	4.3	2.5	20	- 0.05	+ 0.05							KGM...5(...) KGM...4(...)
		GMM 6020-300R	2	6	4.3	3	20	- 0.05	+ 0.05							KGMR...6T30 KGM...5(...)
	 Full R / Sharp cutting oriented / Precision class	GMG 3020-150R	2	3	4.3	1.5	20	- 0.02	+ 0.02							KGM...3(...) KGM...2(...)
		GMG 4020-200R	2	4	4.3	2	20	- 0.02	+ 0.02							KGM...4(...) KGM...3(...)
		GMG 5020-250R	2	5	4.3	2.5	20	- 0.02	+ 0.02							KGM...5(...) KGM...4(...)
	 Chip control oriented / Undercutting	GMG 3020-150RU	2	3	4.3	1.5	20	- 0.02	+ 0.02							KGM...3(...) KGM...2(...) KGMUR2525M
		GMG 4020-200RU	2	4	4.3	2	20	- 0.02	+ 0.02							KGM...4(...) KGM...3(...) KGMUR2525M

GM/GMN/GMM/GMG/GMGA/FGG

		Carbon steel / Alloy steel		Stainless steel		Cast iron		Non-ferrous metals		Titanium alloy		Hard materials (~ 40HRC)		Hard materials (40HRC ~)		P		M		K		N		S		H	
Insert		Description		No. of edges	Dimension (mm)				Tolerance (mm)		Carbide				Cermat	Applicable toolholder ➔ G56~G58 G95											
					CW	S	RE	INSL	CW min.	CW max.	CVD CR9025	PVD PR930	· KW10	· TN90													
		GMGA 6020-300R	2	6	4.3	3	20	- 0.02	+ 0.02						○												KGM%L ...S KGM%L ...ST
		GMGA 8030-400R	2	8	5.5	4	30	- 0.02	+ 0.02						○												KGM%L 2525M-8 KIGM%L 6540B-8 KIGMUR6540B-8 KFMS...-8
		GMM 3014-04	2	3	4.3	0.4	14	- 0.05	+ 0.05						○												-
		GMM 3014-15R	2	3	4.3	1.5	14	- 0.05	+ 0.05																		-
		FGGR 3020-02	2	3	4.3	0.2	20	- 0.02	+ 0.02	○	○	○	○														KGMMR2525M-3 KGMRSR2525M-3
		FGGL 3020-02																									
		FGGR 4020-04	2	4	4.3	0.4	20	- 0.02	+ 0.02	○	○	○	○														
		FGGL 4020-04																									
		FGGR 5020-04	2	5	4.3	0.4	20	- 0.02	+ 0.02	○	○	○	○														
		FGGL 5020-04																									

Handed insert shows Right-hand

Recommended cutting conditions ➔ G143

○ : Check availability

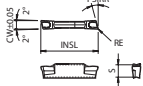
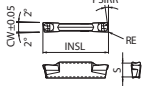
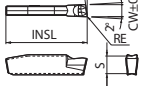
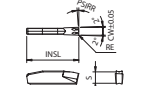
G50

				Carbon steel / Alloy steel								P		
				Stainless steel								M		
				Cast iron								K		
				Non-ferrous metals								N		
				Titanium alloy								S		
				Hard materials (~ 40HRC)								H		
				Hard materials (40HRC ~)										
Insert	Description	No. of edges	Dimension (mm)				Tolerance (mm)		Carbide				Cermat	Applicable toolholder ➔ G55~G58
			CW	S	RE	INSL	CW min.	CW max.	CVD	PVD	-	-		
 Sharp cutting oriented	GMM 1520-MT	2	1.5	4.3	0 0.05	20	- 0.05	+ 0.05						KGM...1.5(...)
	GMM 2020-MT	2	2	4.3	0 0.05	20	- 0.05	+ 0.05						KGM...2(...) KGM...1.5(...)
	GMM 2520-MT	2	2.5	4.3	0 0.05	20	- 0.05	+ 0.05						KGM...2.5(...) KGM...2(...)
	GMM 3020-MT	2	3	4.3	0 0.05	20	- 0.05	+ 0.05						KGM...3(...) KGM...2(...)
 Sharp cutting oriented / Without Chipbreaker	GMM 1520-NB	2	1.5	4.3	0	20	- 0.05	+ 0.05						KGM...1.5(...)
	GMM 2020-NB	2	2	4.3	0	20	- 0.05	+ 0.05						KGM...2(...) KGM...1.5(...)
	GMM 2520-NB	2	2.5	4.3	0	20	- 0.05	+ 0.05						KGM...2.5(...) KGM...2(...)
	GMM 3020-NB	2	3	4.3	0	20	- 0.05	+ 0.05						KGM...3(...) KGM...2(...)
 Stability oriented	GMM 2020-TK	2	2	4.3	0.2	20	- 0.05	+ 0.05						KGM...2(...) KGM...1.5(...)
	GMM 2520-TK	2	2.5	4.3	0.2	20	- 0.05	+ 0.05						KGM...2.5(...) KGM...2(...)
	GMM 3020-TK	2	3	4.3	0.25	20	- 0.05	+ 0.05						KGM...3(...) KGM...2(...)
 1-edge / Stability oriented	GMN 2-TK	1	2	4.3	0.2	20	- 0.05	+ 0.05						KGM...2(...) KGM...1.5(...)
	GMN 3-TK	1	3	4.3	0.25	20	- 0.05	+ 0.05						KGM...3(...) KGM...2(...)
	GMN 4-TK	1	4	4.3	0.3	20	- 0.05	+ 0.05						KGM...4(...) KGM...3(...)
 1-edge	GMN 2.2	1	2.2	4.3	0.17	20	- 0.05	+ 0.05						KGM...2(...)
	GMN 3	1	3	4.3	0.2	20	- 0.05	+ 0.05						KGM...3(...) KGM...2(...)
	GMN 4	1	4	4.3	0.25	20	- 0.05	+ 0.05						KGM...4(...) KGM...3(...)
	GMN 5	1	5	4.3	0.8	20	- 0.05	+ 0.05						KGM...5(...) KGM...4(...)
	GMN 6	1	6	4.3	0.8	20	- 0.05	+ 0.05						KGMR...6T30 KGM...5(...)

Recommended cutting conditions ➡ **G143**

G51

GM/GMN/GMM/GMG/GMGA/FGG

												Carbon steel / Alloy steel							P
												Stainless steel							M
												Cast iron							K
												Non-ferrous metals							N
												Titanium alloy							S
												Hard materials (~ 40HRC)							H
												Hard materials (40HRC ~)							
Insert		Description		No. of edges	Dimension (mm)				Angle (°)	Tolerance (mm)		Carbide				Cermetal	Applicable toolholder ➡ G55~G58		
					CW	S	RE	INSL		PSIR [®] %	CW min.	CW max.	CVD	PVD	-			-	
	 Sharp cutting oriented	GMM 1520R-MT-15D	2	1.5	4.3	0 0.05	20	15	-0.05	+0.05							KGM...1.5(...)		
		GMM 2020R-MT-15D 2020R-MT-15D 2020L-MT-15D	2	2	4.3	0 0.05 0	20	15	-0.05	+0.05	○						KGM...2(...) KGM...1.5(...)		
		GMM 2520R-MT-15D	2	2.5	4.3	0 0.05	20	15	-0.05	+0.05							KGM...2.5(...) KGM...2(...)		
		GMM 3020R-MT-15D 3020R-MT-15D 3020L-MT-15D	2	3	4.3	0 0.05 0	20	15	-0.05	+0.05	○						KGM...3(...) KGM...2(...)		
	 Stability oriented	GMM 2020R-TK-8D	2	2	4.3	0.2	20	8	-0.05	+0.05							KGM...2(...) KGM...1.5(...)		
		GMM 2520R-TK-8D	2	2.5	4.3	0.2	20	8	-0.05	+0.05							KGM...2.5(...) KGM...2(...)		
		GMM 3020R-TK-8D	2	3	4.3	0.25	20	8	-0.05	+0.05	○						KGM...3(...) KGM...2(...)		
	 1-edge / Stability oriented	GMR 2-TK-8D	1	2	4.3	0.2	20	8	-0.05	+0.05							KGM...2(...) KGM...1.5(...)		
		GMR 3-TK-8D	1	3	4.3	0.25	20	8	-0.05	+0.05							KGM...3(...) KGM...2(...)		
		GMR 4-TK-8D	1	4	4.3	0.3	20	8	-0.05	+0.05							KGM...4(...) KGM...3(...)		
	 1-edge / Sharp cutting oriented	GMR 2.2-8D GML 2.2-8D	1	2.2	4.3	0.17	20	8	-0.05	+0.05	○						KGM...2(...)		
		GMR 2.2-15D	1	2.2	4.3	0	20	15	-0.05	+0.05	○								
		GMR 3-4D GML 3-4D	1	3	4.3	0.2	20	4	-0.05	+0.05	○						KGM...3(...) KGM...2(...)		
		GMR 4-4D GML 4-4D	1	4	4.3	0.25	20	4	-0.05	+0.05	○						KGM...4(...) KGM...3(...)		

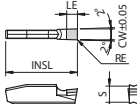
Handed insert shows Right-hand

Recommended cutting conditions G143

○ : Check availability

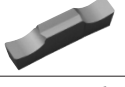
G52

GM/GMN/GMM/GMG/GMGA/FGG

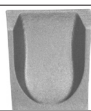
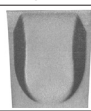
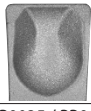
Cutting edge preparation				Carbon steel / Alloy steel														P
				Stainless steel														M
				Cast iron														K
				Non-ferrous metals												●		N
				Titanium alloy												●		S
				Hard materials (~ 40HRC)														H
				Hard materials (40HRC ~)											○	●		
Insert		Description		Edge preparation type	No. of edges	Dimension (mm)					Tolerance (mm)		CBN		PCD	Applicable toolholder ➡ G55~G58		
						CW	S	RE	INSL	LE	CW min.	CW max.	KBN10	KBN25	KPD001		KPD010	
													-	-				
  1-edge	GMN	2	E008	1	2	4.3	0.2	20	2.9	-0.05	+0.05	○	○			KGM...2(...) KGM...1.5(...)		
	GMN	2	F	1	2	4.3	0.2	20	2.9	-0.05	+0.05			○	○			
	GMN	3	E008	1	3	4.3	0.4	20	2.9	-0.05	+0.05	○	○			KGM...3(...) KGM...2(...)		
	GMN	3	F	1	3	4.3	0.2	20	2.9	-0.05	+0.05			○	○			
	GMN	4	E008	1	4	4.3	0.4	20	2.9	-0.05	+0.05	○	○			KGM...4(...) KGM...3(...)		
	GMN	4	F	1	4	4.3	0.2	20	2.9	-0.05	+0.05			○	○			
	GMN	5	F	1	5	4.3	0.2	20	2.9	-0.05	+0.05			○	○	KGM...5(...) KGM...4(...)		
	GMN	6	F	1	6	4.3	0.2	20	2.9	-0.05	+0.05			○	○	KGMR...6T30 KGM...5(...)		

Recommended cutting conditions G146

Features of Chipbreaker

Series	Insert	Features
GMM MW		Excellent chip evacuation at Grooving, Turning, Cut-off
GMG MG		Low cutting force with ground chipbreaker
GMG MS GMM MS		Grooving / Turning / Cut-off operations are minimum cutting force at Positive Edge
GMM MT		Small corner-R(RE) and minimize the core which remains in the center of the face
GMM TK		Large corner-R(RE) and stable performance at cut-off
GMM NB		Flat rake face and non-chipbreak It works well for brass

Edge Preparation

Edge Prep.	Chamfered + R-honed Corner-R(RE) = 0.05	Chamfered + R-honed Sharp Corner
		
MT Chipbreaker	CR9025 / PR915	PR930 / KW10
Edge Prep.	Chamfered + R-honed Corner-R(RE) = 0.2 ~ 0.3	Sharp Edge Corner-R(RE) = 0.2 ~ 0.3
		
TK Chipbreaker	CR9025 / PR915	PR930 / KW10
Edge Prep.	R-honed Corner-R(RE) = 0.05	Sharp Edge Sharp Corner
		
Without Chipbreaker (-NB)	CR9025	PR930 / KW10

· Sharp Edge Spec. can reduce cutting force by 40% less than that of chamfer edge.

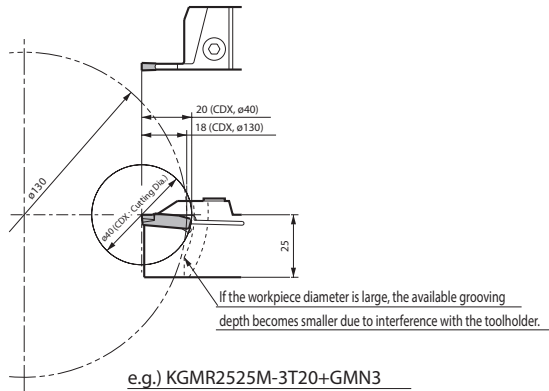
○ : Check availability

CBN & PCD Inserts are sold in 1 piece boxes

G53

Available Cutting Diameter of KGM (for automatic lathe) / KGM-T

· There is a limit to available grooving depth depending on the workpiece diameter.



G



Grooving

External

Internal

Face

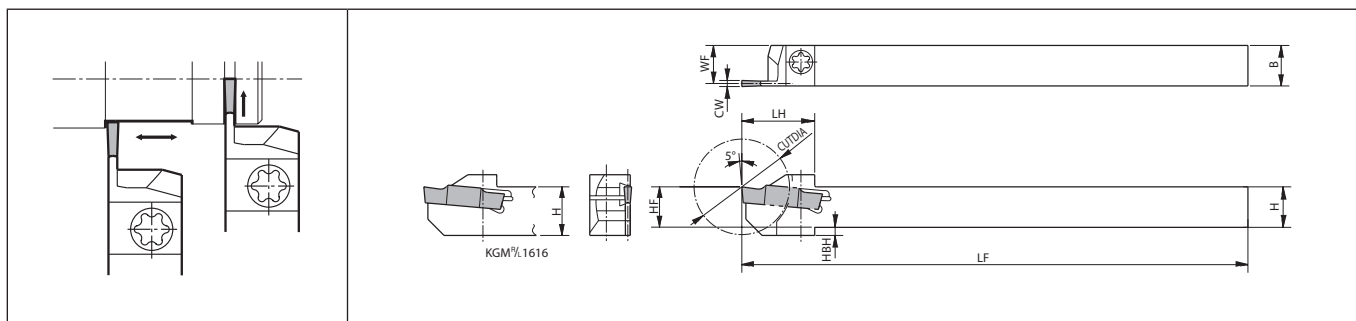
KGM (for automatic lathe) Possible Cutting Diameter and Available Grooving Depth Table

Toolholder Description		DCX (Cutting Dia.)															
KGM ^{R/L}	1010□-1.5...	-	-	-	-	-	-	-	18	21	26	38	76	∞			
	1212□-1.5...	-	-	-	-	23	27	37	71	∞	∞	∞	∞				
	1010□-2...	-	-	-	-	-	-	-	18	21	26	38	76				
	1212□-2...	-	-	-	-	23	27	37	71	∞							
	1616□-2...	30	37	47	68	89	131	∞	∞								
	1212□-2.5...	-	-	-	-	23	27	37	71								
	1616□-2.5...	30	37	47	68	89	131	∞	∞								
	1616□-3...																
Available Grooving Depth CDX (mm)		15	14	13	12	11.5	11	10	9	8	7	6	5	4	3	2	1

KGM-T Possible Cutting Diameter and Available Grooving Depth Table (GMN, GM^{R/L} when using 1-edge insert)

Toolholder Description		DCX (Cutting Dia.)												
KGM ^{R/L}	2012K-2T17	-	-	-	-	-	-	-	66	80	130	260	∞	
	2020K-2T17													
	2525M-2T17													
	1616H-3T20	-	-	-	-	-	40	54	70	100	180			
	2012K-3T20	-	-	-	-	-	40	90	130	240	∞	∞		∞
	2020K-3T20													
	2525M-3T20													
	2020K-4T20													
	2525M-4T20													
	2525M-4T25	-	-	50	140	240	∞	∞	∞	∞				
	2525M-5T25													
	3232P-5T25				280	600								
	2525M-6T30				100	300					∞	∞		∞
	Available Grooving Depth CDX (mm)		30	27	25	23	22	20	19	18	17	16		15

KGM (External grooving / for automatic lathe)



Right-hand shown

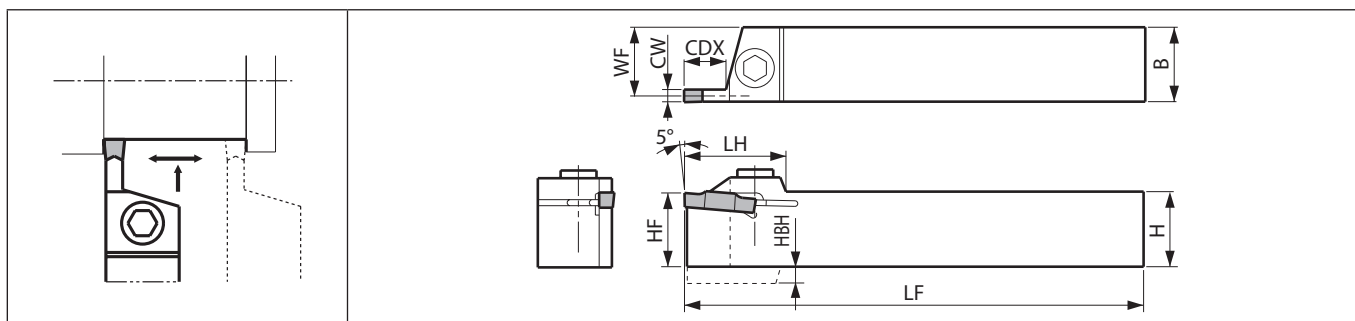
Toolholder dimensions

Description	Availability		Dimension (mm)												Spare parts		Applicable inserts G48,G49 G51~G53
	R	L	C/DIA	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.					
KGM%L 1010JX-1.5 1212F-1.5-85 1212JX-1.5	○	○	18	10	10	18	10		120	9.4			SE-40120TR	LTW-15S			GMM1520... GM.2(...)
	○		23	12	12	19	12	2	85	11.4	1.5	2					
	○	○							120								
KGM%L 1010JX-2 1212F-2-85 1212JX-2 1616JX-2	○	○	18	10	10	18	10		120	9.15			SE-40120TR	LTW-15S			GM.2(...) GM.3(...)
	○	○	23	12	12	19	12	2	85	11.15	2	3					
	○	○							120				SE-50125TR	LTW-20			
	○	○	30	16	16	24.5	16	-	15.15								
KGM%L 1212F-2.5-85 1212JX-2.5 1616JX-2.5	○		23	12	12	19	12	2	85				SE-40120TR	LTW-15S			GMM24... GM.25... GM.3(...)
	○	○							120	11	2.4	3					
	○	○	30	16	16	24.5	16	-	15				SE-50125TR	LTW-20			
KGM%L 1616JX-3	○	○	30	16	16	24.5	16	-	120	14.8	3	4	SE-50125TR	LTW-20			GM.3(...), GM.4(...)

If using a full-R insert, you need to modify the corner of insert adapter part of toolholder.
KGM will be switched to KGD=> G35

○: Check availability

KGM (External grooving)



Right-hand shown

Toolholder dimensions

Description		Availability		Dimension (mm)										Spare parts				Applicable inserts ➔ G48~G53
														Clamp bolt	Clamp screw (Torx)	Wrench	Wrench	
		R	L	CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.					
KGM% 1212H-3 1616H-3 2020K-3 2525M-3			9	12	12	27	12	4	100	10.8	3	3	-	SB-5TR	-	LTW-20	GM.3(...) GM.4(...)	
				16	16		16	-	125	18.8		4	HH5X16	-	LW-4	-		
				20	20		20		150	23.8								HH5X25
				25	25		25		150	23.8								
KGM% 2020K-4 2525M-4			10	20	20	27	20	-	125	18.3	4	5	HH5X16	-	LW-4	-	GM.4(...) GM.5(...)	
				25	25		25	150	23.3	HH5X25								
KGM% 2020K-5 2525M-5			10	20	20	27	20	-	125	17.8	5	6	HH5X16	-	LW-4	-	GM.5(...) GM.6(...)	
				25	25		25	150	22.8	HH5X25								
KGM% 2525M-8			25	25	25	40	25	7.5	150	22	8	8	HH6X25	-	LW-5	-	GM..8030...	

CDX shows available grooving depth.

4mm width Insert can be installed in KGM[®]/L1212H-3, but is not recommended due to the toolholder's rigidity.

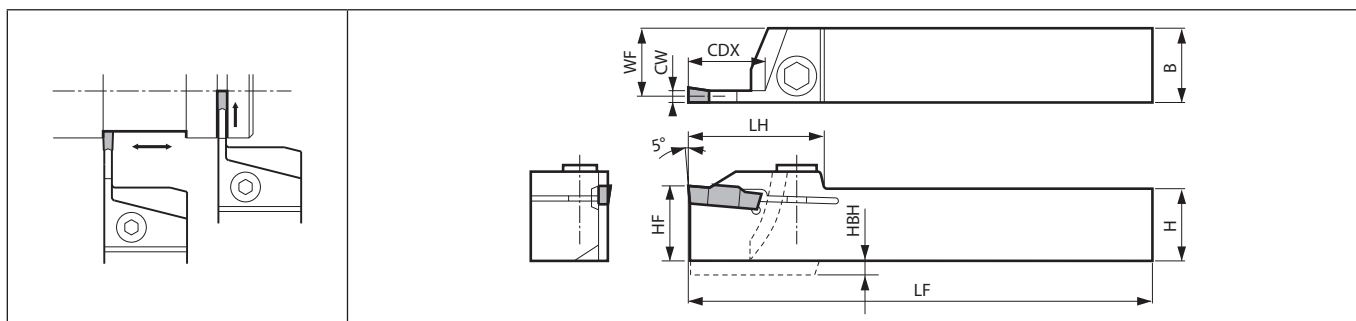
If using a full-R insert, you need to modify the corner of insert adapter part of toolholder.

KGM will be switched to KGD=> **G34**

○ : Check availability

G56

KGM-T (External grooving / Deep grooving)



Right-hand shown

Toolholder dimensions

Description	Availability		Dimension (mm)										Spare parts				Applicable inserts ➡ G48~G53
													Clamp bolt	Clamp screw (Torx)	Wrench	Wrench	
	R	L	CDX	H	B	LH	HF	HBH	LF	WF	CW min.	CW max.					
KGM [®] /L 2012K-2T17	○	○	17	20	12	33	20	-	125	11.15	2	3	-	SB-5TR	-	LTW-20	GM.2(...) GM.3(...)
2020K-2T17	○	○		20	20		-	-	125	19.15			HH5X16	-	LW-4	-	
2525M-2T17	○	○		25	25		25	-	150	24.15			HH5X25	-	LW-4	-	
KGM [®] /L 1616H-3T20	○	○	20	16	16	36	16	4	100	14.8	3	4	HH5X16	-	LW-4	-	GM.3(...) GM.4(...)
2012K-3T20	○	○		20	12		20	-	125	10.8			-	SB-5TR	-	LTW-20	
2020K-3T20	○	○		20	20		-	-	125	18.8			HH5X16	-	LW-4	-	
2525M-3T20	○	○		25	25		25	-	150	23.8			HH5X25	-	LW-4	-	
KGM [®] /L 2020K-4T20	○	○	20	20	20	41	20	-	125	18.3	4	5	HH5X16	-	LW-4	-	GM.4(...) GM.5(...)
2525M-4T20	○	○		25	25		25	-	150	23.3			HH5X25	-	LW-4	-	
2525M-4T25	○	○		25	25		25	-	150	23.3			HH5X25	-	LW-4	-	
KGM [®] /L 2525M-5T25	○	○	25	25	25	42	25	-	150	22.8	5	6	HH5X25	-	LW-4	-	GM.5(...) GM.6(...)
3232P-5T25	○	○		32	32		32	-	170	29.8			HH5X25	-	LW-4	-	
KGMR 2525M-6T30	○	○	30	25	25	45	25	-	150	22.4	6	6	HH5X25	-	LW-4	-	GM6(...)

If using a full-R insert, you need to modify the corner of insert adapter part of toolholder.

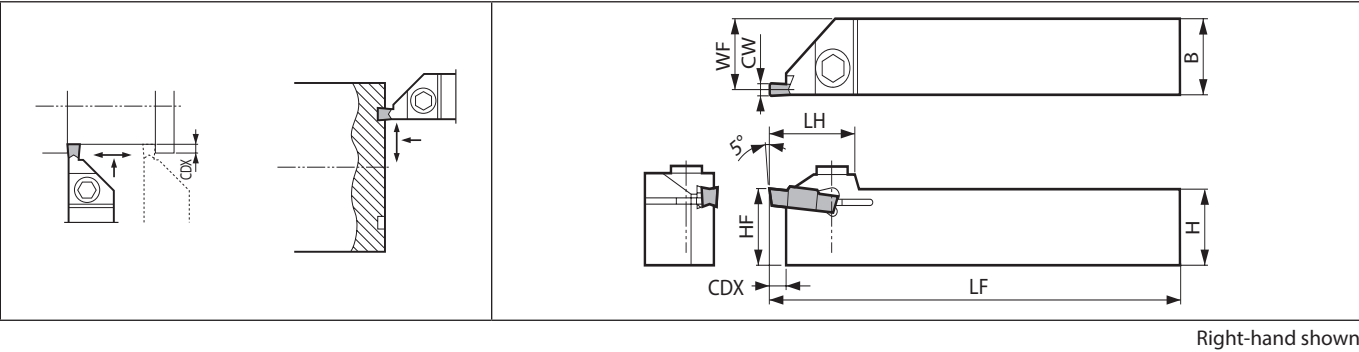
CDX shows the distance from the toolholder to the cutting edge. Ref. to the Table (G54) for the relationship between the available grooving depth and the cutting dia.

When using GMG / GMM (2-edge) insert, set the groove depth under 15 mm.

KGM will be switched to KGD=> G34

○ : Check availability

KGMM (External grooving / Face grooving)



Toolholder dimensions

Description	Availability	Dimension (mm)										Spare parts		Applicable inserts ➡ G48~G53
												Clamp bolt	Wrench	
		R	CDX	H	B	LH	HF	LF	WF	CW min.	CW max.			
KGMMR 2525M-3	○	4.8	25	25	25	25	150	23.8	3	5		HH5X25	LW-4	FGG..., GM.3(...), GM.4(...), GM.5(...)

CDX shows available grooving depth. (Ref. to the table G59 for Face Grooving)

G

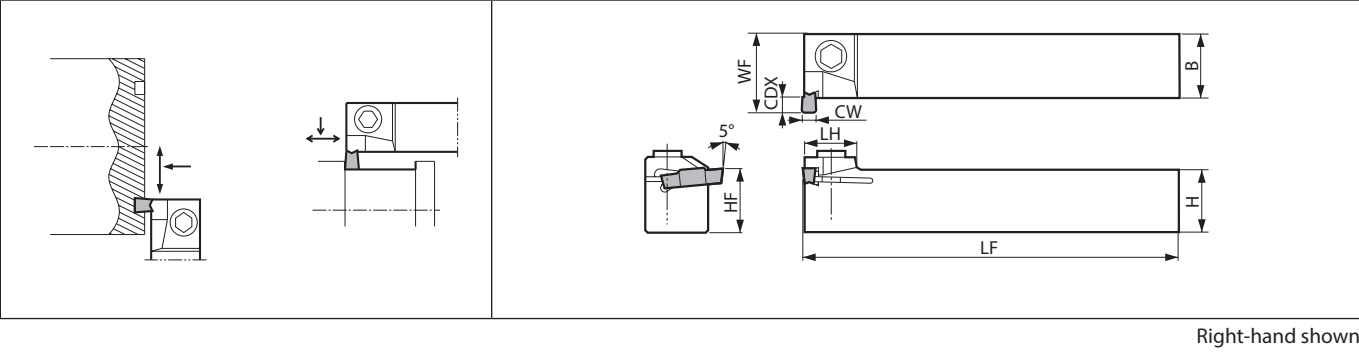
Grooving

External

Internal

Face

KGMS (External grooving / Face grooving)



Toolholder dimensions

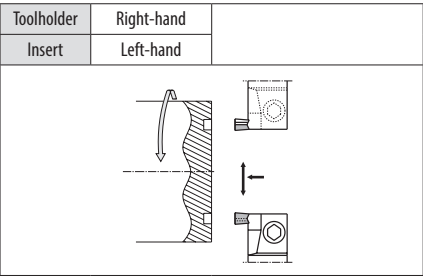
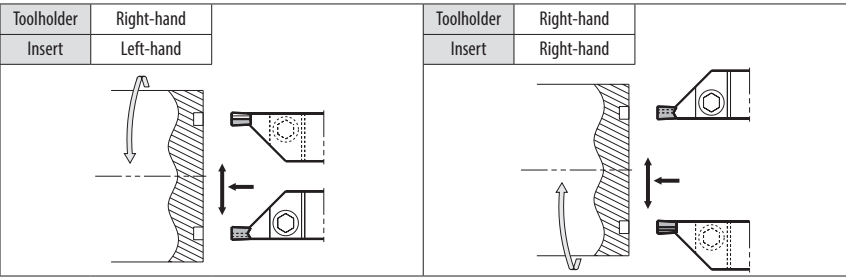
Description	Availability	Dimension (mm)										Spare parts		Applicable inserts ➡ G48~G53
												Clamp bolt	Wrench	
		R	CDX	H	B	LH	HF	LF	WF	CW min.	CW max.			
KGMSR 2525M-3	○	4.8	25	25	17	25	150	30	3	5		HH5X25	LW-4	FGG..., GM.3(...), GM.4(...), GM.5(...)

CDX shows available grooving depth. (Ref. to the table G59 for Face Grooving)

○ : Check availability

Selection of Insert & Toolholder (Face Grooving)

Case of KGMM

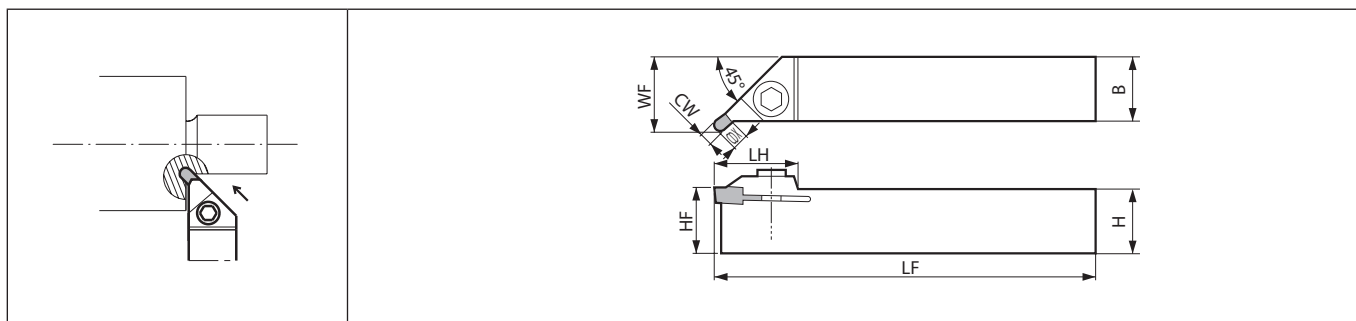


External dia. of the groove (min.) & Grooving Depth (Face Grooving)

KGMM / KGMS (Common) (mm)

Description	DAXN	CD
GMG/GMM3020-○○○□□	ø100	4.8
GMG/GMM4020-○○○□□		
GMG/GMM5020-○○○□□		
FGG [®] /L 3020-02	ø22	4.3
FGG [®] /L 4020-04	ø28	4.8
FGG [®] /L 5020-04	ø30	
GMG3020-150RU	ø22	4.3
GMG4020-200RU	ø28	4.8



KGMU (External grooving / Undercut grooving)

Right-hand shown

Toolholder dimensions



Grooving

Description	Availability	Dimension (mm)										Spare parts		Applicable inserts ➔ G49
												Clamp bolt	Wrench	
		R	CDX	H	B	LH	HF	LF	WF	CW min.	CW max.			
KGMUR 2525M	○	4.8	25	25	28.5	25	150	28.6	3	5 (6)		HH5X25	LW-4	GMG3020..RU, GMG4020..RU

CDX shows the distance from the toolholder to the cutting edge. Ref. to the table below for the available grooving depth.

WF shows at GMM5020-RU. () indicates external grooving inserts when installed.

External grooving inserts (grooving width 3 mm~6 mm) will be attached. (In case of using GMG○○20-○○○○□□, GMM○○20-○○○○□□, GMN○ insert)

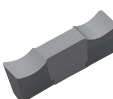
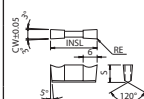
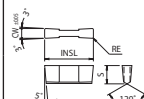
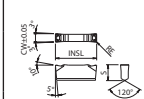
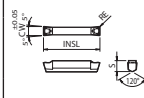
Undercut Depth CD

Description	Undercut Depth	Distance from the face of the workpiece
	CD (mm)	ap (mm)
GMG3020-150RU	3.5	1.8
GMG4020-200RU	4.0	1.9
* In case of undercutting for the diameter 100mm or over, Inserts for External Grooving GMG○○20-○○○○□□, GMM○○20-○○○○□□, GMN○ are also available.		

○: Check availability

G60

GH/GHU/GA

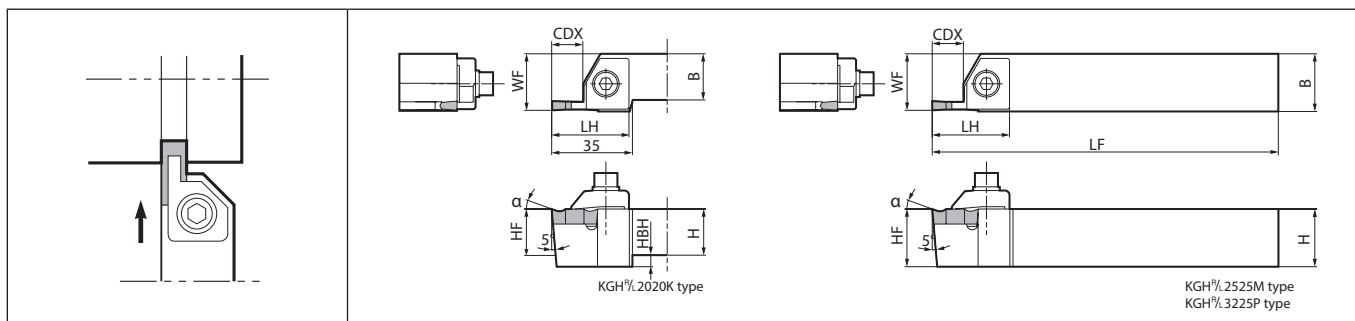
Cutting edge preparation				Carbon steel / Alloy steel										P						
				Stainless steel										M						
				Cast iron										K						
				Non-ferrous metals										N						
				Titanium alloy										S						
				Hard materials (~ 40HRC)										H						
Symbol		Specification		Example		Hard materials (40HRC ~)										H				
S	Chamfered and R-honed	S01020	0.10mm × 20° chamfered and R-honed																	
T	Chamfered	T01020	0.10mm × 20° chamfered																	
Insert		Description		Edge preparation type	No. of edges	Dimension (mm)				Tolerance (mm)		Carbide		Ceramic		Cermet		Applicable toolholder ➔ G62~G64		
						CW	S	RE	INSL	CW min.	CW max.	CVD	PVD	-	PVD	-	-			
												CR9025	PR930	KW10	A66N	PT600M	A65		TC40N	TC60M
		GH 4020-02	4020-05	-	2	4	7.5	0.2	20	-0.05	+0.05	●	●			●	●	KGH [®] /L ...4 KGHS [®] /L ...4		
		GH 4520-02	4520-05	-	2	4.5	7.5	0.2	20	-0.05	+0.05					●	●			
		GH 5020-02	5020-05	-	2	5	7.5	0.2	20	-0.05	+0.05	●	●			●	●	KGH [®] /L ...5 KGHS [®] /L ...5		
		GH 5520-02	5520-05	-	2	5.5	7.5	0.2	20	-0.05	+0.05					●	●			
		GH 6020-02	6020-05	-	2	6	7.5	0.2	20	-0.05	+0.05	●	●			●	●			
		GH 6520-02	6520-05	-	2	6.5	7.5	0.2	20	-0.05	+0.05					●	●			
		GH 7020-02	7020-05	-	2	7	7.5	0.2	20	-0.05	+0.05	●	●			●	●	KGH [®] /L ...7		
		GH 7520-02	7520-05	-	2	7.5	7.5	0.2	20	-0.05	+0.05					●	●			
		GH 8020-02	8020-05	-	2	8	7.5	0.2	20	-0.05	+0.05	●	●			●	●			
		GH 10025-05		-	2	10	7.5	0.5	25	-0.05	+0.05	●	●					KGH [®] /L ...10		
		GH 12025-05		-	2	12	7.5	0.5	25	-0.05	+0.05	●	●				●			
				GH 4020-05	S01020 T01020	2	4	7.5	0.5	20	-0.05	+0.05			●	●	●	●	KGH [®] /L ...4 KGHS [®] /L ...4	
GH 5020-05	S01020 T01020			2	5	7.5	0.5	20	-0.05	+0.05			●	●	●	●				
GH 6020-05	T01020			2	6	7.5	0.5	20	-0.05	+0.05					●	●	KGH [®] /L ...5 KGHS [®] /L ...5			
GH 7020-05	T01020			2	7	7.5	0.5	20	-0.05	+0.05					●	●				
		GHU 40-20		-	2	4	7.5	0.25	20	-0.05	+0.05	●					●	KGH [®] /L ...4 KGHS [®] /L ...4		
		GHU 50-20		-	2	5	7.5	0.3	20	-0.05	+0.05	●					●			
		GHU 60-20		-	2	6	7.5	0.3	20	-0.05	+0.05	●					●	KGH [®] /L ...5 KGHS [®] /L ...5		
		GA 30		-	2	3	5	0.2	25	-0.05	+0.05	○					○		KGA [®] /L ...3	
		GA 40		-	2	4	5	0.25	25	-0.05	+0.05	○					○			
		GA 50		-	2	5	5	0.3	30	-0.05	+0.05	○					○	KGA [®] /L ...5		

Recommended cutting conditions ➔ G65

● : Standard item ○ : Check availability

G61

KGH (External grooving)



Right-hand shown

Toolholder dimensions

Description	Availability		Dimension (mm)															Applicable inserts ➡ G61
													Clamp	Clamp bolt	Spring	Washer	Wrench	
	R	L	CDX	H	B	LH	HF	HBH	LF	WF (min.)	WF (max.)							
KGH% 2020K-4 2525M-4	●	●	13	20	20	33.5	20	5	125	24.5	24.8	CGH-1%	HH6X25	SP-6	W-6	LW-5	GH4.20-.. GHU40-20	
	●	●		25	25		25	-	150									
KGH% 2020K-5 2525M-5 3225P-5	●	●	13	20	20	33.5	20	5	125	25	25.8	CGH-1%	HH6X25	SP-6	W-6	LW-5	GH5.20-.. GHU50-20 GH6.20-.. GHU60-20	
	●	●		25	25		25	-	150									
KGH% 2020K-7 2525M-7	●	●	13	20	20	33.5	20	7	125	24.5	25	CGH-2%	HH6X25	SP-6	W-6	LW-5	GH7.20-.. GH8020-..	
	●	●		25	25		25	-	150									
KGH% 2525M-10 3225P-10	●	●	17	25		41	25	-	150	25.5	26.5	CGH-3%	HH6X25	SP-6	W-6	LW-5	GH10025-05 GH12025-05	
	●			32	25		32	-	170									

CDX shows available grooving depth.

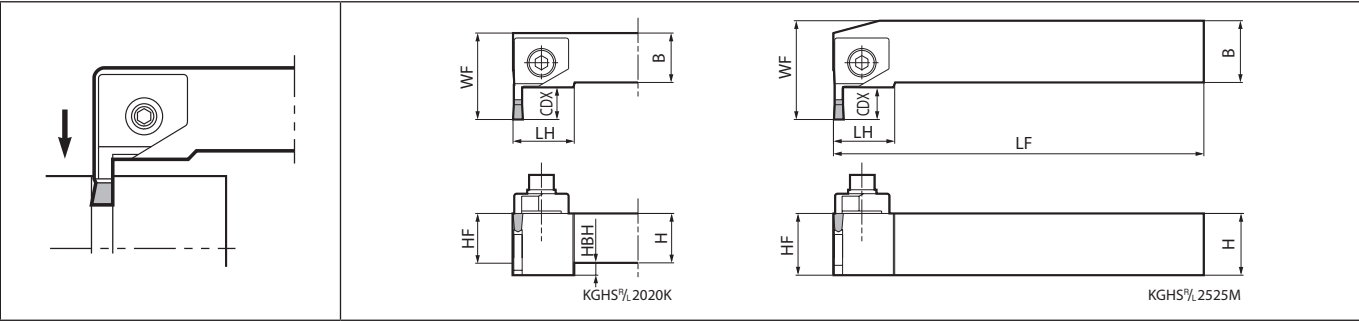
WF of KGH% Toolholder depends on the insert's edge width.

Clamp : CGH-OR for Right-hand Toolholder and CGH-OL for Left-hand Toolholder.

● : Standard item

G62

KGHS (External grooving)



Right-hand shown

Toolholder dimensions

Description	Availability		Dimension (mm)								Spare parts					Applicable inserts ➡ G61
											Clamp	Clamp bolt	Spring	Washer	Wrench	
	R	L	CDX	H	B	LH	HF	HBH	LF	WF						
KGHS%L 2020K-4 2525M-4	●	●	13	20	20	25	20	5	125	35	CGH-1½/R	HH6X25	SP-6	W-6	LW-5	GH4.20-.. GHU40-20
	●	●		25	25		25	-	150	40						
KGHS%L 2020K-5 2525M-5	●	●	13	20	20	25	20	5	125	35	CGH-1½/R	HH6X25	SP-6	W-6	LW-5	GH5.20-.. GHU50-20 GH6.20-.. GHU60-20
	●	●		25	25		25	-	150	40						

CDX shows available grooving depth.
Clamp : CGH-○L for Right-hand Toolholder and CGH-○R for Left-hand Toolholder.

G

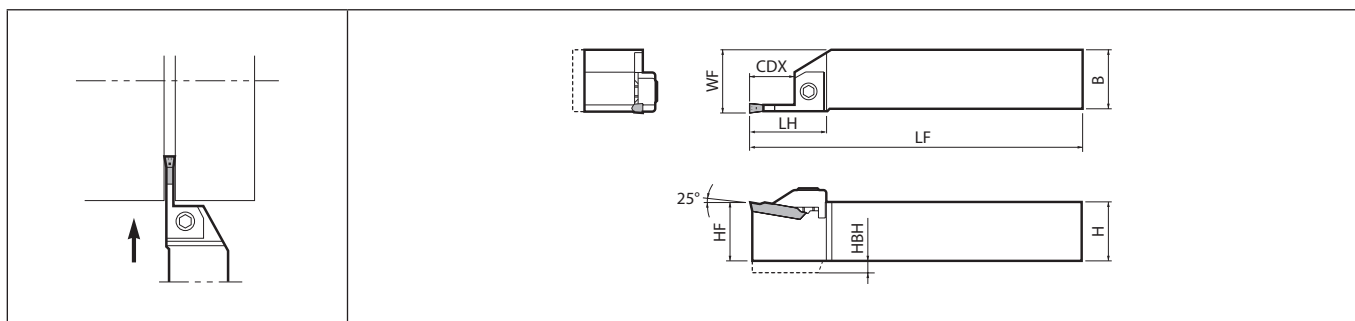

Grooving

Rake Angle (α) after Installment of GH / GHU insert

When using GH○○-○○		When using GHU○○-○○	
α	Insert Grades	α	Insert Grades
0°	A65, A66N, PT600M	10°	TN60 CR9025
10°	TC40N		
20°	TN90, TC60M PR930 KW10		

● : Standard item

KGA (External grooving / Deep grooving)



Right-hand shown

Toolholder dimensions

Description	Availability		Dimension (mm)										Spare parts				Applicable inserts G61
													Clamp bolt	Clamp	Spring	Wrench	
	R	L	CDX	H	B	LH	HF	HBH	LF	WF							
KGA ^{7/8} 2020K-3	○	○	20	20	20	37	20	5	125	21.5	HH6X20	CGA-3 ^{7/8} L	SP-6	LW-5			GA30
2525M-3	○	○		25	25		25	-	150	26.5							
KGAR 2020K-4	○		20	20	20	37	20	5	125	21.5	HH6X20	CGA-4R	SP-6	LW-5			GA40
2525M-4	○			25	25		25	-	150	26.5							
KGAR 2020K-5	○		25	20	20	42	20	5	125	21.5	HH6X20	CGA-5R	SP-6	LW-5			GA50
2525M-5	○			25	25		25	-	150	26.5							

CDX shows available grooving depth.

Clamp : CGA-○R for Right-hand Toolholder and CGA-○L for Left-hand Toolholder.

G



Grooving

External

Internal

Face

○ : Check availability

G64

Recommended cutting conditions

GH inserts - ground chipbreaker

Workpiece material	Recommended insert grades (Vc: m/min)							(1) f for grooving (mm/rev) (2) f for turning (mm/rev) (3) ap for turning (mm)				Remarks
	Cermet		PVD coated carbide	Carbide	Ceramic			GH 40~50...	GH 55~70...	GH 75~80...	GH 100~120...	
	TC40N	TC60M	PR30	KW10	A65	A66N	PT600M					
Carbon steel	☆ 150~220	☆ 100~150	★ 80~180	-	-	-	-	(1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0	(1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0	(1) 0.1~0.25 (2) 0.1~0.2 (3) Max. 1.5	(1) 0.15~0.3 (2) 0.15~0.25 (3) Max. 2.0	Coolant
Alloy steel	☆ 130~200	☆ 80~130	★ 80~160	-	-	-	-	(1) 0.07~0.18 (2) 0.07~0.13 (3) Max. 1.0	(1) 0.07~0.18 (2) 0.07~0.13 (3) Max. 1.0	(1) 0.1~0.23 (2) 0.1~0.18 (3) Max. 1.5	(1) 0.15~0.27 (2) 0.15~0.22 (3) Max. 2.0	
Stainless steel	-	☆ 60~100	★ 60~130	-	-	-	-	(1) 0.07~0.16 (2) 0.07~0.13 (3) Max. 1.0	(1) 0.07~0.16 (2) 0.07~0.13 (3) Max. 1.0	(1) 0.1~0.21 (2) 0.1~0.18 (3) Max. 1.5	(1) 0.15~0.25 (2) 0.15~0.22 (3) Max. 2.0	
Cast iron	-	-	-	★ 60~100	☆ 150~300	☆ 150~300	☆ 150~300	KW10 (1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0 A65/A66N (1) 0.03~0.07 (2) Not recom. (3) Not recom.	KW10 (1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0 A65/A66N (1) 0.03~0.07 (2) Not recom. (3) Not recom.	KW10 (1) 0.1~0.25 (2) 0.1~0.2 (3) Max. 1.5 A65/A66N (1) 0.05~0.09 (2) Not recom. (3) Not recom.	KW10 (1) 0.15~0.3 (2) 0.15~0.25 (3) Max. 2.0 A65/A66N (1) 0.05~0.09 (2) Not recom. (3) Not recom.	
Aluminum alloys	-	-	-	★ 150~400	-	-	-	(1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0	(1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0	(1) 0.1~0.25 (2) 0.1~0.2 (3) Max. 1.5	(1) 0.15~0.3 (2) 0.15~0.25 (3) Max. 2.0	
Brass	-	-	-	★ 150~300	-	-	-	(1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0	(1) 0.07~0.2 (2) 0.07~0.15 (3) Max. 1.0	(1) 0.1~0.25 (2) 0.1~0.2 (3) Max. 1.5	(1) 0.15~0.3 (2) 0.15~0.25 (3) Max. 2.0	
Hard materials	-	-	-	-	☆ 40~80	☆ 40~80	☆ 40~80	(1) 0.02~0.05 (2) 0.01~0.03 (3) Max. 0.1	(1) 0.02~0.05 (2) 0.01~0.03 (3) Max. 0.2	(1) 0.02~0.05 (2) 0.01~0.04 (3) Max. 0.2		

* Above cutting condition is for external grooving. Set both cutting speed and feed 10% lower for internal grooving.

★:1st recommendation ☆:2nd recommendation



Grooving

GHU Inserts - molded chipbreaker

Workpiece material	Recommended insert grades (Vc: m/min)		(1) f for grooving (mm/rev) (2) f for turning (mm/rev) (3) ap for turning (mm)			Remarks
	Cermet	CVD coated carbide	GHU 40-20	GHU 50-20	GHU 60-20	
	TN60	CR9025				
Carbon steel	☆ 130~200	☆ 80~180	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.0	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.0	(1) 0.06~0.15 (2) 0.05~0.12 (3) Max. 1.5	Coolant
Alloy steel	☆ 100~180	☆ 80~160	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.0	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.0	(1) 0.06~0.15 (2) 0.05~0.12 (3) Max. 1.5	
Stainless steel	-	☆ 60~130	(1) 0.06~0.1 (2) 0.05~0.08 (3) Max. 0.8	(1) 0.06~0.1 (2) 0.05~0.08 (3) Max. 0.8	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.2	

* Above cutting condition is for external grooving. Set both cutting speed and feed 10% lower for internal grooving.

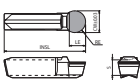
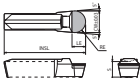
★:1st recommendation ☆:2nd recommendation

GA inserts - molded chipbreaker

Workpiece material	Recommended insert grades (Vc: m/min)		(1) f for grooving (mm/rev) (2) f for turning (mm/rev) (3) ap for turning (mm)			Remarks
	Cermet	CVD coated carbide	GA 30	GA 40	GA 50	
	TN60	CR9025				
Carbon steel	☆ 130~200	★ 80~180	(1) 0.06~0.18 (2) 0.05~0.15 (3) Max. 0.8	(1) 0.06~0.21 (2) 0.05~0.17 (3) Max. 1.0	(1) 0.06~0.25 (2) 0.05~0.2 (3) Max. 1.3	Coolant
Alloy steel	☆ 100~180	★ 80~160	(1) 0.06~0.15 (2) 0.05~0.12 (3) Max. 0.3	(1) 0.06~0.18 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.06~0.22 (2) 0.05~0.18 (3) Max. 0.8	
Stainless steel	-	★ 60~130	(1) 0.06~0.1 (2) 0.05~0.08 (3) Max. 0.8	(1) 0.06~0.1 (2) 0.05~0.08 (3) Max. 0.8	(1) 0.06~0.12 (2) 0.05~0.1 (3) Max. 1.2	

★:1st recommendation ☆:2nd recommendation

GMGW

		Carbon steel / Alloy steel									P	
		Stainless steel									M	
		Cast iron									K	
		Non-ferrous metals							●		N	
		Titanium alloy							●		S	
		Hard materials (~ 40HRC)									H	
		Hard materials (40HRC ~)										
Insert		Description	No. of edges	Dimension (mm)					Tolerance (mm)		PCD	Applicable toolholder ➡ G67
				CW	S	RE	INSL	LE	CW min.	CW max.	KPD001	
		GMGW 6030-30R	1	6	5.5	3	30	4.5	- 0.03	+ 0.03	●	KGMW [®] /L2525M-6
		GMGW 8030-40R	1	8	5.5	4	30	6	- 0.03	+ 0.03	●	KGMW [®] /L2525M-8
		GMGW 8030-40R-HR	1	8	5.5	4	30	5	- 0.03	+ 0.03	●	KGMW [®] /L2525M-8

GMGW inserts are exclusively used for KGMW toolholder. It cannot be used for other toolholder because of its different installation angle.
GMGW inserts Edge Preparation : R-honed Cutting Edge.

Recommended cutting conditions ➡ G67

Grooving

External

Internal

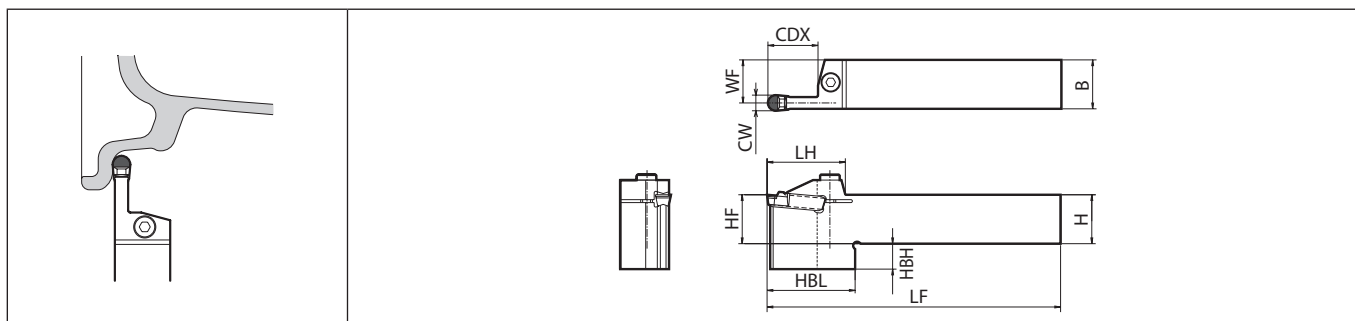
Face

● : Standard item

G66

CBN & PCD Inserts are sold in 1 piece boxes

KGMW (External grooving / Face grooving / Copying)



Right-hand shown

Toolholder dimensions

Description	Availability		Dimension (mm)										Spare parts		Applicable inserts ➡ G66
													Clamp bolt	Wrench	
	R	L	CDX	H	B	LH	HF	HBH	HBL	LF	WF				
KGMW%L 2525M-6	●	●	25	25	25	40	25	13	55	150	22.8	HH6X25	LW-5		GMGW6030-30R
KGMW%L 2525M-8	●	●	25	25	25	40	25	13	55	150	22	HH6X25	LW-5		GMGW8030-40R (-HR)



Grooving

Recommended cutting conditions

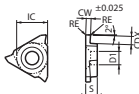
Workpiece material	Recommended insert grades (Vc: m/min)		(1) f for grooving (mm/rev) (2) f for turning (mm/rev) (3) ap for turning (mm)
	PCD		
	KPD001		
Aluminum	★ 150~2,700		(1) 0.05 ~ 0.3 (2) 0.2 ~ 0.8 (3) Max. 3

★ :1st recommendation

● : Standard item

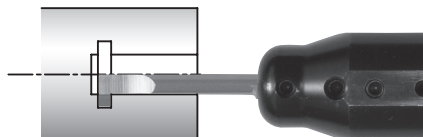
G67

TGF

												Carbon steel / Alloy steel				●	☺			P																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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Insert		Description	No. of edges	Dimension (mm)						Tolerance (mm)		Carbide				Cermat PCD	Applicable toolholder																																																																																																																																																																																																																																																																																																																																																																																																																																																											
				CW	CDX	IC	S	D1	RE	LE	CW min.	CW max.	PVD	-	-																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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 	TGF32R	033-005	3	0.33	0.8	9.525	3.18	4.6	0.05	-	-0.025	+0.025	☐	☐	☐																																																																																																																																																																																																																																																																																																																																																																																																																																																													

Small diameter internal grooving

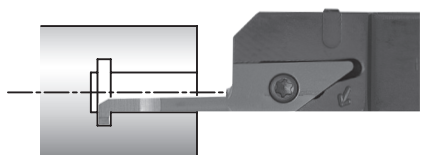
EZ bar and system tip-bars



Type	EZG
Min. bore diameter	ø3~ø8
Edge width (mm)	0.5~2.0
Grooving depth (mm)	1.0~2.0
See Page	G71



EZ bars

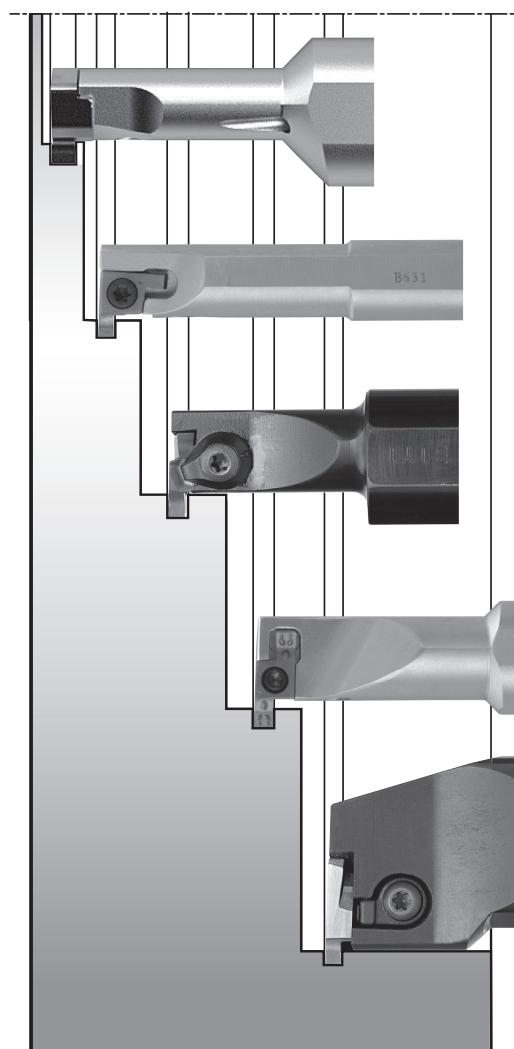


Type	VNG
Min. bore diameter	ø4~ø7
Edge width (mm)	1.0~2.0
Grooving depth (mm)	0.8~2.0
See Page	G73

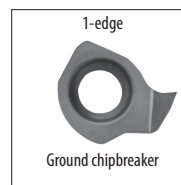


System tip-bars

Internal Grooving ø8~ - shallow grooving



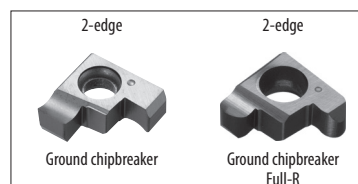
Type	SIGC
Min. bore diameter	ø8~ø12
Edge width (mm)	1.0~3.0
Grooving depth (mm)	1.5~2.2
See Page	G76,G77



1-edge

Ground chipbreaker

Type	SIGE
Min. bore diameter	ø8~ø12
Edge width (mm)	1.0~3.0
Grooving depth (mm)	1.5~2.2
See Page	G81~G83



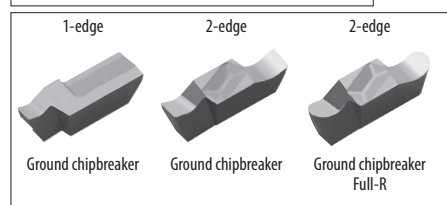
2-edge

Ground chipbreaker

2-edge

Ground chipbreaker Full-R

Type	GIV
Min. bore diameter	ø12~ø40
Edge width (mm)	1.0~5.0
Grooving depth (mm)	1.7~6.3
See Page	G86~G88



1-edge

Ground chipbreaker

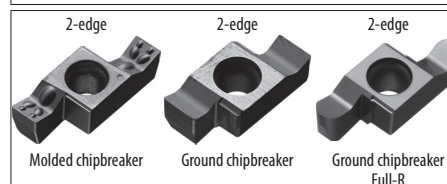
2-edge

Ground chipbreaker

2-edge

Ground chipbreaker Full-R

Type	SIGE
Min. bore diameter	ø14~ø40
Edge width (mm)	1.0~5.0
Grooving depth (mm)	2.5~6.5
See Page	G81~G83



2-edge

Molded chipbreaker

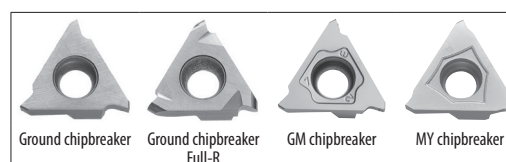
2-edge

Ground chipbreaker

2-edge

Ground chipbreaker Full-R

Type	KIGBA
Min. bore diameter	ø35~ø40
Edge width (mm)	0.33~4.8
Grooving depth (mm)	0.8~2.8
See Page	G89



Ground chipbreaker

Ground chipbreaker Full-R

GM chipbreaker

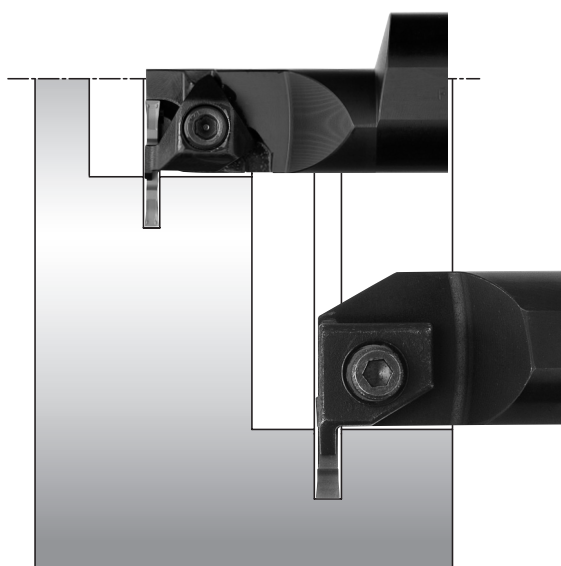
MY chipbreaker

G

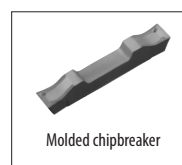


Grooving

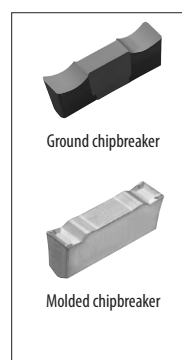
Summary deep grooving



Type	KGIA
Min. bore diameter	ø32~ø66
Edge width (mm)	3.0~5.0
Grooving depth (mm)	10~15
See Page	G97



Type	KIGH
Min. bore diameter	ø45~ø65
Edge width (mm)	4.0~8.0
Grooving depth (mm)	12
See Page	G93

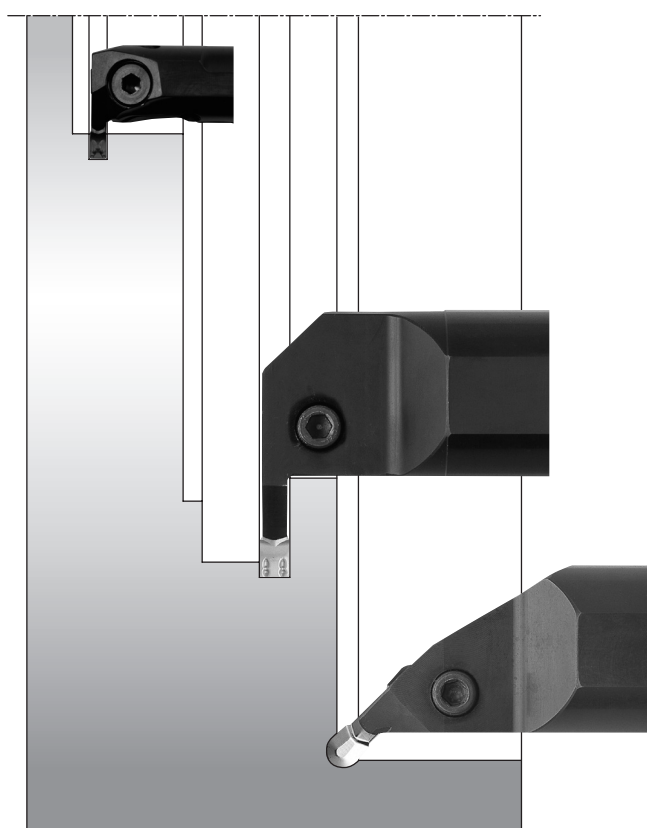


G

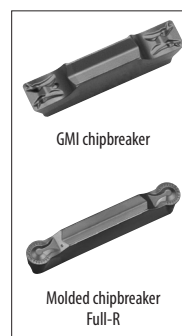


Grooving

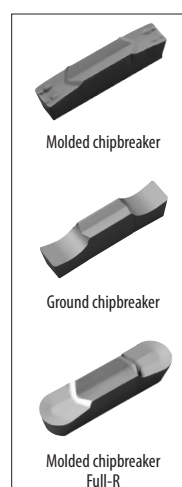
Summary internal grooving & turning ø20~



Type	KGDI
Min. bore diameter	ø18~ø40
Edge width (mm)	2.0~5.0
Grooving depth (mm)	4.5~11.0
See Page	G91



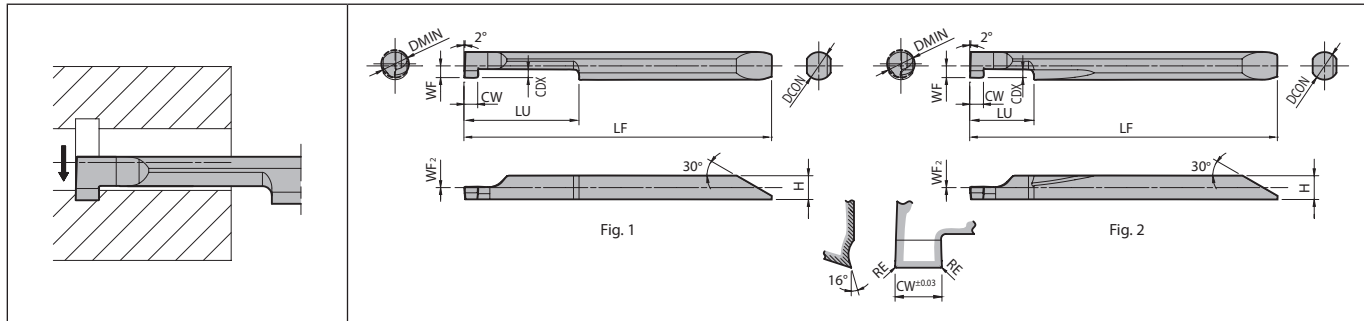
Type	KIGM-8
Min. bore diameter	ø65
Edge width (mm)	8.0
Grooving depth (mm)	20
See Page	G95



Type	KIGMU-8
Min. bore diameter	ø65
Edge width (mm)	8.0
Grooving depth (mm)	2.2
See Page	G95

G70

EZG (Internal grooving)



Right-hand shown

Dimensions

Description	No. of edges	Dimension (mm)										Fig.	Tolerance (mm)				Carbide			Applicable sleeve 🔩 F38~F43
		DMIN	CW	CDX	RE	DCON	H	LF	LU	WF	WF ₂		CW min.	CW max.	RE min.	RE max.	PVD	-		
																	PR1225	GW05		
																	R	L	R	
EZG ^{9/L} 040040-050 040040-100 040040-150 040040-200	1	4	0.5 1 1.5 2	1	0.05	4	3.45	44.7	12	1.7	0	2	-0.03	+0.03	-0.013	+0.013	● ● ● ●	□ □ □ □	● ● ● ●	EZH040...
EZG ^{9/L} 050050-100 050050-150 050050-200	1	5	1 1.5 2	1.5	0.05	5	4.3	52.8	20	2.15	0	1	-0.03	+0.03	-0.013	+0.013	● ● ● ●	□ □ □ □	● ● ● ●	EZH050...
EZG ^{9/L} 060060-100 060060-150 060060-200	1	6	1 1.5 2	2	0.05	6	5.15	60.7	20	2.65	0	1	-0.03	+0.03	-0.013	+0.013	● ● ● ●	□ □ □ □	● ● ● ●	EZH060...
EZG ^{9/L} 070070-100 070070-150 070070-200	1	7	1 1.5 2	2	0.05	7	6.2	63.7	25	3.05	0	1	-0.03	+0.03	-0.013	+0.013	● ● ● ●	□ □ □ □	● ● ● ●	EZH070...
EZG ^{9/L} 080070-100 080070-150 080070-200	1	8	1 1.5 2	2	0.05	7	6.2	63.7	25	3.45	0	1	-0.03	+0.03	-0.013	+0.013	● ● ● ●	□ □ □ □	● ● ● ●	
EZGR 030030-050S 030030-100S	1	3	0.5 1	0.8	0.05	3	2.5	38.7	5	1.25	0	2	-0.03	+0.03	-0.013	+0.013	● ●			EZH030...
EZGR 040040-050S 040040-100S 040040-150S 040040-200S	1	4	0.5 1 1.5 2	1	0.05	4	3.45	44.7	8	1.7	0	2	-0.03	+0.03	-0.013	+0.013	● ● ● ●			EZH040...
EZGR 050050-100S 050050-150S 050050-200S	1	5	1 1.5 2	1.5	0.05	5	4.3	52.8	10	2.15	0	2	-0.03	+0.03	-0.013	+0.013	● ● ● ●			EZH050...
EZGR 060060-100S 060060-150S 060060-200S	1	6	1 1.5 2	2	0.05	6	5.15	60.7	10	2.65	0	2	-0.03	+0.03	-0.013	+0.013	● ● ● ●			EZH060...
EZGR 070070-100S 070070-150S 070070-200S	1	7	1 1.5 2	2	0.05	7	6.2	63.7	10	3.05	0	2	-0.03	+0.03	-0.013	+0.013	● ● ● ●			EZH070...
EZGR 080070-100S 080070-150S 080070-200S	1	8	1 1.5 2	2	0.05	7	6.2	63.7	10	3.45	0	2	-0.03	+0.03	-0.013	+0.013	● ● ● ●			

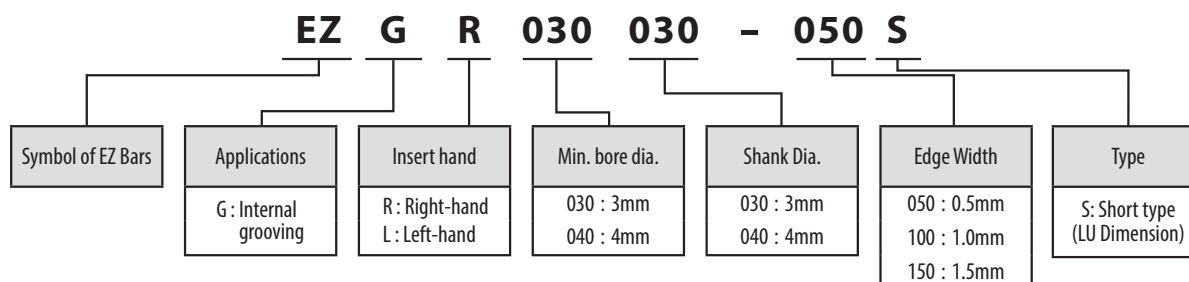
CDX shows available grooving depth.

Recommended cutting conditions G144

● : Standard item □ : Deleted from the next catalog

EZ bars are
sold in 1 piece boxes

EZ Bars Identification System

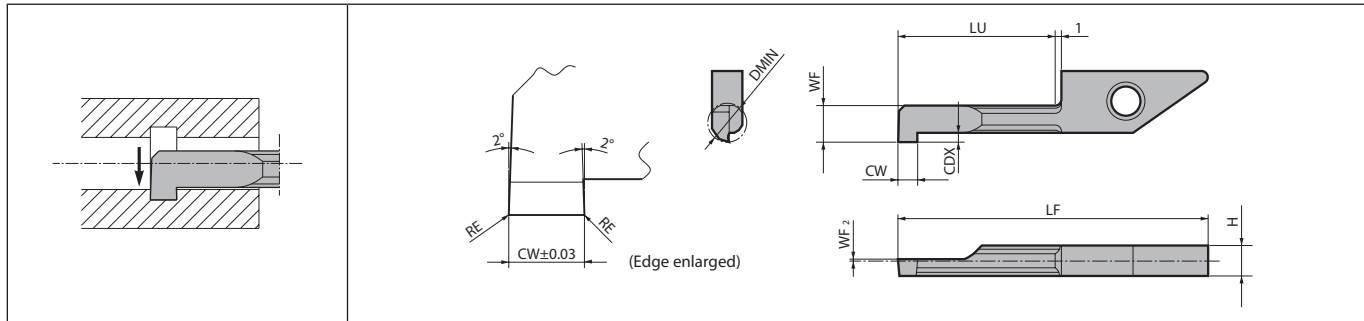


Applicable Sleeves

Sleeve				Applicable Insert for Small Dia. Internal Grooving		Applicable Machine Manufacturer
EZH-CT (Adjustable overhang length with coolant hole) F38, F39	EZH-HP (Adjustable overhang length) F40, F41	EZH-ST F42, F43	Sleeve Shank Dia. DCON(mm)	EZG	Shank Dia. DCON(mm)	
		EZH 03012ST-80	12	EZG_ 030030-...	3	(General purpose)
		04012ST-80		EZG_ 040040-...	4	
		05012ST-80		EZG_ 050050-...	5	
		06012ST-80		EZG_ 060060-...	6	
		07012ST-80		EZG_ 070070-...	7	
		08012ST-80		EZG_ 080070-...	8	
	EZH 03016HP-100	EZH 03016ST-100	16	EZG_ 030030-...	3	(General purpose)
	04016HP-100	04016ST-100		EZG_ 040040-...	4	
	05016HP-100	05016ST-100		EZG_ 050050-...	5	
	06016HP-100	06016ST-100		EZG_ 060060-...	6	
	07016HP-100	07016ST-100		EZG_ 070070-...	7	
	08016HP-100	08016ST-100		EZG_ 080070-...	8	
EZH 03019CT-120	EZH 03019HP-120	EZH 03019ST-120	19.05	EZG_ 030030-...	3	Citizen Machinery
04019CT-120	04019HP-120	04019ST-120		EZG_ 040040-...	4	
05019CT-120	05019HP-120	05019ST-120		EZG_ 050050-...	5	
06019CT-120	06019HP-120	06019ST-120		EZG_ 060060-...	6	
07019CT-120	07019HP-120	07019ST-120		EZG_ 070070-...	7	
08019CT-120	08019HP-120	08019ST-120		EZG_ 080070-...	8	
EZH 03020CT-120	EZH 03020HP-120	EZH 03020ST-120	20	EZG_ 030030-...	3	Eguro Tsumami Citizen Machinery (General purpose)
04020CT-120	04020HP-120	04020ST-120		EZG_ 040040-...	4	
05020CT-120	05020HP-120	05020ST-120		EZG_ 050050-...	5	
06020CT-120	06020HP-120	06020ST-120		EZG_ 060060-...	6	
07020CT-120	07020HP-120	07020ST-120		EZG_ 070070-...	7	
08020CT-120	08020HP-120	08020ST-120		EZG_ 080070-...	8	
EZH 03022CT-135	EZH 03022HP-135	EZH 03022ST-135	22	EZG_ 030030-...	3	Star Micronics Nomura DS Tsumami
04022CT-135	04022HP-135	04022ST-135		EZG_ 040040-...	4	
05022CT-135	05022HP-135	05022ST-135		EZG_ 050050-...	5	
06022CT-135	06022HP-135	06022ST-135		EZG_ 060060-...	6	
07022CT-135	07022HP-135	07022ST-135		EZG_ 070070-...	7	
08022CT-135	08022HP-135	08022ST-135		EZG_ 080070-...	8	
EZH 03025.0CT-135	EZH 03025.0HP-135	EZH 03025.0ST-135	25	EZG_ 030030-...	3	Eguro Tsumami Citizen Machinery (General purpose)
04025.0CT-135	04025.0HP-135	04025.0ST-135		EZG_ 040040-...	4	
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZG_ 050050-...	5	
06025.0CT-135	06025.0HP-135	06025.0ST-135		EZG_ 060060-...	6	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZG_ 070070-...	7	
08025.0CT-135	08025.0HP-135	08025.0ST-135		EZG_ 080070-...	8	
EZH 03025.4CT-120	EZH 03025.4HP-120	EZH 03025.4ST-120	25.4	EZG_ 030030-...	3	Citizen Machinery
04025.4CT-120	04025.4HP-120	04025.4ST-120		EZG_ 040040-...	4	
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZG_ 050050-...	5	
06025.4CT-120	06025.4HP-120	06025.4ST-120		EZG_ 060060-...	6	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZG_ 070070-...	7	
08025.4CT-120	08025.4HP-120	08025.4ST-120		EZG_ 080070-...	8	

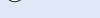
- Choose sleeves (DCB) to meet with DCON dimension of Internal Grooving Inserts.
- Adjustment Pin cannot be installed to **EZH-ST** sleeves.
- To adjust overhang of the bar, please use **EZH-CT** / **HP** Sleeves.
- Machine manufacturers in random order.

VNG



Right-hand shown

Dimensions

Description	No. of edges	Dimension (mm)										Tolerance (mm)		Carbide		Applicable toolholder 
		DMIN	CW	CDX	RE	H	LF	LU	WF	WF ₂	CW min.	CW max.	PR1225	PR930	KW10	
VNGR 0410-11 0420-11	1	4	1 2	0.8	0.05	3.9	30.8	11	3.5	0.1	-0.03	+0.03	●	●	●	SVNR....-12N SVNSR....-12-..N S...-SVNR12N S...-SVNR12SN
VNGR 0510-11 0520-11	1	5	1 2	1	0.05	3.9	30.8	11	4.4	0.1	-0.03	+0.03	●	●	●	
VNGR 0610-20 0620-20	1	6	1 2	1.8	0.05	3.9	39.8	20	5.2	0.3	-0.03	+0.03	●	●	●	
VNGR 0710-20 0720-20	1	7	1 2	2	0.05	3.9	39.8	20	6.2	0.3	-0.03	+0.03	●	●	●	

CDX shows available grooving depth.

WF₂ indicates the cutting edge is above the Tool's Center Position.

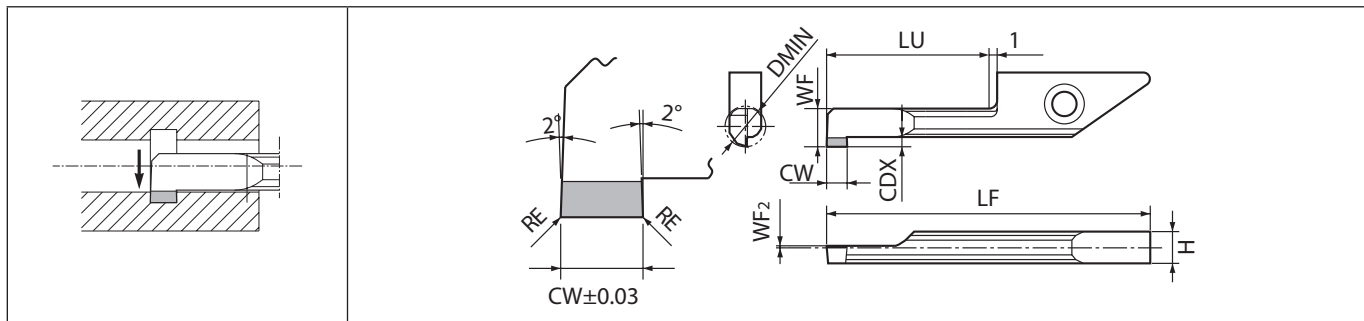
Recommended cutting conditions G144

G



Grooving

VNG



Right-hand shown

Dimensions

Description	No. of edges	Dimension (mm)										Tolerance (mm)		PCD	Applicable toolholder 
		DMIN	CW	CDX	RE	H	LF	LU	WF	WF ₂	CW min.	CW max.	KPD001		
VNGR 0410-11NB 0420-11NB	1	4	1 2	0.8	0.05	3.9	30.8	11	3.5	0.1	-0.03	+0.03	MT0 MT0	SVNR...-12N SVNSR...-12-..N S...-SVNR12N S...-SVNR12SN	
VNGR 0510-11NB 0520-11NB	1	5	1 2	1	0.05	3.9	30.8	11	4.4	0.1	-0.03	+0.03	MT0 MT0		
VNGR 0610-20NB 0620-20NB	1	6	1 2	1.8	0.05	3.9	39.8	20	5.2	0.3	-0.03	+0.03	MT0 MT0		
VNGR 0710-20NB 0720-20NB	1	7	1 2	2	0.05	3.9	39.8	20	6.2	0.3	-0.03	+0.03	MT0 MT0		

CDX shows available grooving depth.

WF₂ indicates the cutting edge is above the Tool's Center Position.

● : Standard item MT0 : Made to order

System tip-bars are sold in 5 piece boxes

G73

SIGC

Newly developed clamping system ensures a firm insert hold to provide high-precision machining. Excellent chip evacuation with double coolant holes and optimized flute shape with a $\varnothing 8$ mm minimum cutting diameter.

1 Firm insert clamping system provides high-precision machining

Firm clamping action by pulling the bottom surface of the insert in axial direction
Precise machining is achieved by ensuring a firm clamp on the insert

G



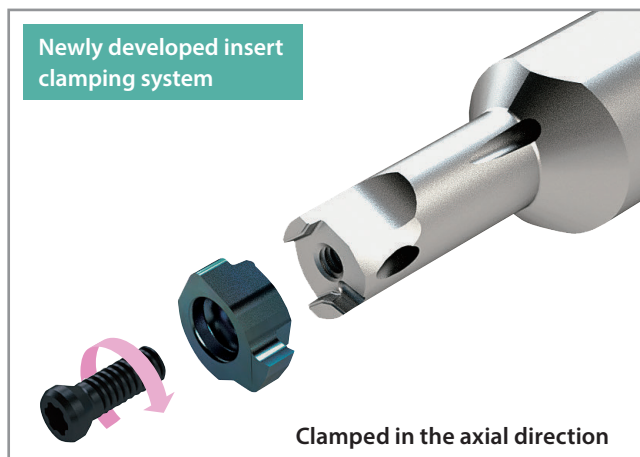
Grooving

External

Internal

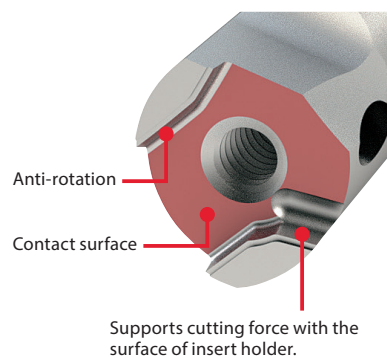
Face

Newly developed insert clamping system

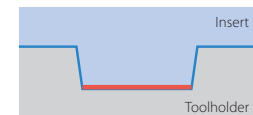


Clamping part (image)

Firm clamping is available due to large contact surface

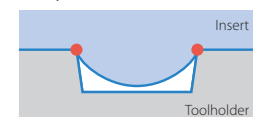


SIGC



Bottom surface contact

Competitor A



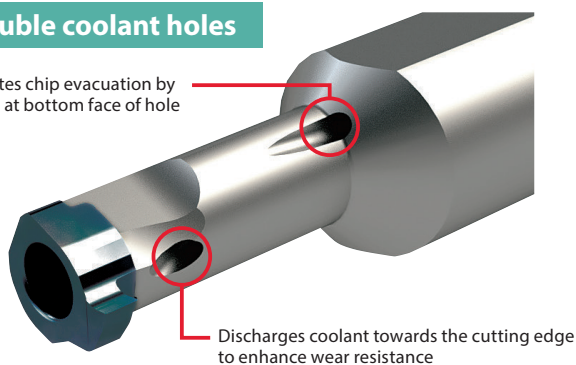
Point contact

2 Excellent chip evacuation

Excellent chip evacuation with double coolant holes and optimized flute shape

Double coolant holes

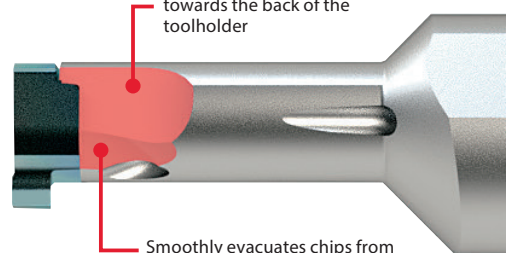
Promotes chip evacuation by aiming at bottom face of hole



Flute shape

Smoothly evacuates chips towards the back of the toolholder

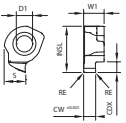
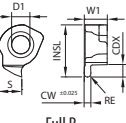
Smoothly evacuates chips from the cutting edge



Provides a better solution when facing chip evacuation difficulties in small internal grooving.
Prevents chip crunching.

G74

GC

		Carbon steel / Alloy steel										☺	☹	P	
		Stainless steel										☹	☺	M	
		Cast iron												K	
		Non-ferrous metals												N	
		Titanium alloy												S	
		Hard materials (~ 40HRC)												H	
		Hard materials (40HRC ~)													
Insert		Description	No. of edges	Dimension (mm)							Tolerance (mm)		Carbide	Applicable toolholder ➡ G76,G77	
				CW	CDX	S	D1	RE	INSL	W1	CW min.	CW max.	PVD		
													PR1535		PR1725
		GC08R	100-005	1	1.5	3.5	2.7	0.05	7.7	3.4	- 0.025	+ 0.025	●	●	SIGCR08...
			120-005	1.2				0.05					●	●	
			125-005	1.25				0.05					●	●	
			150-010	1.5				0.1					●	●	
			200-010	2				0.1					●	●	
		GC08L	100-005	1	1.5	3.5	2.7	0.05	7.7	3.4	- 0.025	+ 0.025	●	●	SIGCL08...
			120-005	1.2				0.05					●	●	
			125-005	1.25				0.05					●	●	
			150-010	1.5				0.1					●	●	
			200-010	2				0.1					●	●	
		GC10R	100-005	1	2.2	4.4	3.5	0.05	9.6	4.7	- 0.025	+ 0.025	●	●	SIGCR10...
			120-005	1.2				0.05					●	●	
			125-005	1.25				0.05					●	●	
			145-010	1.45				0.1					●	●	
			150-010	1.5				0.1					●	●	
			200-010	2				0.1					●	●	
			250-020	2.5				0.2					●	●	
		GC10L	100-005	1	2.2	4.4	3.5	0.05	9.6	4.7	- 0.025	+ 0.025	●	●	SIGCL10...
			120-005	1.2				0.05					●	●	
			125-005	1.25				0.05					●	●	
			145-010	1.45				0.1					●	●	
			150-010	1.5				0.1					●	●	
			200-010	2				0.1					●	●	
			250-020	2.5				0.2					●	●	
		GC12R	100-005	1	2.2	5.4	3.5	0.05	11.6	4.7	- 0.025	+ 0.025	●	●	SIGCR12...
			120-005	1.2				0.05					●	●	
			125-005	1.25				0.05					●	●	
			145-010	1.45				0.1					●	●	
150-010	1.5		0.1	●				●							
200-010	2		0.1	●				●							
250-020	2.5		0.2	●				●							
GC12L	100-005	1	2.2	5.4	3.5	0.05	11.6	4.7	- 0.025	+ 0.025	●	●	SIGCL12...		
	120-005	1.2				0.05					●	●			
	125-005	1.25				0.05					●	●			
	145-010	1.45				0.1					●	●			
	150-010	1.5				0.1					●	●			
	200-010	2				0.1					●	●			
	250-020	2.5				0.2					●	●			
		GC08R	100-050R	1	1	1.5	0.5	7.7	3.4	- 0.025	+ 0.025	●	●	SIGCR08...	
			200-100R	2		1					●	●			
		GC10R	100-050R	1	1	2.2	0.5	9.6	4.7	- 0.025	+ 0.025	●	●	SIGCR10...	
			200-100R	2		1					●	●			
		GC12R	100-050R	1	1	2.2	0.5	11.6	4.7	- 0.025	+ 0.025	●	●	SIGCR12...	
			200-100R	2		1					●	●			

Right-hand shown
CDX shows available grooving depth.

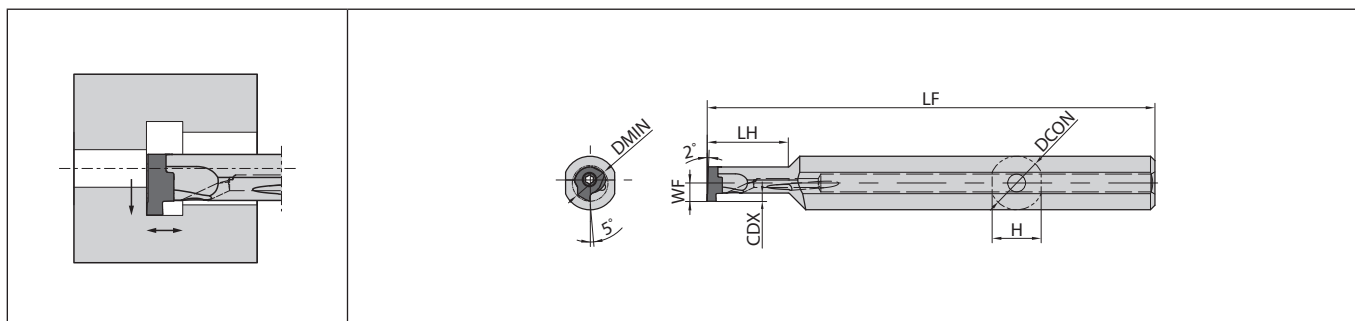
Recommended cutting conditions  G144

● : Standard item

GC type inserts are
sold in 5 piece boxes

G75

SIGC Excellent bar (Internal grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability		Dimension (mm)								Coolant hole	Spare parts		Applicable inserts  G75
												Screw	Wrench	
	R	L	DMIN	DCON	CDX	H	LH	LF	WF					
SIGC%L 0812-EH	●	●	8	12	1.5	11	18	100	4.1	Yes	SB-2270T%L	FT-7	GC08%L...	
SIGC%L 1016-EH	●	●	10	16	2.2	15	21	100	5	Yes	SB-3070T%L	FT-8	GC10%L...	
SIGC%L 1216-EH	●	●	12	16	2.2	15	25	110	6	Yes	SB-3070T%L	FT-8	GC12%L...	

Setting the insert

Use compressed air or other measures to remove chips from the insert pocket.

Mount the insert into the toolholder ensure the bottom makes contact with the end of the toolholder's surface.

Keeping the insert seated, tighten the insert clamp screw at an appropriate torque.

Recommended tightening torque : 0.8 N·m (SB-2270T⁹/L), 1.2 N·m (SB-3070T⁹/L)

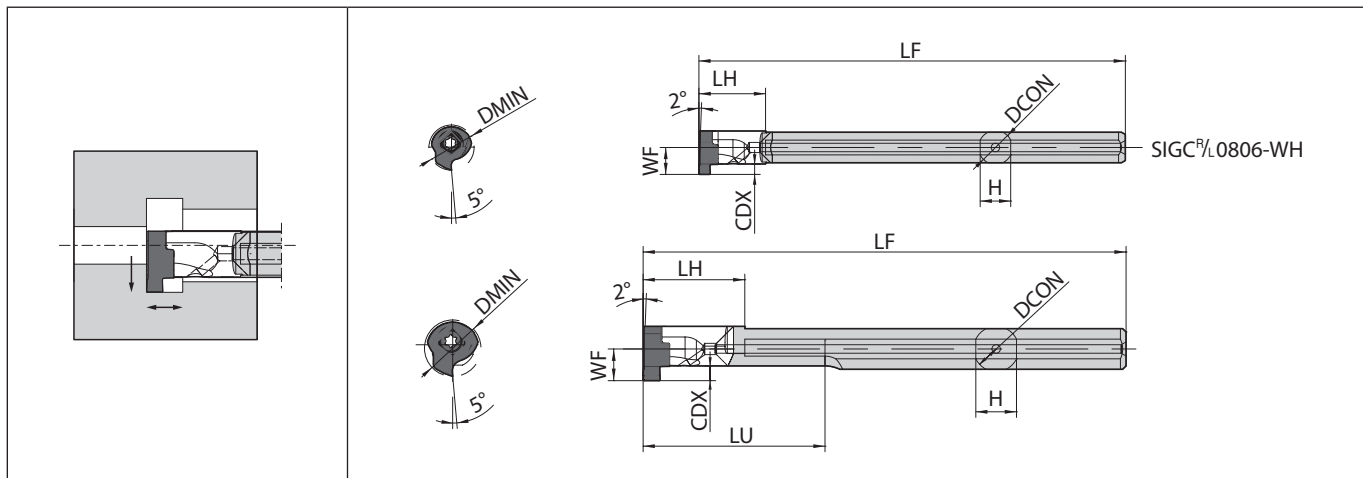
L-hand clamp screw for L-hand toolholder

GC**R***	GC**L***
Right-hand screw	Left-hand screw
Toolholder : SIGCR..... Clamp Screw : SB-....TR	Toolholder : SIGCL..... Clamp Screw : SB-....TL

● : Standard item

G76

SIGC Carbide shank bar (Internal grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability	Dimension (mm)										Coolant hole	Spare parts		Applicable inserts ➔ G75
													Screw	Wrench	
SIGC®/L 0806-WH	●	●	8	6	1.5	5.4	12	75	-	4.8	Yes	SB-2270T®/L	FT-7		GC08®/L...
SIGC®/L 1008-WH-L85	●	●	10	8	2.2	7.2	18	85	32	5.6	Yes	SB-3070T®/L	FT-8		GC10®/L...
1008-WH-L100	●	●						100	45			SB-3070TR			
SIGC®/L 1210-WH-L95	●	●	12	10	2.2	9.2	18	95	32	6.6	Yes	SB-3070T®/L	FT-8		GC12®/L...
1210-WH-L110	●	●						110	45						

Setting the insert

Use compressed air or other measures to remove chips from the insert pocket.

Mount the insert into the toolholder ensure the bottom makes contact with the end of the toolholder's surface.

Keeping the insert seated, tighten the insert clamp screw at an appropriate torque.

Recommended tightening torque : 0.8 N·m (SB-2270T®/L), 1.2 N·m (SB-3070T®/L)

L-hand clamp screw for L-hand toolholder

GC**R***	GC**L***
Right-hand screw	Left-hand screw
Toolholder : SIGCR..... Clamp Screw : SB-....TR	Toolholder : SIGCL..... Clamp Screw : SB-....TL

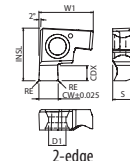
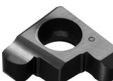
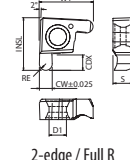
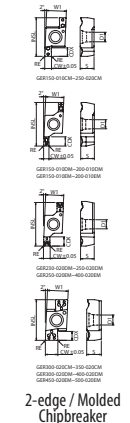
Applicable Sleeves

Shank Size (Hole Dia.: mm)	06 (6 mm)	08 (8 mm)	10 (10 mm)	12 (12 mm)	16 (16 mm)
Toolholder Description	SIGC®/L 0806-WH	SIGC®/L 1008-WH-L85 SIGCR 1008-WH-L100	SIGCR 1210-WH-L95 SIGC®/L 1210-WH-L110	SIGC®/L 0812-EH	SIGC®/L 1016-EH SIGC®/L 1216-EH
SH Sleeves (For Boring Bars)	SH 06...	SH 08...	SH 10...	SH 12...	SH 16...
SHC Sleeves (Coolant Sleeve)	—	SHC 08...	SHC 10...	SHC 12...	SHC 16...
SHA Sleeves	—	SHA 08...	SHA 10...	SHA 12...	—
EZH Sleeves (For EZ Bars)	EZH 06...ST/CT/HP...	EZH 08...ST/CT/HP...	—	—	—

* Remove the positioning pin when mounting SIGC to the EZH-CT/HP Sleeve
Positioning function is not available

● : Standard item

GE

			Carbon steel / Alloy steel										P			
			Stainless steel										M			
			Cast iron										K			
			Non-ferrous metals										N			
			Titanium alloy										S			
			Hard materials (~ 40HRC)										H			
			Hard materials (40HRC ~)													
Insert		Description	No. of edges	Dimension (mm)							Tolerance (mm)		Carbide			Applicable toolholder ➡ G81~G83
				CW	CDX	S	D1	RE	INSL	W1	CW min.	CW max.	PVD	-	-	
													PR1025	PR1225	KW10	
		GER	100-005A	1	1.5	2.58	2.5	0.05	6.5	6.69	-0.025	+0.025	☐	☒	☒	SIGER0808A-EH SIGER0808A-WH
			120-005A	1.2									☐	☒	☒	
			125-005A	1.25									☐	☒	☒	
			150-010A	1.5									☐	☒	☒	
			200-010A	2									☐	☒	☒	
		GEL	100-005A	1	☒	☒	☒	SIGEL0808A-EH SIGEL0808A-WH								
			120-005A	1.2	☒	☒	☒									
			125-005A	1.25	☒	☒	☒									
			150-010A	1.5	☒	☒	☒									
			200-010A	2	☒	☒	☒									
		GER	100-005B	1	2.2	3.18	2.7	0.05	8.2	8.46	-0.025	+0.025	☐	☒	☒	SIGER....B-EH SIGER....B-WH SIGER....B-WH-90
			120-005B	1.2									☐	☒	☒	
125-005B	1.25		☐	☒									☒			
145-010B	1.45		☐	☒									☒			
150-010B	1.5		☐	☒									☒			
GEL	100-005B	1	☒	☒	☒	SIGEL....B-EH SIGEL....B-WH										
	120-005B	1.2	☒	☒	☒											
	125-005B	1.25	☒	☒	☒											
	145-010B	1.45	☒	☒	☒											
	150-010B	1.5	☒	☒	☒											
		GER	100-050AR	1	1.5	2.58	2.5	0.5	6.5	6.69	-0.025	+0.025	☐	☒	☒	SIGER0808A-EH SIGER0808A-WH
			200-100AR	2									☐	☒	☒	
		GER	100-050BR	1	☐	☒	☒	SIGER....B-EH SIGER....B-WH SIGER....B-WH-90								
			200-100BR	2	☐	☒	☒									
		GER	150-010CM	1.5	2.5	4.05	2.8	0.1	11.48	5.8	-0.05	+0.05	☐	☒	☒	SIGER....C-EH SIGER....C-WH SIGER....C-WH-90
			200-010CM	2									☐	☒	☒	
			250-020CM	2.5									☐	☒	☒	
			300-020CM	3									☐	☒	☒	
			350-020CM	3.5									☐	☒	☒	
		GER	150-010DM	1.5	3	5.05	3.4	0.1	16.44	6.8	-0.05	+0.05	☐	☒	☒	SIGER2020D-EH
			200-010DM	2	3.2								☐	☒	☒	
			230-020DM	2.3	3.2								☐	☒	☒	
			250-020DM	2.5	3.2								☐	☒	☒	
			300-020DM	3	4.5								☐	☒	☒	
			350-020DM	3.5	4.5								☐	☒	☒	
			400-020DM	4	4.5								☐	☒	☒	

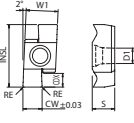
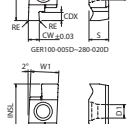
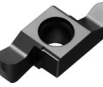
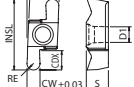
Right-hand shown
CDX shows available grooving depth.

Recommended cutting conditions  G145

● : Standard item □ : Deleted from the next catalog

G78

GE

			Carbon steel / Alloy steel										☺			○			P
			Stainless steel										☺			●			M
			Cast iron													☺			K
			Non-ferrous metals													☺			N
			Titanium alloy													☺			S
			Hard materials (~ 40HRC)										○			●			H
			Hard materials (40HRC ~)																
Insert		Description	No. of edges	Dimension (mm)							Tolerance (mm)		Carbide			Cermat	Applicable toolholder ➔ G81~G83		
				CW	CDX	S	D1	RE	INSL	W1	CW min.	CW max.	PVD	-	-				
																		PR1025	PR1225
		GER	100-005C	2	1	2.5	4.05	3.1	0.05	11.48	5.8	-0.03	+0.03	☐	●	●	SIGER....C-EH SIGER....C-WH SIGER....C-WH-90		
		120-005C	1.2		0.05				☐					●	●				
		125-005C	1.25		0.05				☐					●	●				
		140-005C	1.4		0.05				☐					●	●				
		145-010C	1.45		0.1				☐					●	●				
		150-010C	1.5		0.1				☐					●	●				
		170-010C	1.7		0.1				☐					●	●				
		185-010C	1.85		0.1				☐					●	●				
		195-010C	1.95		0.1				☐					●	●				
		200-010C	2		0.1				☐					●	●				
		250-020C	2.5		0.2				☐					●	●				
		300-020C	3		0.2				☐					●	●				
		350-020C	3.5		0.2				☐					●	●				
		GEL	100-005C		1				0.05					☐	●	●		SIGEL....C-EH SIGEL....C-WH	
120-005C	1.2	0.05	☐	●	●														
125-005C	1.25	0.05	☐	●	●														
145-010C	1.45	0.1	☐	●	●														
150-010C	1.5	0.1	☐	●	●														
200-010C	2	0.1	☐	●	●														
250-020C	2.5	0.2	☐	●	●														
300-020C	3	0.2	☐	●	●														
350-020C	3.5	0.2	☐	●	●														
		GER	100-005D	2	1	2.5	5.05	3.6	0.05	16.44	6.8	-0.03	+0.03	☐	●	●	SIGER2020D-EH		
		140-005D	1.4		2.5	0.05			☐					●	●				
		145-010D	1.45		2.5	0.1			☐					●	●				
		150-010D	1.5		3	0.1			☐					●	●				
		170-010D	1.7		3	0.1			☐					●	●				
		185-010D	1.85		3	0.1			☐					●	●				
		195-010D	1.95		3	0.1			☐					●	●				
		200-010D	2		3.2	0.1			☐					●	●				
		225-010D	2.25		3.2	0.1			☐					●	●				
		230-020D	2.3		3.2	0.2			☐					●	●				
		250-020D	2.5		3.2	0.2			☐					●	●				
		280-020D	2.8		3.2	0.2			☐					●	●				
		300-020D	3		4.5	0.2			☐					●	●				
		330-020D	3.3		4.5	0.2			☐					●	●				
350-020D	3.5	4.5	0.2	☐	●	●													
400-020D	4	4.5	0.2	☐	●	●													
GEL	100-005D	1	2.5	0.05	☐	●	●	SIGEL2020D-EH											
140-005D	1.4	2.5	0.05	☐	●	●													
145-010D	1.45	2.5	0.1	☐	●	●													
150-010D	1.5	3	0.1	☐	●	●													
170-010D	1.7	3	0.1	☐	●	●													
200-010D	2	3.2	0.1	☐	●	●													
225-010D	2.25	3.2	0.1	☐	●	●													
230-020D	2.3	3.2	0.2	☐	●	●													
250-020D	2.5	3.2	0.2	☐	●	●													
300-020D	3	4.5	0.2	☐	●	●													
400-020D	4	4.5	0.2	☐	●	●													
		GER	200-100CR	2	2	2.5	4.05		3.1	1	11.48	5.8	-0.03	+0.03	☐	●	●	SIGER....C-EH SIGER....C-WH(-)	
		250-125CR	2.5		1.25					☐					●	●			
		300-150CR	3		1.5					☐					●	●			
		GER	200-100DR	2	2	3.2	5.05	3.6	1	16.44	6.8	-0.03	+0.03	☐	●	●	SIGER2020D-EH		
		300-150DR	3		4.5	1.5			☐					●	●				

Right-hand shown
CDX shows available grooving depth.

Recommended cutting conditions ➔ G145

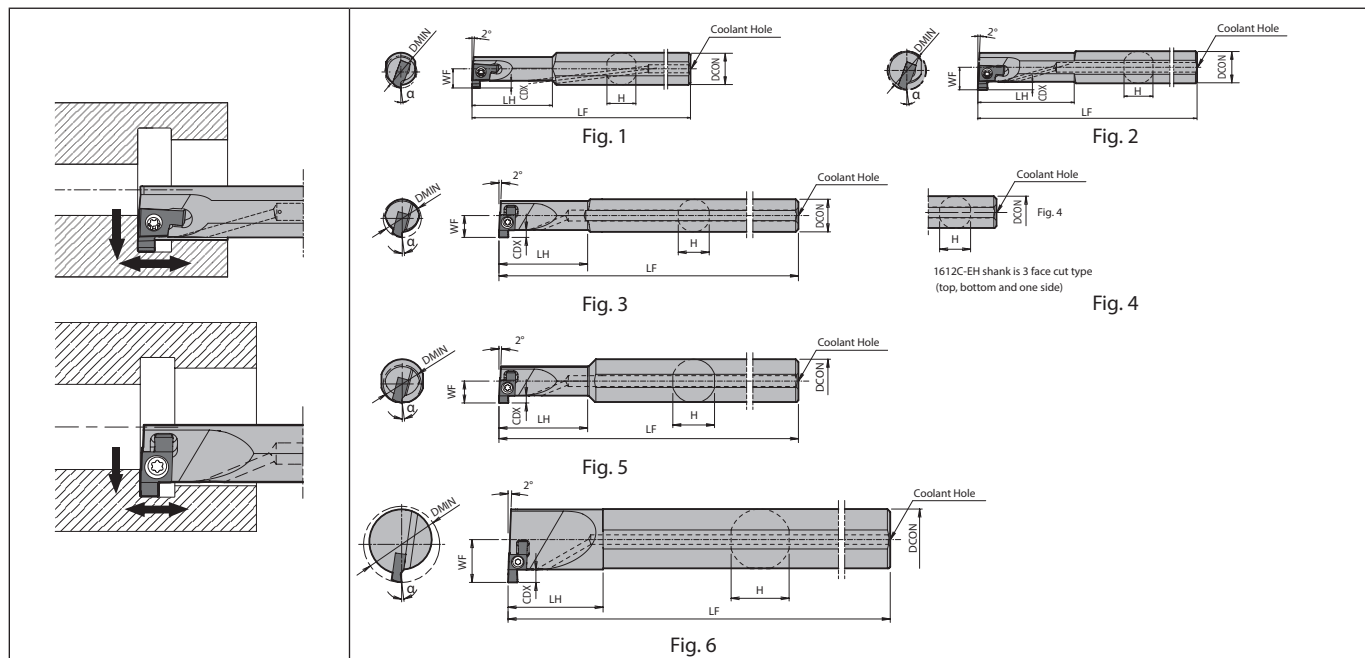
● : Standard item ☐ : Deleted from the next catalog



GE/GER

		Carbon steel / Alloy steel																P								
		Stainless steel																M								
		Cast iron																K								
		Non-ferrous metals																N								
		Titanium alloy																S								
		Hard materials (~ 40HRC)																H								
		Hard materials (40HRC ~)																								
Insert		Description	No. of edges	Dimension (mm)						Tolerance (mm)		Carbide			Cermat	Applicable toolholder G81										
				CW	CDX	S	D1	RE	INSL	W1	CW min.	CW max.	PVD	-			-									
													PRI025	PRI225			GW15	TN6020								
	2-edge / Molded Chipbreaker	GER 150-010EM	2	1.5	3	5.55	4.4	0.1	21.66	9.54	- 0.05	+ 0.05				SIGER....E-EH										
		GER 200-010EM		2	3.2								0.1													
		GER 250-020EM		2.5	4.5								0.2													
		GER 300-020EM		3	4.5								0.2													
		GER 350-020EM		3.5	5.5								0.2													
		GER 400-020EM		4	5.5								0.2													
		GER 450-020EM		4.5	6.5								0.2													
		GER 500-020EM		5	6.5								0.2													
	2-edge	GER 100-005E	2	1	2.5	5.55	4.6	0.05	21.66	9.54	- 0.03	+ 0.03				SIGER....E-EH										
		GER 150-010E		1.5	3								0.1													
		GER 170-010E		1.7	3								0.1													
		GER 185-010E		1.85	3								0.1													
		GER 195-010E		1.95	3								0.1													
		GER 200-010E		2	3.2								0.1													
		GER 225-010E		2.25	3.2								0.1													
		GER 230-020E		2.3	3.2								0.2													
		GER 250-020E		2.5	4.5								0.2													
		GER 275-020E		2.75	4.5								0.2													
		GER 280-020E		2.8	4.5								0.2													
		GER 300-020E		3	4.5								0.2													
		GER 330-020E		3.3	4.5								0.2													
		GER 350-020E		3.5	5.5								0.2													
		GER 400-020E		4	5.5								0.2													
		GER 430-020E		4.3	5.5								0.2													
		GER 450-020E		4.5	6.5								0.2													
		GER 460-020E		4.6	6.5								0.2													
		GER 500-020E		5	6.5								0.2													
		GEL 100-005E		GEL	100-005E								1	2.5	5.55	4.6	0.05	21.66	9.54	- 0.03	+ 0.03				SIGEL....E-EH	
					150-010E								1.5	3								0.1				
					170-010E								1.7	3								0.1				
					185-010E								1.85	3								0.1				
					195-010E								1.95	3								0.1				
					200-010E								2	3.2								0.1				
					230-020E								2.3	3.2								0.2				
					250-020E								2.5	4.5								0.2				
					280-020E								2.8	4.5								0.2				
300-020E	3		4.5		0.2																					
330-020E	3.3		4.5		0.2																					
350-020E	3.5		5.5		0.2																					
400-020E	4		5.5		0.2																					
500-020E	5		6.5		0.2																					

SIGE Excellent bar (Internal grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability		Dimension (mm)								Coolant hole	Fig.	Spare parts				Applicable inserts ➡ G78~G80	
													Screw	Wrench	Wrench	Wrench		
	R	L	DMIN	DCON	CDX	H	LH	LF	WF									
SIGE%L 0808A-EH	●	●	8	8	1.5	7.2	20	100	4.8	Yes	1	SB-2045TRN	-	-	FT-6	GE%...A / AR		
SIGE%L 1010B-EH	●	●	10	10	2.2	9	25	125	6.2	Yes	1	SB-2255TR	-	DT-7	-	GE%...B GE%...BR		
1210B-EH	●	●	12						7		2							
SIGE%L 1412C-EH	●	●	14	12	2.5	11.4	33	150	8	Yes	3	SB-2570TR	-	-	FT-8	GE%...C GE%...CM GE%...CR		
1612C-EH	●	●	16						8.5		4							
1616C-EH	●	●		9	5													
SIGE%L 2020D-EH	●	●	20	20	4.5	19	40	180	12.1	Yes	5	SB-3080TR	-	-	FT-10	GE%...D / DM / DR		
SIGE%L 2525E-EH	●	●	25	25	6.5	24	45	200	15.6	Yes	5	SB-4085TR	FT-15	-	-	GE%...E GE%...EM		
3232E-EH	●	●	32	32					55		220						19	5
4032E-EH	●	●	40	32					30.4		45						250	23

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : „CDX“ of Insert.

Applicable sleeve ➡ F149, F150

Features

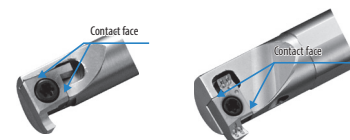
Large chip pocket screw clamp toolholder design enables excellent chip evacuation



Cost effective chip control from a molded chipbreaker



Cutting edge is free from contact face

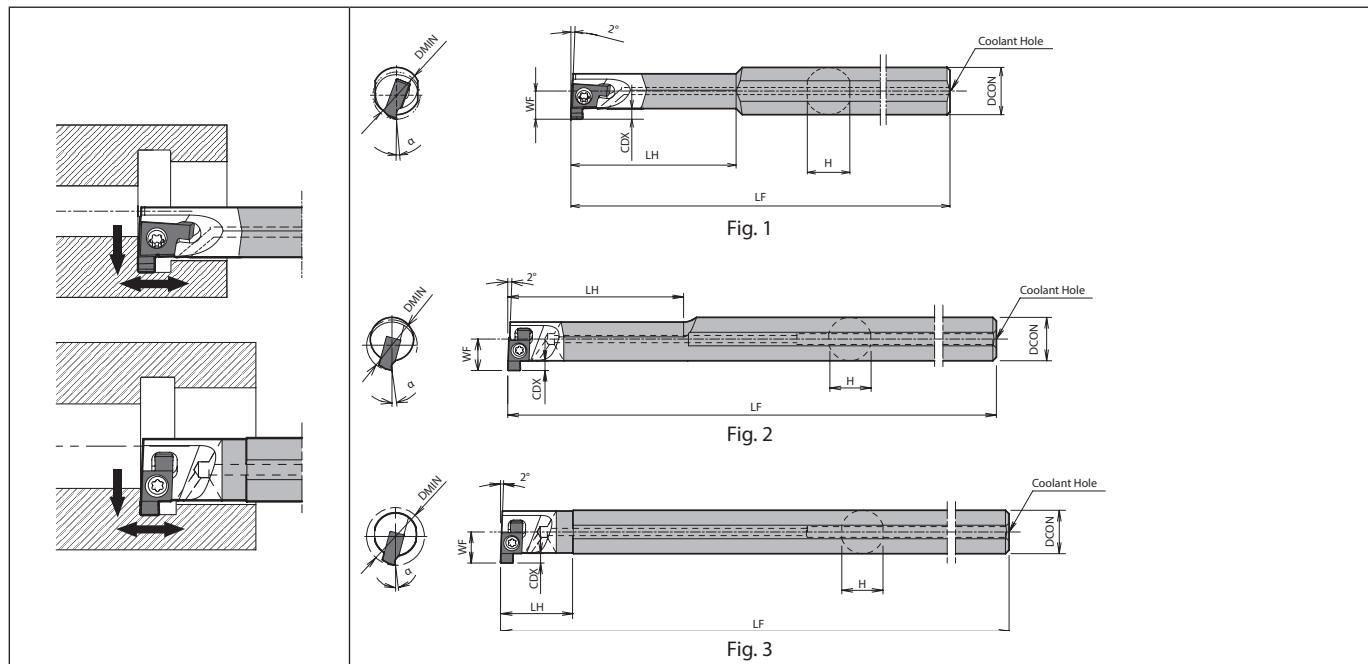


An 8mm minimum bore diameter with a 2-edge design

● : Standard item

G81

SIGE Carbide shank bar (Internal grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

G



Grooving

Toolholder dimensions

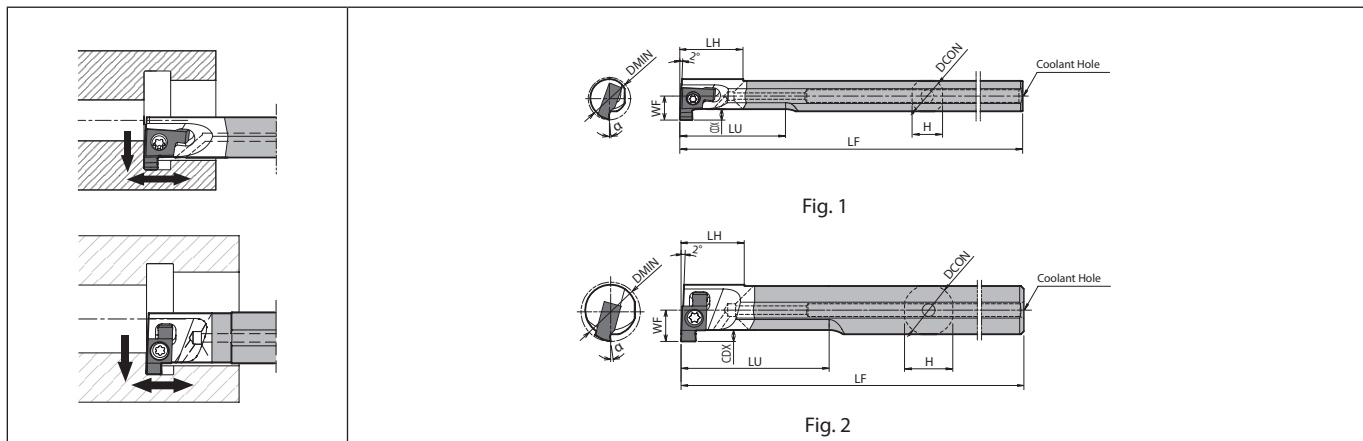
Description	Availability		Dimension (mm)							Coolant hole	Fig.	Spare parts			Applicable inserts ➡ G78,G79
												Screw	Wrench	Wrench	
	R	L	DMIN	DCON	CDX	H	LH	LF	WF						
SIGE%L 0808A-WH	●	●	8	8	1.5	7.2	28	125	4.8	Yes	1	SB-2045TRN	-	FT-6	GE%L...A / AR
SIGE%L 1010B-WH 1210B-WH	●	●	10	10	2.2	9	35	125	6.2	Yes	1	SB-2255TR	DT-7	-	GE%L...B GE%L...BR
	●	●	12												
SIGE%L 1412C-WH 1612C-WH	●	●	14	12	2.5	11.4	50	150	8.7	Yes	2 3	SB-2570TR	-	FT-8	GE%L...C GE%L...CM GE%L...CR
	●	●	16												

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : „CDX“ of Insert.

Applicable sleeve F149, F150

● : Standard item

G82

SIGE Carbide shank bar (Internal grooving / for automatic lathe)

Right-hand shown | Right-hand Insert for Right-hand Toolholder.

Toolholder dimensions

Description		Availability	Dimension (mm)								Coolant hole	Fig.	Spare parts		Applicable inserts  G78,G79
													Screw	Wrench	
			R	DMIN	DCON	CDX	H	LH	LF	LU			WF		
SIGER	1008B-WH-90	●	10	8	7.2	15	90	25	5.6	Yes	1	SB-2255TR	FT-7	GE®/...B GE®/...BR	
	1210B-WH-90	●	12	10	9.4			30	6.6						
SIGER	1412C-WH-90	●	14	12	2.5	11.4	15	90	35	7.4	Yes	2	SB-2570TR	FT-8	GE®/...C / CM / CR

CDX shows the distance from the toolholder to the cutting edge.

LH shows minimum overhang length.

Applicable sleeve ➔ **F149, F150**

Grooving

Applicable Insert & Rake Angle (α) after Installment of Insert

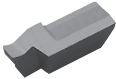
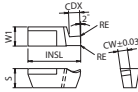
Toolholder Description	Applicable Insert & Rake Angle (α) after Installment of Insert			
	Ground Chipbreaker	α	Molded Chipbreaker	α
SIGE [®] /L 0808A-EH 1010B-EH 1210B-EH 1412C-EH 1612C-EH 1616C-EH 2020D-EH 2525E-EH 3232E-EH 4032E-EH	GE [®] /L 100-005A~GE [®] /L 200-010A GER100-050AR~GER200-100AR	5°	-	-
	GE [®] /L 100-005B~GE [®] /L 300-020B GER100-050BR~GER200-100BR	5°	-	-
	GE [®] /L 100-005C~GE [®] /L 350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
	GE [®] /L 100-005D~GE [®] /L 400-020D GER200-100DR~GER300-150DR	9°	GER150-010DM~GER400-020DM	10°
	GE [®] /L 100-005E~GE [®] /L 500-020E	10°	GER150-010EM~GER500-020EM	10°
	GE [®] /L 100-005A~GE [®] /L 200-010A GER100-050AR~GER200-100AR	5°	-	-
	GE [®] /L 100-005B~GE [®] /L 300-020B GER100-050BR~GER200-100BR	5°	-	-
	GE [®] /L 100-005C~GE [®] /L 350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
	GE [®] /L 100-005D~GE [®] /L 400-020D GER200-100DR~GER300-150DR	9°	GER150-010DM~GER400-020DM	10°
SIGE [®] /L 0808A-WH 1010B-WH 1210B-WH 1008B-WH-90 1210B-WH-90 1412C-WH 1612C-WH 1412C-WH-90	GE [®] /L 100-005A~GE [®] /L 200-010A GER100-050AR~GER200-100AR	5°	-	-
	GE [®] /L 100-005B~GE [®] /L 300-020B GER100-050BR~GER200-100BR	5°	-	-
	GE [®] /L 100-005C~GE [®] /L 350-020C GER200-100CR~GER300-150CR	8°	GER150-010CM~GER350-020CM	10°
	GE [®] /L 100-005D~GE [®] /L 400-020D GER200-100DR~GER300-150DR	9°	GER150-010DM~GER400-020DM	10°
	GE [®] /L 100-005E~GE [®] /L 500-020E	10°	GER150-010EM~GER500-020EM	10°
	GE [®] /L 100-005A~GE [®] /L 200-010A GER100-050AR~GER200-100AR	5°	-	-
	GE [®] /L 100-005B~GE [®] /L 300-020B GER100-050BR~GER200-100BR	5°	-	-

α indicates the rake angle at the center of the edge width after installing insert.

● : Standard item

G83

GV

			Carbon steel / Alloy steel								●●				P					
			Stainless steel								●●				M					
			Cast iron								●●				K					
			Non-ferrous metals								●●				N					
			Titanium alloy								●●				S					
			Hard materials (~ 40HRC)								●○				H					
			Hard materials (40HRC ~)																	
Insert		Description	No. of edges	Dimension (mm)						Tolerance (mm)		Carbide		Cer- met	Applicable toolholder ➡ G86~G88					
				CW	CDX	S	RE	INSL	W1	CW min.	CW max.	PVD	-	-						
												PR125 PR930	KW10	TC40N TC60M						
	 1-edge	GVR	100-020SS 125-020SS 145-020SS 200-020SS 250-020SS 300-020SS	1	1 1.25 1.45 2 2.5 3	2.3	3	0.2	9	3.6	- 0.03	+ 0.03	●●●●●●●●	●●●●●●●●	●●●●●●●●	GIVR1216-1SS				
		GVL	100-020SS 125-020SS 145-020SS 200-020SS 250-020SS 300-020SS		1 1.25 1.45 2 2.5 3								●●●●●●●●	●●●●●●●●	●●●●●●●●		GIVL1216-1SS			
		GVR	100-020S 125-020S 145-020S 185-020S 200-020S 250-020S 340-020S		1 1.25 1.45 1.85 2 2.5 3.4								●●●●●●●●	●●●●●●●●	●●●●●●●●			GIVR1420-1S GIVR1412-1SE		
		GVL	100-020S 125-020S 145-020S 185-020S 200-020S 250-020S 340-020S		1 1.25 1.45 1.85 2 2.5 3.4								●●●●●●●●	●●●●●●●●	●●●●●●●●				GIVL1420-1S GIVL1412-1SE	
		GVR	100-020A 125-020A 145-020A 185-020A 200-020A 250-020A 300-020A 340-020A		1 1.25 1.45 1.85 2 2.5 3 3.4								●●●●●●●●	●●●●●●●●	●●●●●●●●					GIVR1620-1A GIVR1612-1AE GIVR1616-1AW
		GVL	100-020A 125-020A 145-020A 185-020A 200-020A 250-020A 300-020A 340-020A		1 1.25 1.45 1.85 2 2.5 3 3.4								●●●●●●●●	●●●●●●●●	●●●●●●●●					

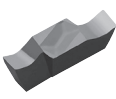
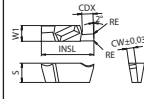
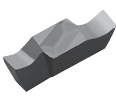
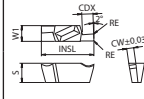
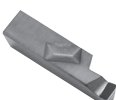
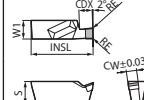
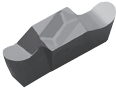
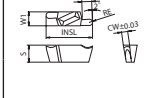
Right-hand shown
CDX shows available grooving depth.

Recommended cutting conditions  **G146**

● : Standard item

G84

GV

			Carbon steel / Alloy steel										●		☺						P
			Stainless steel										●		☺						M
			Cast iron												●						K
			Non-ferrous metals												●				●		N
			Titanium alloy												●				●		S
			Hard materials (~ 40HRC)										●		○						H
			Hard materials (40HRC ~)																		
Insert		Description		No. of edges	Dimension (mm)						Tolerance (mm)		Carbide		Cer- met	PCD	Applicable toolholder ☺ G86~G88				
					CW	CDX	S	RE	INSL	W1	CW min.	CW max.	PVD	-	-	-					
													PR125	PR930	KW10	TC40N		TC60M	KPD010		
	 2-edge	GVR	145-020B	1.45	2.8								●	●	●	●	GIVR2025-1B GIVR2016-1BE GIVR2020-1BW				
			185-020B	1.85	2.8							●	●	●	●						
			200-020B	2	3.2							●	●	●	●						
			230-020B	2.3	3.2							●	●	●	●						
			250-020B	2.5	3.2							●	●	●	●						
			280-020B	2.8	3.2							●	●	●	●						
		GVL	300-020B	3	4.2							●	●	●	●	GIVR2025-2B GIVR2016-2BE GIVR2020-2BW					
			340-020B	3.4	4.2							●	●	●	●						
			400-020B	4	4.2	5.5	0.2	15	4.5	- 0.03	+ 0.03	●	●	●	●						
			145-020B	1.45	2.8							●	●	●	●	GIVL2025-1B GIVL2016-1BE GIVL2020-1BW					
			185-020B	1.85	2.8							●	●	●	●						
			200-020B	2	3.2							●	●	●	●						
	 2-edge	GVR	280-020C	2.8	4.5								●	●	●	●	GIVR....-1C GIVR....-1CE GIVR....-1CW				
			300-020C	3	4.5							●	●	●	●						
			340-020C	3.4	5.5							●	●	●	●						
			400-020C	4	5.5							●	●	●	●	GIVR....-2C GIVR....-2CE GIVR....-2CW					
			430-020C	4.3	6.3							●	●	●	●						
			460-020C	4.6	6.3							●	●	●	●						
		GVL	500-020C	5	6.3	6.5	0.2	21	5.8	- 0.03	+ 0.03	●	●	●	●	GIVL....-1C GIVL....-1CE GIVL....-1CW					
			280-020C	2.8	4.5							●	●	●	●						
			300-020C	3	4.5							●	●	●	●						
			340-020C	3.4	5.5							●	●	●	●						
			400-020C	4	5.5							●	●	●	●	GIVL....-2C GIVL....-2CE GIVL....-2CW					
			430-020C	4.3	6.3							●	●	●	●						
	 1-edge	GVR	145-020A	1.45	2.3	5	0.2	12	4	- 0.03	+ 0.03				●	GIVR1620-1A GIVR1612-1AE GIVR1616-1AW					
			200-020A	2											●						
		GVR	200-020B	2	3.2	5.5	0.2	15	4.5	- 0.03	+ 0.03				●	GIVR2025-1B GIVR2016-1BE GIVR2020-1BW					
			250-020B	2.5											●						
	 2-edge / Full R	GVR	200-100AR	2	2			1					●	●	●	GIVR1620-1A GIVR1612-1AE GIVR1616-1AW					
			250-125AR	2.5	2.3	5		1.25		- 0.03	+ 0.03	●	●	●							
			300-150AR	3				1.5				●	●	●							
		GVL	200-100AR	2				1				●	●	●	GIVL1620-1A GIVL1612-1AE GIVL1616-1AW						
		GVR	200-100BR	2	2	3.2	5.5	1		15	4.5	- 0.03	+ 0.03	●	●	●	GIVR2025-1B GIVR2016-1BE GIVR2020-1BW				
			300-150BR	3	4.2		1.5					●	●	●							
															GIVR2025-2B GIVR2016-2BE GIVR2020-2BW						

Right-hand shown
CDX shows available grooving depth.

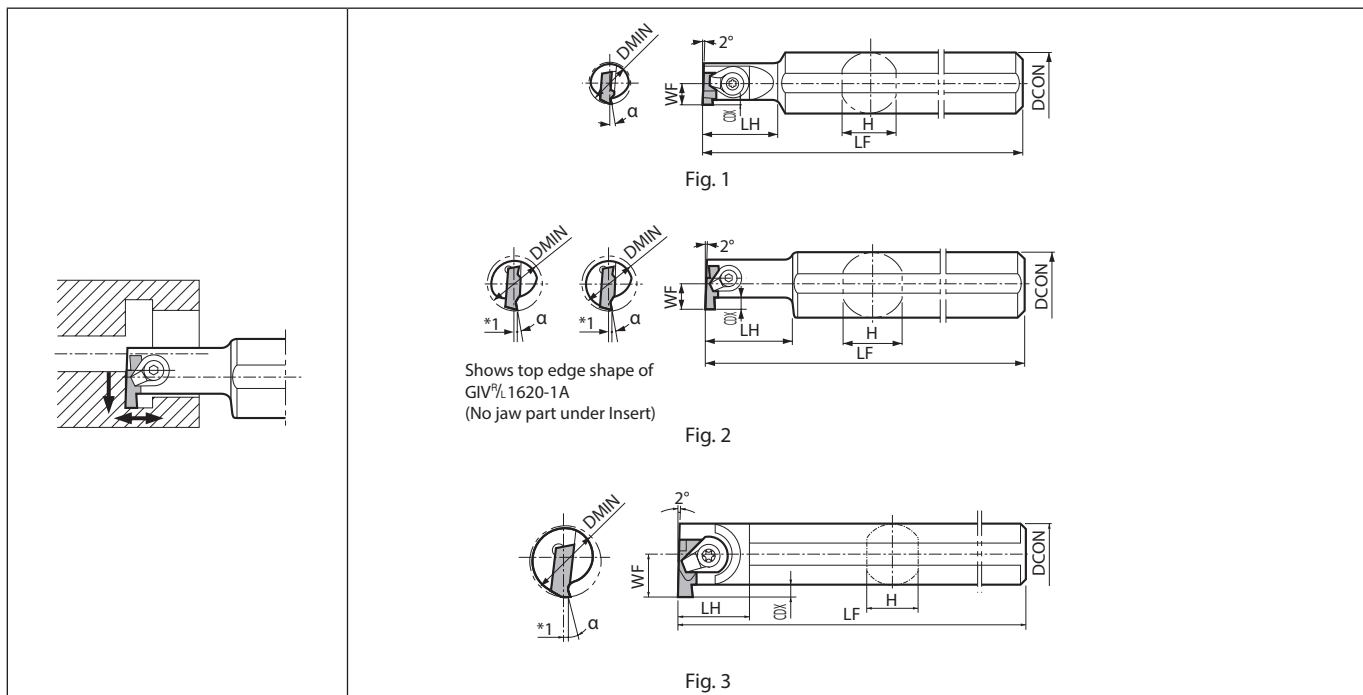
Recommended cutting conditions  G146

● : Standard item

CBN & PCD Inserts are
sold in 1 piece boxes

G85

GIV Steel shank bar (Internal grooving)



Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availabi- lity		Dimension (mm)								Fig.	Spare parts					Applicable inserts ➡ G84,G85
												Clamp set	Clamp set	Wrench	Wrench	Wrench	
	R	L	DMIN	DCON	CDX	H	LH	LF	WF								
GIV% 1216-1SS	●	●	12	16	2.2	15	20	150	6	1	CPS-4V	-	-	-	FT-10	GV%...-020SS	
GIV% 1420-1S	●	●	14	20	2.2	19	24	150	7	1	CPS-5F	-	-	FT-15	-	GV%...-020S	
GIV% 1620-1A	●	●	16	20	2.2	19	28	160	8	2	CPS-5V	-	-	FT-15	-	GV%...-...A(R)	
GIV% 2025-1B	●	●	20	25	*1 2.8	23	35	180	10	2	CPS-5V	-	-	FT-15	-	GV% 145 ~ 250-...B(R)	
	●	●			*2 3.2											GV% 280 ~ 400-...B(R)	
GIV% 2532-1C	●	●	25	32	*3 4.5	30	43	200	12.5	2	-	CPS-6V	LW-3	-	-	GV% 280 ~ 340-020C	
	●	●			*4 5.5											GV% 400 ~ 500-020C	
	●	●	32	*3 4.5	52	220	16	GV% 280 ~ 340-020C									
	●	●		*4 5.5				GV% 400 ~ 500-020C									
GIV% 4032-1C	●	●	40	32	*3 4.5	30	43	250	21	3	-	CPS-6V	LW-3	-	-	GV% 280 ~ 340-020C	
	●	●			*4 5.5											22.2	GV% 400 ~ 500-020C

GIV are designed to set the cutting edge height 1mm above the center height.

CDX shows available grooving depth.

*1. GV% 200~250-020B Insert can be used up to a Groove Depth 3.2mm.

*2. GV% 300~400-020B Insert can be used up to a Groove Depth 4.2mm.

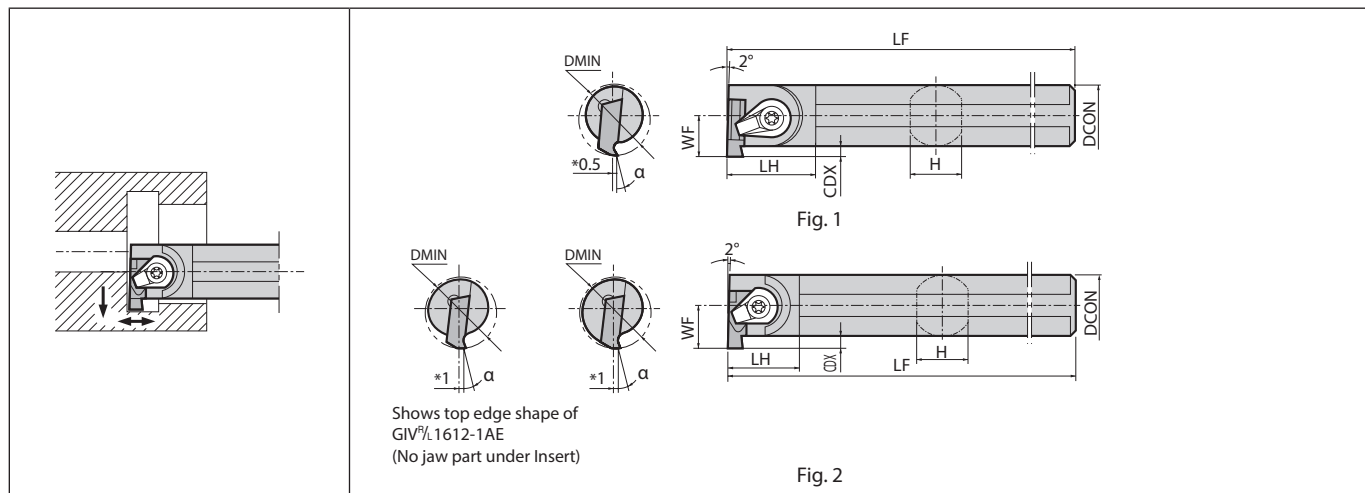
*3. GV% 340-020C Insert can be used up to a Groove Depth 5.5mm.

*4. GV% 430~500-020C Insert can be used up to a Groove Depth 6.3mm.

If you need any of insert groove depth specified in *1 to *4, modify the dimension CDX of toolholder.

● : Standard item

G86

GIV-E Excellent bar (Internal grooving)

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability		Dimension (mm)							Fig.	Spare parts				Applicable inserts G84,G85
											Clamp set	Clamp set	Wrench	Wrench	
	R	L	DMIN	DCON	CDX	H	LH	LF	WF						
GIV%L 1412-1SE	●	●	14	12	1.7	11.4	18	150	7.7	1	CPS-5F	-	-	FT-15	GV%L....-020S
GIV%L 1612-1AE	●	●	16	12	2.2	11.4	19	150	8.2	2	CPS-5V	-	-	FT-15	GV%L....-A(R)
GIV%L 2016-1BE	●	●	20	16	*1 2.8	15.2	20	180	11.2	2	CPS-5V	-	-	FT-15	GV%L 145 ~ 250-...B(R)
GIV%L 2016-2BE	●	●			*5 3.2				11.7						GV%L 280 ~ 400-...B(R)
GIV%L 2520-1CE	●	●	25	20	*6 4.5	19	25	200	14.5	2	-	CPS-6V	LW-3	-	GV%L 280 ~ 340-020C
GIV%L 2720-2CE	●	●	27		*4 5.5				16.2						GV%L 400 ~ 500-020C
GIV%L 3225-1CE	●	●	32	25	*7 4.5	24	24	220	17.5						GV%L 280 ~ 340-020C
GIV%L 3225-2CE	●	●			*4 5.5				18.7						GV%L 400 ~ 500-020C
GIV%L 4032-1CE	●	●	40	32	*7 4.5	31	29	240	21						GV%L 280 ~ 340-020C
GIV%L 4032-2CE	●	●			*4 5.5				22.2						GV%L 400 ~ 500-020C

GIV-E are designed to set the cutting edge height 1mm above the center height. (0.5mm for GIV%L 1612-1AE)
CDX shows available grooving depth.

*1. GV%L 200~250-020B Insert can be used up to a Groove Depth 3.2mm.

*4. GV%L 430~500-020C Insert can be used up to a Groove Depth 6.3mm.

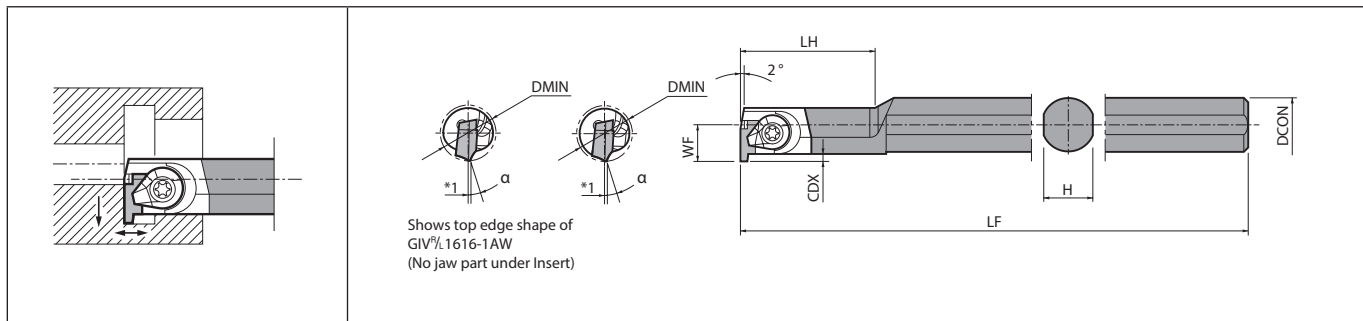
*5. GV%L 300~400-020B Insert can be used up to a Groove Depth 3.8mm. (When using GIV%L 2016-2BE)

*6. GV%L 340-020C Insert can be used up to a Groove Depth 4.7mm. (When using GIV%L 2520-1CE)

*7. GV%L 340-020C Insert can be used up to a Groove Depth 5.3mm. (When using GIV%L 3225-1CE, GIV%L 4032-1CE)

If you need any of insert groove depth specified in *1 to *7, modify the dimension CDX of toolholder.

● : Standard item

GIV-W Carbide shank bar (Internal grooving)

Right-hand shown | Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability		Dimension (mm)								Spare parts				Applicable inserts ➔ G84,G85
											Clamp set	Clamp set	Wrench	Wrench	
	R	L	DMIN	DCON	CDX	H	LH	LF	WF						
GIV%L 1616-1AW	●	●	16	16	2.2	15	48	175	10.6	CPS-5V	-	-	FT-15	-	GV%L...-...A(R)
GIV%L 2020-1BW	●	●	20	20	*1 2.8	19	60	220	14.6	CPS-5V	-	-	FT-15	-	GV%L 145 ~ 250-...B(R)
GIV%L 2020-2BW	●	●			*2 3.2										GV%L 280 ~ 400-...B(R)
GIV%L 2525-1CW	●	●	25	25	*3 4.5	24	70	260	19.1	-	CPS-6V	LW-3	-	-	GV%L 280 ~ 340-020C
GIV%L 2525-2CW	●	●			*4 5.5										GV%L 400 ~ 500-020C

GIV-W are designed to set the cutting edge height 1mm above the center height.

CDX shows available grooving depth.

*1. GV%L 200~250-020B Insert can be used up to a Groove Depth 3.2mm.

*2. GV%L 300~400-020B Insert can be used up to a Groove Depth 4.2mm.

*3. GV%L 340-020C Insert can be used up to a Groove Depth 5.5mm.

*4. GV%L 430~500-020C Insert can be used up to a Groove Depth 6.3mm.

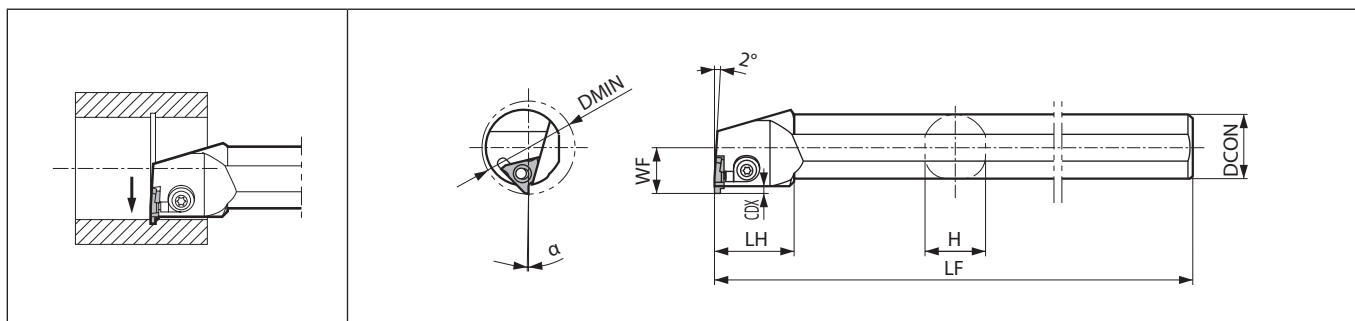
If you need any of insert groove depth specified in *1 to *4, modify the dimension CDX of toolholder.

Applicable Insert & Rake Angle (α) after Installment of Insert

Toolholder Description	Insert Description ➔ G84,G85		Rake Angle (α)	
	General Grooving (Square)	Full-R Grooving (Round)	TC40N	TN90,TC60M PR930,PR1225 KW10
GIV%L...1SS	GV%L 100~300-020SS	-	10°	15°
GIV%L...1S	GV%L 100~340-020S	-	10°	15°
GIV%L...1SE	GV%L 100~340-020S	-	3°	8°
GIV%L...1A(□)	GV%L 100~340-020A	GV%L 200-100AR~300-150AR	3°	8°
GIV%L...1B(□)	GV%L 145~250-020B	GV%L 200-100BR	4°	9°
GIV%L...2B(□)	GV%L 280~400-020B	GV%L 300-150BR		
GIV%L...1C(□)	GV%L 280~340-020C	-	5°	10°
GIV%L...2C(□)	GV%L 400~500-020C	-		

● : Standard item

G88

KIGBA (Internal grooving / Shallow grooving)

Right-hand shown | Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability		Dimension (mm)								Spare parts		Applicable inserts G6~G12
											Clamp set	Wrench	
	R	L	DMIN	DCON	CDX	H	LH	LF	WF				
KIGBA ^{R/L} 3525-16	●	●	35	25	2.8	23	30	220	17.5	LGBA-16 ^{R/L} S	FT-15		GBA32 ^{R/L} type
KIGBA ^{R/L} 4032-22	●	●	40	32	3	30	30	250	23	LGBA-22 ^{R/L} S	FT-15		GBA43 ^{R/L} type

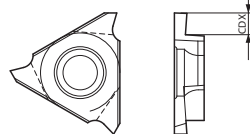
CDX shows the distance from the toolholder to the cutting edge.

Available Grooving Depth depends on the insert.

KIGBA^{R/L} 3525-16 : CDX of the applicable insert (GBA32)

4032-22 : CDX of the applicable insert (GBA43) (1) 2.0 mm (CDX < 3.0 mm) (2) 3.0 mm (CDX ≥ 3.0 mm)

Clamp Set : LGBA-○○LS for Right-hand Toolholder, and LGBA-○○RS for Left-hand Toolholder.



Rake Angle (α) after Installment of GBA insert

GBA32 ^{R/L} ○○○-○○○		GBA43 ^{R/L} ○○○-○○○		GBA43 ^{R/L} ○○○-○○○R (Full-R)		
α	Insert Grades	α	Insert Grades	α	Insert Grades	Full-R Description
+1°	TN620, TN90, PV7040 PR930, PR1215, PR1625, PR905 KPD001, KPD010	-9°	KBN510, KBN525	+1°	TN620, TN90, PV7040 PR930, PR1215, PR1625, PR905	050R~150R
		+1°	TN620, TC40N, TN90, PV7040, PR930, PR1215, PR1625, PR905 KPD001, KPD010		TN620, TN90, PV7040 PR930, PR1215, PR1625, PR905	200R
+11°	KW10	+11°	KW10	+5°	KW10	050R~200R

Rake Angle (α) after Installment of GBA-GM insert

α	Insert Description
+1°	GBA43 ^{R/L} 150-020GM
+6°	GBA43 ^{R/L} 175-020GM
	GBA43 ^{R/L} 265-030GM
+3°	GBA43 ^{R/L} 300-030GM
	GBA43 ^{R/L} 400-040GM

α indicates the rake angle at the center of the edge width, after installing insert.

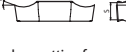
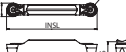
Rake Angle (α) after Installment of GBA-MY insert

α	Insert Description
+6°	GBA43 ^{R/L} 175-020MY
	GBA43 ^{R/L} 350-030MY
+5°	GBA43 ^{R/L} 400-040MY

α indicates the rake angle at the center of the edge width, after installing insert.

● : Standard item

GDM/GDG

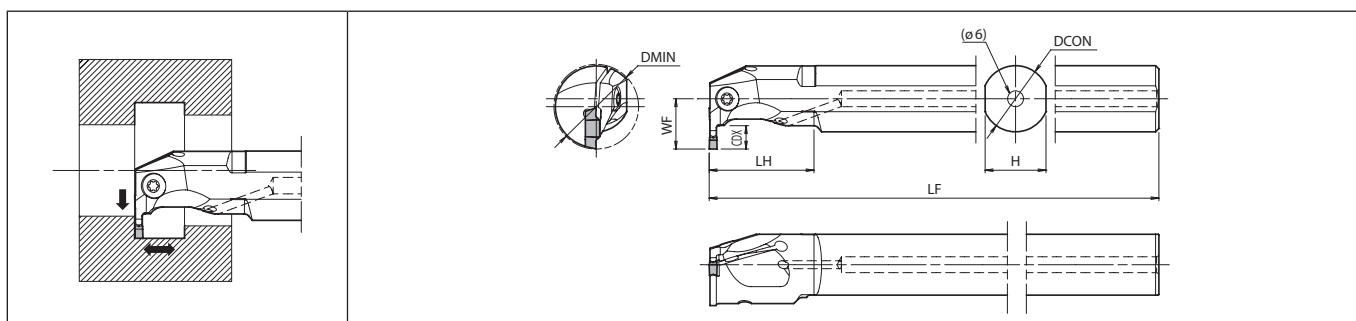
									Carbon steel / Alloy steel		☺	☹	☺	☹	●	○	P		
									Stainless steel		☺	☹	☺	☹	●	○	M		
									Cast iron		☹	☹	☹	☹	☹	☹	●	○	K
									Non-ferrous metals								●	○	N
									Titanium alloy								●	○	S
									Hard materials (~ 40HRC)										H
									Hard materials (40HRC ~)										
Insert		Description		No. of edges	Dimension (mm)				Tolerance (mm)		Carbide			Cer- met	Applicable toolholder G91				
					CW	S	RE	INSL	CW min.	CW max.	PVD		-	-					
											PR1215	PR1225	PR1535	GW15		TN620	TN90		
  General purpose	GDM 2013N-020GMI	2	2	4.3	0.2	13.5	- 0.03	+ 0.03						KGDI®/L...-2					
	GDM 3015N-040GMI	2	3	4.6	0.4	15.5	- 0.03	+ 0.03						KGDI®/L...-3					
	GDM 4020N-040GMI	2	4	4.3	0.4	20	- 0.03	+ 0.03						KGDI®/L...-4					
	GDM 5020N-040GMI 5020N-080GMI	2	5	4.3	0.4 0.8	20	- 0.04	+ 0.04						KGDI®/L...-4 KGDI®/L...-5					
  Low cutting force	GDG 3015N-020GS	2	3	4.6	0.2	15.6	- 0.02	+ 0.02						KGDI®/L...-3					
	GDG 4020N-040GS	2	4	4.3	0.4	20	- 0.02	+ 0.02						KGDI®/L...-4					
	GDG 5020N-040GS	2	5	4.3	0.4	20	- 0.02	+ 0.02						KGDI®/L...-4 KGDI®/L...-5					
  Full R	GDM 3015N-150R-CM	2	3	4.6	1.5	16.3	- 0.03	+ 0.03						KGDI®/L...-3					
	GDM 4020N-200R-CM	2	4	4.3	2	20	- 0.03	+ 0.03						KGDI®/L...-4					
	GDM 5020N-250R-CM	2	5	4.3	2.5	21	- 0.04	+ 0.04						KGDI®/L...-4 KGDI®/L...-5					

Recommended cutting conditions G147

● : Standard item

G90

KGDI (Internal grooving)

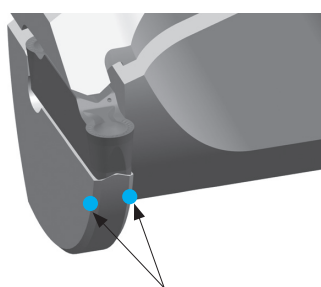


Right-hand shown

Toolholder dimensions

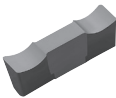
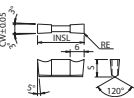
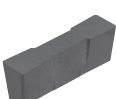
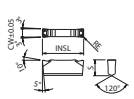
Description	Availability		Dimension (mm)											Coolant hole	Spare parts				Applicable inserts G90
															Clamp screw (Torx)	Screw	Wrench	Wrench	
	R	L	DMIN			DCON	CDX	H	LH	LF	WF	CW min.	CW max.						
KGDI ¹ /L 1816B-2 2520B-2 3225B-2	●	●	18			16	4.5	15	25	150	9.5	2	2	Yes	-	GS-50	LW-3	-	GDM2013N-020GMI
	●	●	25	-	-	20	6	18	30	180	14.5				SB-5TR	-	-	LTW-20	
	●	●	32			25	7	23	40	200	19								
KGDI ¹ /L 2016B-3 2520B-3 3225B-3	●	●	20	21		16	5.5	15	25	150	11.5	3	3	Yes	-	GS-50	LW-3	-	GDM3015N-...
	●	●	25	26	-	20	6	18	30	180	14.5				SB-5TR	-	-	LTW-20	
	●	●	32	33		25	8	23	40	200	19								
KGDI ¹ /L 3225B-4 4032B-4	●	●	32	40	34	25	8.5	23	40	200	19	4	5	Yes	SB-5TR	-	-	LTW-20	GDM4020N-...
	●	●	40	48	42	32	11	29	50	220	23.5								
KGDI ¹ /L 3225B-5 4032B-5	●	●	32	37	34	25	8.5	23	40	200	19	5	5	Yes	SB-5TR	-	-	LTW-20	GDM5020N-...
	●	●	40	45	42	32	11	29	50	220	23.5								

* Possible by slightly chamfering toolholder's tip about 0.5 mm

Additional processing of toolholder tip when
CM chipbreaker is installed* By slightly chamfering the holder tip of about 0.5 mm,
the cutting diameter can be minimized.

● : Standard item

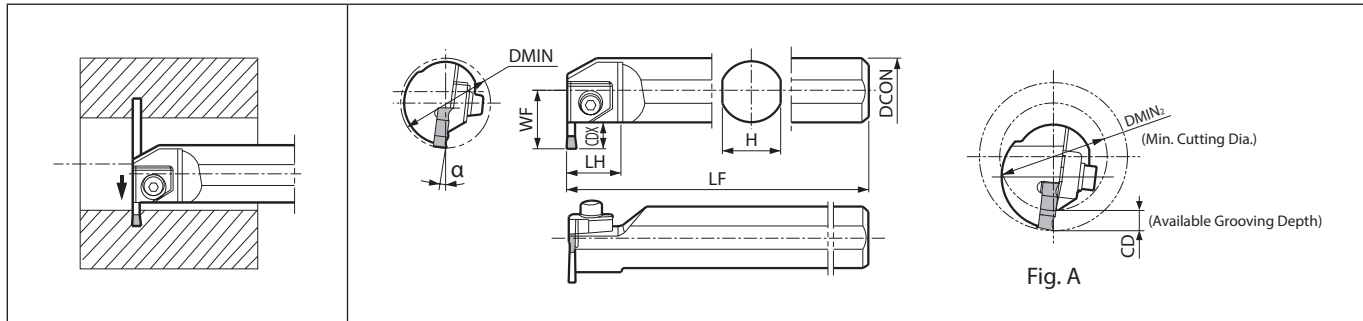
GH/GHU

Cutting edge preparation				Carbon steel / Alloy steel										*										P	
				Stainless steel										●										M	
				Cast iron										●		●		○						K	
				Non-ferrous metals										●										N	
				Titanium alloy										●										S	
Symbol	Specification	Example		Hard materials (~ 40HRC)										●										H	
S	Chamfered and R-honed	S01020	0.10mm × 20° chamfered and R-honed																						
T	Chamfered	T01020	0.10mm × 20° chamfered	Hard materials (40HRC ~)												○		●							
Insert		Description		Edge preparation type	No. of edges	Dimension (mm)				Tolerance (mm)		Carbide		Ceramic		Cermet		Applicable toolholder G93							
						CW	S	RE	INSL	CW min.	CW max.	CVD	PVD	-	PVD	-	-								
																				CR9025	PR930	KW10	A66N	PT600M	A65
		GH 4020-02 4020-05	-	2	4	7.5	0.2 0.5	20	-0.05	+0.05		●	●				●	●	KIGHR4532B-4 KIGHR5540B-4 KIGHR6550B-4						
		GH 4520-02 4520-05	-	2	4.5	7.5	0.2 0.5	20	-0.05	+0.05							●	●							
		GH 5020-02 5020-05	-	2	5	7.5	0.2 0.5	20	-0.05	+0.05		●	●				●	●							
		GH 5520-02 5520-05	-	2	5.5	7.5	0.2 0.5	20	-0.05	+0.05							●	●	KIGHR4532B-5 KIGHR5540B-5 KIGHR6550B-5						
		GH 6020-02 6020-05	-	2	6	7.5	0.2 0.5	20	-0.05	+0.05		●	●				●	●							
		GH 6520-02 6520-05	-	2	6.5	7.5	0.2 0.5	20	-0.05	+0.05							●	●							
		GH 7020-02 7020-05	-	2	7	7.5	0.2 0.5	20	-0.05	+0.05		●	●				●	●	KIGHR5540B-7 KIGHR6550B-7						
		GH 7520-02 7520-05	-	2	7.5	7.5	0.2 0.5	20	-0.05	+0.05							●	●							
GH 8020-02 8020-05	-	2	8	7.5	0.2 0.5	20	-0.05	+0.05		●	●				●	●									
		GH 4020-05	S01020 T01020	2	4	7.5	0.5	20	-0.05	+0.05				●		●	●	KIGHR4532B-4 KIGHR5540B-4 KIGHR6550B-4							
		GH 5020-05	S01020 T01020	2	5	7.5	0.5	20	-0.05	+0.05				●		●	●								
		GH 6020-05	T01020	2	6	7.5	0.5	20	-0.05	+0.05						●	●	KIGHR4532B-5 KIGHR5540B-5 KIGHR6550B-5							
		GH 7020-05	T01020	2	7	7.5	0.5	20	-0.05	+0.05						●	●								
		GHU 40-20	-	2	4	7.5	0.25	20	-0.05	+0.05	●						●	KIGHR4532B-4 KIGHR5540B-4 KIGHR6550B-4							
		GHU 50-20	-	2	5	7.5	0.3	20	-0.05	+0.05	●						●								
		GHU 60-20	-	2	6	7.5	0.3	20	-0.05	+0.05	●						●								
Molded Chipbreaker																									

Recommended cutting conditions G65

● : Standard item

G92

KIGH (Internal grooving / Deep grooving)

Right-hand shown

Toolholder dimensions

Description	Availability	Dimension (mm)								Spare parts					Applicable inserts ➔ G92
										Clamp (L)	Clamp bolt	Spring	Washer	Wrench	
		R	DMIN	DCON	CDX	H	LH	LF	WF						
KIGHR 4532B-4	●	45	32		30		200	28.2		CGH-1L	HH6X25	SP-6	W-6	LW-5	GH4020-... / GHU40-... GH4520-...
5540B-4	●	55	40	12	38	27	250	32.3							
6550B-4	●	65	50		48		300	37.3							
KIGHR 4532B-5	●	45	32		30		200	28.2		CGH-1L	HH6X25	SP-6	W-6	LW-5	GH5020-... / GHU50-... / GH5520-... GH6020-... / GHU60-... / GH6520-...
5540B-5	●	55	40	12	38	27	250	32.3							
6550B-5	●	65	50		48		300	37.3							
KIGHR 5540B-7	●	55	40	12	38	27	250	32.3		CGH-2L	HH6X25	SP-6	W-6	LW-5	GH7020-... / GH7520-... / GH8020-...

CDX shows the distance from the toolholder to the cutting edge. For the available grooving depth (CD), ref. to „List of Min. Available Cutting Diameter and Groove Depth“.

LH depends on the insert's edge width.

Rake Angle (α) after Installment of GH / GHU insert

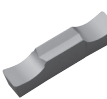
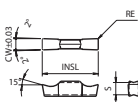
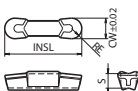
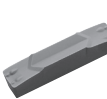
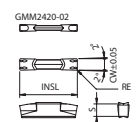
GH○○○○○		GHU○○○○○	
α	Insert Grades	α	Insert Grades
-5°	A65, A66N, PT600M	+5°	TN60 CR9025
+5°	TC40N		
+15°	TN90, TC60M PR930 KW10		

List of the Min. Cutting Diameter and Grooving Depth (Refer to Fig. A)

Toolholder Description		DMIN ₂ (Min. Cutting Dia.)					
KIGHR	4532B-○	ø110	ø70	ø65	ø60	ø55	ø45
	5540B-○	ø70	ø60	ø55			
	6550B-○	ø65					
Available Grooving Depth CD (mm)		12	11.5	11	10	9	Under 8

● : Standard item

GMM/GMG/GMGA

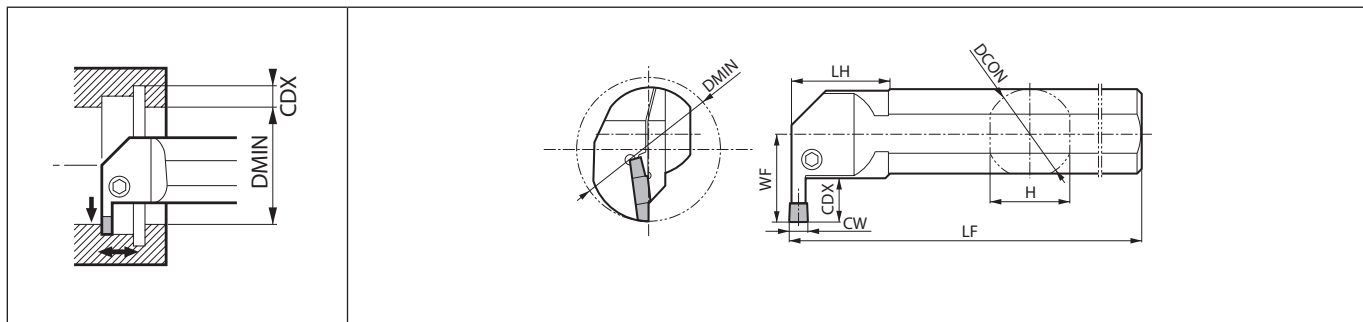
		Carbon steel / Alloy steel											P							
		Stainless steel								☹	☺		M							
		Cast iron							☹		☺		K							
		Non-ferrous metals										☹	N							
		Titanium alloy										☹	S							
		Hard materials (~ 40HRC)								○	●		H							
		Hard materials (40HRC ~)																		
Insert		Description				No. of edges	Dimension (mm)				Tolerance (mm)		Carbide				Cermat	Applicable toolholder 🔧 G95		
							CW	S	RE	INSL	CW min.	CW max.	CVD CR9025	PVD PR905 PR915 PR930	-	-			-	-
	 Sharp cutting oriented / Precision class (ground chipbreaker)	GMG	8030-050MG	2	8	5.5	0.5	30	-0.03	+0.03		○			○					
	 Full R / Sharp cutting oriented / Precision class	GMGA	8030-400R	2	8	5.5	4	30	-0.02	+0.02						○		KIGM [®] /L6540B-8 KIGMUR6540B-8		
	 Chip control oriented / M class	GMM	8030-080MW	2	8	5.5	0.8	30	-0.05	+0.05		○	○	○	○					

If using a full-R insert with KIGM-8 toolholder, you need to modify the corner of insert adapter of toolholder.

Recommended cutting conditions ➔ G143

○ : Check availability

G94

KIGM-8 (Internal grooving)

Right-hand shown

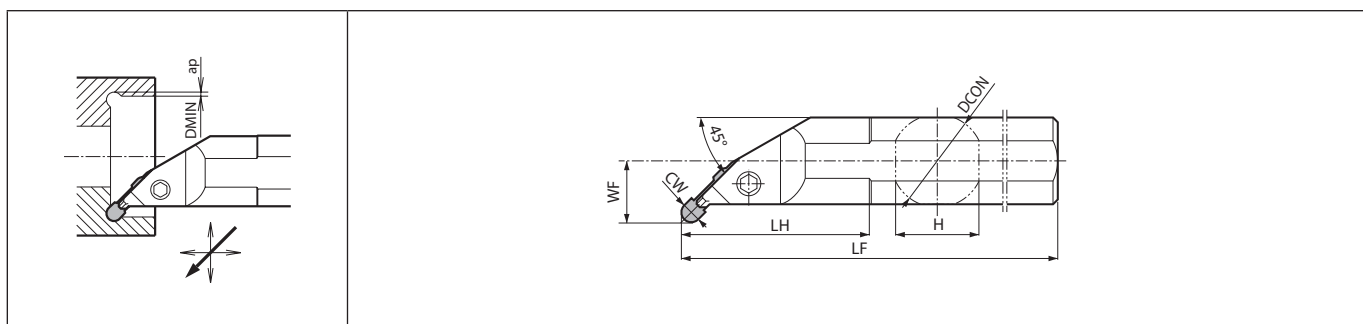
Toolholder dimensions

Description	Availability		Dimension (mm)										Spare parts		Applicable inserts ➔ G94
													Clamp bolt	Wrench	
	R	L	DMIN	DCON	CDX	H	LH	LF	WF	CW min.	CW max.				
KIGM%L 6540B-8	○	○	65	40	20	36	41	300	41	8	8		HH6X20	LW-5	GM..8030-...

CDX shows available grooving depth.



Grooving

KIGMU-8 (Internal grooving / Undercut grooving)

Right-hand shown

Toolholder dimensions

Description	Availability		Dimension (mm)										Spare parts		Applicable inserts ➔ G94
													Clamp bolt	Wrench	
	R	DMIN	DCON	H	LH	ap	LF	WF	CW min.	CW max.					
KIGMUR 6540B-8	○	65	40	36	83	2.2	300	26	8	8			HH6X20	LW-5	GM..8030-...

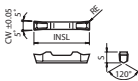
CDX shows available grooving depth.

ap shows the distance from the internal face of the workpiece.

○ : Check availability

G95

GIA

		Carbon steel / Alloy steel							●	○	P	
		Stainless steel							●	○	M	
		Cast iron									K	
		Non-ferrous metals									N	
		Titanium alloy									S	
		Hard materials (~ 40HRC)							●	○	H	
		Hard materials (40HRC ~)										
Insert	Description	No. of edges	Dimension (mm)				Tolerance (mm)		Carbide	Cermet	Applicable toolholder ➡ G97	
			CW	S	RE	INSL	CW min.	CW max.	CVD	-		
									CP9025	TN60		
		GIA 30	2	3	5	0.2	25	- 0.05	+ 0.05	○	○	KGJAR3232B-3 KGJAR4332B-3 KGJAR5140B-3
		GIA 40	2	4	5	0.25	25	- 0.05	+ 0.05	○	○	KGJAR3232B-4 KGJAR4332B-4 KGJAR5140B-4
		GIA 50	2	5	5	0.3	30	- 0.05	+ 0.05	○	○	KGJAR5640B-5 KGJAR6650B-5

Grooving

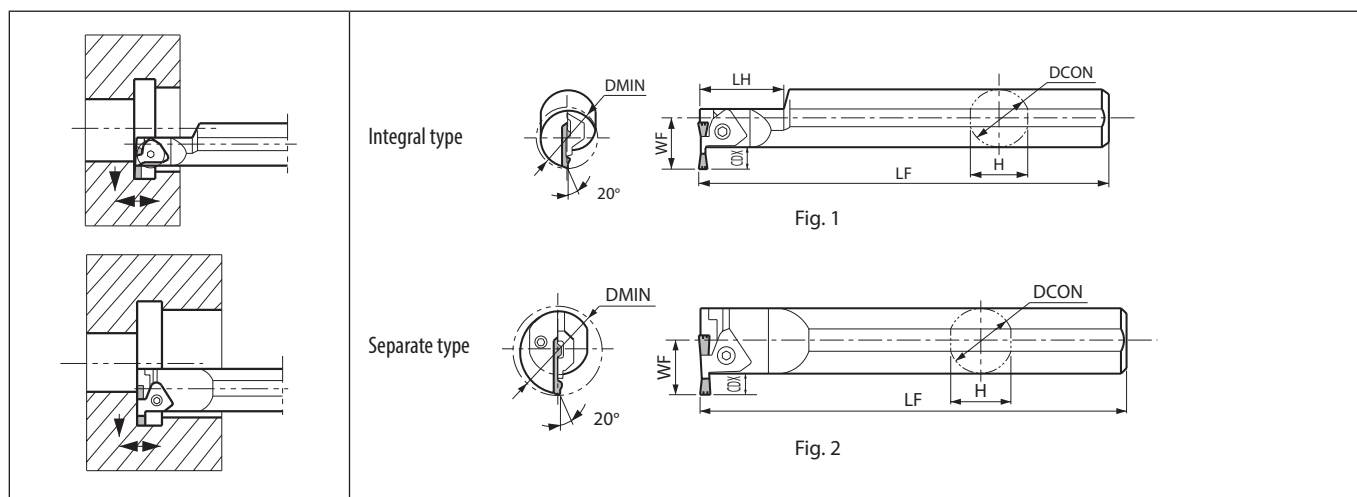
GIA inserts - molded chipbreaker

Workpiece material	Recommended insert grades (Vc: m/min)		(1) f for grooving (mm/rev) (2) f for turning (mm/rev) (3) ap for turning (mm)			Remarks
	Cermet	CVD Coated carbide	GIA 30	GIA 40	GIA 50	
	TN60	CR9025				
Carbon steel	☆ 60~120	★ 60~120	(1) 0.04~0.08 (2) 0.02~0.08 (3) Max. 0.3	(1) 0.04~0.09 (2) 0.02~0.08 (3) Max. 0.4	(1) 0.05~0.1 (2) 0.05~0.08 (3) Max. 0.5	Coolant
Alloy steel	☆ 60~100	★ 60~100	(1) 0.04~0.07 (2) 0.02~0.07 (3) Max. 0.3	(1) 0.04~0.07 (2) 0.02~0.07 (3) Max. 0.4	(1) 0.05~0.08 (2) 0.05~0.08 (3) Max. 0.5	
Stainless steel	-	★ 60~80	(1) 0.04~0.07 (2) 0.02~0.07 (3) Max. 0.3	(1) 0.04~0.07 (2) 0.02~0.07 (3) Max. 0.4	(1) 0.05~0.08 (2) 0.05~0.08 (3) Max. 0.5	

★ :1st recommendation ☆ :2nd recommendation

○ : Check availability

G96

KGIA (Internal grooving / Deep grooving)

Right-hand shown

Toolholder dimensions

Description	Availability	Dimension (mm)								Fig.	Spare parts				Applicable inserts ➔ G96
											Clamp bolt	Clamp	Spring	Wrench	
		R	DMIN	DCON	CDX	H	LH	LF	WF						
KGIAR 3232B-3 4332B-3 5140B-3	○	32	32		30.4	45		26.5	1		HH5X15	CGIA-3R	SP-5	LW-4	GIA30
	○	43	32	10	30		200	26.3							
	○	51	40		38	-	250	30.3	2						
KGIAR 3232B-4 4332B-4 5140B-4	○	32	32		30.4	45		26.5	1		HH5X15	CGIA-4R	SP-5	LW-4	GIA40
	○	43	32	10	30		200	26.3							
	○	51	40		38	-	250	30.3	2						
KGIAR 5640B-5 6650B-5	○	56	40	15	38		250	35.3	2		HH5X15	CGIA-5R	SP-5	LW-4	GIA50
	○	66	50		48	-	300	40.3							

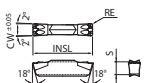
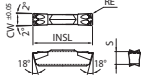
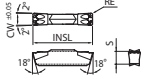
CDX shows available grooving depth.

Composition

Type	Spare Parts		Toolholder	Blade	Clamp Screw	Wrench
	Toolholder Description					
Integral Type	KGIAR	3232B-3	-	-	-	-
Separate Type		4332B-3	KGIAR32H	BGIAR43-3	SB-40140TR	FT-15
		5140B-3	KGIAR40H	BGIAR51-3		
Integral Type		3232B-4	-	-	-	-
Separate Type		4332B-4	KGIAR32H	BGIAR43-4	SB-40140TR	FT-15
		5140B-4	KGIAR40H	BGIAR51-4		
Separate Type		5640B-5	KGIAR40H	BGIAR56-5	SB-40140TR	FT-15
		6650B-5	KGIAR50H	BGIAR66-5		

○ : Check availability

GMM-V

		Carbon steel / Alloy steel																	P
		Stainless steel																	M
		Cast iron																	K
		Non-ferrous metals																	N
		Titanium alloy																	S
		Hard materials (~ 40HRC)																	H
		Hard materials (40HRC ~)																	
Insert		Description		No. of edges	Dimension (mm)				Tolerance (mm)		Carbide				Cermet	Applicable toolholder			
					CW	S	RE	INSL	CW min.	CW max.	CVD		PVD				-	-	
											CR9025	PR905	PR915	PR930					KW10
		GMM 3015-040V	2	3	4.3	0.4	15.5	- 0.05	+ 0.05	○	○	○	○	○	○	KIGM®/....B-3V			
		GMM 4020-040V	2	4	4.3	0.4	20	- 0.05	+ 0.05	○	○	○	○	○	○	KIGM®/....B-4V			
		GMM 5020-080V	2	5	4.3	0.8	20	- 0.05	+ 0.05	○	○	○	○	○	○				

It is not recommended to use this for KIGM-V Internal Grooving Toolholders which require GMM...V type inserts with the 18° front relief angle, because the relief angle of the insert used for GMM4020-04 toolholder is 10°.

Recommended cutting conditions ➡ **G143**

○ : Check availability

G98

External dia. of the groove DAXN / DAXX

External dia. of the groove within DAXN ~ DAXX are the available range for the initial grooving on the unprocessed workpiece (Ref. to Fig. 1)

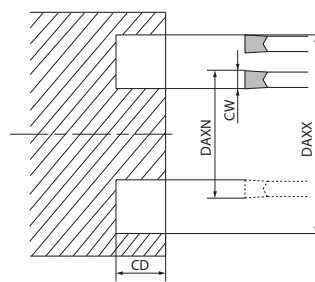
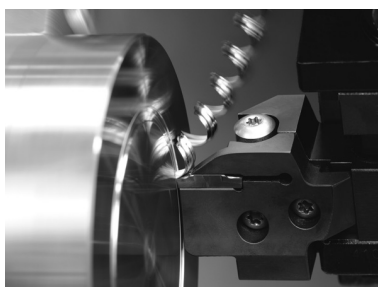
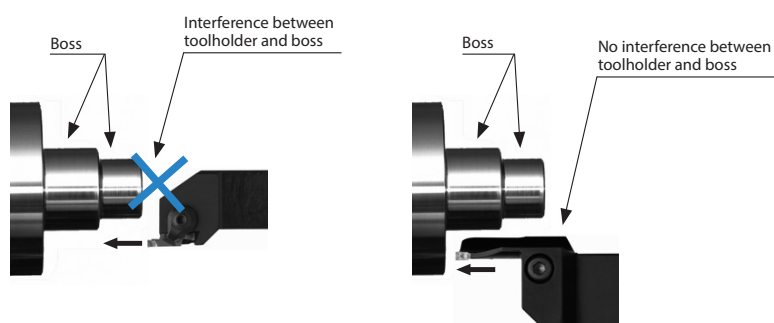


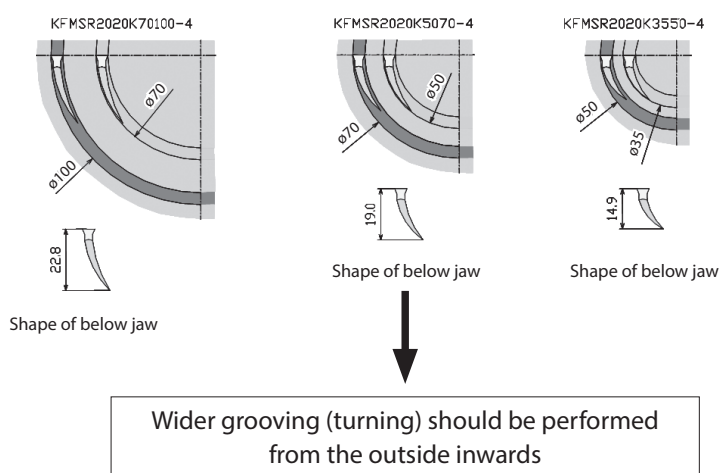
Fig.1

Caution for face grooving

1. When face grooving, the suitable toolholder depends on the length of the boss

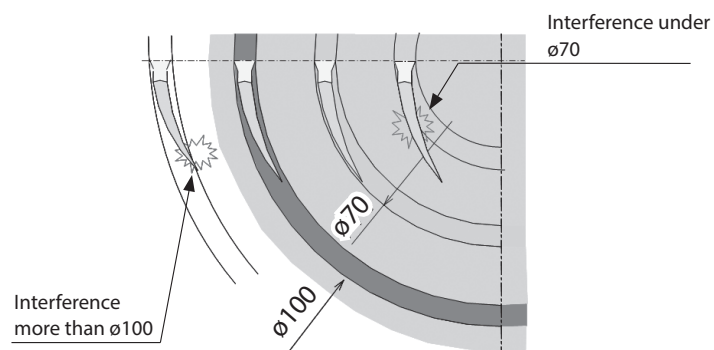


2. Selection of face grooving toolholder

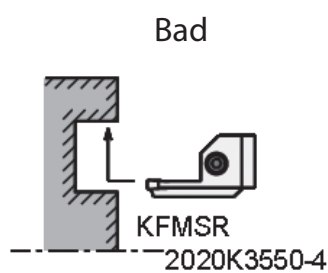
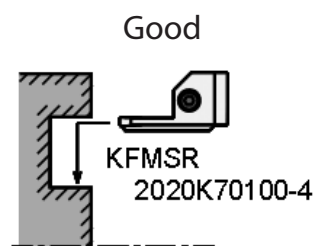


3. Interference of face grooving toolholder

e.g.) KFMSR2525M70100-4



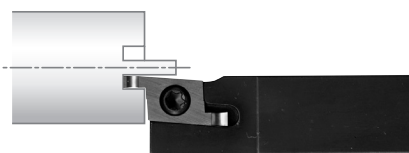
Grooving



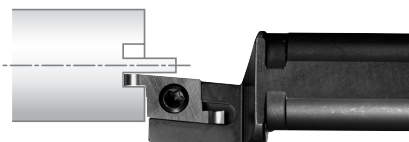
Example of usage for the face grooving toolholder

When face grooving, KFMSR2525M70100-4 should be between $\phi 70 \sim \phi 100$ for grooving the outer diameter at first. If the workpiece is machined at a diameter $\phi 100$ or $\phi 70$, the jaw of toolholder interferes with the workpiece.

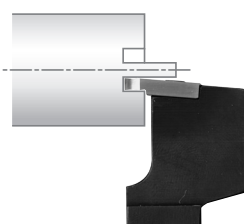
Small diameter face grooving $\phi 6\sim$



Type	STW
External dia. of the groove (min.)	$\phi 6$
Edge width (mm)	0.5~2.0
Grooving depth (mm)	1.0~3.0
See Page	G106



Type	S.-STW
External dia. of the groove (min.)	$\phi 6$
Edge width (mm)	0.5~2.0
Grooving depth (mm)	1.0~3.0
See Page	G107



Type	STWS
External dia. of the groove (min.)	$\phi 6$
Edge width (mm)	0.5~2.0
Grooving depth (mm)	1.0~3.0
See Page	G109



Twin-bars for horizontal type

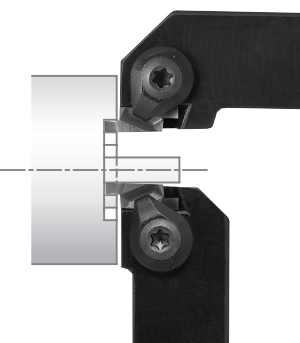


Twin-bars for vertical type



Grooving

Small diameter face grooving $\phi 8\sim$



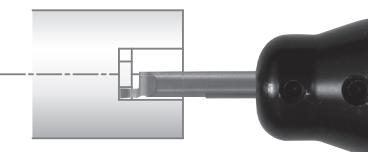
Type	GFVS-AA
External dia. of the groove (min.)	$\phi 8$
Edge width (mm)	1.0~3.0
Grooving depth (mm)	2.2
See Page	G125

Type	GFVT-AA
External dia. of the groove (min.)	$\phi 8$
Edge width (mm)	1.0~3.0
Grooving depth (mm)	2.2
See Page	G125

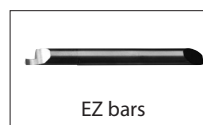


Ground chipbreaker

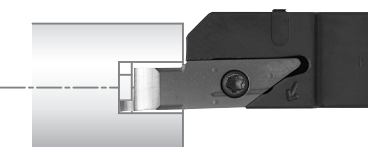
Small diameter face grooving $\phi 5\sim, \phi 8\sim$



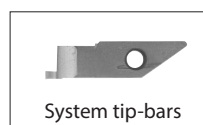
Type	EZFG
External dia. of the groove (min.)	$\phi 5, \phi 6, \phi 8$
Edge width (mm)	1.0~3.0
Grooving depth (mm)	1.5~3.0
See Page	G103



EZ bars

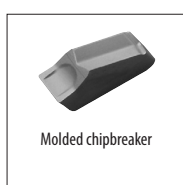


Type	VNFG
External dia. of the groove (min.)	$\phi 8$
Edge width (mm)	1.0~3.0
Grooving depth (mm)	2.0~3.0
See Page	G105

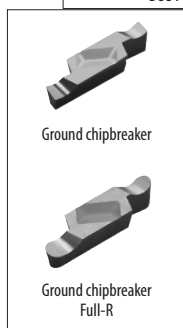


System tip-bars

Face grooving $\phi 20\sim$

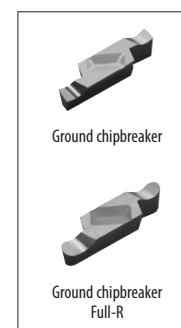
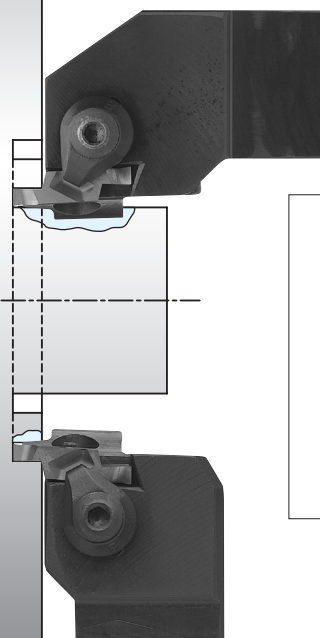


Type	KFTB
External dia. of the groove (min.)	$\phi 65\sim\phi 250$
Edge width (mm)	4.0~5.0
Grooving depth (mm)	25~38
See Page	G140



Type	GFV
External dia. of the groove (min.)	$\phi 20\sim\phi 150$
Edge width (mm)	2.0~6.0
Grooving depth (mm)	2.2~8.1
See Page	G127

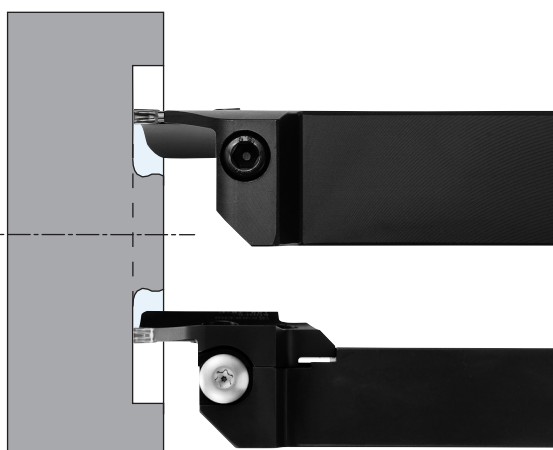
Type	GFVS
External dia. of the groove (min.)	$\phi 35\sim\phi 150$
Edge width (mm)	2.5~6.0
Grooving depth (mm)	4.6~8.1
See Page	G129



Grooving

Type	GFVT
External dia. of the groove (min.)	$\phi 35\sim\phi 150$
Edge width (mm)	2.5~6.0
Grooving depth (mm)	4.6~8.1
See Page	G130

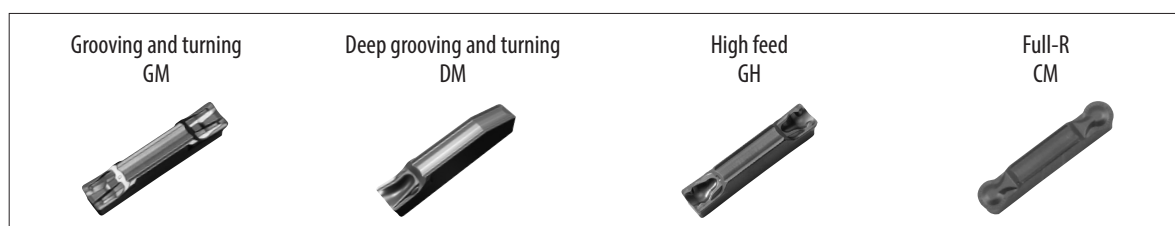
KGDF face grooving $\phi 25\sim$



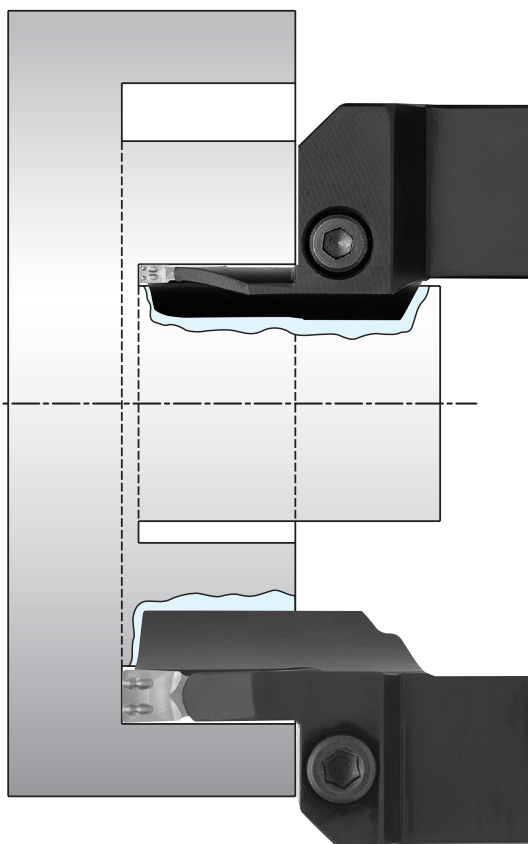
Type	KGDF-Z
External dia. of the groove (min.)	$\phi 50$
Edge width (mm)	3.0~5.0
Grooving depth (mm)	15
See Page	G118

Type	*KGDF
External dia. of the groove (min.)	$\phi 25$
Edge width (mm)	2.0~6.0
Grooving depth (mm)	6~32
See Page	G114~G117

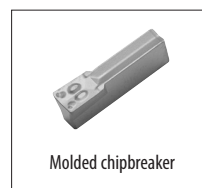
* The separate type toolholders can accept all the blades if their hand is matching.



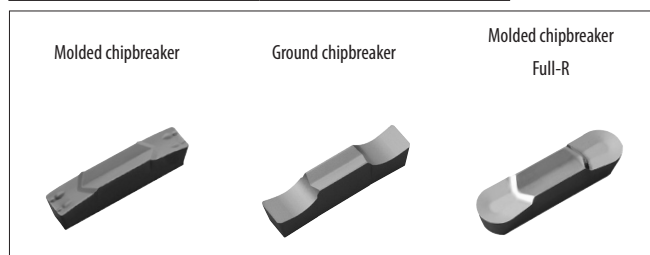
Face grooving & turning $\phi 25\sim$



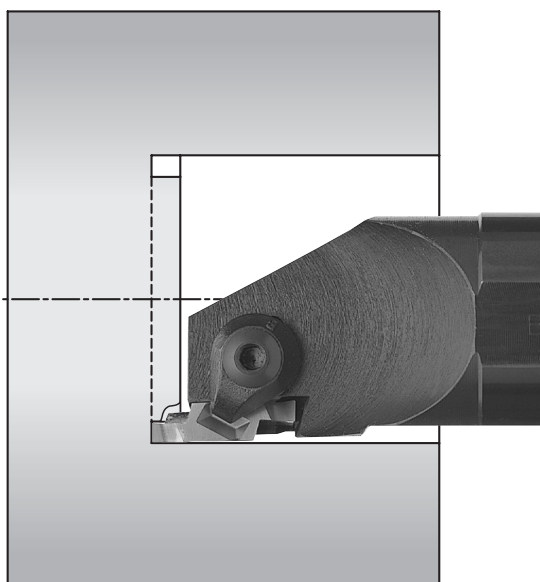
Type	KFMS
External dia. of the groove (min.)	$\phi 25\sim\phi 235$
Edge width (mm)	3.0~6.0
Grooving depth (mm)	13~32
See Page	G135



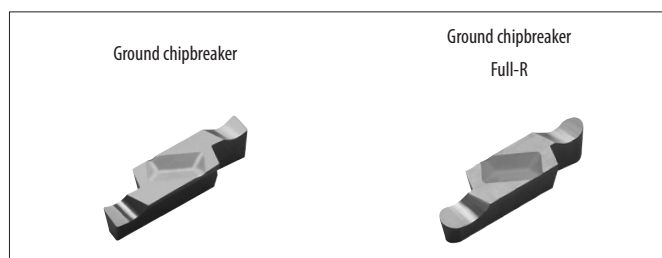
Type	KFMS-8
External dia. of the groove (min.)	$\phi 54\sim\phi 155$
Edge width (mm)	8.0
Grooving depth (mm)	25
See Page	G138

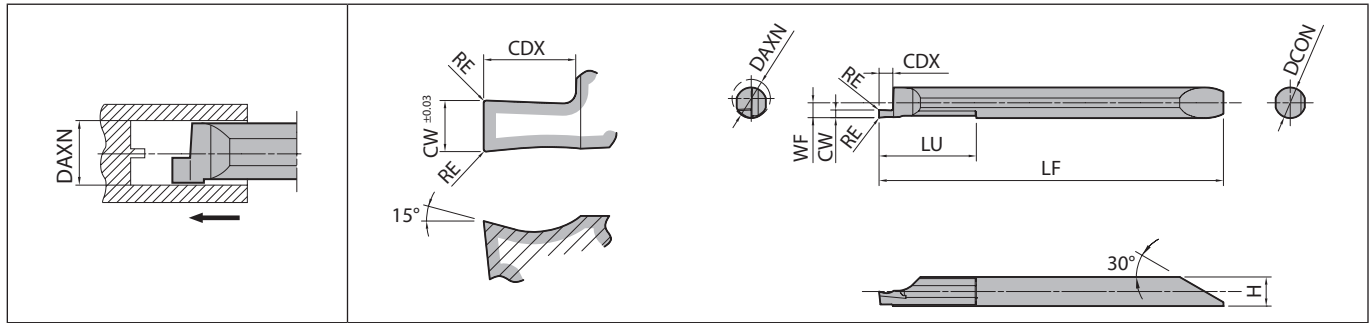


Face grooving $\phi 35\sim$



Type	GIFV
External dia. of the groove (min.)	$\phi 35\sim\phi 50$
Edge width (mm)	2.0~6.0
Grooving depth (mm)	2.2~8.1
See Page	G133



EZFG (Internal grooving / Face grooving)

Right-hand shown

Dimensions

Description	No. of edges	External dia. of the groove (mm)	Dimension (mm)								Tolerance (mm)				Carbide			Applicable sleeve F38~F43
			DAXN (min.)	CW	CDX	RE	DCON	H	LF	LU	WF	CW min.	CW max.	RE min.	RE max.	PVD		-
																PR1225		GW05
																R	L	
EZFG%L 050040-100 050040-150	1	5	1 1.5	1.5 2	0.05	4	3.8	45	12	1.9	-0.03	+0.03	-0.013	+0.013	●	●	●	EZH040...
EZFG%L 060050-100 060050-150 060050-200	1	6	1 1.5 2	1.5 2.5 3	0.05	5	4.8	53.2	15	2.4	-0.03	+0.03	-0.013	+0.013	●	●	●	EZH050...
EZFG%L 080070-100 080070-150 080070-200 080070-300	1	8	1 1.5 2 3	2 2.5 3 3	0.05	7	6.8	64.2	25	3.4	-0.03	+0.03	-0.013	+0.013	●	●	●	EZH070...

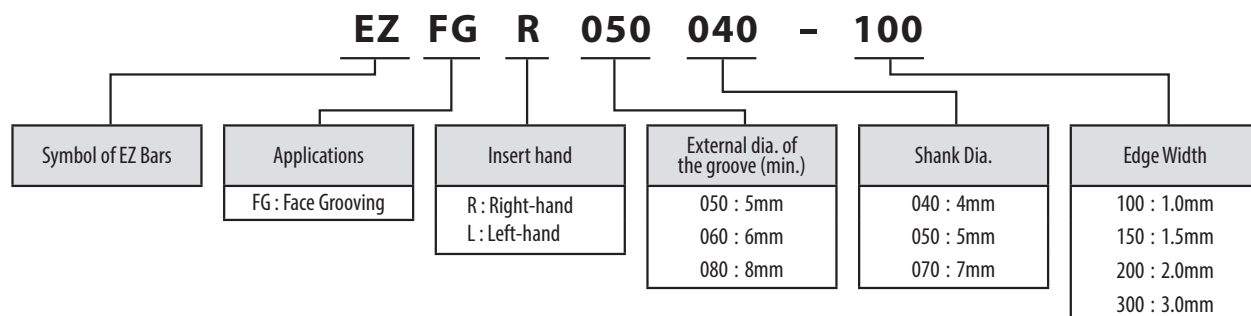
CDX shows available grooving depth.

Recommended cutting conditions G104



Grooving

EZ Bars Identification System



● : Standard item

EZ bars are sold in 1 piece boxes

G103

Applicable sleeves

Sleeve				Applicable insert for internal face grooving		Applicable machine manufacturer
EZH-CT (Adjustable overhang length with coolant hole) ➡ F39	EZH-HP (Adjustable overhang length) ➡ F41	EZH-ST ➡ F43	Sleeve shank dia.	EZFG	Shank dia.	
			DCON(mm)		DCON(mm)	
-	-	EZH 04012ST-80	12	EZFG [®] /L 050040-...	4	(General purpose)
		05012ST-80		EZFG [®] /L 060050-...	5	
		07012ST-80		EZFG [®] /L 080070-...	7	
-	EZH 04016HP-100	EZH 04016ST-100	16	EZFG [®] /L 050040-...	4	(General purpose)
	05016HP-100	05016ST-100		EZFG [®] /L 060050-...	5	
	07016HP-100	07016ST-100		EZFG [®] /L 080070-...	7	
EZH 04019CT-120	EZH 04019HP-120	EZH 04019ST-120	19.05	EZFG [®] /L 050040-...	4	Citizen Machinery
05019CT-120	05019HP-120	05019ST-120		EZFG [®] /L 060050-...	5	
07019CT-120	07019HP-120	07019ST-120		EZFG [®] /L 080070-...	7	
EZH 04020CT-120	EZH 04020HP-120	EZH 04020ST-120	20	EZFG [®] /L 050040-...	4	Eguro Tsugami Citizen Machinery (General purpose)
05020CT-120	05020HP-120	05020ST-120		EZFG [®] /L 060050-...	5	
07020CT-120	07020HP-120	07020ST-120		EZFG [®] /L 080070-...	7	
EZH 04022CT-135	EZH 04022HP-135	EZH 04022ST-135	22	EZFG [®] /L 050040-...	4	Star Micronics Nomura DS Tsugami
05022CT-135	05022HP-135	05022ST-135		EZFG [®] /L 060050-...	5	
07022CT-135	07022HP-135	07022ST-135		EZFG [®] /L 080070-...	7	
EZH 04025.0CT-135	EZH 04025.0HP-135	EZH 04025.0ST-135	25	EZFG [®] /L 050040-...	4	Eguro Tsugami Citizen Machinery (General purpose)
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZFG [®] /L 060050-...	5	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZFG [®] /L 080070-...	7	
EZH 04025.4CT-120	EZH 04025.4HP-120	EZH 04025.4ST-120	25.4	EZFG [®] /L 050040-...	4	Citizen Machinery
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZFG [®] /L 060050-...	5	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZFG [®] /L 080070-...	7	

· Choose sleeves (DCB) to meet with DCON dimension of Face Grooving Inserts.

· Adjustment Pin cannot be installed to **EZH-ST** sleeves. To adjust overhang of the bar, please use **EZH-CT** / **HP** sleeves.

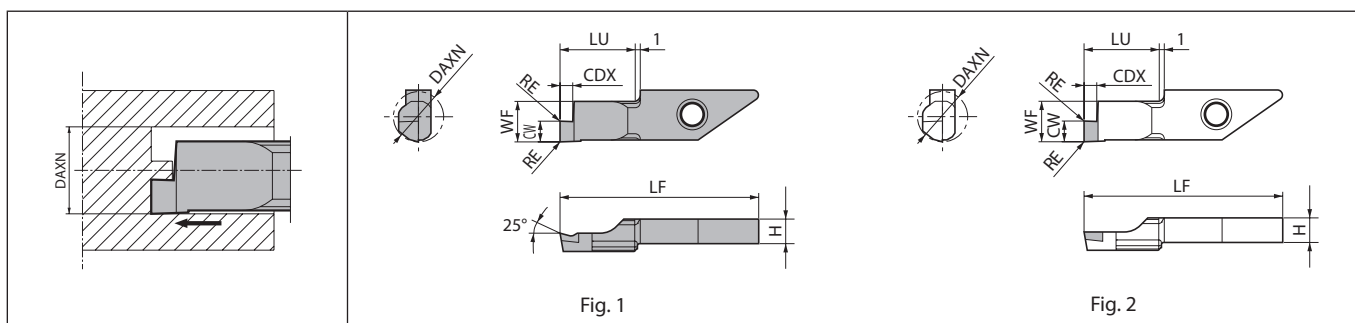
· Machine manufacturers in random order

Recommended cutting conditions

Workpiece material	Insert grades		EZFG [®] /L050040-100 EZFG [®] /L060050-100 EZFG [®] /L080070-100	EZFG [®] /L050040-150 EZFG [®] /L060050-150 EZFG [®] /L080070-150	EZFG [®] /L060050-200 EZFG [®] /L080070-200	EZFG [®] /L080070-300	Remarks
	MEGACOAT	Carbide					
	PR1225	GW05	f (mm/rev)				
Carbon steel / Alloy steel	★ 30~100	-	~0.02	~0.03	~0.04	~0.05	Coolant
Stainless steel	★ 30~80	-	~0.01	~0.02	~0.02	~0.03	
Non-ferrous metals	-	★ ~300	~0.03	~0.05	~0.06	~0.08	

★ : 1st recommendation

VNFG (Internal grooving / Face grooving)



Right-hand shown

Dimensions

Description	No. of edges	External dia. of the groove (mm)		Dimension (mm)							Tolerance (mm)		Fig.	Carbide			PCD	Applicable toolholder ➡ F48~F51	
		DAXN (min.)	DAXX (max.)	CW	CDX	RE	H	LF	LU	WF	CW min.	CW max.		PVD	-	-			
														PR1225	PR930	KW10			KPD001
VNFR 0810-10 0820-10 0830-10	1	8 (0)	∞ (∞)	1	2	0.05	3.9	29.6	10	7.3	-0.03	+0.03	1	●	●	●		SVNR...-12N S...-SVNR12N S...-SVNR12SN	
VNFR 0820-10NB 0830-10NB	1			2	3									2	3	0.05			3.9

CDX shows available grooving depth.

External dia. of the groove DAXN (0) means that you can make the initial groove within DAXN ~ DAXX and then widen it to the center.



Grooving

Recommended cutting conditions

Workpiece material	Recommended insert grades (Vc: m/min)			VNFG0810	VNFG0820	VNFG0830	Remarks
	MEGACOAT	PVD Coated Carbide	Carbide				
	PR1225	PR930	KW10				
Carbon steel / Alloy steel	★ 30~100	☆ 30~100		~0.02	~0.04	~0.05	Coolant
Stainless steel	★ 30~100	☆ 30~80		~0.01	~0.02	~0.03	
Non-ferrous metals			★ ~300	~0.04	~0.06	~0.08	

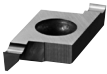
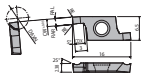
★ : 1st recommendation ☆ : 2nd recommendation

● : Standard item MT0 : Made to order

System tip-bars are
sold in 5 piece boxesCBN & PCD Inserts are
sold in 1 piece boxes

G105

TWFG (Face grooving, Horizontal type)

		Carbon steel / Alloy steel								○	●		P	
		Stainless steel								○	●		M	
		Cast iron											K	
		Non-ferrous metals										●	N	
		Titanium alloy											S	
		Hard materials (~ 40HRC)											H	
		Hard materials (40HRC ~)												
Insert	Description	No. of edges	External dia. of the groove (mm)		Dimension (mm)			Tolerance (mm)		Angle (°)	Carbide			Applicable toolholder  G106 G107
			DAXN (min.)	DAXX (max.)	CW	CDX	RE	CW min.	CW max.	RA	PVD	-		
											PR1025 PR1335	KW10		
 	TWFG	050	2	6 (0)	∞ (∞)	0.5	1	0.05	- 0.03	+ 0.03	1.5	●	●	STW.....-15 S...-STW15
	080	0.8				1.5	1.5				●	●		
	100	1				2.2	2				●	●		
	125	1.25				2.2	2				●	●		
	150	1.5				2.2	2				●	●		
	180	1.8				3	2				●	●		
	200	2				3	2				●	●		

CDX shows available grooving depth.

External dia. of the groove DAXN (0) means that you can make the initial groove within DAXN ~ DAXX and then widen it to the center.

Left-hand shown

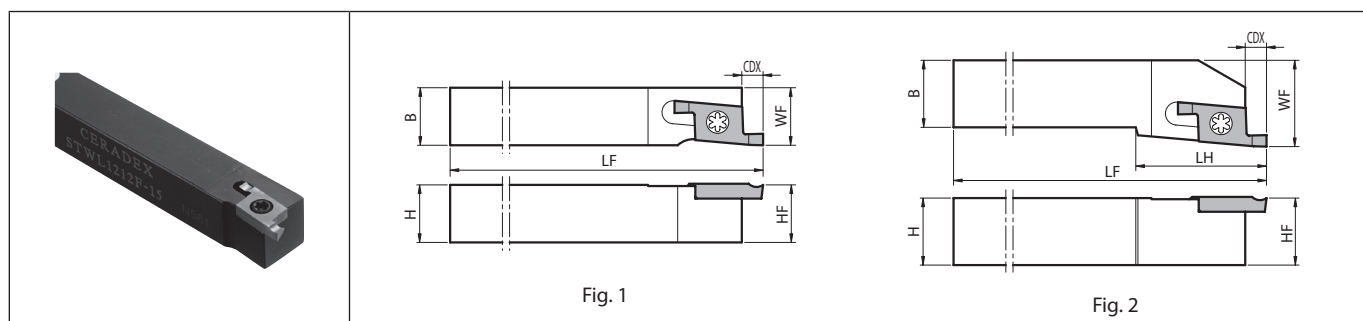
Recommended cutting conditions ➡ **G109**

Grooving

External

Internal

Face

STW (Face grooving, Square shank for horizontal type insert)

Left-hand shown | Left-hand Insert for Left-hand Toolholder. | (For right-hand toolholder for boring, See page F56.)

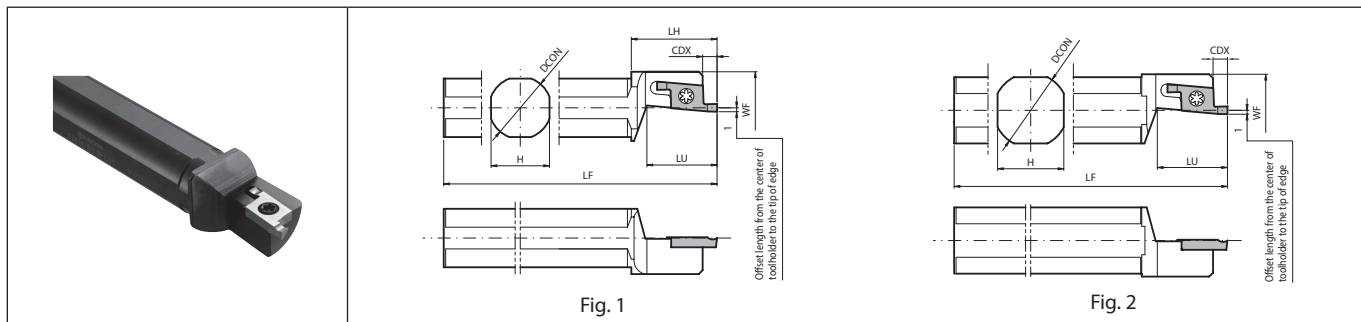
Toolholder dimensions

Description		Availability	Dimension (mm)							Fig.	Spare parts		Applicable inserts  G106
											Screw	Wrench	
			L	CDX	H	B	LH	HF	LF		WF		
STWL	1010F-15		3	10	10	-	10	85	1	SB-3080TR	LTW-10S	TWFG...	
	1212F-15			12	12		12	125					
	1212K-15			16	16		16	125					
	1616K-15												
STWL	2020K-15		3	20	20	25	20	125	2	SB-3080TR	LTW-10S	TWFG...	
	2525M-15			25	25		25	150					32

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : „CDX“ of Insert.

● : Standard item

G106Twin-bars are
sold in 5 piece boxes

STW (Face grooving, Round shank for horizontal type insert)

Left-hand shown | Left-hand Insert for Left-hand Toolholder. | (For right-hand toolholder for boring, See page **F57**.)

Toolholder dimensions

Description	Availability	Dimension (mm)							Coolant hole	Fig.	Spare parts		Applicable inserts  G106		
		L	DCON	CDX	H	LH	LF	LU			WF	Screw		Wrench	
															
S12F- STWL15	●	12	3	11	22	80	18	20	No	1	SB-3080TR	LTW-10S	TWFGL...		
S14H- STWL15	●	14		13		100									
S15F- STWL15	●	15.875		15		85									
S16F- STWL15	●	16	3	17	-	90	18	18.5	No	2	SB-3080TR	LTW-10S	TWFGL...		
S19G- STWL15	●	19.05				120								90	19.5
S19K- STWL15	●	19.05				120								90	19.5
S20G- STWL15	●	20	3	18	-	120	22	21.5	No	2	SB-3080TR	LTW-10S	TWFGL...		
S20K- STWL15	●	20				125								24.5	
S22K- STWL15	●	22				110								25	
S25.0J- STWL15	●	25	3	23	-	120	22	24.5	No	2	SB-3080TR	LTW-10S	TWFGL...		
S25K- STWL15	●	25.4				120								25	

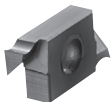
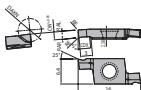
CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : „CDX“ of Insert.

● : Standard item



Grooving

TWFGT (Face grooving, Vertical type)

		Carbon steel / Alloy steel										○	●		P
		Stainless steel										○	●		M
		Cast iron													K
		Non-ferrous metals												●	N
		Titanium alloy													S
		Hard materials (~ 40HRC)													H
		Hard materials (40HRC ~)													
Insert	Description	No. of edges	External dia. of the groove (mm)		Dimension (mm)			Tolerance (mm)		Angle (°)	Carbide			Applicable toolholder 🔗 G109	
			DAXN (min.)	DAXX (max.)	CW	CDX	RE	CW min.	CW max.	RA%/L	PVD				
											PR1025	PR1535	KW10		
		TWFGTR	050	2	6 (0)	∞ (∞)	0.5	1	0.05	- 0.03	+ 0.03	1.5	●	●	STWSR.....-15T
			080				0.8	1.5				1.5	●	●	
			100				1	2.2				2	●	●	
			125				1.25	2.2				2	●	●	
			150				1.5	2.2				2	●	●	
			180				1.8	3				2	●	●	
			200				2	3				2	●	●	

CDX shows available grooving depth.

External dia. of the groove DAXN (0) means that you can make the initial groove within DAXN ~ DAXX and then widen it to the center.

Right-hand shown

Recommended cutting conditions ➡ **G109**

Grooving

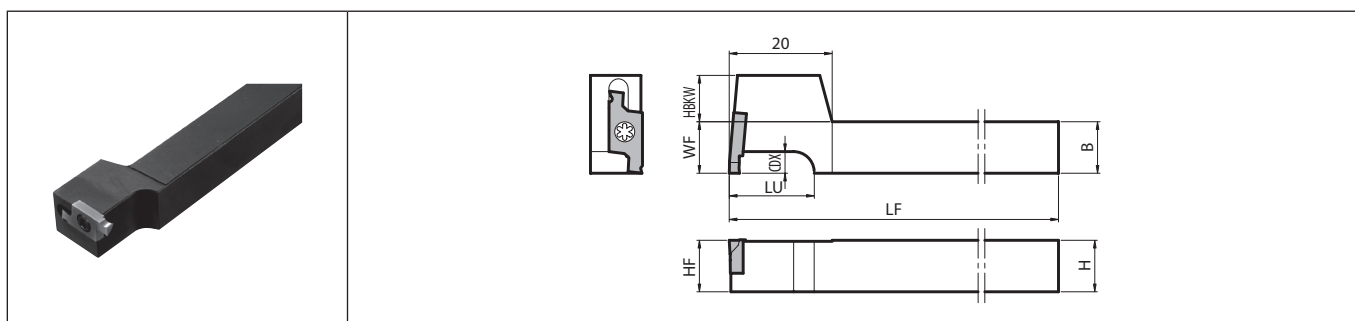
External

Internal

Face

● : Standard item

G108Twin-bars are
sold in 5 piece boxes

STWS (Face grooving, Square shank for vertical type , L-shape)

Right-hand shown

Toolholder dimensions

Description		Availability	Dimension (mm)								Spare parts		Applicable inserts ➡ G108
											Screw	Wrench	
			R	H	B	LU	HF	HBKW	LF	CDX	WF		
STWSR	1010F-15T	●	10	10	16	10	9	85	3	10	SB-3080TR	LTW-10S	TWFGTR...
	1010JX-15T	●						120					
	1212F-15T	●	12	12	12	7	85	12					
	1212JX-15T	●					120						
	1616JX-15T	●	16	16	20	16	3		16				

CDX shows the distance from the toolholder to the cutting edge. Available Groove Depth : „CDX“ of Insert.



Grooving

Recommended cutting conditions TWFG / TWFGT

Workpiece material	Recommended insert grades (Vc:m/min)			TWFGLO50 TWFGLO80 TWFGL100 TWFGTR050 TWFGTR080 TWFGTR100	TWFG125 TWFG150 TWFGTR125 TWFGTR150	TWFG180 TWFG200 TWFGTR180 TWFGTR200	Remarks
	MEGACOAT	PVD coated carbide	Carbide				
	PR1535	PR1025	KW10	f (mm/rev)			
Carbon steel / Alloy steel	★ 30~100	☆ 30~100	-	~0.02	~0.03	~0.04	Coolant
Stainless steel	★ 30~80	☆ 30~80	-	~0.01	~0.02	~0.02	
Non-ferrous metals	-	-	★ ~300	~0.03	~0.04	~0.06	

★ :1st recommendation ☆ :2nd recommendation

● : Standard item

G109

KGDF: Face grooving

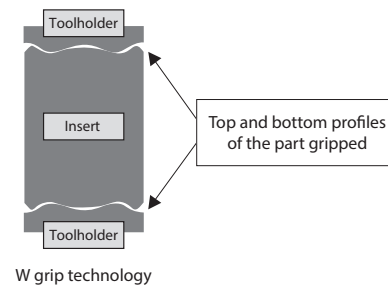
Separate type toolholder (toolholder + blade) and Integral type toolholder are available.
Adaptable to a wide range of face grooving applications by changing blades



Insert clamping system "W grip"

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

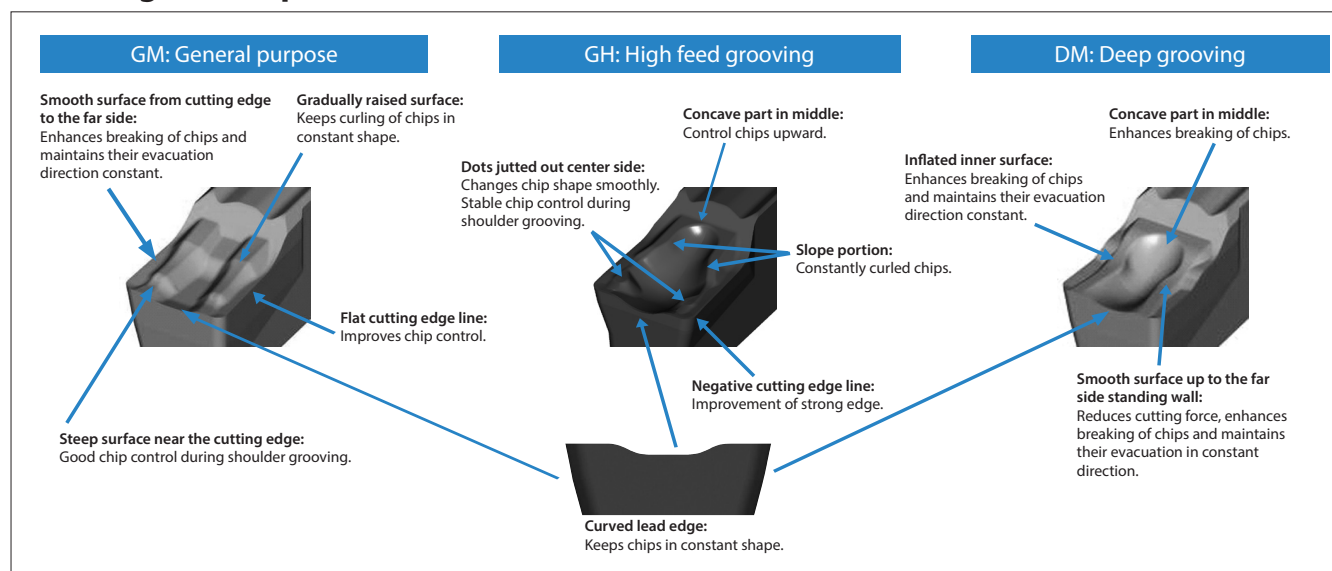
1. Prevents abnormal machining surface and / or insert breakage resulting from slip of insert.
2. Improves repetitive installation accuracy of insert (GDFM and GDFMS inserts are not applicable to KGD external grooving, cut-off and KGD internal grooving toolholders.)



Smooth chip control

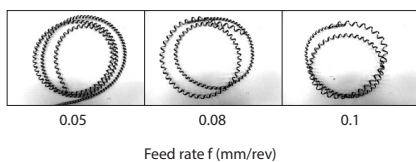
For general purpose GM chipbreaker, for high feed grooving GH chipbreaker, for deep grooving DM chipbreaker

Advantages of chipbreaker



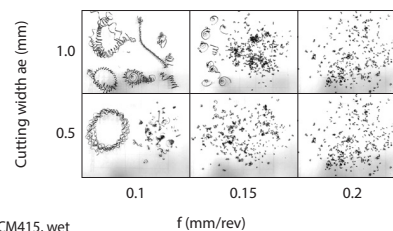
Chip control of GM chipbreaker

Face grooving ($\phi 62$)

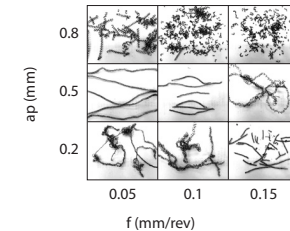


Cutting conditions: $V_c = 150$ m/min, $f = 0.05 \sim 0.2$ mm/rev, GDFM5020N-040GM, SCM415, wet

Side grooving



Turning



GDFM/GDMFS

		Carbon steel / Alloy steel										     				P
		Stainless steel										 				M
		Cast iron														K
		Non-ferrous metals														N
		Titanium alloy														S
		Hard materials (~ 40HRC)														H
		Hard materials (40HRC ~)														
Insert	Description	No. of edges	Dimension (mm)				Tolerance (mm)		Carbide			Cermet		Applicable toolholder  G114 ~ G120		
			CW	S	RE	INSL	CW min.	CW max.	PVD	-	-					
									PR1215	PR1225	GW15	TN620	TN90			
 General purpose	GDFM 2020N-020GM	2	2	3.9	0.2	21	-0.03	+0.03	 				KGDF [®] /L...-2...			
	GDFM 3020N-030GM	2	3	4.3	0.3	20	-0.03	+0.03	 				KGDF [®] /L...-3...			
	GDFM 4020N-040GM	2	4	4.5	0.4	20	-0.03	+0.03	 				KGDF [®] /L...-4...			
	GDFM 5020N-040GM 5020N-080GM	2	5	4.5	0.4 0.8	20	-0.04	+0.04	 				KGDF [®] /L...-5...			
	GDFM 6020N-040GM 6020N-080GM	2	6	4.5	0.4 0.8	20	-0.04	+0.04	 				KGDF [®] /L...-6...			
 High feed	GDFM 4020N-040GH	2	4	4.5	0.4	20	-0.03	+0.03	 				KGDF [®] /L...-4...			
	GDFM 5020N-040GH 5020N-080GH	2	5	4.5	0.4 0.8	20	-0.04	+0.04	 				KGDF [®] /L...-5...			
	GDFM 6020N-040GH 6020N-080GH	2	6	4.5	0.4 0.8	20	-0.04	+0.04	 				KGDF [®] /L...-6...			
 Deep grooving	GDFM 3020N-030DM	2	3	4.3	0.3	20	-0.03	+0.03	 				KGDF [®] /L...-3...			
	GDFM 4020N-040DM	2	4	4.5	0.4	20	-0.03	+0.03	 				KGDF [®] /L...-4...			
	GDFM 5020N-040DM	2	5	4.5	0.4	20	-0.04	+0.04	 				KGDF [®] /L...-5...			
	GDFM 6020N-040DM	2	6	4.5	0.4	20	-0.04	+0.04	 				KGDF [®] /L...-6...			
 Deep grooving / 1-edge	GDFMS 3020N-030DM	1	3	4.3	0.3	20	-0.03	+0.03	 				KGDF [®] /L...-3...			
	GDFMS 4020N-040DM	1	4	4.5	0.4	20	-0.03	+0.03	 				KGDF [®] /L...-4...			
	GDFMS 5020N-040DM	1	5	4.5	0.4	20	-0.04	+0.04	 				KGDF [®] /L...-5...			
	GDFMS 6020N-040DM	1	6	4.5	0.4	20	-0.04	+0.04	 				KGDF [®] /L...-6...			
 Non-Ferrous Metals	GDFG 3020N-020GS	2	3	4.3	0.2	20	-0.2	+0.2					KGDF [®] /L...-3...			
	GDFG 4020N-040GS	2	4	4.5	0.4	20	-0.2	+0.2					KGDF [®] /L...-4...			
	GDFG 5020N-040GS	2	5	4.5	0.4	20	-0.2	+0.2					KGDF [®] /L...-5...			
	GDFG 6020N-040GS	2	6	4.5	0.4	20	-0.2	+0.2					KGDF [®] /L...-6...			
 Full R	GDFM 3020N-150R-CM	2	3	4.3	1.5	20	-0.03	+0.03	 				KGDF [®] /L...-3...			
	GDFM 4020N-200R-CM	2	4	4.5	2	21	-0.03	+0.03	 				KGDF [®] /L...-4...			
	GDFM 5020N-250R-CM	2	5	4.5	2.5	21	-0.04	+0.04	 				KGDF [®] /L...-5...			
	GDFM 6020N-300R-CM	2	6	4.5	3	22	-0.04	+0.04	 				KGDF [®] /L...-6...			

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

Recommended cutting conditions G122

Inserts identification system

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

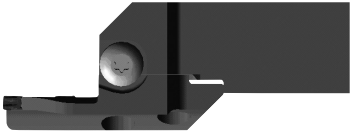
● : Standard item

G111

KGDF: Toolholder assembly identification

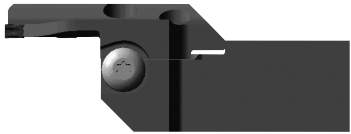
Unit description
(Unit description is not printed.)

Left-hand : KGDFL...S



Left-hand shown

Right-hand : KGDFR...S



Right-hand shown

Blade
(Blade Description is printed.)

Left-hand : KGDFL...-C



Left-hand shown

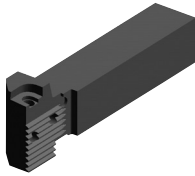
Right-hand : KGDFR...-C



Right-hand shown

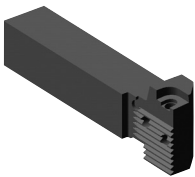
Toolholder
(Toolholder Description is printed.)

Right-hand : KGDR...-C



Right-hand shown

Left-hand : KGDL...-C



Left-hand shown

G



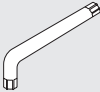
Grooving

External

Internal

Face

- Right-hand blade for left-hand toolholder, left-hand blade for right-hand toolholder.
- The unit description is not printed on the product. It is printed on the box label.
- Combination of the toolholder and blade (both separately sold) can make up the corresponding assembly.
- The insert clamping screw (BH6X10TR), blade fixing screw (SB-60120TR) and wrench (LTW-25) which are included in the toolholder can be used.

Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
		
BH6X10TR	SB-60120TR	LTW-25

External dia. of the groove DAXN / DAXX

External dia. of the groove within DAXN ~ DAXX are the available range for the initial grooving on the unprocessed workpiece (Ref. to Fig. 1).
Then, you can widen it up to the center towards the inside (excluding the models listed in the right table)
and towards the outside according to machine limits.

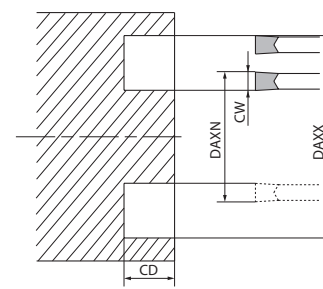
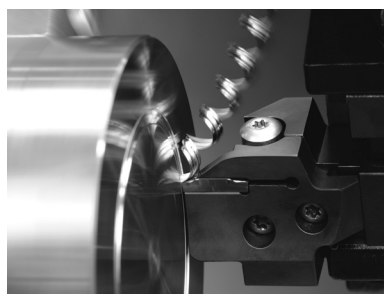
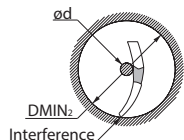


Fig. 1

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.

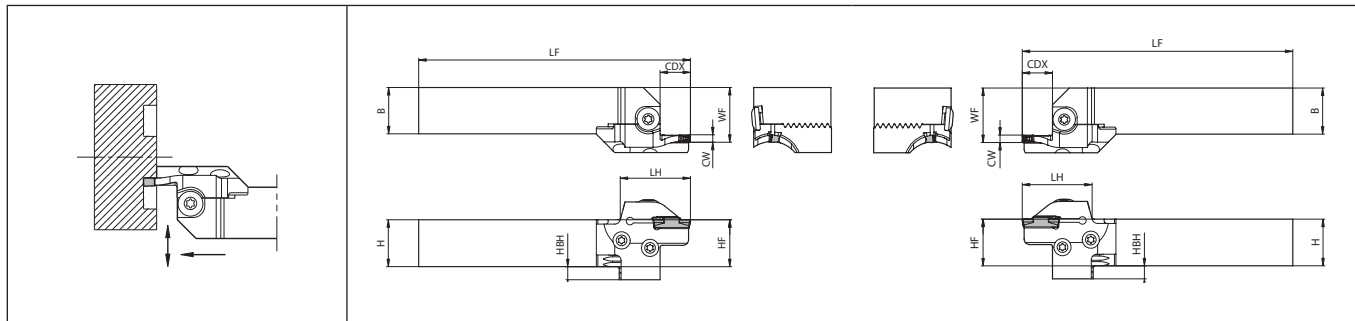
 ød DMIN₂ Interference Remaining Boss Dia.ød			DMIN ₂						
			Description						
					ød (mm)				0 (No remaining Boss)
	KGDF ³ / _L -25-3A-C + KGD ¹ / _h 2020-C				4	2	0		
	KGDF ³ / _L -25-3A-C + KGD ¹ / _h 2525-C								
	KGDF ³ / _L -25-4A-C + KGD ¹ / _h 2020-C				6	3	0		
	KGDF ³ / _L -25-4A-C + KGD ¹ / _h 2525-C								
	KGDF ³ / _L -25-5B-C + KGD ¹ / _h 2020-C				7	4	1		
	KGDF ³ / _L -25-5B-C + KGD ¹ / _h 2525-C								
	KGDF ³ / _L -25-6B-C + KGD ¹ / _h 2020-C				9	4	1		
KGDF ³ / _L -25-6B-C + KGD ¹ / _h 2525-C									

e.g.)

Toolholder assembled from KGDFR-25-3A-C and KGD¹/_h2020-C with ø25 as first cut towards the center, it will cause a rubbing with the toolholder cartridge if ød is 4.0mm.



Grooving

KGDF (Face grooving / 0° separate type)

Right-hand shown
(Right-hand blade and left-hand toolholder)

Left-hand shown
(Left-hand blade and right-hand toolholder)

Toolholder dimensions (Blade and toolholder)

Shank angle	Cutting width CW (mm)	Shank size (mm)	Max. depth of cut CDX(mm)	External dia. of the groove (mm)		Blade description ➡ G121	Toolholder description ➡ G42	Dimension (mm)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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0°	2	20	6	25	30	KGDFR -25-2A-C -30-2A-C -35-2A-C -45-2A-C -60-2A-C -80-2A-C -100-2A-C	KGDL2020-C	20	20	33	20	12	115	24.5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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1. KGDF: Right-hand blade for left-hand toolholder, left-hand blade for right-hand toolholder.

The toolholder is applicable for all blade with suitable hand.

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.)

Above toolholders are applicable to Cut-off, too.

3. The insert clamping Screw (BH6X10TR), blade fixing Screw (SB-60120TR) and Wrench (LTW-25) which are included in the toolholder can be used.

Applicable inserts ➡ G111

Toolholder dimensions (Blade and toolholder)

Shank angle	Cutting width CW (mm)	Shank size (mm)	Max. depth of cut CDX (mm)	External dia. of the groove (mm)		Blade description ➡ G121	Toolholder description ➡ G42	Dimension (mm)												
				DAXN (min.)	DAXX (max.)			H	B	LH	HF	HBH	LF	WF						
0°	3	□20	13	25	30	KGDF%/	-25-3A-C	KGD ¹ /r2020-C	20	20	36	20	12	118	24.5					
				30	40		-30-3A-C													
				40	50		-40-3A-C													
			15	50	65	KGDF%/	-50-3B-C				38		20	120						
				65	85		-65-3B-C													
				85	110		-85-3B-C													
			22	110	145	KGDF%/	-110-3B-C				45		127							
				50	65		-50-3C-C													
				65	85		-65-3C-C													
			25	85	110		-85-3C-C				48		130							
				110	145	KGDF%/	-110-3C-C													
				25	30	KGDF%/	-25-3A-C							KGD ¹ /r2525-C		25	25	36	25	7
		13	40	50		-40-3A-C														
			50	65	KGDF%/	-50-3B-C	38	25	145											
			65	85		-65-3B-C														
		85	110		-85-3B-C															
		22	110	145	KGDF%/	-110-3B-C	45	152												
			50	65		-50-3C-C														
			65	85		-65-3C-C														
		25	85	110		-85-3C-C	48	155												
			110	145	KGDF%/	-110-3C-C														
			□32	13	25	30			KGDF%/	-25-3A-C	KGD ¹ /r3232-C	32	32		36			32		-
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		40			50		-40-3A-C													
15	50	65		KGDF%/	-50-3B-C	38	32	-	165											
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22	110	145		KGDF%/	-110-3B-C	45	172													
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	65	85			-65-3C-C															
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	0°	4		□20	13			25	35	KGDF%/				-25-4A-C	KGD ¹ /r2020-C	20	20		36	20
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			150		220		-150-4B-C													
25			220		∞		-220-4B-C	48	130											
			35		50	KGDF%/	-35-4C-C													
			50		70		-50-4C-C													
13			70		100		-70-4C-C	36	25	7	143									
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			150		220		-150-4C-C													
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				100	150		-100-4C-C													
				150	220		-150-4C-C													
			13	220	∞		-220-4C-C	36	32	-	163									
				25	35	KGDF%/	-25-4A-C					KGD ¹ /r3232-C	32	32	38	32	-	165	36.5	
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	70	100		-70-4C-C																
	100	150		-100-4C-C																
25	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
13	50	70		-50-4C-C	38	32	-	165												
	70	100		-70-4C-C																
	100	150		-100-4C-C																
22	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
15	50	70		-50-4C-C	36	32	-	163												
	70	100		-70-4C-C																
	100	150		-100-4C-C																
25	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
13	50	70		-50-4C-C	38	32	-	165												
	70	100		-70-4C-C																
	100	150		-100-4C-C																
22	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
15	50	70		-50-4C-C	36	32	-	163												
	70	100		-70-4C-C																
	100	150		-100-4C-C																
25	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
13	50	70		-50-4C-C	38	32	-	165												
	70	100		-70-4C-C																
	100	150		-100-4C-C																
22	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
15	50	70		-50-4C-C	36	32	-	163												
	70	100		-70-4C-C																
	100	150		-100-4C-C																
25	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
13	50	70		-50-4C-C	38	32	-	165												
	70	100		-70-4C-C																
	100	150		-100-4C-C																
22	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
15	50	70		-50-4C-C	36	32	-	163												
	70	100		-70-4C-C																
	100	150		-100-4C-C																
25	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
13	50	70		-50-4C-C	38	32	-	165												
	70	100		-70-4C-C																
	100	150		-100-4C-C																
22	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
15	50	70		-50-4C-C	36	32	-	163												
	70	100		-70-4C-C																
	100	150		-100-4C-C																
25	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
13	50	70		-50-4C-C	38	32	-	165												
	70	100		-70-4C-C																
	100	150		-100-4C-C																
22	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
15	50	70		-50-4C-C	36	32	-	163												
	70	100		-70-4C-C																
	100	150		-100-4C-C																
25	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
13	50	70		-50-4C-C	38	32	-	165												
	70	100		-70-4C-C																
	100	150		-100-4C-C																
22	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
15	50	70		-50-4C-C	36	32	-	163												
	70	100		-70-4C-C																
	100	150		-100-4C-C																
25	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
13	50	70		-50-4C-C	38	32	-	165												
	70	100		-70-4C-C																
	100	150		-100-4C-C																
22	150	220		-150-4C-C	48	175														
	220	∞		-220-4C-C																
	35	50	KGDF%/	-35-4C-C																
15	50	70		-50-4C-C	36	32	-	163												

1. KGDF: Right-hand blade for left-hand toolholder, left-hand blade for right-hand toolholder.

The toolholder is applicable for all blade with suitable hand.

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.)

Above toolholders are applicable to Cut-off, too.

3. The insert clamping Screw (BH6X10TR), blade fixing Screw (SB-60120TR) and Wrench (LTW-25) which are included in the toolholder can be used.

Applicable inserts ➡ G111



Grooving

Toolholder dimensions (Blade and toolholder)

Shank angle	Cutting width CW (mm)	Shank size (mm)	Max. depth of cut CDX(mm)	External dia. of the groove (mm)		Blade description ➡ G121	Toolholder description ➡ G42	Dimension (mm)						
				DAXN (min.)	DAXX (max.)			H	B	LH	HF	HBH	LF	WF
0°	5	□20	15	25	35	KGDF [®] /L -25-5B-C	KGD ^L /R2020-C	20	20	38	20	12	120	24.5
				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	KGDF [®] /L -25-5C-C				43		125		
				25	35	50							-35-5C-C	
			50		75	-50-5C-C								
			75		115	-75-5C-C								
			115		180	-115-5C-C								
			180		235	-180-5C-C								
			235	∞	-235-5C-C									
			32	75	115	KGDF [®] /L -75-5D-C								
				115	180	-115-5D-C								
				180	235	-180-5D-C								
				235	∞	-235-5D-C								
		□25	15	25	35	KGDF [®] /L -25-5B-C	KGD ^L /R2525-C	25	25	38	25	7	145	29.5
				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	KGDF [®] /L -25-5C-C				43		150		
				25	35	50							-35-5C-C	
			50		75	-50-5C-C								
			75		115	-75-5C-C								
			115		180	-115-5C-C								
			180		235	-180-5C-C								
			235	∞	-235-5C-C									
			32	75	115	KGDF [®] /L -75-5D-C								
				115	180	-115-5D-C								
				180	235	-180-5D-C								
				235	∞	-235-5D-C								
		□32	15	25	35	KGDF [®] /L -25-5B-C	KGD ^L /R3232-C	32	32	38	32	-	165	36.5
				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	KGDF [®] /L -25-5C-C				43		170		
				25	35	50							-35-5C-C	
			50		75	-50-5C-C								
			75		115	-75-5C-C								
			115		180	-115-5C-C								
			180		235	-180-5C-C								
			235	∞	-235-5C-C									
			32	75	115	KGDF [®] /L -75-5D-C								
				115	180	-115-5D-C								
				180	235	-180-5D-C								
				235	∞	-235-5D-C								

1. KGDF: Right-hand blade for left-hand toolholder, left-hand blade for right-hand toolholder.

The toolholder is applicable for all blade with suitable hand.

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.)

Above toolholders are applicable to Cut-off, too.

Applicable inserts ➡ G111

G116

Toolholder dimensions (Blade and toolholder)

Shank angle	Cutting width CW (mm)	Shank size (mm)	Max. depth of cut CDX(mm)	External dia. of the groove (mm)		Blade description ➡ G121	Toolholder description ➡ G42	Dimension (mm)								
				DAXN (min.)	DAXX (max.)			H	B	LH	HF	HBH	LF	WF		
0°	6	□20	15	25	35	KGDF ^{F/L} -25-6B-C	KGD ^{L/R} 2020-C	20	20	38			120	24.5		
				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	KGDF ^{F/L} -25-6C-C				43	20	12	125			
				25	35	50									-35-6C-C	
					50	75									-50-6C-C	
					75	115									-75-6C-C	
					115	180									-115-6C-C	
					180	235									-180-6C-C	
					235	∞									-235-6C-C	
			32	75	115	KGDF ^{F/L} -75-6D-C				55			130			
				115	180	-115-6D-C										
				180	235	-180-6D-C										
				235	∞	-235-6D-C										
		□25	15	25	35	KGDF ^{F/L} -25-6B-C	KGD ^{L/R} 2525-C	25	25	38			145	29.5		
				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	KGDF ^{F/L} -25-6C-C				43	25	7	150			
				25	35	50									-35-6C-C	
					50	75									-50-6C-C	
					75	115									-75-6C-C	
					115	180									-115-6C-C	
					180	235									-180-6C-C	
					235	∞									-235-6C-C	
			32	75	115	KGDF ^{F/L} -75-6D-C				55			162			
				115	180	-115-6D-C										
				180	235	-180-6D-C										
				235	∞	-235-6D-C										
		□32	15	25	35	KGDF ^{F/L} -25-6B-C	KGD ^{L/R} 3232-C	32	32	38			165	36.5		
				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	KGDF ^{F/L} -25-6C-C				43	32	-	170			
				25	35	50									-35-6C-C	
					50	75									-50-6C-C	
					75	115									-75-6C-C	
					115	180									-115-6C-C	
					180	235									-180-6C-C	
					235	∞									-235-6C-C	
			32	75	115	KGDF ^{F/L} -75-6D-C				55			175			
				115	180	-115-6D-C										
180	235			-180-6D-C												
235	∞			-235-6D-C												

1. KGDF: Right-hand blade for left-hand toolholder, left-hand blade for right-hand toolholder.

The toolholder is applicable for all blade with suitable hand.

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.)

Above toolholders are applicable to Cut-off, too.

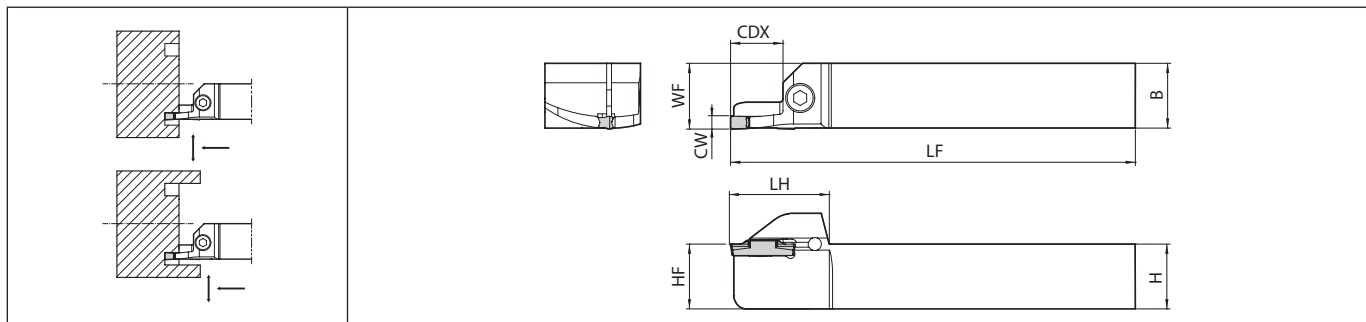
Applicable inserts ➡ G111



Grooving

G117

KGDF-Z (Face grooving)

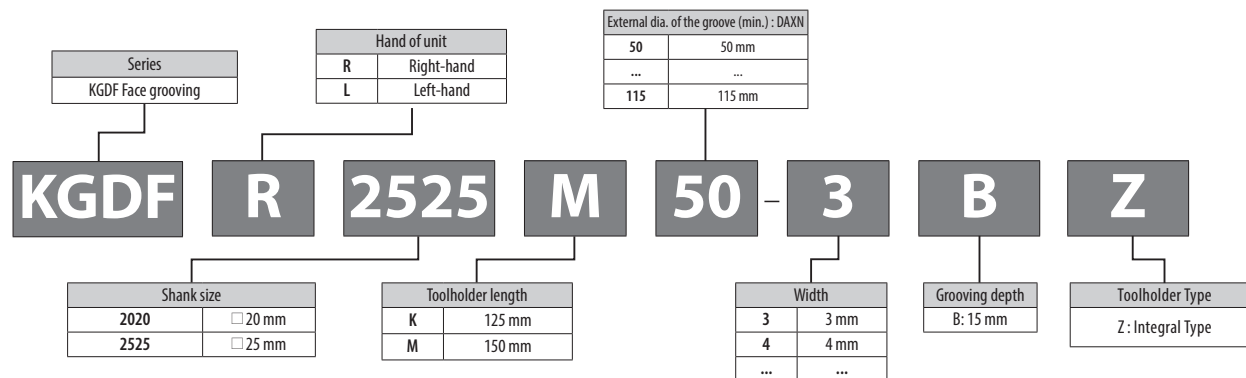


Right-hand shown

Toolholder dimensions

Description	Availability		External dia. of the groove (mm)		Dimension (mm)								Spare parts		Applicable inserts  G111
													Clamp bolt	Wrench	
	R	L	DAXN (min.)	DAXX (max.)	CW	CDX	H	B	LH	HF	LF	WF			
KGDF [®] 2020K50-3B-Z 2020K65-3B-Z 2020K85-3B-Z 2020K110-3B-Z 2525M50-3B-Z 2525M65-3B-Z 2525M85-3B-Z 2525M110-3B-Z	●	●	50	65	3	15	20	20	30.5	20	125	20.3		LW-4	GDFM 3020... GDFMS 3020... GDFG 3020...
	●	●	65	85											
	●	●	85	110											
	●	●	110	145											
	●	●	50	65			25	25	25	150	25.3				
	●	●	65	85											
	●	●	85	110											
	●	●	110	145											
KGDF [®] 2020K50-4B-Z 2020K70-4B-Z 2020K100-4B-Z 2525M50-4B-Z 2525M70-4B-Z 2525M100-4B-Z	●	●	50	70	4	15	20	20	30.5	20	125	20.3		LW-4	GDFM 4020... GDFMS 4020... GDFG 4020...
	●	●	70	100											
	●	●	100	150											
	●	●	50	70			25	25	25	150	25.3				
	●	●	70	100											
	●	●	100	150											
KGDF [®] 2020K50-5B-Z 2020K75-5B-Z 2020K115-5B-Z 2525M50-5B-Z 2525M75-5B-Z 2525M115-5B-Z	●	●	50	75	5	15	20	20	30.5	20	125	20.3		LW-4	GDFM 5020... GDFMS 5020... GDFG 5020...
	●	●	75	115											
	●	●	115	180											
	●	●	50	75			25	25	25	150	25.3				
	●	●	75	115											
	●	●	115	180											

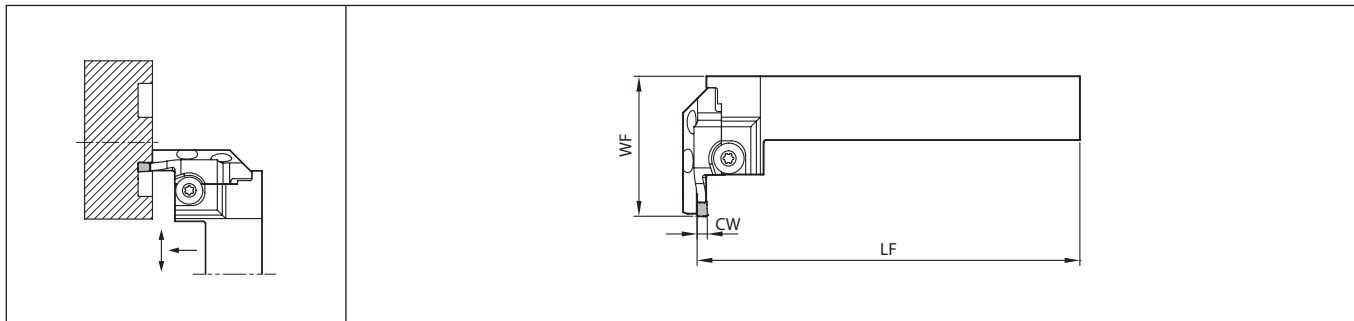
KGDF-Z toolholder identification system



● : Standard item

G118

KGDF (Face grooving / 90° separate type)



Right-hand shown (Right-hand blade and right-hand toolholder)

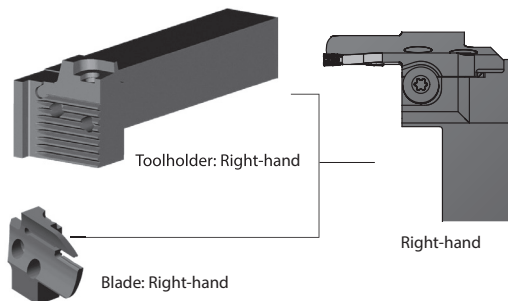
Toolholder dimensions (Blade and toolholder)

Shank angle	Cutting width CW (mm)	Shank size (mm)	Max. depth of cut CDX (mm)	External dia. of the groove (mm)		Blade description ➡ G121	Toolholder description ➡ G42	Dimension (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	KGDFR	-25-2B-C				KGDSR2020-C	125	52.7			
				30	35									-30-2B-C		
				35	45									-35-2B-C		
				45	60									-45-2B-C		
				60	80									-60-2B-C		
		80		100	-80-2B-C											
		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	KGDFR	-25-2B-C				KGDSR2525-C	150	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%	-25-3A-C	KGDS% 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	KGDF%	-50-3C-C				KGDS% 2020-C	125	59.7			
				65	85									-65-3C-C		
				85	110									-85-3C-C		
				110	145									-110-3C-C		
				22	25									30	KGDF%	-25-3A-C
		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												
		25	13	50	65	KGDF%	-50-3C-C	KGDS% 2525-C	150	59.7						
				65	85						-65-3C-C					
				85	110						-85-3C-C					
				110	145						-110-3C-C					
				22	25						30	KGDF%	-25-3A-C	KGDS% 2525-C	150	61.7
					30						40					
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													
25	15		50	65	KGDF%	-50-3C-C	KGDS% 2525-C				150	54.7				
		65	85	-65-3C-C												
		85	110	-85-3C-C												
		110	145	-110-3C-C												
		22	25	30				KGDF%	-25-3A-C	KGDS% 2525-C			150			
			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													

- KGDF 90° type is not available as unit (Toolholder + blade). Please purchase toolholder and blade separately.
- Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.
- The insert clamping Screw (BH6X10TR), blade fixing Screw (SB-60120TR) and Wrench (LTW-25) which are included in the toolholder can be used.

Shank angle	Cutting width CW (mm)	Shank size (mm)	Max. depth of cut CDX(mm)	External dia. of the groove (mm)		Blade description ➡ G121	Toolholder description ➡ G42	Dimension (mm)						
				DAXN (min.)	DAXX (max.)			LF	WF					
90°	4	20	13	25	35	KGDFR	-25-4A-C	KGDS®.2020-C	125	52.7				
				35	50	KGDFR	-35-4B-C			54.7				
				50	70		-50-4B-C				64.7			
				70	100		-70-4B-C							
				100	150		-100-4B-C							
				150	220		-150-4B-C							
			220	∞		-220-4B-C								
			25	35	50	KGDFR			-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								
		25	13	25	35	KGDFR		-25-4A-C	KGDS®.2525-C	150				
				35	50	KGDFR		-35-4B-C			54.7			
				50	70			-50-4B-C				64.7		
				70	100			-70-4B-C						
				100	150			-100-4B-C						
				150	220		-150-4B-C							
			220	∞		-220-4B-C								
			25	35	50	KGDFR				-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 ➔ G111



Toolholder dimensions (Blade and toolholder)

Shank angle	Cutting width CW (mm)	Shank size (mm)	Max. depth of cut CDX (mm)	External dia. of the groove (mm)		Blade description G121	Toolholder description G42	Dimension (mm)	
				DAXN (min.)	DAXX (max.)			LF	WF
90°	5	□20	15	25	35	KGDF ⁹⁰ /-25-5B-C	KGDS ⁹⁰ /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	KGDF ⁹⁰ /-25-5C-C		125	59.7
				35	50	-35-5C-C			
				50	75	-50-5C-C			
				75	115	-75-5C-C			
			25	115	180	-115-5C-C		125	64.7
				180	235	-180-5C-C			
				235	∞	-235-5C-C			
			32	75	115	KGDF ⁹⁰ /-75-5D-C		125	71.7
				115	180	-115-5D-C			
				180	235	-180-5D-C			
				235	∞	-235-5D-C			
		□25	15	25	35	KGDF ⁹⁰ /-25-5B-C	KGDS ⁹⁰ /2525-C	150	54.7
				35	50	-35-5B-C			
				50	75	-50-5B-C			
				75	115	-75-5B-C			
				115	180	-115-5B-C			
				180	235	-180-5B-C			
				235	∞	-235-5B-C			
			20	25	35	KGDF ⁹⁰ /-25-5C-C		150	59.7
				35	50	-35-5C-C			
				50	75	-50-5C-C			
				75	115	-75-5C-C			
			25	115	180	-115-5C-C		150	64.7
				180	235	-180-5C-C			
				235	∞	-235-5C-C			
			32	75	115	KGDF ⁹⁰ /-75-5D-C		150	71.7
				115	180	-115-5D-C			
				180	235	-180-5D-C			
				235	∞	-235-5D-C			

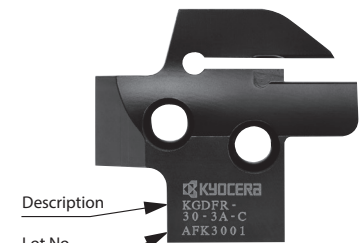
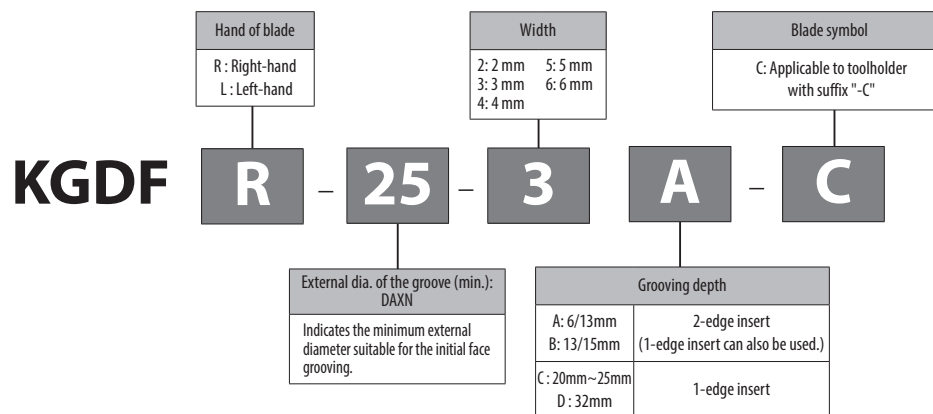
· KGDF 90° type is not available as unit (Toolholder + blade). Please purchase toolholder and blade separately.

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

· The insert clamping Screw (BH6X10TR), blade fixing Screw (SB-60120TR) and Wrench (LTW-25) which are included in the toolholder can be used.

Applicable inserts **G111**

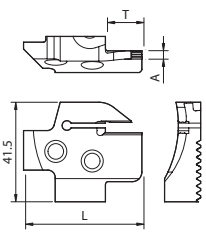
Face grooving blade identification system



Example of printing of blade description

G120

Blade dimensions

Shape	Blade description	Availability		External dia. of the groove (mm)		Dimension (mm)			Cutting width CW (mm)	Applicable inserts ➔ G111	Applicable toolholder ➔ G42
		R	L	DAXN (min.)	DAXX (max.)	L	T	A			
	KGDFR -25-2A-C	●		25	30	44.35	6		1.5	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	47.35	13				
	KGDFR -25-2B-C	●		25	30						
	-30-2B-C	●		30	35						
	-35-2B-C	●		35	45						
	-45-2B-C	●		45	60						
	-60-2B-C	●		60	80						
	-80-2B-C	●		80	100	49.35	15				
	-100-2B-C	●		100	130						
	KGDF% -25-3A-C	●	●	25	30	47.35	13		2	3	GDFM 3020... GDFMS 3020... GDFG 3020...
	-30-3A-C	●	●	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	●	●	110	145	56.35	22				
	KGDF% -50-3C-C	●	●	50	65						
	-65-3C-C	●	●	65	85						
	-85-3C-C	●	●	85	110						
	-110-3C-C	●	●	110	145	47.35	13		3	4	GDFM 4020... GDFMS 4020... GDFG 4020...
	KGDF% -25-4A-C	●	●	25	35						
	-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	59.35	25				
	-220-4B-C	●	●	220	∞						
	KGDF% -35-4C-C	●	●	35	50						
	-50-4C-C	●	●	50	70						
	-70-4C-C	●	●	70	100						
	-100-4C-C	●	●	100	150						
	-150-4C-C	●	●	150	220	54.35	20		4	5	GDFM 5020... GDFMS 5020... GDFG 5020...
	-220-4C-C	●	●	220	∞						
	KGDF% -25-5B-C	●	●	25	35						
	-35-5B-C	●	●	35	50						
	-50-5B-C	●	●	50	75						
	-75-5B-C	●	●	75	115						
	-115-5B-C	●	●	115	180	59.35	25				
	-180-5B-C	●	●	180	235						
	-235-5B-C	●	●	235	∞						
	-25-5C-C	●	●	25	35						
	-35-5C-C	●	●	35	50						
	-50-5C-C	●	●	50	75						
	-75-5C-C	●	●	75	115	66.35	32				
	-115-5C-C	●	●	115	180						
	-180-5C-C	●	●	180	235						
	-235-5C-C	●	●	235	∞						
	-75-5D-C	●	●	75	115						
	-115-5D-C	●	●	115	180						
	-180-5D-C	●	●	180	235	54.35	20		5	6	GDFM 6020... GDFMS 6020... GDFG 6020...
	-235-5D-C	●	●	235	∞						
	KGDF% -25-6B-C	●	●	25	35						
	-35-6B-C	●	●	35	50						
	-50-6B-C	●	●	50	75						
	-75-6B-C	●	●	75	115						
	-115-6B-C	●	●	115	180	59.35	25				
	-180-6B-C	●	●	180	235						
	-235-6B-C	●	●	235	∞						
	-25-6C-C	●	●	25	35						
	-35-6C-C	●	●	35	50						
	-50-6C-C	●	●	50	75						
	-75-6C-C	●	●	75	115	66.35	32				
	-115-6C-C	●	●	115	180						
	-180-6C-C	●	●	180	235						
	-235-6C-C	●	●	235	∞						
	-75-6D-C	●	●	75	115						
	-115-6D-C	●	●	115	180						
	-180-6D-C	●	●	180	235						
	-235-6D-C	●	●	235	∞						

● : Standard item

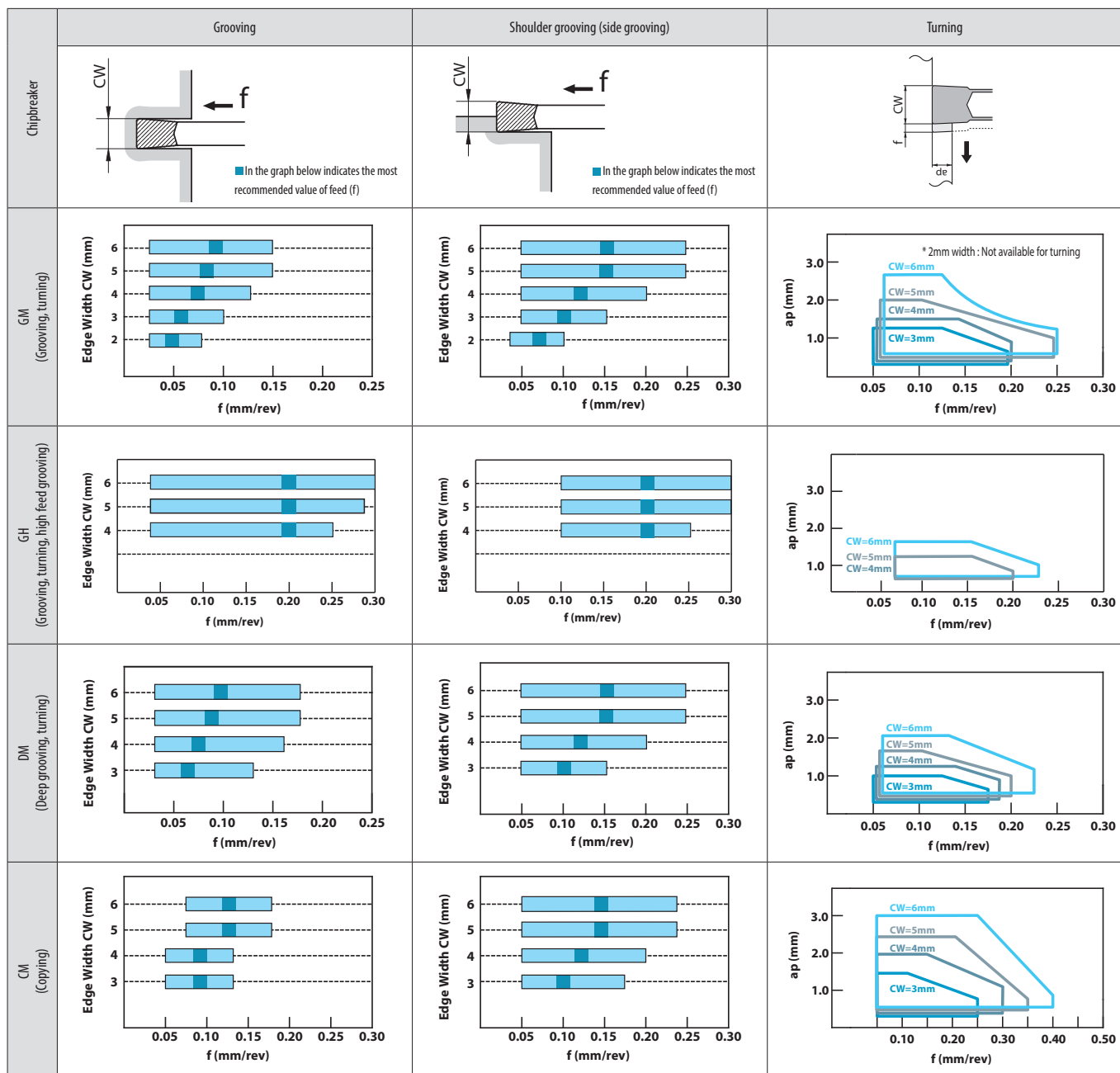


Grooving

Recommended cutting conditions

Workpiece material	Recommended insert grades (Vc: m/min)				Remarks
	Cermet		MEGACOAT		
	TN620	TN90	PR1225	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	

★ : 1st recommendation ☆ : 2nd recommendation



When shoulder grooving

- If ap is set smaller, set feed higher.
- If ap is set larger, set feed lower.

Workpiece material: S50C

1. The above values are based on the condition that the CDX of toolholder is 15 mm or less.

G122

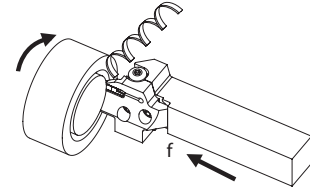
Guide for face grooving

1. Toolholder selection

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

2. Cutting conditions (Feed rate: f)

When machining on steel, set the feed rate (f) so that chips are created in a helical form in cut-off.



3. How to widen the groove (plunge milling and turning)

Start machining from the outside and then proceed to the inside.

Chip control will be better in this way.

Plunge milling (Grooving + side grooving)	Turning

G



Grooving

4. Guide for turning

A. When the cutting amount (ap) is over 0.5 mm

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

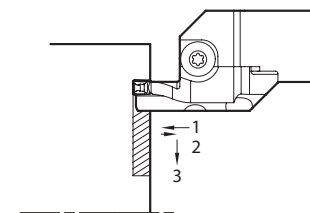
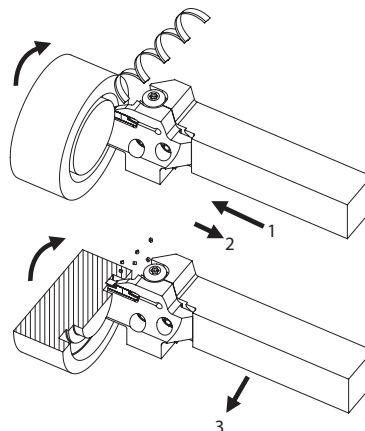


Fig. 1

When widening the face groove width (Ref. to Fig. 2).

Apply the "step turning".
Then perform finishing.

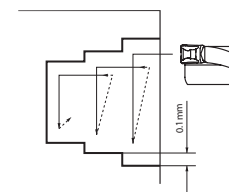


Fig. 2

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

1. Perform Plunge milling.
 2. Perform turning.
- Machining without interruption is possible.
(Ref. to Fig. 3)

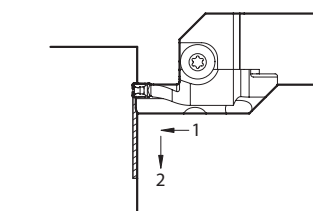
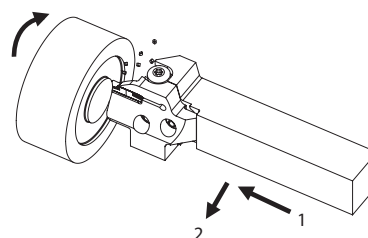


Fig. 3

G

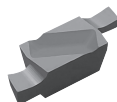
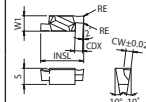


Grooving

External

Internal

Face

		Carbon steel / Alloy steel							●	○	P					
		Stainless steel							●	○	M					
		Cast iron								●	K					
		Non-ferrous metals								●	N					
		Titanium alloy								●	S					
		Hard materials (~ 40HRC)							●	○	H					
		Hard materials (40HRC ~)														
Insert		Description		No. of edges	Dimension (mm)						Tolerance (mm)		Carbide		Applicable toolholder G125	
					CW	CDX	S	RE	INSL	W1	CW min.	CW max.	PVD	-		
													PR125	PR930		KW10
 	GVFR	100-005AA 200-005AA 300-005AA	2	1 2 3	2.2	4.5	0.05	12	4.3	- 0.02	+ 0.02	●	●	GFVSL.....08AA GFVTL.....08AA		
	GVFL	100-005AA 200-005AA 300-005AA		1 2 3								●	●	GFVSR.....08AA GFVTR.....08AA		
												●	●			
				●	●											

GVF^R/L...005AA inserts are not compatible with GVF^R/L...—○○○A (See Page **G126**) inserts because their Side Relief Angle is 10°.

Description	External dia. of the groove (mm)		Applicable inserts
	DAXN (min.)	DAXX (max.)	
GFVS%L 2020K-08AA 2525M-08AA	8 (0)	∞ (∞)	GVF%R...-...AA

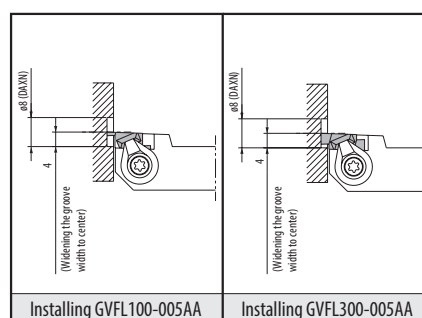
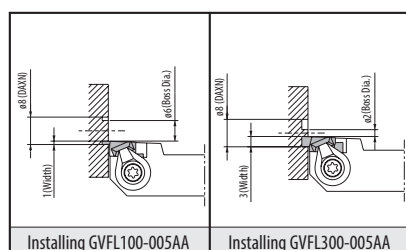
- It is available to infinity ∞ in case of machining the first groove bigger than DAXN.
- When machining towards the outer diameter then there is no MAX. limit to the further groove machining.

- When machining the initial groove on the face at DAXN $\varnothing 8$

If the initial groove is made smaller than this, the toolholder interferes with the workpiece.

- When widening the groove width to inner diameter.

For machining up to the center of the workpiece regardless of insert width.

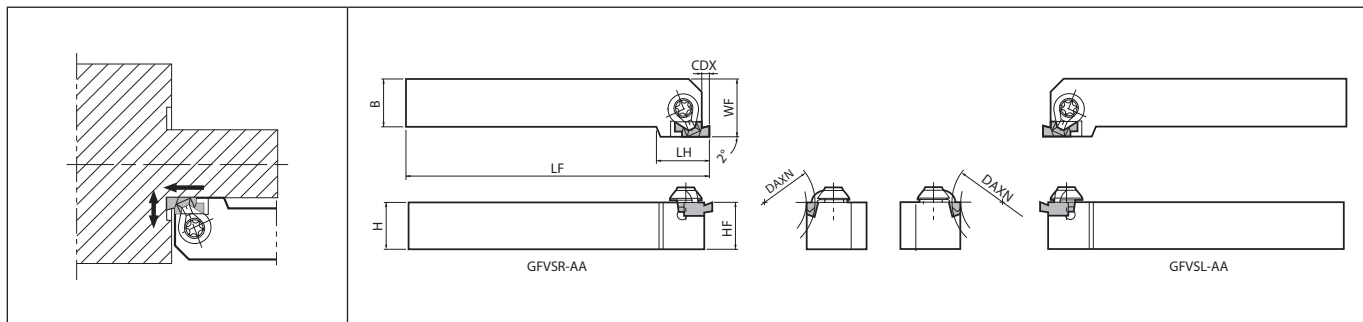


Workpiece material	Recommended insert grades (Vc: m/min)			Grooving	Turning*		Remarks
	MEGACOAT	PVD coated carbide	Carbide				
	PR1225	PR930	KW10	f (mm/rev)	ap (mm)	f (mm/rev)	
Carbon steel / Alloy steel	★ 50~100	☆ 50~100		0.01~0.05	Max. 0.5	0.01~0.05	Coolant
Stainless steel	★ 50~80	☆ 50~80		0.01~0.03	Max. 0.3	0.01~0.02	
Non-ferrous metals			★ ~200	0.01~0.08	Max. 0.5	0.01~0.08	

★:1st recommendation ☆:2nd recommendation

● : Standard item

G124

GFVS-AA (Face grooving)

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

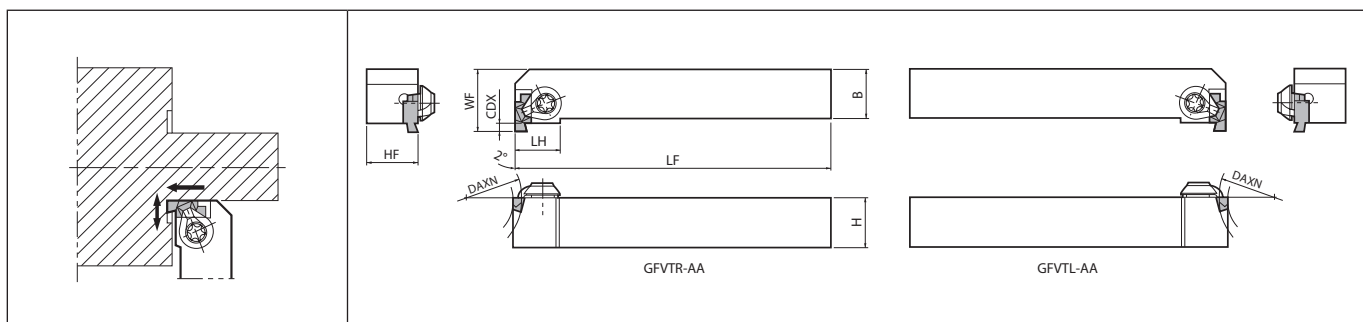
Toolholder dimensions

Description	Availability		External dia. of the groove (mm)		Dimension (mm)							Spare parts		Applicable inserts ➔ G124
												Clamp set	Wrench	
	R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	LF	WF			
GFVS [°] /L 2020K-08AA 2525M-08AA	●	●	8 (0)	∞ (∞)	2.2	20 25	20 25	18	20 25	125 150	25 32	CPS-5V	FT-15	GVF-/R...-...AA

CDX shows available grooving depth.

The value () of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial groove between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).

The value () of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN ~ DAXX.

GFVT-AA (Face grooving)

Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability		External dia. of the groove (mm)		Dimension (mm)							Spare parts		Applicable inserts ➔ G124
												Clamp set	Wrench	
	R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	LF	WF			
GFVT [°] /L 2020K-08AA 2525M-08AA	●	●	8 (0)	∞ (∞)	2.2	20 25	20 25	14	20 25	125 150	25 32	CPS-5V	FT-15	GVF-/R...-...AA

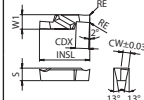
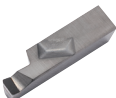
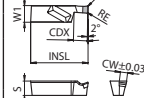
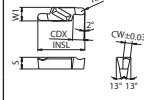
CDX shows available grooving depth.

The value () of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial groove between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).

The value () of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN ~ DAXX.

● : Standard item

GVF

		Carbon steel / Alloy steel										P							
		Stainless steel										M							
		Cast iron										K							
		Non-ferrous metals										N							
		Titanium alloy										S							
		Hard materials (~ 40HRC)										H							
		Hard materials (40HRC ~)																	
Insert		Description		No. of edges	Dimension (mm)						Tolerance (mm)		Carbide		Cermet	PCD	Applicable toolholder ➔ G127~ G129		
					CW	CDX	S	RE	INSL	W1	CW min.	CW max.	PVD	-	-	-			
													PR125	PR930	KW10	TC40N		TC60M	KPD010
		GVFR	200-020A	2									●	●	●	●		GFVR.....201A GIFVR.....201A	
			230-020A	2.3								●	●	●	●				
			250-020A	2.5								●	●	●	●				
			270-020A	2.7								●	●	●	●				
			290-020A	2.9								●	●	●	●				
			340-020A	3.4								●	●	●	●				
		GVFL	200-020A	2	2.3	4.5	0.2	12	4.3	-0.03	+0.03	●	●	●	●		GFVL.....201A GIFVL.....201A		
			230-020A	2.3								●	●	●	●				
			250-020A	2.5								●	●	●	●				
			270-020A	2.7								●	●	●	●				
			290-020A	2.9								●	●	●	●				
			340-020A	3.4								●	●	●	●				
		GVFR	250-020B	2.5	4.8							●	●	●	●		GFVR.....1B * GFVSL.....1B GFVTL.....1B GIFVR.....1B		
			300-020B	3	4.8							●	●	●	●				
			350-020B	3.5	4.8							●	●	●	●				
			400-020B	4	5.3							●	●	●	●	GFVR.....2B * GFVSL.....2B GFVTL.....2B GIFVR.....2B			
			430-020B	4.3	5.3							●	●	●	●				
			460-020B	4.6	5.3							●	●	●	●				
		GVFL	250-020B	2	2.5	4.8	0.2	20	5.8	-0.03	+0.03	●	●	●	●		GFVL.....1B * GFVSR.....1B GFVTR.....1B GIFVL.....1B		
			300-020B	3	4.8							●	●	●	●				
			350-020B	3.5	4.8							●	●	●	●				
			400-020B	4	5.3							●	●	●	●	GFVL.....2B * GFVSR.....2B GFVTR.....2B GIFVL.....2B			
			430-020B	4.3	5.3							●	●	●	●				
			460-020B	4.6	5.3							●	●	●	●				
GVFR	490-020B	4.9	5.3							●	●	●	●	GFVR.....1C * GFVSL.....1C GFVTL.....1C GIFVR.....1C					
	350-040C	3.5	6.8							●	●	●	●						
	400-040C	4	6.8							●	●	●	●						
	450-040C	4.5	6.8							●	●	●	●	GFVR.....2C GFVSL.....2C GFVTL.....2C GIFVR.....2C					
	500-040C	5	8.3							●	●	●	●						
	550-040C	5.5	8.3							●	●	●	●						
GVFL	600-040C	6	8.3							●	●	●	●	GFVL.....1C GFVSR.....1C GFVTR.....1C GIFVL.....1C					
	350-040C	2	3.5	6.8	7	0.4	27	7	-0.03	+0.03	●	●	●		●				
	400-040C	4	6.8							●	●	●	●	GFVL.....2C GFVSR.....2C GFVTR.....2C GIFVL.....2C					
	450-040C	4.5	6.8							●	●	●	●						
	500-040C	5	8.3							●	●	●	●						
	550-040C	5.5	8.3							●	●	●	●						
		GVFR	250-020B	2.5	4.8											*1			
			300-020B	3	4.8											*2			
			400-020B	4	5.3	5	0.2	20	5.8	-0.03	+0.03				MTO	*3			
		GVFL	250-020B	1	2.5	4.8										*4			
			300-020B	3	4.8											*5			
		GVFR	350-040C	1	3.5	6.8	7	0.4	27	7	-0.03	+0.03				MTO			
			200-100AR	2	2							●	●	●	●	GFVR.....201A GIFVR.....201A			
			250-125AR	2.5								●	●	●	●				
			300-150AR	3								●	●	●	●				
		GVFL	200-100AR	2	2	2.3	4.5	1.5	1	12	4.3	-0.03	+0.03	●	●	GFVL.....201A GIFVL.....201A			
			250-125AR	2.5								●	●	●	●				
			300-150AR	3								●	●	●	●				
		GVFR	300-150BR	3	4.8			1.5				●	●	●	●	*1			
			400-200BR	4	5.3			2				●	●	●	●	*2			
			300-150BR	2	3	4.8	5	1.5	20	5.8	-0.03	+0.03	●	●	●	●	*3		
		GVFL	400-200BR	4	5.3			2				●	●	●	●	*4			

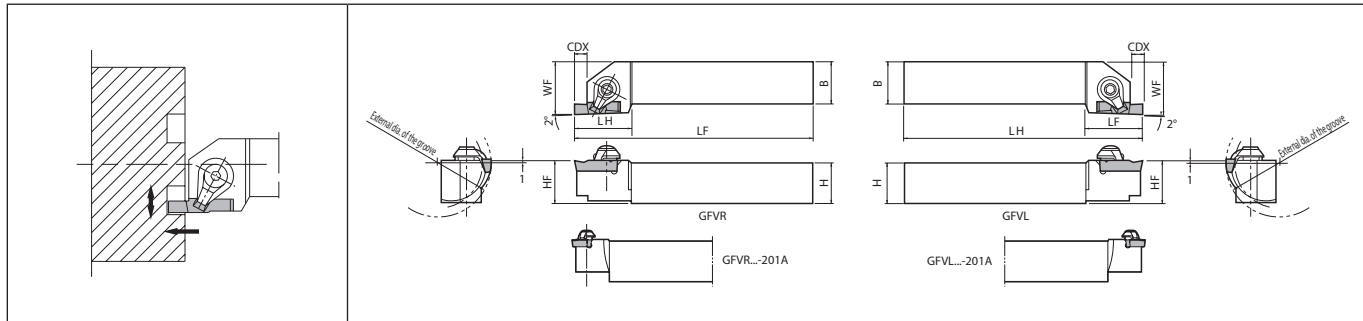
Right-hand shown
CDX shows available grooving depth.
● : Standard item MTO : Made to order

Recommended cutting conditions ➔ G146

CBN & PCD Inserts are
sold in 1 piece boxes

G126

GVF (Face grooving)



Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability		External dia. of the groove (mm)		Dimension (mm)							Spare parts				Applicable inserts G126
												Clamp set	Clamp set	Wrench	Wrench	
	R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	LF	WF					
GVF ⁹ /L 2020K-201A	●	●	20	∞	2.2	20	20	20	21	125	25	CPS-5V	-	-	FT-15	GVF ⁹ /L 200 ~ 340-...A
2525M-201A	●	●	(12)	(∞)	25	25	25	23	26	150	32					GVF ⁹ /L 200 ~ 300-...AR
GVF ⁹ /L 2020K-351B	●	●	35	50	4.6	20	20	28	21	125	25	-	CPS-6V	LW-3	-	GVF ⁹ /L 250 ~ 350-...B
2525M-351B	●	●			25	25	30	26	150	32						GVF ⁹ /L 300-150BR
2020K-352B	●	●			5.1	20	20	28	21	125	25					GVF ⁹ /L 400 ~ 490-...B
2525M-352B	●	●			25	25	30	26	150	32						GVF ⁹ /L 400-200BR
2020K-501B	●	●	50	70	4.6	20	20	28	21	125	25					GVF ⁹ /L 250 ~ 350-...B
2525M-501B	●	●			25	25	30	26	150	32						GVF ⁹ /L 300-150BR
2020K-502B	●	●			5.1	20	20	28	21	125	25					GVF ⁹ /L 400 ~ 490-...B
2525M-502B	●	●			25	25	30	26	150	32						GVF ⁹ /L 400-200BR
2020K-701B	●	●	70	100	4.6	20	20	28	21	125	25					GVF ⁹ /L 250 ~ 350-...B
2525M-701B	●	●			25	25	30	26	150	32						GVF ⁹ /L 300-150BR
2020K-702B	●	●			5.1	20	20	28	21	125	25					GVF ⁹ /L 400 ~ 490-...B
2525M-702B	●	●			25	25	30	26	150	32						GVF ⁹ /L 400-200BR
GVF ⁹ /L 2525M-501C	●	●	50	70	6.6	25	25	35	26	150	32	-	CPS-8V	LW-4	-	GVF ⁹ /L 350 ~ 450-...C
2525M-502C	●	●	(25)	(∞)	8.1											GVF ⁹ /L 500 ~ 600-...C
2525M-701C	●	●	70	100	6.6											GVF ⁹ /L 350 ~ 450-...C
2525M-702C	●	●	(25)	(∞)	8.1											GVF ⁹ /L 500 ~ 600-...C
2525M-1001C	●	●	100	150	6.6											GVF ⁹ /L 350 ~ 450-...C
2525M-1002C	●	●	(25)	(∞)	8.1											GVF ⁹ /L 500 ~ 600-...C
2525M-1501C	●	●	150	250	6.6											GVF ⁹ /L 350 ~ 450-...C
2525M-1502C	●	●	(25)	(∞)	8.1											GVF ⁹ /L 500 ~ 600-...C

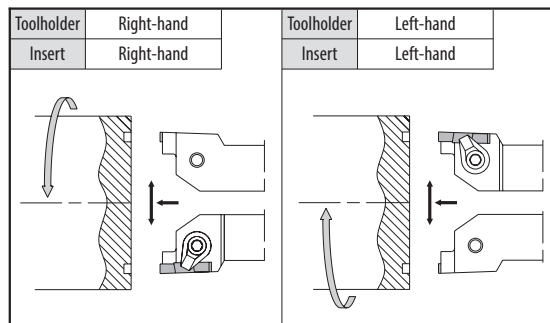
CDX shows available grooving depth.

The value () of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial groove between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).

The value () of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN ~ DAXX.

Standard toolholders are designed with the edge position 1.0 mm above the center. When using non-standard toolholders, set the edge position 1.0 mm above the center.

Selection of Toolholder & Insert



● : Standard item

External dia. of the groove of GVF

(1) e.g.) GVF^R/L...-201A

Description	External dia. of the groove (mm)		Applicable inserts
	DAXN (min.)	DAXX (max.)	
GVF ^R /L 2020K-201A	20	∞	GVF ^R /L 200 ~ 340...A
2525M-201A	(12)	(∞)	GVF ^R /L 200 ~ 300...AR

• It is available to infinity ∞ in case of machining the first groove bigger than DAXN.

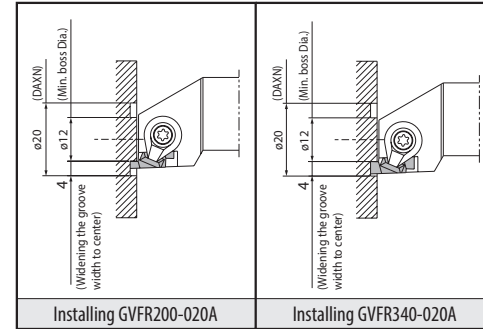
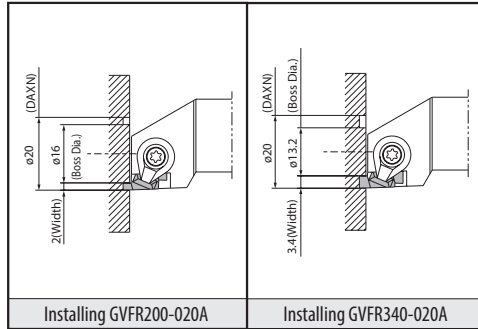
• When machining towards the outer diameter then there is no MAX. limit to the further groove machining.

• When machining the initial groove on the face at DAXN ø20

If the initial groove is made smaller than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.

• When widening the groove width to inner diameter.

Face groove diameter DAXN (12) is the limit; the toolholder interferes with the workpiece in case of smaller than ø12. The toolholder interferes with the workpiece when closer to the center.



(2) e.g.) GVF^R/L...-351B/352B (same as GVF^R/L...-○○○B or GVF^R/L...-○○○C)

Description	External dia. of the groove (mm)		Applicable inserts
	DAXN (min.)	DAXX (max.)	
GVF ^R /L 2020K-351B	35 (25)	50 (∞)	GVF ^R /L 250 ~ 350...B
2525M-351B			GVF ^R /L 300-150BR
2020K-352B			GVF ^R /L 400 ~ 490...B
2525M-352B			GVF ^R /L 400-200BR

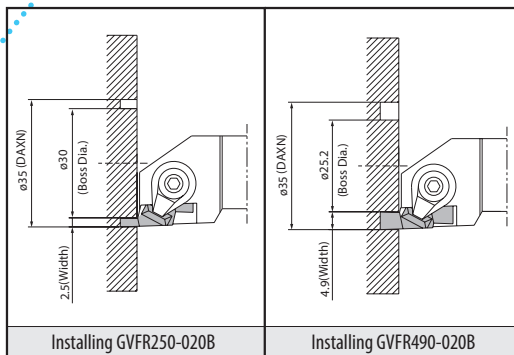
• It is possible to widen the groove to infinity ∞ when machining the initial groove within DAXX ~ DAXX and then widening to outer diameter.

• When machining the initial groove on the face at DAXN ø35

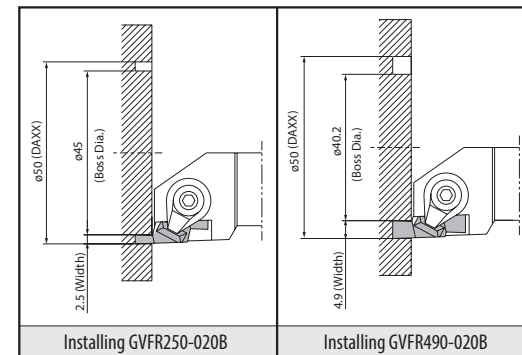
If the initial groove is made smaller than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.

• When machining the initial groove on the face at DAXX ø50.

If the initial groove is made larger than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.

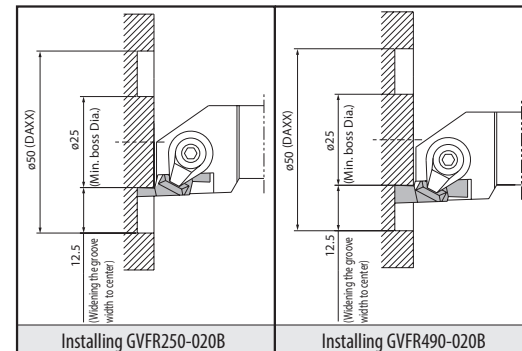
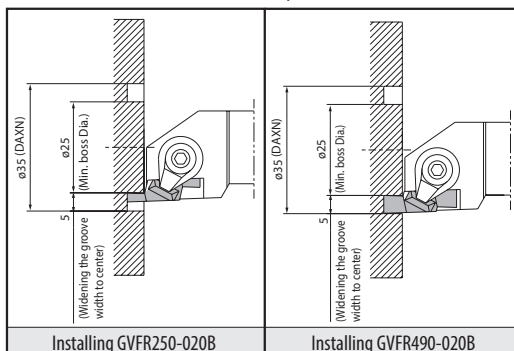


When widening the groove width to inner diameter.

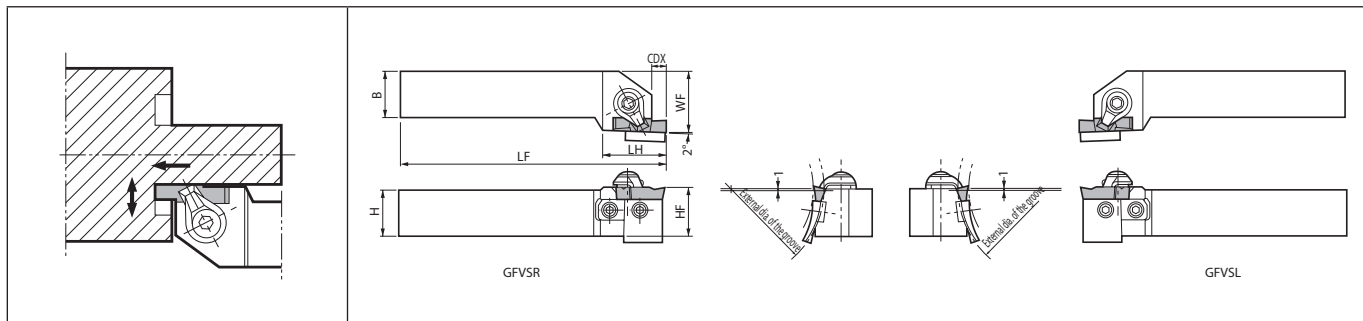


• When widening the groove width to inner diameter.

ø25 Boss Dia. is the limitation regardless of insert width, even widening the groove width to the center from the initial groove at DAXN (ø35) or DAXX (ø50). The toolholder interferes with the workpiece when closer to the center.



GFVS (Face grooving)



Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.
This toolholder can machine various face grooving diameters by replacing the blade.

Toolholder dimensions

Description	Availability		External dia. of the groove (mm)		Dimension (mm)							Spare parts				Applicable inserts G126
												Blade	Bolt	Clamp set	Wrench	
	R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	LF	WF					
GFVS%L 2020K-351B 2525M-351B 2020K-352B 2525M-352B 2020K-501B 2525M-501B 2020K-502B 2525M-502B 2020K-701B 2525M-701B 2020K-702B 2525M-702B	●	●	35 (25)	50 (∞)	5.1 (4.6)	20	20	30	21	125	25	SF%L-351B	HH4X12	CPS-6V	LW-3	GVF% _R 250 ~ 350-...B
	●	●				25	25	32	26	150	32	SF%L-352B				GVF% _R 300-150BR
	●	●			5.1 (5.1)	20	20	30	21	125	25	SF%L-501B				GVF% _R 400 ~ 490-...B
	●	●				25	25	32	26	150	32	SF%L-502B				GVF% _R 400-200BR
	●	●	50 (25)	70 (∞)	5.1 (4.6)	20	20	30	21	125	25	SF%L-701B				GVF% _R 250 ~ 350-...B
	●	●				25	25	32	26	150	32	SF%L-702B				GVF% _R 300-150BR
	●	●			5.1 (5.1)	20	20	30	21	125	25	SF%L-502B				GVF% _R 400 ~ 490-...B
	●	●				25	25	32	26	150	32	SF%L-702B				GVF% _R 400-200BR
	●	●	70 (25)	100 (∞)	5.1 (4.6)	20	20	30	21	125	25	SF%L-701B				GVF% _R 250 ~ 350-...B
	●	●				25	25	32	26	150	32	SF%L-702B				GVF% _R 300-150BR
	●	●			5.1 (5.1)	20	20	30	21	125	25	SF%L-702B				GVF% _R 400 ~ 490-...B
	●	●				25	25	32	26	150	32	SF%L-702B				GVF% _R 400-200BR
GFVS%L 2525M-501C 2525M-502C 2525M-701C 2525M-702C 2525M-1001C 2525M-1002C 2525M-1501C 2525M-1502C	●	●	50 (25)	70 (∞)	8.1 (*5.1)	25	25	32	26	150	32	SF%L-501C	HH4X12	CPS-8V	LW-4	GVF% _R 350 ~ 450-...C
	●	●			8.1 (8.1)							SF%L-502C				GVF% _R 500 ~ 600-...C
	●	●	70 (25)	100 (∞)	8.1 (*5.1)							SF%L-701C				GVF% _R 350 ~ 450-...C
	●	●			8.1 (8.1)							SF%L-702C				GVF% _R 500 ~ 600-...C
	●	●	100 (25)	150 (∞)	8.1 (*5.1)							SF%L-1001C				GVF% _R 350 ~ 450-...C
	●	●			8.1 (8.1)							SF%L-1002C				GVF% _R 500 ~ 600-...C
	●	●	150 (25)	250 (∞)	8.1 (*5.1)							SF%L-1501C				GVF% _R 350 ~ 450-...C
	●	●			8.1 (8.1)							SF%L-1502C				GVF% _R 500 ~ 600-...C
	●	●	150 (25)	250 (∞)	8.1 (*5.1)							SF%L-1501C				GVF% _R 350 ~ 450-...C
	●	●			8.1 (8.1)							SF%L-1502C				GVF% _R 500 ~ 600-...C

CDX shows available grooving depth.

The value () of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial groove between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).

The value () of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN ~ DAXX.

Standard toolholders are designed with the edge position 1.0 mm above the center. When using non-standard toolholders, set the edge position 1.0 mm above the center.

CDX shows the distance from the toolholder to the cutting edge. The grooving depth is the mentioned in ().

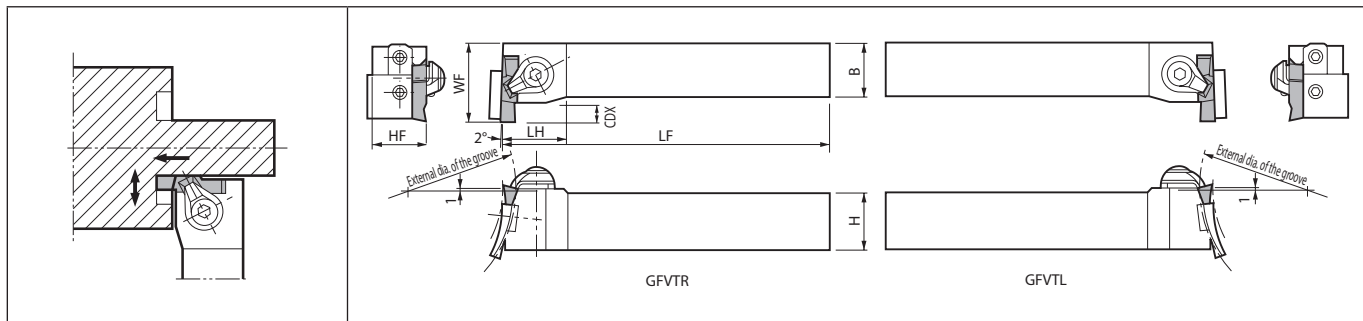
GFVS is composed of a base-holder and a blade. If the blade should be damaged, replace it with a new blade as listed in the table on G131.

(e.g.) GFVSR2020K-HB + SFR-351B = GFVSR2020K-351B

*GVF%_R400~450-040C: CDX is 6.6

● : Standard item

GFVT (Face grooving)



Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.
This toolholder can machine various face grooving diameters by replacing the blade.

Toolholder dimensions

Description	Availability		External dia. of the groove (mm)		Dimension (mm)							Spare parts				Applicable inserts G126
												Blade	Bolt	Clamp set	Wrench	
	R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	LF	WF					
GFVT [®] /L 2020K-351B 2525M-351B 2020K-352B 2525M-352B 2020K-501B 2525M-501B 2020K-502B 2525M-502B 2020K-701B 2525M-701B 2020K-702B 2525M-702B	●	●	35 (25)	50 (∞)	5.1 (4.6)	20	20	22	21	125	30	SF [®] /L-351B	HH4X12	CPS-6V	LW-3	GVF [®] /r250 ~ 350-...B GVF [®] /r300-150BR
	●	●			5.1 (5.1)	20	20	22	21	125	30	SF [®] /L-352B				GVF [®] /r400 ~ 490-...B GVF [®] /r400-200BR
	●	●			5.1 (4.6)	20	20	22	21	125	30	SF [®] /L-501B				GVF [®] /r250 ~ 350-...B GVF [®] /r300-150BR
	●	●			5.1 (5.1)	20	20	22	21	125	30	SF [®] /L-502B				GVF [®] /r400 ~ 490-...B GVF [®] /r400-200BR
	●	●	50 (25)	70 (∞)	5.1 (4.6)	20	20	22	21	125	30	SF [®] /L-701B				GVF [®] /r250 ~ 350-...B GVF [®] /r300-150BR
	●	●			5.1 (5.1)	20	20	22	21	125	30	SF [®] /L-702B				GVF [®] /r400 ~ 490-...B GVF [®] /r400-200BR
	●	●			5.1 (4.6)	20	20	22	21	125	30	SF [®] /L-351B				GVF [®] /r250 ~ 350-...B GVF [®] /r300-150BR
	●	●			5.1 (5.1)	20	20	22	21	125	30	SF [®] /L-352B				GVF [®] /r400 ~ 490-...B GVF [®] /r400-200BR
	●	●	70 (25)	100 (∞)	5.1 (4.6)	20	20	22	21	125	30	SF [®] /L-501B				GVF [®] /r250 ~ 350-...B GVF [®] /r300-150BR
	●	●			5.1 (5.1)	20	20	22	21	125	30	SF [®] /L-502B				GVF [®] /r400 ~ 490-...B GVF [®] /r400-200BR
	●	●			5.1 (4.6)	20	20	22	21	125	30	SF [®] /L-701B				GVF [®] /r250 ~ 350-...B GVF [®] /r300-150BR
	●	●			5.1 (5.1)	20	20	22	21	125	30	SF [®] /L-702B				GVF [®] /r400 ~ 490-...B GVF [®] /r400-200BR
GFVT [®] /L 2525M-501C 2525M-502C 2525M-701C 2525M-702C 2525M-1001C 2525M-1002C 2525M-1501C 2525M-1502C	●	●	50 (25)	70 (∞)	8.1 (*5.1)	25	25	27	26	150	38	SF [®] /L-501C	HH4X12	CPS-8V	LW-4	GVF [®] /r350 ~ 450-...C GVF [®] /r500 ~ 600-...C
	●	●			8.1 (8.1)							SF [®] /L-502C				GVF [®] /r350 ~ 450-...C GVF [®] /r500 ~ 600-...C
	●	●	70 (25)	100 (∞)	8.1 (*5.1)							SF [®] /L-701C				GVF [®] /r350 ~ 450-...C GVF [®] /r500 ~ 600-...C
	●	●			8.1 (8.1)							SF [®] /L-702C				GVF [®] /r350 ~ 450-...C GVF [®] /r500 ~ 600-...C
	●	●	100 (25)	150 (∞)	8.1 (*5.1)							SF [®] /L-1001C				GVF [®] /r350 ~ 450-...C GVF [®] /r500 ~ 600-...C
	●	●			8.1 (8.1)							SF [®] /L-1002C				GVF [®] /r350 ~ 450-...C GVF [®] /r500 ~ 600-...C
	●	●	150 (25)	250 (∞)	8.1 (*5.1)							SF [®] /L-1501C				GVF [®] /r350 ~ 450-...C GVF [®] /r500 ~ 600-...C
	●	●			8.1 (8.1)							SF [®] /L-1502C				GVF [®] /r350 ~ 450-...C GVF [®] /r500 ~ 600-...C

CDX shows available grooving depth.

The value () of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial groove between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).

The value () of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN ~ DAXX.

Standard toolholders are designed with the edge position 1.0 mm above the center. When using non-standard toolholders, set the edge position 1.0 mm above the center.

CDX shows the distance from the toolholder to the cutting edge. The grooving depth is the mentioned in ().

GFVT is composed of a base-holder and a blade. If the blade should be damaged, replace it with a new blade as listed in the table on G131.

(e.g.) GFVTR2020K-HB + SFR-351B = GFVTR2020K-351B

*GVF[®]/r400~450-040C: CDX is 6.6

● : Standard item

G130

Selection of Toolholder & Insert

GFVS				GFVT			
Toolholder	Right-hand		Toolholder	Left-hand		Toolholder	Right-hand
Insert	Left-hand		Insert	Right-hand		Insert	Right-hand

Combination of Base-Holder & Blade

Toolholder Description (Stamped below)	Stock		Blade Description	Toolholder Description (Unit Description)		Example of installation (GFVS)	How to refer to the face grooving toolholder and blade
	R	L					
GFVS ^{R/L} 2020K-HB GFVT ^{R/L} 2020K-HB	●	●	SF ^{R/L}	-351B	GFVS ^{R/L} 2020K	-351B	Q : Though "GFVSR2525M-HC" is marked on the face grooving toolholder, the size of cutting dia. is unknown. How could it be found out? A : Take off the blade. Description of the blade is listed on the back of the blade. Using the description, check the description of the toolholder in the catalog. If "SFR-1001C" is integrated to "GFVSR2525M-HC", the description of the toolholder is "GVFSR2525M-1001C".
	●	●		-352B	GFVT ^{R/L} 2020K	-352B	
				-501B		-501B	
				-502B		-502B	
				-701B		-701B	
				-702B		-702B	
GFVS ^{R/L} 2525M-HB GFVT ^{R/L} 2525M-HB	●	●	SF ^{R/L}	-351B	GFVS ^{R/L} 2525M	-351B	
	●	●		-352B	GFVT ^{R/L} 2525M	-352B	
				-501B		-501B	
				-502B		-502B	
				-701B		-701B	
				-702B		-702B	
GFVS ^{R/L} 2525M-HC GFVT ^{R/L} 2525M-HC	●	●	SF ^{R/L}	-501C	GFVS ^{R/L} 2525M	-501C	
	●	●		-502C	GFVT ^{R/L} 2525M	-502C	
				-701C		-701C	
				-702C		-702C	
				-1001C		-1001C	
				-1002C		-1002C	
				-1501C		-1501C	
				-1502C		-1502C	

Toolholder description mark

Clamp Set

Toolholder

Blade

Bolt

Insert

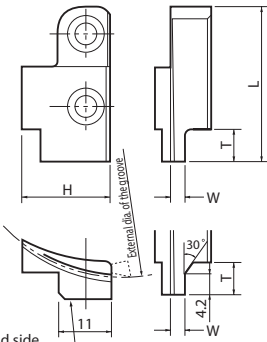
Blade (Back side)
(With Blade Description)

Blade (Face side)

● : Standard item
 - Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.
 - Installation of GFVT is also pursuing example of installation of GFVS.



Blade Dimensions

Shape	Description	Stock		Dimension (mm)				External dia. of the groove (mm)		Applicable Inserts	Applicable Toolholders			
		R	L	L	H	T	W	DAXN (min.)	DAXX (max.)					
 Stamped side Top shape of 501C, 701C, 1001C, 1501C	SF ^{R/L} -351B	●	●	30.5	11	4.7	2.0	35	50	GVF/250~350-020B GVF/300-150BR	GVF(S/T) ^{R/L} ○○○○□ -○○○B (Toolholder Stamp GVF(S/T) ^{R/L} ○○○○□-HB)			
	-352B	●	●				3.4			GVF/400~490-020B GVF/400-200BR				
	SF ^{R/L} -501B	●	●				2.0			50		70	GVF/250~350-020B GVF/300-150BR	
	-502B	●	●				3.4						GVF/400~490-020B GVF/400-200BR	
	SF ^{R/L} -701B	●	●	17			2.0	70	100	GVF/250~350-020B GVF/300-150BR				
	-702B	●	●				3.4			GVF/400~490-020B GVF/400-200BR				
	SF ^{R/L} -501C	●	●	35	15	7.5	2.8	50	70	GVF/350~450-040C		GVF(S/T) ^{R/L} ○○○○□ -○○○C (Toolholder Stamp GVF(S/T) ^{R/L} ○○○○□-HC)		
	-502C	●	●				4.3			GVF/500~600-040C				
	SF ^{R/L} -701C	●	●				2.8	70	100	GVF/350~450-040C				
	-702C	●	●				4.3			GVF/500~600-040C				
	SF ^{R/L} -1001C	●	●		23				2.8	100			150	GVF/350~450-040C
	-1002C	●	●						4.3					GVF/500~600-040C
	SF ^{R/L} -1501C	●	●		23				2.8	150	250		GVF/350~450-040C	
	-1502C	●	●						4.3				GVF/500~600-040C	

● Right-hand shown

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

External dia. of the groove of GFVS / GFVT

e.g.) GFVS^{R/L}...-351B/352B

(same as GFVS^{R/L}...-○○○B, ...-○○○C → G129

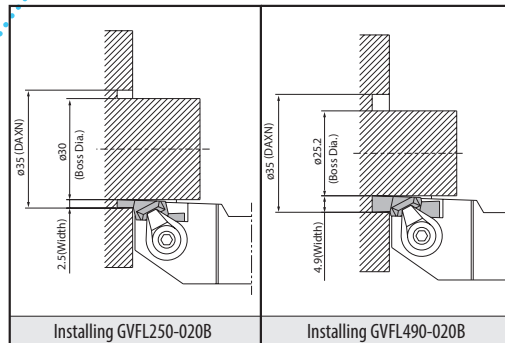
GFVT^{R/L}...-○○○B, ...-○○○C → G130)

Description	External dia. of the groove (mm)		Applicable inserts
	DAXN (min.)	DAXX (max.)	
GFVS ^{R/L} 2020K-351B	35 (25)	50 (∞)	GVF ^{R/L} 250 ~ 350-...B
2525M-351B			GVF ^{R/L} 300-150BR
2020K-352B			GVF ^{R/L} 400 ~ 490-...B
2525M-352B			GVF ^{R/L} 400-200BR

It is possible to widen the groove to infinity ∞ when machining the initial groove within DAXN ~ DAXX and then widening to outer diameter.

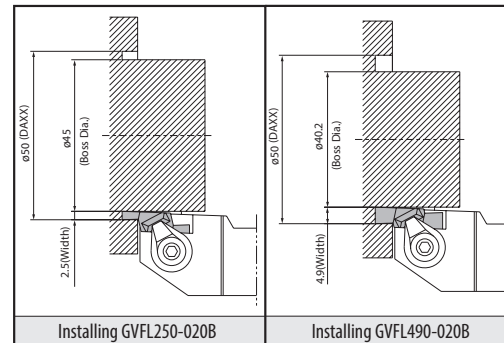
When machining the initial groove on the face at DAXN ø35

If the initial groove is made smaller than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.



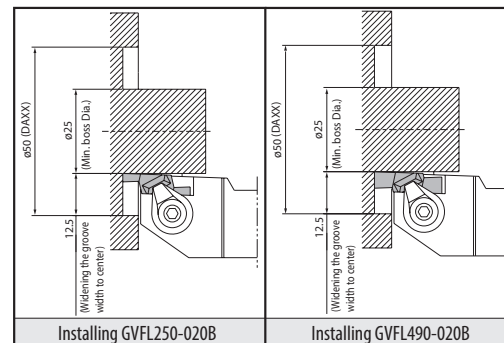
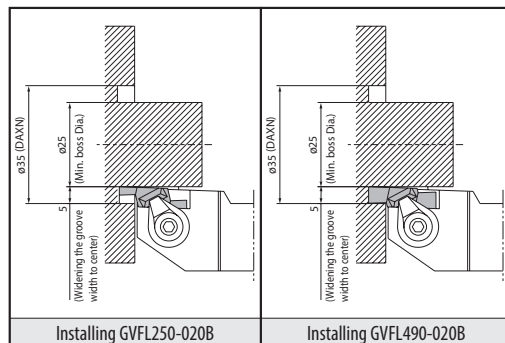
When machining the initial groove on the face at DAXX ø50

If the initial groove is made larger than this, the toolholder interferes with the workpiece. Boss Dia. depends on insert width.



When widening the groove width to inner diameter

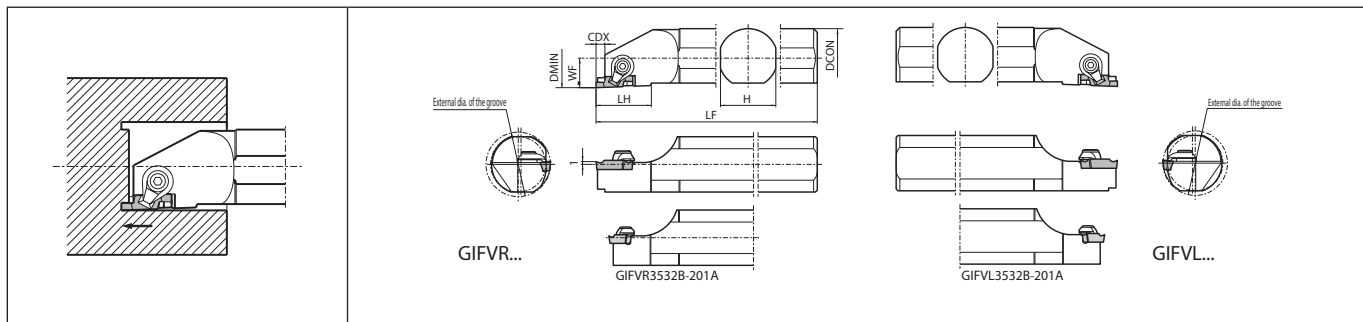
ø25 Boss Dia. is the limitation regardless of insert width, even widening the groove width to the center from the initial groove at DAXN (ø35) or DAXX (ø50). The toolholder interferes with the workpiece when closer to the center.



● : Standard item R : Right-hand only L : Left-hand only □ : Check availability

G132

GIFV (Face grooving)



Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder.

Toolholder dimensions

Description	Availability		External dia. of the groove (mm)		Dimension (mm)								Spare parts				Applicable inserts G126
													Clamp set	Clamp set	Wrench	Wrench	
	R	L	DAXN (min.)	DAXX (max.)	DMIN	DCON	CDX	H	LH	LF	WF						
GIFV ^{R/L} 3532B-201A	●	●	35 (12)	∞	35	32	2.2	30	23	250	16		CPS-5V	-	-	FT-15	GVF ^{R/L} ...A(R)
GIFV ^{R/L} 3532B-351B 3532B-352B 5032B-501B 5032B-502B	●	●	35 (25)	50 (∞)	35		4.6										GVF ^{R/L} 250 ~ 350...B(R)
	●	●					5.1										GVF ^{R/L} 400 ~ 490...B(R)
	●	●	50 (25)	70 (∞)	50		4.6	30	30	250	16	-	CPS-6V	LW-3	-		GVF ^{R/L} 250 ~ 350...B(R)
	●	●					5.1										GVF ^{R/L} 400 ~ 490...B(R)
GIFV ^{R/L} 5032B-501C 5032B-502C	●	●	50 (25)	70 (∞)	50	32	6.6	30	35	250	16	-	CPS-8V	LW-4	-		GVF ^{R/L} 350 ~ 450-040C
	●	●					8.1										GVF ^{R/L} 500 ~ 600-040C

CDX shows available grooving depth.

Standard toolholders are designed with the edge position 1.0 mm above the center.

External dia. of the groove depends on the application.

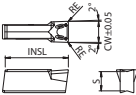
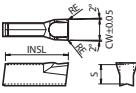
Applications	Description	Internal dia. of the groove		External dia. of the groove		Remarks
		(min.)	DAXN [min.]	DAXX [max.]	(max.)	
	GIFV ^{R/L} 3532B-201A			∞		
	GIFV ^{R/L} 3532B-351B		35	50		
	3532B-352B					
	5032B-501B					
	5032B-502B					
	GIFV ^{R/L} 5032B-501C 5032B-502C		50	70	∞	
	GIFV ^{R/L} 3532B-201A	12		∞		If $\phi D1 \geq 58-2CW$, the Face Grooving Dia. can be expanded to Internal dia. of the groove (min.) toward the Center. CW = Edge Width If $\phi D1 \geq 75-2CW$, the Face Grooving Dia. can be expanded to Internal dia. of the groove (min.) toward the Center. CW = Edge Width
	GIFV ^{R/L} 3532B-351B		35	50		
	3532B-352B					
	5032B-501B	25				
	5032B-502B		50	70		
	GIFV ^{R/L} 5032B-501C 5032B-502C		50	70		
	GIFV ^{R/L} 3532B-201A	12		∞		
	GIFV ^{R/L} 3532B-351B		35	50		
	3532B-352B					
	5032B-501B	25				
	5032B-502B		50	70		
	GIFV ^{R/L} 5032B-501C 5032B-502C		50	70		

The value () of External dia. of the groove (max.) is the maximum outer diameter value after the initial groove between DAXN ~ DAXX (It is possible to widen the groove to infinity ∞).

The value () of Internal dia. of the groove (min.) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN ~ DAXX.

● : Standard item

FMM/FMN

												Carbon steel / Alloy steel						P
												Stainless steel						M
												Cast iron						K
												Non-ferrous metals						N
												Titanium alloy						S
												Hard materials (~ 40HRC)						H
												Hard materials (40HRC ~)						
		Insert		Description	No. of edges	Dimension (mm)				Tolerance (mm)		Carbide				Cermat	Applicable toolholder G135,G136	
CW	S					RE	INSL	CW min.	CW max.	CVD		PVD		-	-			
										CR9025	PR905	PR915	PR930					KW10
	 Chip control oriented / M class	FMM 30-03	1	3	3.5	0.3	12	- 0.05	+ 0.05								KFMS%/L...-3	
		FMM 40-04	1	4	3.5	0.4	12	- 0.05	+ 0.05								KFMS%/L...-4	
		FMM 50-04	1	5	3.5	0.4	12	- 0.05	+ 0.05								KFMS%/L...-5	
		FMM 60-04	1	6	3.5	0.4	12	- 0.05	+ 0.05									
	 Sharp cutting oriented / M class	FMN 3	1	3	3.5	0.25	12	- 0.05	+ 0.05								KFMS%/L...-3	
		FMN 4	1	4	3.5	0.25	12	- 0.05	+ 0.05								KFMS%/L...-4	
		FMN 5	1	5	3.5	0.25	12	- 0.05	+ 0.05								KFMS%/L...-5	
		FMN 6	1	6	3.5	0.25	12	- 0.05	+ 0.05									

FMN inserts are only for Deep Grooving and not applicable for Turning.

Recommended cutting conditions

Workpiece material	Recommended insert grades (Vc: m/min)						Face grooving (FMM / FMN)			Turning (FMM)			Remarks
	Cermet	CVD coated carbide	PVD coated carbide			Carbide	Edge width (mm)			Edge width (mm)			
	TN90	CR9025	PR915	PR930	PR905	KW10	3.0	4.0	5.0 / 6.0	3.0	4.0	5.0 / 6.0	
							f (mm/rev)			f (mm/rev)			
Carbon steel	☆ 100~220	☆ 80~200	☆ 80~200	★ 80~200	-	-	0.03~0.05	0.03~0.08	0.05~0.10	0.05~0.10	0.05~0.25	0.10~0.30	Coolant
Alloy steel	☆ 80~200	☆ 70~180	☆ 70~180	★ 70~180	-	-	0.03~0.05	0.03~0.08	0.05~0.10	0.05~0.10	0.05~0.25	0.10~0.30	
Stainless steel	☆ 70~160	☆ 60~150	★ 60~150	☆ 60~150	-	-	0.03~0.05	0.03~0.08	0.05~0.10	0.05~0.10	0.05~0.25	0.10~0.30	
Cast iron	-	-	-	-	★ 80~180	☆ 70~150	0.03~0.05	0.03~0.08	0.05~0.10	0.05~0.10	0.05~0.25	0.10~0.30	
Aluminum alloys	-	-	-	-	-	★ 200~500	0.03~0.05	0.03~0.08	0.05~0.10	0.05~0.10	0.05~0.25	0.10~0.30	
Brass	-	-	-	-	-	★ 100~200	0.03~0.05	0.03~0.08	0.05~0.10	0.05~0.10	0.05~0.25	0.10~0.30	

• Set the feed rate 1/100 of edge width on the first groove and check chip evacuation.

• FMN type Inserts are only for deep grooving, and when used for turning, set to $a_p = 0.2$ mm and under.

★ : 1st recommendation ☆ : 2nd recommendation

Refer to the notes below for turning conditions

a_p and f of FMM

	Recommended cutting conditions	
a_p (MAX.) (mm)	under 50% of edge width	$a_p \leq 0.5CW$
f (MAX.) (mm/rev)	under 3~5% of edge width	$f \leq [0.03(\text{Min.}) \sim 0.05(\text{Max.})]CW$

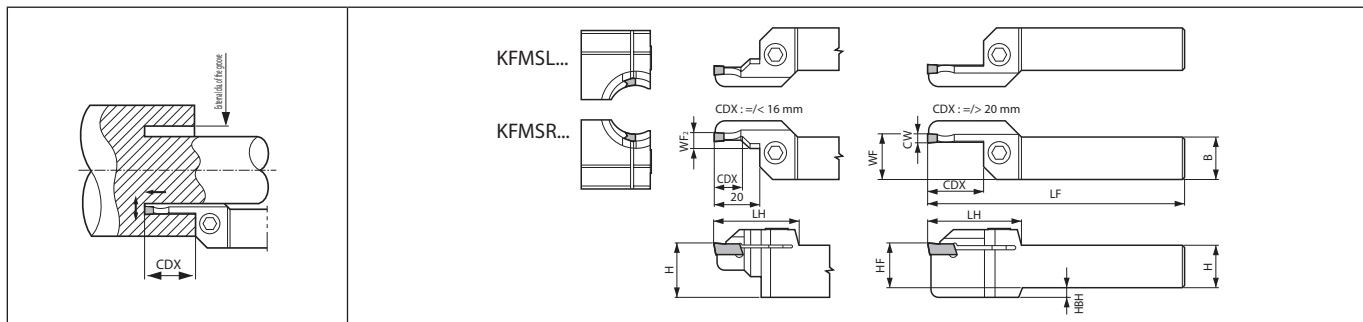
$a_p \times f$ should be as follows.

Load (mm ²)	Edge Width (mm)	3.0	4.0	5.0	6.0	
$a_p \times f$		~0.09	~0.14	~0.25	~0.36	$a_p \times f \leq 0.01CW^2$

● : Standard item

G134

KFMS (Face grooving)



Toolholder dimensions

Description	Availability		External dia. of the groove (mm)		Dimension (mm)											Spare parts		Applicable inserts 🔗 G134
																Clamp bolt	Wrench	
	R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	HBH	LF	WF	WF ₂	CW				
KFMS% 2020K2530-3 2020K3040-3 2020K4050-3 2020K5065-3 2020K6585-3 2020K85110-3 2020K110145-3 2525M2530-3 2525M3040-3 2525M4050-3 2525M5065-3 2525M6585-3 2525M85110-3 2525M110145-3	●		25	30	13	20	20	39	-	125	20.7	6.1	3	HH5X20	LW-4	FMM30-03 FMN3		
	●		30	40				41									5	-
	●		40	50														
	●		50	65	22			41									-	-
	●		65	85														
	●		85	110	25			44									5	-
	●		110	145														
	●	●	25	30	13	25	25	39	-	150	25.7	6.1	3	HH5X25				
	●	●	30	40				41									-	
	●	●	40	50														
	●	●	50	65	22			41									-	-
	●	●	65	85														
	●	●	85	110	25			44									-	-
	●	●	110	145														
KFMS% 2020K2535-4 2020K3550-4 2020K5070-4 2020K70100-4 2020K100150-4 2020K150220-4 2020K220800-4 2525M2535-4 2525M3550-4 2525M5070-4 2525M70100-4 2525M100150-4 2525M150220-4 2525M220800-4	●		25	35	12	20	20	39	-	125	20.7	7.1	4	HH5X20	LW-4	FMM40-04 FMN4		
	●		35	50	20			44									5	-
	●		50	70														
	●		70	100	25			44									5	-
	●		100	150														
	●		150	220	25			44									-	-
	●		220	∞														
	●	●	25	35	12	25	25	39	-	150	25.7	7.1	4	HH5X25				
	●	●	35	50	20			44									-	
	●	●	50	70														
	●	●	70	100	25			44									-	-
	●	●	100	150														
	●	●	150	220	25			44									-	-
	●	●	220	∞														

CDX shows available grooving depth.

External dia. of the groove : The diameter range of the initial groove.

KFMS will be switched to KGDF=> G114 ~ G118

● : Standard item

Toolholder dimensions

Description	Availability		External dia. of the groove (mm)		Dimension (mm)										Spare parts		Applicable inserts ➡ G134
															Clamp bolt	Wrench	
	R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	HBH	LF	WF	WF ₂	CW			
KFMS [®] /L 2020K2535-5 2020K3550-5 2020K5075-5 2020K75115-5 2020K115180-5 2020K180235-5 2020K235800-5 2525M2535-5 2525M3550-5 2525M5075-5 2525M75115-5 2525M115180-5 2525M180235-5 2525M235800-5	●		25	35	20			39						HH5X20	LW-4	FMM50-04 FMN5 FMM60-04 FMN6	
	●		35	50						-							
	●		50	75													
	●		75	115	25	20	20		20		125	20.7 (21.2)		HH5X20			
	●		115	180				44		5							
	●		180	235													
	●		235	∞	25									HH5X25			
	●	●	25	35		20			39								
	●	●	35	50													
	●	●	50	75	25				44								
	●	●	75	115	25	25	25		25	-	150	25.7 (26.2)		HH5X25			
	●	●	115	180				51									
	●	●	180	235													
	●	●	235	∞	32												

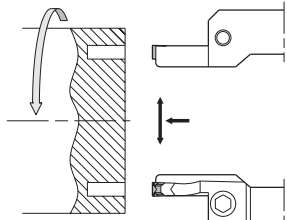
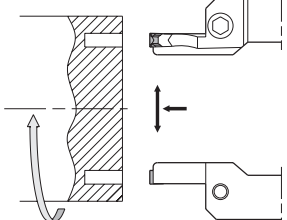
CDX shows available grooving depth.

External dia. of the groove : The diameter range of the initial groove.

For KFMS^{R/L}....-5 toolholder can hold a 6 mm width insert. () value shows the dimension of a 6mm width insert.

KFMS will be switched to KGDF=> G114 ~ G118

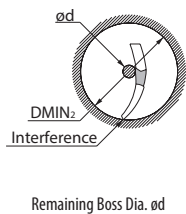
Selection of Toolholder & Insert

Toolholder	Right-hand		Toolholder	Left-hand	
Insert	(Neutral)		Insert	(Neutral)	

Limit of Turning toward Center

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

Description	DMIN ₂				ød (mm)
	25	26	27	28 and over	
KFMS ^{R/L} 2020K2530-3	4	2	0	0	(No remaining Boss)
KFMS ^{R/L} 2525M2530-3					
KFMS ^{R/L} 2020K2535-4	6	3	0		
KFMS ^{R/L} 2525M2535-4					
KFMS ^{R/L} 2020K2535-5	7	4	1		
KFMS ^{R/L} 2525M2535-5	*(5)	*(2)	*(0)		



e.g.)

KFMSR 2525M2530-3 with ø25 as first cut towards the center, it will cause a rubbing with the toolholder cartridge if ød is 4.0mm.

*() value shows the Dimension using FMM60-04 Insert.

● : Standard item

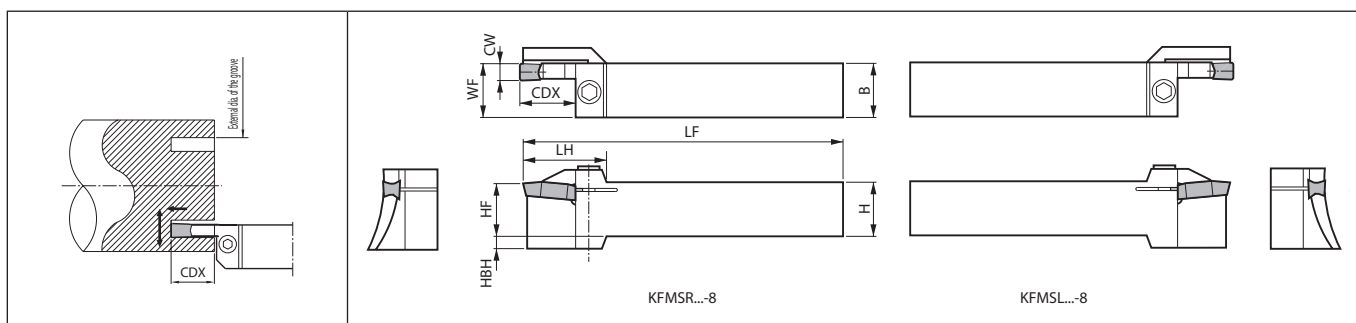
G136

							Carbon steel / Alloy steel									P
							Stainless steel									M
							Cast iron									K
							Non-ferrous metals									N
							Titanium alloy									S
							Hard materials (~ 40HRC)									H
							Hard materials (40HRC ~)									
Insert	Description	No. of edges	Dimension (mm)				Tolerance (mm)		Carbide				Cermet	Applicable toolholder G138		
			CW	S	RE	INSL	CW min.	CW max.	CVD CR9025 PR905 PR915 PR930	PVD - KW10 TN90	-					
 Sharp cutting oriented / Precision class (ground chipbreaker)	GGMG 8030-050MG	2	8	5.5	0.5	30	- 0.03	+ 0.03							KFMS [®] /...-8	
 Full R / Sharp cutting oriented / Precision class	GGMA 8030-400R	2	8	5.5	4	30	- 0.02	+ 0.02								
 Chip control oriented / M class	GMM 8030-080MW	2	8	5.5	0.8	30	- 0.05	+ 0.05								

Recommended cutting conditions ➡ G143

G137

KFMS-8 (Face grooving)



Toolholder dimensions

Description	Availability		External dia. of the groove (mm)		Dimension (mm)										Spare parts		Applicable inserts ➡ G137
															Clamp bolt	Wrench	
	R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	HBH	LF	WF	CW				
KFMS®/L 2525M5464-8 2525M6382-8 2525M80115-8 2525M105160-8 2525M155510-8 3232P155510-8	●	●	54 (0)	64 (∞)	25	25	25	41	25	6	150	26	8			GMG8030-050MG GMGA8030-400R GMM8030-080MW	
	●	●	63 (0)	82 (∞)													
	●	●	80 (0)	115 (∞)													
	●	●	105 (0)	160 (∞)													
	●	●	155 (0)	510 (∞)				43	32	-	170	33					
	●																

CDX shows available grooving depth.

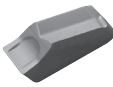
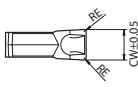
The value () of External dia. of the groove (DAXX) is the maximum outer diameter value after the initial groove between DAXN ~ DAXX. (It is possible to widen the groove to infinity ∞).

The value () of External dia. of the groove (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN ~ DAXX.

● : Standard item

G138

FTK

		Carbon steel / Alloy steel			●		P					
		Stainless steel			●		M					
		Cast iron				●	K					
		Non-ferrous metals				●	N					
		Titanium alloy				●	S					
		Hard materials (~ 40HRC)			○		H					
Hard materials (40HRC ~)												
Insert		Description		No. of edges	Dimension (mm)		Tolerance (mm)		Carbide			Applicable toolholder ➡ G140
					CW	RE	CW min.	CW max.	CVD	PVD	-	
									CR9025	PR930	KW10	
		FTK 4	1	4	0.25	- 0.05	+ 0.05	●	●	●	KFTB®/....-4S	
	FTK 5	1	5	0.25	- 0.05	+ 0.05	●	●	●	KFTB®/....-5S		

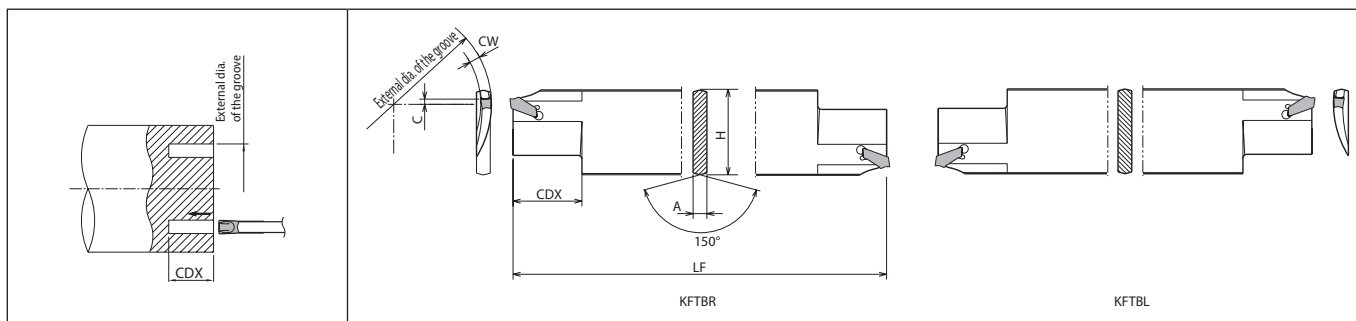
Recommended cutting conditions ➡ G146



Grooving

● : Standard item

KFTB (Face grooving blade)



Toolholder dimensions

Description	Availability		External dia.of the groove (mm)		Dimension (mm)						Applicable inserts ➡ G139	Applicable tool block ➡ H50, H51	
	R	L	DAXN (min.)	DAXX (max.)	CDX	H	A	C	LF	CW			
KFTB%L 65100-4S 90150-4S 150250-4S 250800-4S	●	●	65	100	25	32	5.2	4	0	150	4	FTK4	KPKTB...-32/JCT KTKTB...-32 KTKTBF...-32
	●	●	90	150	30								
	●	●	140	250	30								
	●	●	230	∞									
KFTB%L 90150-5S 150250-5S 250800-5S	●	●	90	150	30	32	5.2	0	150	5	FTK5		
	●	●	150	250	32								
	●	●	250	∞	38								
	●	●	250	∞									

CDX shows available grooving depth.

External dia. of the groove : The diameter range of the initial groove.

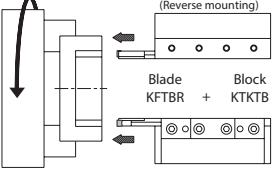
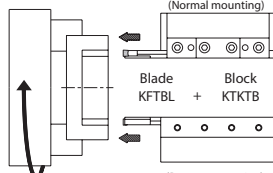
The insert has Self-Clamping system and it is not suitable for tight tolerance grooves (tolerance±0.05mm).

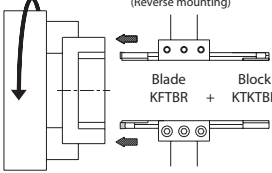
Lightly tap an Insert with a Plastic hammer. (End of insert does not touch toolholder.)

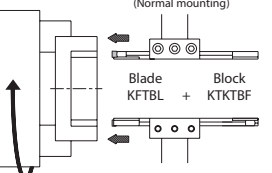
KFTB%L 65100-4S toolholder is designed with the edge position 4 mm above the Center.

Dimension H shows virtual apex distance.

Selection of Blade and Insert

Combination of Blade + KTKTB				Combination of Blade + KTKTBF			
Blade	Right-hand			Blade	Right-hand		
Insert	Neutral			Insert	Neutral		
							
(Normal mounting)				(Reverse mounting)			

Combination of Blade + KTKTBF			
Blade	Right-hand		
Insert	Neutral		
			
(Normal mounting)			

Combination of Blade + KTKTBF			
Blade	Left-hand		
Insert	Neutral		
			
(Reverse mounting)			

● : Standard item

G140

Recommended cutting conditions

GBA inserts - ground chipbreaker

Workpiece material	Recommended insert grades (Vc: m/min)										(1) f for grooving (mm/rev) (2) f for turning (mm/rev) (3) ap for turning (mm)					Remarks	
	MEGACOAT cermet	Cermet			MEGACOAT	MEGACOAT NANO	PVD coated carbide		Carbide	CBN	PCD						
	PV7040	TN620	TC40N	TN90	PR1215	PR1625	PR830	PR805	KW10	KBN510 KBN525	KPD001 (KPD010)	GBA○○○ ^{P/L} 033~120...	GBA○○○ ^{P/L} 125~225...	GBA○○○ ^{P/L} 230~325...	GBA○○○ ^{P/L} 330~350...		GBA○○○ ^{P/L} 400~480...
Carbon steel	☆ 150~240	★ 80~220	☆ 150~220	☆ 150~220	★ 80~200	★ 80~180	☆ 80~180	-	-	-	-	(1) 0.03~0.08 (2) Not recom. (3) Not recom.	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.8	Coolant
Alloy steel	☆ 130~220	★ 80~200	☆ 130~200	☆ 130~200	★ 80~180	★ 80~160	☆ 80~160	-	-	-	-	(1) 0.03~0.07 (2) Not recom. (3) Not recom.	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.09 (2) 0.05~0.09 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.8	
Stainless steel	-	-	-	☆ 70~150	☆ 60~150	★ 60~130	☆ 60~130	-	-	-	-	(1) 0.03~0.07 (2) Not recom. (3) Not recom.	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.09 (2) 0.05~0.09 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.8	
Cast iron	-	-	-	-	-	-	-	★ 80~180	☆ 60~120	★ 150~400	-	(1) 0.03~0.08 (2) Not recom. (3) Not recom.	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.8	
Aluminum alloys	-	-	-	-	-	-	-	-	★ 150~400	-	★ 150~2,000	(1) 0.05~0.12 (2) Not recom. (3) Not recom.	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	
Brass	-	-	-	-	-	-	-	-	★ 150~300	-	★ 200~800	(1) 0.05~0.12 (2) Not recom. (3) Not recom.	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	
Hard materials	-	-	-	-	-	-	-	-	-	★ 80~120	-	-	(1) 0.02~0.05 (2) Not recom. (3) Not recom.	(1) 0.03~0.07 (2) 0.01~0.04 (3) Max. 0.1	-	-	

* Above cutting condition is for external grooving. Set both cutting speed and feed 10% lower for internal grooving.

★:1st recommendation ☆:2nd recommendation

GBA inserts - GM chipbreaker

Workpiece material	Recommended insert grades (Vc: m/min)			(1) f for grooving (mm/rev) (2) f for turning (mm/rev) (3) ap for turning (mm)					Remarks
	Cermet	MEGACOAT NANO	MEGACOAT	GBA43 [®] /L 140-010GM	GBA43 [®] /L 150-020GM	GBA43 [®] /L 175-020GM~230-020GM	GBA43 [®] /L 250-030GM~350-030GM	GBA43 [®] /L 400-040GM	
	TN620	PR1625	PR1215						
Carbon steel	★ 80~240	★ 80~220	☆ 80~220	(1) 0.03~0.1 (2) 0.03~0.08 (3) Max. 0.2	(1) 0.03~0.12 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.03~0.12 (2) 0.03~0.09 (3) Max. 0.3	(1) 0.04~0.15 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.1 (3) Max. 0.8	Coolant
Alloy steel	★ 80~220	★ 80~200	☆ 80~200	(1) 0.03~0.1 (2) 0.03~0.08 (3) Max. 0.2	(1) 0.03~0.12 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.03~0.12 (2) 0.03~0.09 (3) Max. 0.3	(1) 0.04~0.15 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.1 (3) Max. 0.8	
Stainless steel	-	★ 60~150	☆ 60~150	(1) 0.03~0.1 (2) 0.03~0.08 (3) Max. 0.2	(1) 0.03~0.1 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.03~0.1 (2) 0.03~0.09 (3) Max. 0.3	(1) 0.04~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.04~0.12 (2) 0.05~0.1 (3) Max. 0.8	

* Above cutting condition is for external grooving. Set both cutting speed and feed 20% lower for internal grooving.

★:1st recommendation ☆:2nd recommendation

GBA inserts - MY chipbreaker

Workpiece material	Recommended insert grades (Vc: m/min)	(1) f for grooving (mm/rev) (2) f for turning (mm/rev) (3) ap for turning (mm)					Remarks
	Cermet	GBA43 [®] /L	GBA43 [®] /L	GBA43 [®] /L	GBA43 [®] /L	GBA43 [®] /L	
	TN6020	175-020MY~200-020MY	230-020MY~265-030MY	300-030MY	330-030MY~350-030MY	400-040MY	
Carbon steel	☆ 150~220	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.8	Coolant
Alloy steel	☆ 130~200	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.09 (2) 0.05~0.09 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.8	
Stainless steel	☆ 70~150	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.09 (2) 0.05~0.09 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.8	

* Above cutting condition is for external grooving. Set both cutting speed and feed 10% lower for internal grooving.

★:1st recommendation ☆:2nd recommendation



Grooving

Recommended cutting conditions

GBF

Workpiece material	Recommended insert grades (Vc: m/min)			(1) f for grooving (mm/rev)				Remarks
	MEGACOAT	MEGACOAT NANO	Carbide	(2) f for turning (mm/rev)				
	PR1215	PR1535	GW15	(3) ap for turning (mm)				
				GBF32% _L 025 – 053	GBF32% _L 065 – 095	GBF32% _L 100 – 145	GBF3% _L 150 – 300	
Carbon steel	★ 80~180	☆ 70~160	-	(1) 0.01~0.05	(1) 0.02~0.07	(1) 0.03~0.08	(1) 0.03~0.08	
				(2) Not recom.	(2) Not recom.	(2) 0.03~0.06	(2) 0.03~0.06	
				(3) Not recom.	(3) Not recom.	(3) Max. 0.2	(3) Max. 0.2	
Alloy steel	★ 80~180	☆ 70~160	-	(1) 0.01~0.04	(1) 0.02~0.06	(1) 0.03~0.07	(1) 0.03~0.07	
				(2) Not recom.	(2) Not recom.	(2) 0.02~0.05	(2) 0.02~0.05	
				(3) Not recom.	(3) Not recom.	(3) Max. 0.2	(3) Max. 0.2	
Stainless steel	☆ 60~130	★ 50~120	-	(1) 0.01~0.04	(1) 0.02~0.06	(1) 0.03~0.07	(1) 0.03~0.07	
				(2) Not recom.	(2) Not recom.	(2) 0.02~0.05	(2) 0.02~0.05	
				(3) Not recom.	(3) Not recom.	(3) Max. 0.2	(3) Max. 0.2	
Cast iron	-	-	★ 60~100	(1) 0.01~0.05	(1) 0.02~0.07	(1) 0.03~0.08	(1) 0.03~0.08	
				(2) Not recom.	(2) Not recom.	(2) 0.03~0.06	(2) 0.03~0.06	
				(3) Not recom.	(3) Not recom.	(3) Max. 0.2	(3) Max. 0.2	
Aluminum	-	-	★ 150~400	(1) 0.01~0.05	(1) 0.02~0.07	(1) 0.03~0.08	(1) 0.03~0.08	
				(2) Not recom.	(2) Not recom.	(2) 0.03~0.06	(2) 0.03~0.06	
				(3) Not recom.	(3) Not recom.	(3) Max. 0.2	(3) Max. 0.2	
Brass	-	-	★ 150~300	(1) 0.01~0.04	(1) 0.02~0.06	(1) 0.03~0.07	(1) 0.03~0.07	
				(2) Not recom.	(2) Not recom.	(2) 0.02~0.05	(2) 0.02~0.05	
				(3) Not recom.	(3) Not recom.	(3) Max. 0.2	(3) Max. 0.2	

★:1st recommendation ☆:2nd recommendation

GBF-000F inserts (RE=0.00)

Workpiece Material	Recommended insert grades (Vc: m/min)			(1) f for grooving (mm/rev)				Remarks
	MEGACOAT	MEGACOAT NANO	Carbide	(2) f for turning (mm/rev)				
	PR1215	PR1535	GW15	(3) ap for turning (mm)				
				GBF32 [®] /L 025 ~ 053 - 000F	GBF32 [®] /L 065 ~ 095 - 000F	GBF32 [®] /L 100 ~ 145 - 000F	GBF32 [®] /L 150 ~ 200 - 000F	
Carbon steel	★ 80 ~ 180	☆ 70 ~ 160	-	(1) 0.005~0.03	(1) 0.01~0.04	(1) 0.01~0.05	(1) 0.01~0.05	Coolant
				(2) Not recom.	(2) Not recom.	(2) 0.01~0.04	(2) 0.01~0.04	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Alloy steel	★ 80 ~ 180	☆ 70 ~ 160	-	(1) 0.005~0.025	(1) 0.01~0.03	(1) 0.01~0.04	(1) 0.01~0.04	
				(2) Not recom.	(2) Not recom.	(2) 0.01~0.03	(2) 0.01~0.03	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Stainless steel	☆ 60 ~ 130	★ 50 ~ 120	-	(1) 0.005~0.02	(1) 0.01~0.025	(1) 0.01~0.03	(1) 0.01~0.03	
				(2) Not recom.	(2) Not recom.	(2) 0.01~0.025	(2) 0.01~0.025	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Cast iron	-	-	★ 60 ~ 100	(1) 0.005~0.03	(1) 0.01~0.04	(1) 0.01~0.05	(1) 0.01~0.05	
				(2) Not recom.	(2) Not recom.	(2) 0.01~0.04	(2) 0.01~0.04	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Aluminum	-	-	★ 150 ~ 400	(1) 0.005~0.03	(1) 0.01~0.04	(1) 0.01~0.05	(1) 0.01~0.05	
				(2) Not recom.	(2) Not recom.	(2) 0.01~0.04	(2) 0.01~0.04	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	
Brass	-	-	★ 150 ~ 300	(1) 0.01~0.03	(1) 0.01~0.04	(1) 0.01~0.05	(1) 0.01~0.05	
				(2) Not recom.	(2) Not recom.	(2) 0.01~0.04	(2) 0.01~0.04	
				(3) Not recom.	(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.2	

★:1st recommendation ☆:2nd recommendation

GBF-GL inserts

Workpiece Material	Recommended insert rates (Vc : m/min)		(1) f for grooving (mm/rev)				Remarks
	MEGACOAT	MEGACOAT NANO	(2) f for turning (mm/rev)				
	PR1215	PR1535	(3) ap for turning (mm)				
			GBF32R075 - 005GL	GBF32R095 - 100-005GL	GBF32R150 - 200-010GL	GBF32R300 - 010GL	
Carbon Steel	★ 80 ~ 180	☆ 70 ~ 160	(1) 0.02~0.07	(1) 0.03~0.08	(1) 0.03~0.08	(1) 0.04~0.1	Coolant
			(2) Not recom.	(2) 0.03~0.06	(2) 0.03~0.06	(2) 0.04~0.08	
			(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.3	(3) MAX. 0.5	
Alloy Steel	★ 80 ~ 180	☆ 70 ~ 160	(1) 0.02~0.06	(1) 0.03~0.07	(1) 0.03~0.07	(1) 0.04~0.09	
			(2) Not recom.	(2) 0.03~0.06	(2) 0.03~0.06	(2) 0.04~0.08	
			(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.3	(3) MAX. 0.5	
Stainless Steel	☆ 60 ~ 130	★ 50 ~ 120	(1) 0.02~0.06	(1) 0.03~0.07	(1) 0.03~0.07	(1) 0.04~0.09	
			(2) Not recom.	(2) 0.03~0.06	(2) 0.03~0.06	(2) 0.04~0.08	
			(3) Not recom.	(3) MAX. 0.2	(3) MAX. 0.3	(3) MAX. 0.5	

★:1st recommendation ☆:2nd recommendation

G142

Recommended cutting conditions

GMG / GMM / GMN / GMGA

Workpiece material	Recommended insert grades (Vc: m/min)						Grooving				Turning				Remarks
	Cermet	CVD coated carbide	PVD coated carbide			Carbide	Edge width (mm)				Edge width (mm)				
	TN90	CR0025	PR915	PR930	PR905	KW10	2.0~3.0	4.0	5.0	6.0 / 8.0	2.0~3.0	4.0	5.0	6.0 / 8.0	
	f (mm/rev)						f (mm/rev)				f (mm/rev)				
Carbon steel	☆ 100~220	☆ 80~200	☆ 80~200	★ 80~200	-	-	0.05~0.15	0.10~0.25	0.15~0.35	0.20~0.35	0.10~0.20	0.15~0.30	0.20~0.40	0.25~0.40	Coolant
Alloy steel	☆ 80~200	☆ 70~180	☆ 70~180	★ 70~180	-	-	0.05~0.15	0.10~0.25	0.15~0.35	0.20~0.35	0.10~0.20	0.15~0.30	0.20~0.40	0.25~0.40	
Stainless steel	☆ 70~160	☆ 60~150	★ 60~150	☆ 60~150	-	-	0.05~0.15	0.10~0.20	0.15~0.35	0.20~0.35	0.10~0.20	0.15~0.25	0.20~0.40	0.25~0.40	
Cast iron	-	-	-	-	★ 100~200	☆ 70~150	0.05~0.20	0.10~0.30	0.15~0.40	0.20~0.40	0.10~0.25	0.15~0.35	0.20~0.45	0.25~0.45	
Aluminum alloys	-	-	-	-	-	★ 200~500	0.05~0.20	0.08~0.25	0.10~0.25	0.12~0.30	0.10~0.20	0.10~0.25	0.10~0.25	0.15~0.30	
Brass	-	-	-	-	-	★ 100~200	0.05~0.15	0.08~0.20	0.10~0.25	0.12~0.30	0.10~0.20	0.10~0.25	0.10~0.25	0.15~0.30	

★:1st recommendation ☆:2nd recommendation

Refer to the notes below for turning conditions

1. When using KGM toolholder

	Recommended cutting conditions	
ap (MAX.) (mm)	80% or under of edge width	ap ≤ 0.8CW
f (MAX.) (mm/rev)	10% or under of edge width	f ≤ 0.1CW

(ap) x (f) shall not exceed 1/2 of ap (MAX.) x f (MAX.)

Load(mm ²)	Edge width(mm)	2.0~2.5	3.0	4.0	5.0	6.0	8.0
ap x f		~0.20	~0.36	~0.64	~1.00	~1.44	~2.56

$$ap \times f \leq \frac{1}{2} \times 0.8CW \times 0.1CW = 0.04CW^2$$

2. When using KGM-T toolholder (Deep grooving type) - use 90% of KGM conditions

3. When using KGMM / KGMS / KFMS-8 Toolholder

	Recommended cutting conditions	
ap (MAX.) (mm)	50% or under of edge width	ap ≤ 0.5CW
f (MAX.) (mm/rev)	4% or under of edge width	f ≤ 0.04CW

(ap) x (f) should be as follows. (50% or under of KGM)

Load(mm ²)	Edge width(mm)	2.0~2.5	3.0	4.0	5.0	6.0	8.0
ap x f		~0.10	~0.18	~0.32	~0.50	~0.72	~1.28

$$ap \times f \leq 0.02CW^2$$

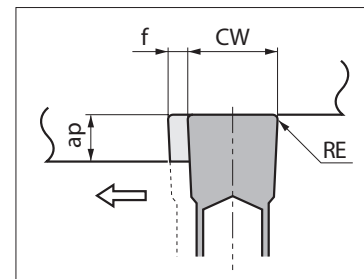
4. When using KIGM toolholder

	Recommended cutting conditions	
ap (MAX.) (mm)	70% or under of Edge Width	ap ≤ 0.7CW
f (MAX.) (mm/rev)	8% or under of Edge Width	f ≤ 0.08CW

(ap) x (f) should be as follows: 70% or under of KGM

Load(mm ²)	Edge width(mm)	3.0	4.0	5.0
ap x f		~0.25	~0.44	~0.70

$$ap \times f \leq 0.04CW^2$$



Grooving

GMG / GMM / GMGA 8030 - face grooving

Workpiece material	Recommended insert grades (Vc: m/min)						Face grooving			Turning			Remarks
	Cermet	CVD coated carbide	PVD coated carbide			Carbide	Edge width (mm)			Edge width (mm)			
	TN90	CP9025	PR915	PR930	PR905	KW10	8.0			8.0			
							f (mm/rev)			f (mm/rev)			
Carbon steel	☆ 100~220	☆ 80~160	☆ 80~160	★ 80~160	-	-	0.1~0.2			0.1~0.25			Coolant
Alloy steel	☆ 80~160	☆ 70~160	☆ 70~160	★ 70~160	-	-	0.1~0.2			0.1~0.25			
Stainless steel	☆ 70~140	☆ 60~130	★ 60~130	☆ 60~130	-	-	0.1~0.2			0.1~0.25			
Cast iron	-	-	-	-	★ 80~180	☆ 70~130	0.1~0.3			0.1~0.35			
Aluminum alloys	-	-	-	-	-	★ 200~300	0.08~0.25			0.08~0.30			
Brass	-	-	-	-	-	★ 100~150	0.08~0.25			0.08~0.30			

★:1st recommendation ☆:2nd recommendation

G143

Recommended cutting conditions

EZG

Workpiece material	Insert grades (Vc : m/min)		EZGR030030-...S	EZG%L040040-... EZG%L050050-... EZG%L040040-...S EZG%L050050-...S	EZG%L060060-... EZG%L070070-... EZG%L080070-... EZG%L060060-...S EZG%L070070-...S EZG%L080070-...S	Remarks
	MEGACOAT	Carbide				
	PR1225	GW05				
Carbon steel / Alloy steel	★ 30~100	-	~0.02	~0.03	~0.05	Coolant
Stainless steel	★ 30~80	-	~0.01	~0.02	~0.03	
Non-ferrous metals	-	★ ~300	-	~0.05	~0.08	

★ :1st recommendation

G

VNG



Grooving

Workpiece material	Recommended insert grades (Vc : m/min)			VNG04 VNG05	VNG06 VNG07	Remarks
	MEGACOAT	PVD Coated carbide	Carbide			
	PR1225	PR930	KW10	f (mm/rev)		
Carbon steel / Alloy steel	★ 30~100	☆ 30~100		~0.03	~0.05	Coolant
Stainless steel	★ 30~80	☆ 30~80		~0.02	~0.03	
Non-ferrous metals			★ ~300	~0.05	~0.08	

★ :1st recommendation ☆ :2nd recommendation

SIGC

Workpiece material	Recommended insert grades (Vc : m/min)		(1) f for grooving (mm/rev)			Remarks
	MEGACOAT NANO PLUS	MEGACOAT NANO	(2) f for turning (mm/rev)			
	PR1725	PR1535	(3) ap for turning (mm)			
			GC08 [®] /L...	GC10 [®] /L, GC12 [®] /L 100 ~ 200...	GC10 [®] /L, GC12 [®] /L 250 ~ 300...	
Carbon steel	★ 50~80	☆ 50~80	(1) 0.01~0.03	(1) 0.02~0.04	(1) 0.02~0.04	Coolant
			(2) 0.01~0.03	(2) 0.02~0.04	(2) 0.02~0.04	
			(3) Max. 0.05	(3) Max. 0.05	(3) Max. 0.1	
Alloy steel	★ 50~80	☆ 50~80	(1) 0.01~0.03	(1) 0.02~0.04	(1) 0.02~0.04	
			(2) 0.01~0.03	(2) 0.02~0.04	(2) 0.02~0.04	
			(3) Max. 0.05	(3) Max. 0.05	(3) Max. 0.1	
Stainless steel	☆ 50~80	★ 50~80	(1) 0.01~0.03	(1) 0.01~0.03	(1) 0.01~0.03	
			(2) 0.01~0.03	(2) 0.01~0.03	(2) 0.01~0.03	
			(3) Max. 0.05	(3) Max. 0.05	(3) Max. 0.1	

★ :1st recommendation ☆ :2nd recommendation

G144

Recommended cutting conditions

Ground chipbreaker: GE^{R/L}...A(R), GE^{R/L}...B(R)

Workpiece material	Recommended insert grades (Vc: m/min)				(1) f for grooving (mm/rev)			Remarks
	Cermet	MEGACOAT	PVD coated carbide	Carbide	(2) f for turning (mm/rev)			
					(3) ap for turning (mm)			
					GE [®] /L	100~200-010A 100~200-100AR	GE [®] /L	
Carbon steel	☆ 50~80	★ 50~80	☆ 50~80	-	(1) 0.01~0.03	(1) 0.02~0.04	(1) 0.02~0.04	Coolant
Alloy steel	☆ 50~80	★ 50~80	☆ 50~80	-	(2) 0.01~0.03	(2) 0.02~0.04	(2) 0.02~0.04	
					(3) Max. 0.05	(3) Max. 0.05	(3) Max. 0.1	
					(1) 0.01~0.03	(1) 0.02~0.04	(1) 0.02~0.04	
Stainless steel	-	★ 50~80	☆ 50~80	-	(2) 0.01~0.03	(2) 0.02~0.04	(2) 0.02~0.04	
					(3) Max. 0.05	(3) Max. 0.05	(3) Max. 0.1	
					(1) 0.01~0.03	(1) 0.01~0.03	(1) 0.01~0.03	
Cast iron	-	-	-	★ 50~80	(1) 0.01~0.03	(1) 0.02~0.04	(1) 0.02~0.04	
					(2) 0.01~0.03	(2) 0.02~0.04	(2) 0.02~0.04	
					(3) Max. 0.05	(3) Max. 0.05	(3) Max. 0.1	
Aluminum	-	-	-	★ 50~100	(1) 0.01~0.03	(1) 0.02~0.04	(1) 0.02~0.04	
					(2) 0.01~0.03	(2) 0.02~0.04	(2) 0.02~0.04	
					(3) Max. 0.1	(3) Max. 0.1	(3) Max. 0.2	
Brass	-	-	-	★ 50~100	(1) 0.01~0.03	(1) 0.02~0.04	(1) 0.02~0.04	
					(2) 0.01~0.03	(2) 0.02~0.04	(2) 0.02~0.04	
					(3) Max. 0.1	(3) Max. 0.1	(3) Max. 0.2	

* Use PVD coated grade or carbide for turning with edge width 1mm. (GE^{R/L} 100-005A / 100-005B) ★:1st recommendation ☆:2nd recommendation

Ground chipbreaker: GE^{R/L}...C(R), GE^{R/L}...D(R), GE^{R/L}...E

Workpiece material	Recommended insert grades (Vc : m/min)				(1) f for grooving (mm/rev)							Remarks
	Cermet	MEGACOAT	PVD coated carbide	Carbide	(2) f for turning (mm/rev)							
					(3) ap for turning (mm)							
					GE [®] /L 100~200-010C 200-100CR	GE [®] /L 250~350-020C 250~300-150CR						
TN6020	PR1225	PR1025	GW15	GE [®] /L 100~145-010D	GE [®] /L 150~195-010D	GE [®] /L 200~280-020D 200-100DR		GE [®] /L 300~400-020D 300-150DR				
				GE [®] /L 100-010E	GE [®] /L 150~195-010E	GE [®] /L 200~225-010E 230-020E	GE [®] /L 250~330-020E		GE [®] /L 350~430-020E	GE [®] /L 450~500-020E		
Carbon steel	☆ 120~180	★ 60~140	☆ 60~140	-	(1) 0.03~0.08	(1) 0.03~0.08	(1) 0.04~0.09	(1) 0.04~0.09	(1) 0.05~0.12	(1) 0.05~0.12	(1) 0.05~0.12	
					(2) 0.03~0.08	(2) 0.03~0.08	(2) 0.04~0.09	(2) 0.04~0.09	(2) 0.05~0.1	(2) 0.05~0.1	(2) 0.05~0.1	
					(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	
Alloy steel	☆ 100~160	★ 60~120	☆ 60~120	-	(1) 0.03~0.07	(1) 0.03~0.07	(1) 0.04~0.08	(1) 0.04~0.08	(1) 0.05~0.1	(1) 0.05~0.1	(1) 0.05~0.1	
					(2) 0.03~0.1	(2) 0.03~0.1	(2) 0.04~0.08	(2) 0.04~0.08	(2) 0.05~0.1	(2) 0.05~0.1	(2) 0.05~0.1	
					(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	
Stainless steel	☆ 70~130	★ 60~110	☆ 60~110	-	(1) 0.03~0.07	(1) 0.03~0.07	(1) 0.04~0.08	(1) 0.04~0.08	(1) 0.05~0.1	(1) 0.05~0.1	(1) 0.05~0.1	
					(2) 0.03~0.1	(2) 0.03~0.1	(2) 0.04~0.08	(2) 0.04~0.08	(2) 0.05~0.1	(2) 0.05~0.1	(2) 0.05~0.1	
					(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	
Cast iron	-	-	-	★ 60~100	(1) 0.03~0.08	(1) 0.03~0.08	(1) 0.04~0.09	(1) 0.04~0.09	(1) 0.05~0.12	(1) 0.05~0.12	(1) 0.05~0.12	
					(2) 0.03~0.08	(2) 0.03~0.08	(2) 0.04~0.09	(2) 0.04~0.09	(2) 0.05~0.1	(2) 0.05~0.1	(2) 0.05~0.1	
					(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.3	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	
Aluminum	-	-	-	★ 150~300	(1) 0.05~0.12	(1) 0.05~0.12	(1) 0.05~0.15	(1) 0.05~0.15	(1) 0.08~0.15	(1) 0.08~0.15	(1) 0.08~0.15	
					(2) 0.05~0.12	(2) 0.05~0.12	(2) 0.05~0.15	(2) 0.05~0.15	(2) 0.08~0.15	(2) 0.08~0.15	(2) 0.08~0.15	
					(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.8	(3) Max. 0.8	(3) Max. 0.8	
Brass	-	-	-	★ 100~250	(1) 0.05~0.12	(1) 0.05~0.12	(1) 0.05~0.15	(1) 0.05~0.15	(1) 0.08~0.15	(1) 0.08~0.15	(1) 0.08~0.15	
					(2) 0.05~0.12	(2) 0.05~0.12	(2) 0.05~0.15	(2) 0.05~0.15	(2) 0.08~0.15	(2) 0.08~0.15	(2) 0.08~0.15	
					(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.5	(3) Max. 0.8	(3) Max. 0.8	(3) Max. 0.8	

* Use PVD coated grade or carbide for turning with edge width 1mm. (GE^{R/L} 100-010C / 100-010D / 100-010E) ★:1st recommendation ☆:2nd recommendation

Molded chipbreakers: GER...CM, GER...DM, GER...EM

Workpiece material	Recommended insert grades (Vc : m/min)				(1) f for grooving (mm/rev)						Remarks
	Cermet	MEGACOAT	PVD coated carbide	Carbide	(2) f for turning (mm/rev)						
					(3) ap for turning (mm)						
					GER 150~200-010CM	GER 250~350-020CM					
					GER 150~200-010DM		GER 300~250-020DM	GER 300~400-020DM			
				GER 150~200-010EM			GER 250~300-020EM	GER 350~400-020EM	GER 450~500-020EM		
Carbon steel	-	★ 60~160	☆ 60~160	-	(1) 0.03~0.1	(1) 0.03~0.12	(1) 0.04~0.12	(1) 0.05~0.12	(1) 0.05~0.12	(1) 0.05~0.12	Coolant
					(2) 0.03~0.1	(2) 0.03~0.1	(2) 0.04~0.1	(2) 0.05~0.1	(2) 0.05~0.1	(2) 0.05~0.1	
					(3) Max.1.0	(3) Max.1.5	(3) Max.1.5	(3) Max.1.5	(3) Max.1.5	(3) Max.1.5	
Alloy steel	-	★ 60~140	☆ 60~140	-	(1) 0.03~0.1	(1) 0.03~0.1	(1) 0.04~0.12	(1) 0.05~0.12	(1) 0.05~0.12	(1) 0.05~0.12	
					(2) 0.03~0.1	(2) 0.03~0.1	(2) 0.04~0.1	(2) 0.05~0.1	(2) 0.05~0.1	(2) 0.05~0.1	
					(3) Max.1.0	(3) Max.1.5	(3) Max.1.5	(3) Max.1.5	(3) Max.1.5	(3) Max.1.5	
Stainless steel	-	★ 60~110	☆ 60~110	-	(1) 0.03~0.08	(1) 0.03~0.08	(1) 0.04~0.08	(1) 0.05~0.1	(1) 0.05~0.1	(1) 0.05~0.1	
					(2) 0.03~0.1	(2) 0.03~0.1	(2) 0.04~0.1	(2) 0.05~0.1	(2) 0.05~0.1	(2) 0.05~0.1	
					(3) Max.1.0	(3) Max.1.5	(3) Max.1.5	(3) Max.1.5	(3) Max.1.5	(3) Max.1.5	

★: 1st recommendation ☆: 2nd recommendation



G145

Recommended cutting conditions

GV Inserts - ground chipbreaker

Workpiece material	Recommended insert grades (Vc: m/min)						f (mm/rev) = (1) grooving, (2) turning ap (mm) = (3) turning						Remarks
	Cermet			MEGA COAT	PVD coated carbide	Carbide	GV ⁹ /L 100~300...SS 100~300...S	GV ⁹ /L 145~185...B	GV ⁹ /L 200~280...B	GV ⁹ /L 300~400...B			
	TN90	TC40N	TC60M	PR1225	PR930	KW10	GV ⁹ /L 100~340...A 200~300...AR		GV ⁹ /L 200~100BR	GV ⁹ /L 300~150BR	GV ⁹ /L 280~300...C	GV ⁹ /L 340~400...C	GV ⁹ /L 430~500...C
Carbon steel	☆ 120~180	☆ 120~180	☆ 80~120	★ 80~160	☆ 80~140	-	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5
Alloy steel	☆ 100~160	☆ 100~160	☆ 80~100	★ 80~140	☆ 80~120	-	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5
Stainless steel	☆ 70~130	-	☆ 60~100	★ 60~130	☆ 60~110	-	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5
Cast iron	-	-	-	-	-	★ 60~100	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5
Aluminum alloys	-	-	-	-	-	★ 150~300	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.08~0.15 (3) Max. 0.5	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8
Brass	-	-	-	-	-	★ 100~250	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8

* Use MEGACOAT, PVD coated carbide or carbide for turning with edge width 1mm (GV⁹/L 100SS / 100S / 100A)

★:1st recommendation ☆:2nd recommendation

GVF Inserts - ground chipbreaker

Workpiece material	Recommended insert grades (Vc: m/min)						f (mm/rev) = (1) grooving, (2) turning ap (mm) = (3) turning					Remarks
	Cermet			MEGACOAT	PVD coated carbide	Carbide	GVF ⁹ /L 200~340...A	GVF ⁹ /L 250~350...B	GVF ⁹ /L 400~490...B	GVF ⁹ /L 350~450...C	GVF ⁹ /L 500~600...C	
	TN90	TC40N	TC60M	PR1225	PR930	KW10	GVF ⁹ /L 200-100AR ~300-150AR	GVF ⁹ /L 300-150BR	GVF ⁹ /L 400-200BR			
Carbon steel	☆ 150~220	☆ 150~220	☆ 100~150	★ 80~200	☆ 80~180	-	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.8	Coolant
Alloy steel	☆ 130~200	☆ 130~200	☆ 80~130	★ 80~180	☆ 80~160	-	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.09 (2) 0.05~0.09 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.8	
Stainless steel	☆ 70~150	-	☆ 60~100	★ 80~150	☆ 60~130	-	(1) 0.03~0.07 (2) 0.03~0.1 (3) Max. 0.3	(1) 0.04~0.08 (2) 0.04~0.08 (3) Max. 0.3	(1) 0.05~0.09 (2) 0.05~0.09 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.8	
Cast iron	-	-	-	-	-	★ 60~100	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.1 (3) Max. 0.8	
Aluminum alloys	-	-	-	-	-	★ 150~400	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	
Brass	-	-	-	-	-	★ 150~300	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	(1) 0.08~0.15 (2) 0.08~0.15 (3) Max. 0.8	

Apply a sufficient amount of coolant

The ap should be under 0.5 mm if a good surface finish is required

★:1st recommendation ☆:2nd recommendation

FTK

Workpiece material	Recommended insert grades (Vc: m/min)				Edge width (mm)		Remarks
	Cermet	CVD coated carbide	PVD coated carbide	Carbide	4.0	5.0	
	TN90	CR9025	PR930	KW10	f (mm/rev)		
Carbon steel	☆ 120~200	★ 80~180	☆ 60~130	-	0.05~0.15	0.05~0.15	Coolant
Alloy steel	☆ 100~160	★ 70~150	☆ 60~130	-	0.05~0.15	0.05~0.15	
Stainless steel	☆ 80~150	☆ 60~140	☆ 50~120	-	0.05~0.15	0.05~0.15	
Cast iron	-	-	-	★ 50~100	0.10~0.30	0.10~0.30	
Aluminum alloys	-	-	-	★ 200~450	0.05~0.25	0.05~0.25	
Brass	-	-	-	★ 100~200	0.05~0.25	0.05~0.25	

★:1st recommendation ☆:2nd recommendation

GMN inserts (CBN / PCD)

Workpiece material	Recommended insert grades (Vc: m/min)		f (mm/rev) = (1) grooving, (2) turning ap (mm) = (3) turning				Remarks
	CBN	PCD	GMN2	GMN3	GMN4, GMN5	GMN6	
	KBN510, KBN525	KPD001 (KPD010)					
Aluminum alloys	-	★ 150~2,000	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.8	(1) 0.08~0.18 (2) 0.08~0.18 (3) Max. 0.8	(1) 0.10~0.20 (2) 0.10~0.20 (3) Max. 0.8	Coolant
Brass	-	★ 200~800	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.8	(1) 0.08~0.18 (2) 0.08~0.18 (3) Max. 0.8	(1) 0.10~0.20 (2) 0.10~0.20 (3) Max. 0.8	
Cast iron	★ 150~400	-	(1) 0.04~0.09 (2) 0.04~0.09 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.5	(1) 0.05~0.12 (2) 0.05~0.12 (3) Max. 0.5	(1) 0.05~0.15 (2) 0.05~0.15 (3) Max. 0.8	
Hard materials	★ 80~120	-	(1) 0.02~0.05 (2) 0.01~0.03 (3) Max. 0.1	(1) 0.03~0.07 (2) 0.01~0.05 (3) Max. 0.2	(1) 0.03~0.08 (2) 0.03~0.08 (3) Max. 0.3	(1) 0.05~0.1 (2) 0.05~0.1 (3) Max. 0.4	

★:1st recommendation

G146

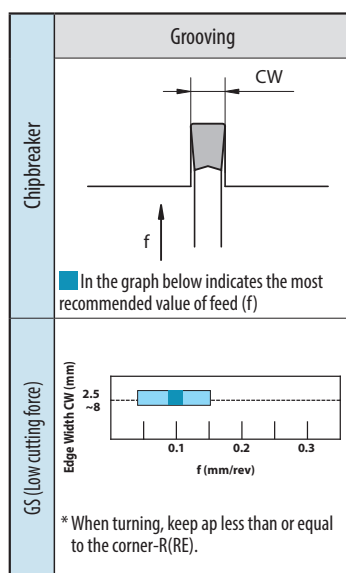
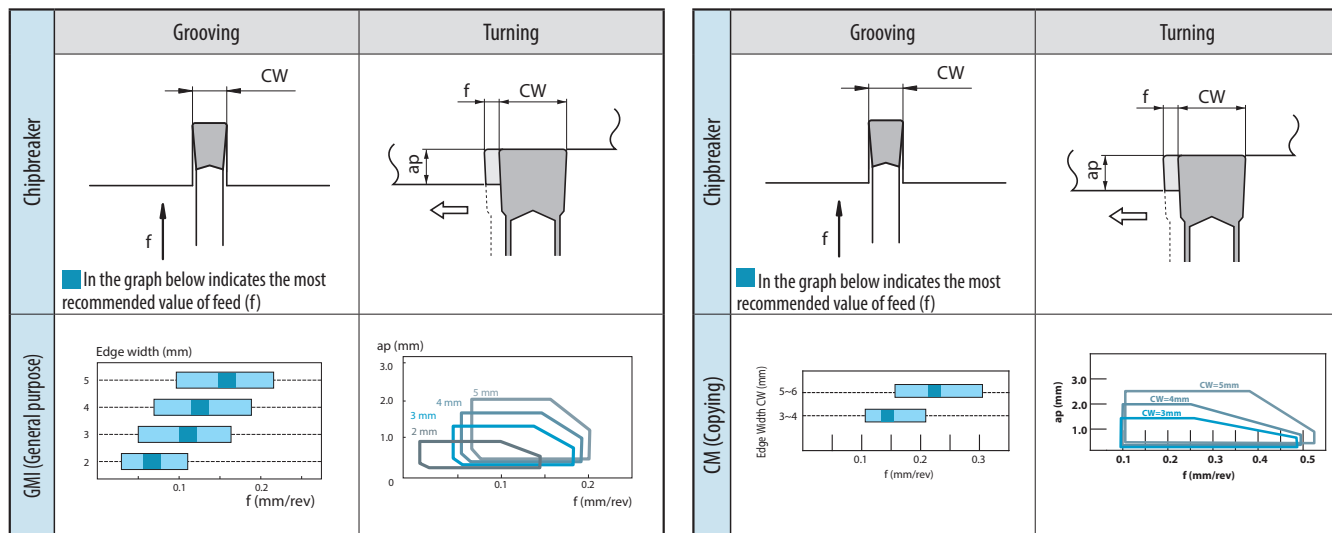
Recommended cutting conditions

KGDI - recommended cutting conditions (Vc)

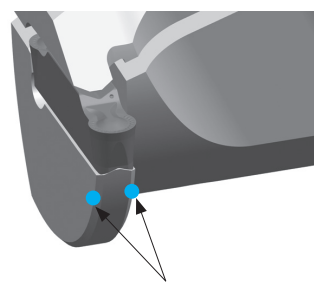
Workpiece material	Chipbreaker	Recommended insert grades (Vc: m/min)						Remarks
		Cermet		MEGACOAT NANO	MEGACOAT		Carbide	
		TN620	TN90	PR1535	PR1225	PR1215	GW15	
Carbon steel	GMI CM GS	☆ 100~220	☆ 100~220	☆ 80~150	★ 80~200	☆ 100~200	-	Coolant
Alloy steel		☆ 80~200	☆ 80~200	☆ 70~150	★ 70~180	☆ 80~180	-	
Stainless steel		☆ 70~180	☆ 70~180	★ 60~150	☆ 60~150	☆ 60~150	-	
Cast iron		-	-	-	-	★ 100~200	-	
Aluminum alloys		-	-	-	-	-	★ 200~500	
Brass		-	-	-	-	-	★ 100~200	

★ : 1st recommendation ☆ : 2nd recommendation

KGDI - recommended cutting conditions (f and ap)



Additional processing of toolholder tip when CM chipbreaker is installed



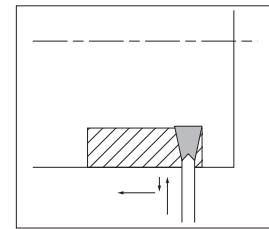
* By slightly chamfering the holder tip of about 0.5 mm, the cutting diameter can be minimized.



Guide for External Grooving

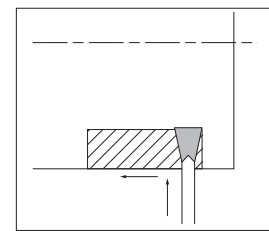
Point (I) (Turning after Grooving)

- 1) Grooving Depth 0.5mm or over : For roughing (Refer to Fig. 1)
Before turning, pull the tool back about 0.1mm after grooving, instead of turning subsequent to grooving.
(Failure to pull the tool back before traverse machining will result in an unbalanced load applied on only one side of the cutting edge.)
- 2) Grooving Depth 0.5mm or under : For finishing (Refer to Fig. 2)
Turning subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge. (Retention time is not necessary.)



Before turning, pull the tool back about 0.1mm after grooving.
(Grooving Depth 0.5mm or over at roughing)

Fig. 1



Turning subsequent to grooving
(Grooving Depth 0.5mm or under at finishing)

Fig. 2

Point (II)

- 1) When widening the groove width (Refer to Fig. 3), apply the "Step Turning."
- 2) The widened groove and side walls should be finished last.
(For better chip control, ap 0.5mm or over is recommended.)

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

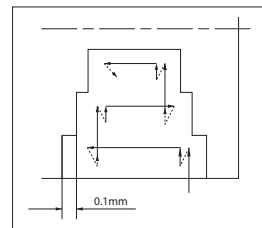


Fig. 3



Grooving

Guide for Face Grooving

<Toolholder Selection>

- (1) Choose the best tool depending on the groove width.
External dia. of the groove listed in the catalog indicates the available range
(between DAXN and DAXX) for the initial grooving on the unprocessed workpiece (Ref. to Fig. 1).



- (2) Confirm Grooving Depth (CD)



- (3) It is recommended to install the toolholder in the reverse position. (Fig. 2)
(This will provide smooth chip flow and chip clearance.)

<Guide for turning>

Turning direction should be from the outer diameter to the inner diameter as shown in Fig. 3
This improves chip evacuation.

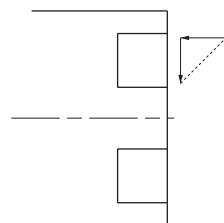


Fig. 3

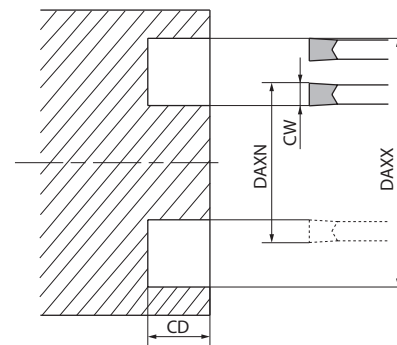


Fig. 1

Toolholder	Right-hand	Toolholder	Left-hand
Insert	(Neutral)	Insert	(Neutral)

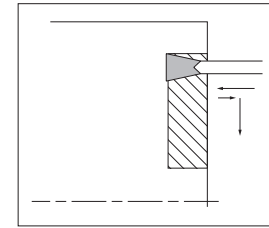
Fig. 2 Toolholder's hand and rotation

Guide for Face Grooving (Continued)

Point (I) (Turning after Grooving)

1) Grooving Depth 0.5mm or over : For roughing (Refer to Fig. 4)

Before turning, pull the tool back about 0.1mm after grooving, instead of turning subsequent to grooving.
(Failure to pull the tool back before traverse machining will result in an unbalanced load applied on only one side of the cutting edge.)

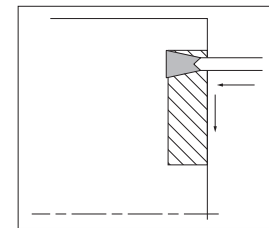


Before turning, pull the tool back about 0.1mm after grooving.
(Grooving Depth 0.5mm or over at roughing)

Fig. 4

2) Grooving Depth 0.5mm or under : For finishing (Refer to Fig. 5)

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



Turning subsequent to grooving
(Grooving Depth 0.5mm or under at finishing)

Fig. 5

Point (II)

1) When widening the groove width. (Ref. to Fig. 6)

Apply the "Step Turning".

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

(For better chip control, ap 0.5mm or over is recommended.)

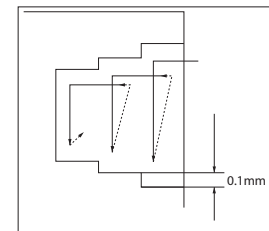
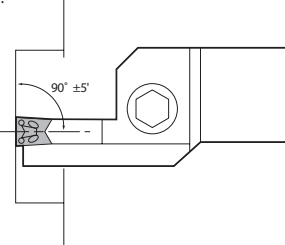


Fig. 6

Trouble shooting

Trouble	Countermeasures
Whitish trace remains at the groove bottom.	(1) Increase the cutting speed for finishing process only. (This can handle most of the cases.) If the method is not successful, try (2) as follows. (2) Check the insert edge's parallelness. (Adjustment: Apply the insert edge to the workpiece face and adjust the toolholder within the angle of $\pm 5^\circ$. (Fig. 7))  Fig. 7
Chips are entangled.	(1) Install the toolholder in the reverse position. Adjust the coolant flow to the cutting edge. (2) When widening the groove, do not machine one deep groove. Instead, repeat shallow grooving and turning.
Insert cracks when turning.	Reverse the facing direction.
Groove is not straight.	Check the edge's parallelness. Decrease the feed rate.



