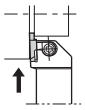
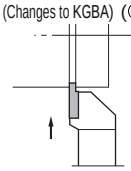
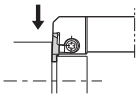
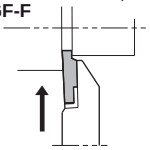
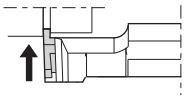
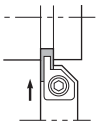
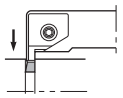
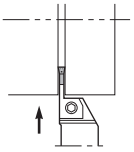
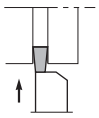
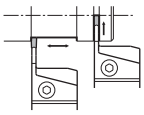
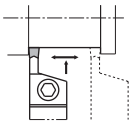
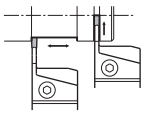
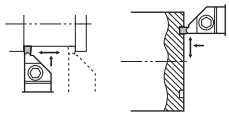
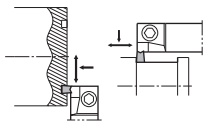
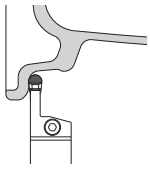
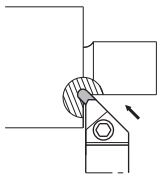
Grooving

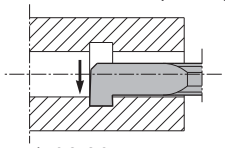
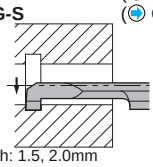
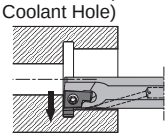
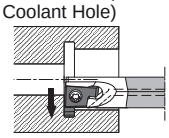
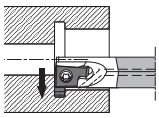
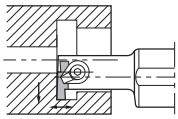
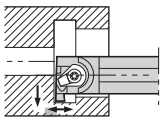
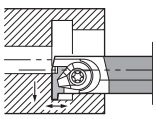
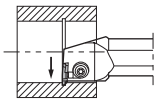
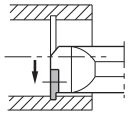
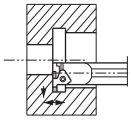
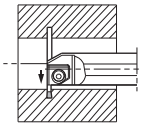
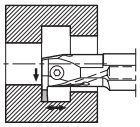
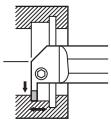
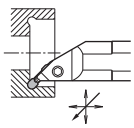
G1~G80

Product Lineup		**G2~G3**
External Grooving		**G4~G27**
KGBA / KGBAS		G9
KGB / KGBS changes to KGBA / KGBAS.		G11
KTGF-F / KTGF		G12
S…KTGF	Sleeve Holder	G13
KTG changes to KGBA.		G15
KGH / KGHS		G16
KGA		G17
KGM (Automatic Lathe / Long Shank)		G22
KGM / KGM-T		G23
KGMM / KGMS		G24
KGMU		G25
KN91		G26
KGMW (For Aluminum Wheel)		G27
Internal Grooving		**G28~G48**
HPG	2-Edge Tip-Bar	G30
PSG-S changes to HPG.	Tip-Bar	G32
VNG	System Tip-Bar	G33
SIGE-EH / SIGE-WH / SIGE-WH-90		G34
GIV / GIV-E / GIV-W		G40
KIGBA		G43
KITG changes to KIGBA.		G44
KIGH		G45
KIGM-V		G46
KIGM-8 / KIGMU-8		G47
KGIA		G48
Face Grooving		**G49~G71**
HPFG	2-Edge Tip-Bar	G53
TWFG / TWFGT	Twin Bar	G54
VNFG	System Tip-Bar	G56
PSFG-S changes to HPFG.	Tip-Bar	G57
GFVS-AA / GFVT-AA		G58
GFV		G60
GFVS / GFVT		G62
KFMS		G66
KFMS-8		G68
KFTB-S		G69
GIFV (Boring Bar Type)		G70
Technical Information		**G72~G79**
Recommended Cutting Conditions		G72
Guide for Machining		G78

External Grooving (G4-G26)

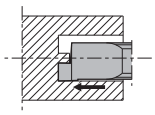
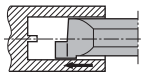
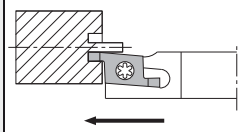
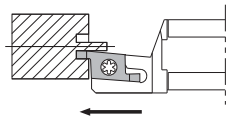
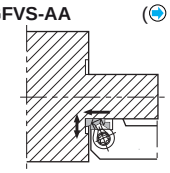
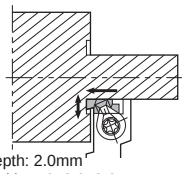
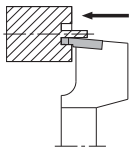
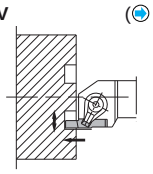
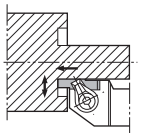
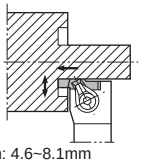
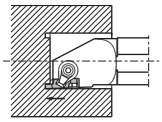
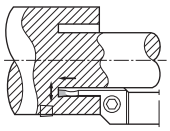
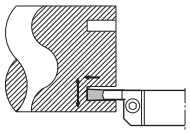
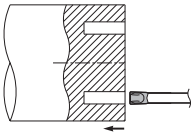
Shallow Grooving (3-Edge)	**KGBA** (G9) KGB (Changes to KGBA) (G11)  Depth: 1.0~5.0mm Width: 0.5~4.8mm	KTG (Changes to KGBA) (G15)  Depth: 2.0~5.0mm Width: 0.75~4.5mm	**KGBAS** (G9) KGBS (Changes to KGBAS) (G11)  Depth: 1.0~5.0mm Width: 0.5~4.8mm	**KTGF** (G12) **KTGF-F**  Depth: 0.8~2.5mm Width: 0.33~2.5mm	**S-KTGF** (G13)  Depth: 0.8~2.5mm Width: 0.33~2.5mm
Deep Grooving (1-Edge) (2-Edge)	**KGH** (G16)  Depth: 13, 17mm Width: 4.0~12.0mm	**KGHS** (G16)  Depth: 13mm Width: 4.0~8.0mm	**KGA** (G17)  Depth: 16, 20, 25mm Width: 3.0, 4.0, 5.0mm	**KN91** (G26)  Depth: 15, 17mm Width: 4.0~8.0mm	
Grooving / Plunge&Turn (Grooving / Multi-Function)	**KGM** (G22)  Depth: 5.0~16.0mm Width: 1.5~4.0mm	**KGM** (G23)  Depth: 8.0~25.0mm Width: 3.0~8.0mm	**KGM-T** (G23)  Depth: 17.0~30.0mm Width: 2.0~6.0mm	**KGMM** (G24)  Depth: 4.8mm Width: 3.0, 4.0, 5.0mm	**KGMS** (G24)  Depth: 4.8mm Width: 3.0, 4.0, 5.0mm
				KGMW (G27) For Aluminum Wheel  Depth: 25mm Width: 6.0, 8.0mm	**KGMU** (G25)  Depth: 3.5~4.5mm Width: 3.0, 4.0, 5.0mm

Internal Grooving (G27-G48)

Internal Grooving (Small Dia.) (Solid) Min. Bore Dia. ø4-ø8	**VNG** (G33)  Depth: 0.8~2.0mm Width: 1.0, 2.0mm	**HPG** (G30) **PSG-S** (G32)  Depth: 1.5, 2.0mm Width: 1.0, 2.0mm			
Internal Grooving (Small Dia.) (2-Edge) Min. Bore Dia. ø8~ø40	**SIGE-EH** (G36) (With Coolant Hole)  Depth: 1.5~6.5mm Width: 1.0~5.0mm	**SIGE-WH** (G37) (With Coolant Hole)  Depth: 1.5~2.5mm Width: 1.0~3.5mm	**SIGE-WH-90** (G38) (For Automatic Lathe / With Coolant Hole)  Depth: 1.5~2.5mm Width: 1.0~3.5mm		
Internal Grooving (Small Dia.) (1-Edge) (2-Edge) Min. Bore Dia. ø35, ø40, ø45	**GIV** (G40)  Depth: 2.2~6.3mm Width: 1.0~5.0mm	**GIV-E** (G40)  Depth: 1.7~6.3mm Width: 1.0~5.0mm	**GIV-W** (G40)  Depth: 2.2~6.3mm Width: 1.0~5.0mm		
Internal Shallow Grooving (3-Edge) Min. Bore Dia. ø35, ø40, ø45	**KIGBA** (G43)  Depth: 1.0~2.8mm Width: 0.5~4.8mm	**KITG** (G44)  Depth: 2.0, 2.5mm Width: 0.75~4.5mm	Internal Deep Grooving (Large Dia.) (2-Edge) Min. Cutting Dia. ø32~ø66	**KGIA** (G48)  Depth: 10, 15mm Width: 3.0, 4.0, 5.0mm	**KIGH** (G45)  Depth: 12.0mm Width: 4.0~8.0mm
CERACUT / Plunge&Turn (Grooving / Multi-Function) Min. Bore Dia. ø20~ø40, ø65	**KIGM-V** (G46)  Depth: 5.5~11.0mm Width: 3.0, 4.0, 5.0mm	**KIGM-8** (G47)  Depth: 20.0mm Width: 8.0mm	**KIGMU-8** (G47)  Depth: 2.2mm Width: 8.0mm		

Face Grooving (G49-G71)

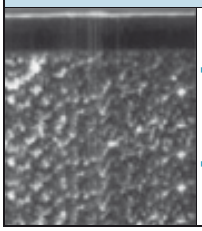
For Face Grooving Diameter Table ➡ See Page **G52**

Face Grooving (Small Dia.) (Solid) Face Grooving Dia. ø8~	**VNFG** (➡ G56)  Depth: 2.0, 3.0mm Width: 1.0, 2.0, 3.0mm	**HPFG** (➡ G53) **PSFG-S** (➡ G57)  Depth: 2.0, 3.0mm (HPFG) Width: 1.0, 2.0, 3.0mm		Micro Face Grooving Face Grooving Dia. ø6 -	**STW** (➡ G55)  Depth: 1.0~3.0mm Width: 0.5~2.0mm	**S..-STW** (➡ G55)  Depth: 1.0~3.0mm Width: 0.5~2.0mm
Face Grooving (Small Dia.) (2-Edge) Face Grooving Dia. ø8~	**GFVS-AA** (➡ G58)  Depth: 2.2mm Width: 1.0, 2.0, 3.0mm	**GFVT-AA** (➡ G58)  Depth: 2.0mm Width: 1.0, 2.0, 3.0mm			**STWS** (➡ G55)  Depth: 1.0~3.0mm Width: 0.5~2.0mm	
Face Grooving (General purpose) (2-Edge) For face grooving dia. see each page.	**GFV** (➡ G60)  Depth: 2.2~8.1mm Width: 2.0~6.0mm	**GFVS** (➡ G62)  Depth: 4.6~8.1mm Width: 2.5~6.0mm	**GFVT** (➡ G62)  Depth: 4.6~8.1mm Width: 2.5~6.0mm		**GIFV** (➡ G70)  Depth: 2.2~8.1mm Width: 2.0~6.0mm	
Grooving / Plunge&Turn (Grooving / Multi-Function) For face grooving dia. see each page.	**KFMS** (➡ G66)  Depth: 13.0~32.0mm Width: 3.0~6.0mm	**KFMS-8** (➡ G68)  Depth: 25.0mm Width: 8.0mm			**KFTB-S** (➡ G69)  Depth: 25.0~38.0mm Width: 4.0, 5.0mm	

PR1115 : PVD Coated Carbide for Steel

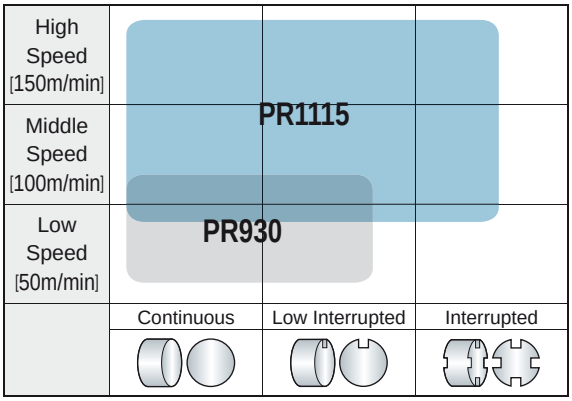
1. **Micro-grain carbide improves its bending strength better than conventional carbide!**
2. **New Fine Surface PVD Coating improves wear and chipping resistance!**
3. **Supports wide range for continuous / interrupted cutting with middle~high speed**

● Coating layer of PR1115

Sectional Structure	Performance
 ➡NEW FS(Fine Surface) Coat (TiAlN) Suitable for high speed machining, and excellent in wear resistance ➡Micro-grain carbide substrate	• High hardness (30GPa) • High Adhesive Strength • Precise, fine texture • High oxidation resistance (800°C)

NEW FS (Fine Surface) coating (TiAlN)

Newly developed TiAlN PVD coat brings stability and smooth machining. coating layer hardness / adhesive strength better than conventional FS coating

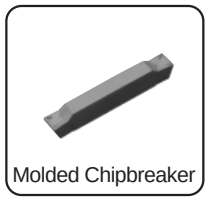


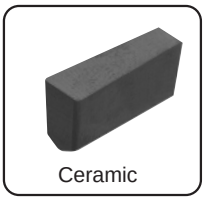
PR905: PVD Coated Carbide for Cast Iron

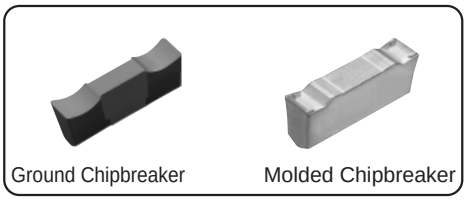
1. **High efficiency and stability made possible during machining of gray cast iron / nodular cast iron**
2. **Long life is made possible with TiAlN coating, bringing smooth insert surface, wear resistance, and, high temperature stability**
3. **Special carbide substrate made of hard material with excellent plastic deformation performance reduces edge wear**

Summary of External Grooving

External Grooving


Molded Chipbreaker


Ceramic


Ground Chipbreaker

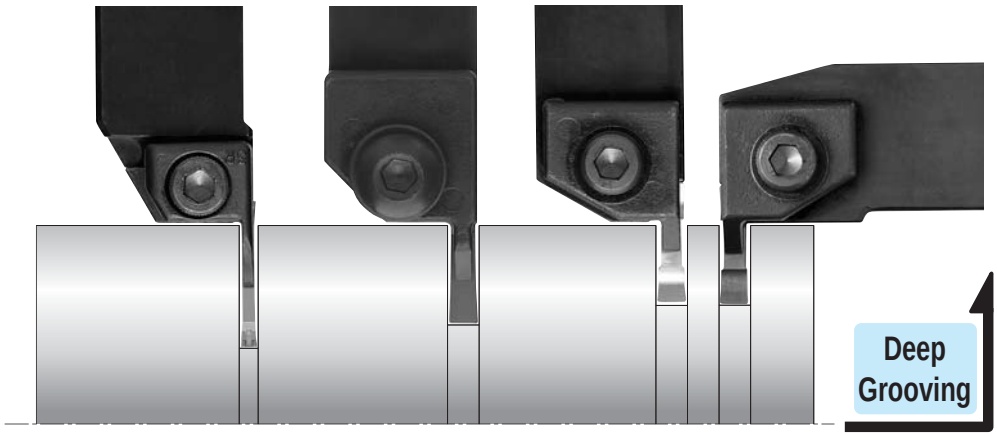
Molded Chipbreaker

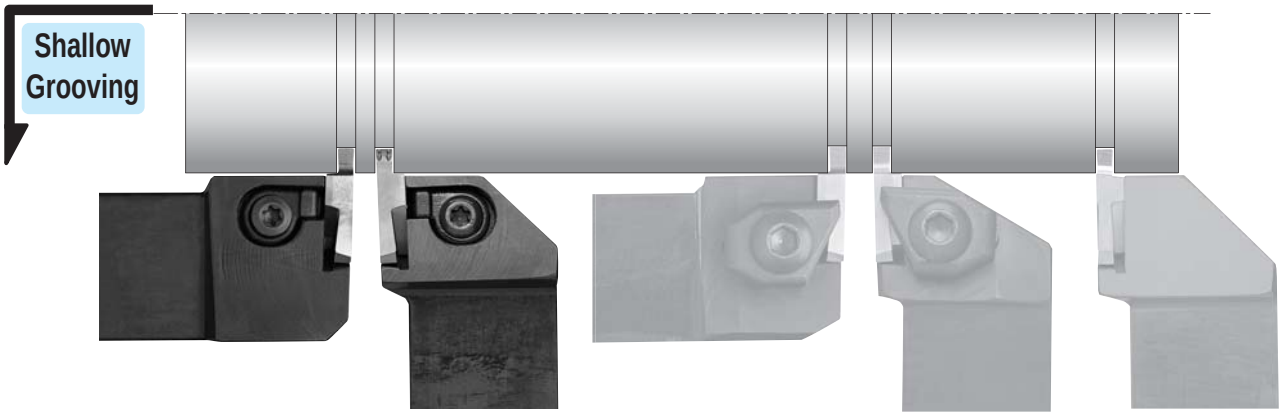
Width: 3.0~5.0
Depth: 16~25
KGA ➡G17

Width: 4.0~8.0
Depth: 15~17
KN91 ➡G26

Width: 4.0~12.0
Depth: 13~17
KGH ➡G16

Width: 4.0~8.0
Depth: 13
KGHS ➡G16





KGBAS ➡G9
Width: 0.5~4.8
Depth: 1.0~5.0

KGBA ➡G9
Width: 0.5~4.8
Depth: 1.0~5.0

KGBS ➡G11
Width: 0.5~4.8
Depth: 1.0~5.0

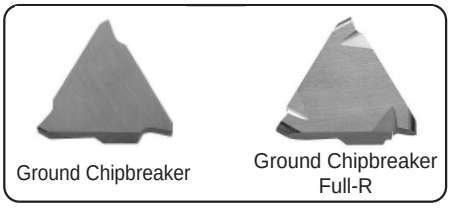
KGB ➡G11
Width: 0.5~4.8
Depth: 1.0~5.0

KTG ➡G15
Width: 0.75~4.5
Depth: 2.0~5.0

Ground Chipbreaker

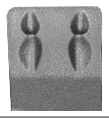
Ground Chipbreaker Full-R

MY Chipbreaker


Ground Chipbreaker

Ground Chipbreaker Full-R

Ground Chipbreaker

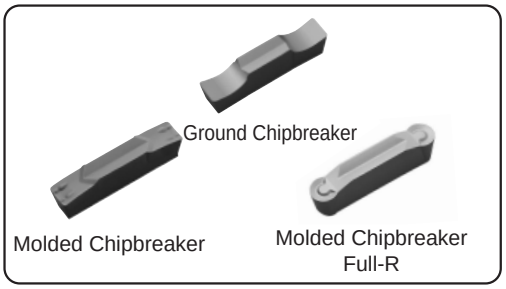
Edge Shape	General (Square)	Full-R (Round)	MY Chipbreaker
			

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

KGBS Type ⟶ **KGBSA Type**
KGB Type ⟶ **KGBA Type**
KTG Type ⟶ **KGBA Type**

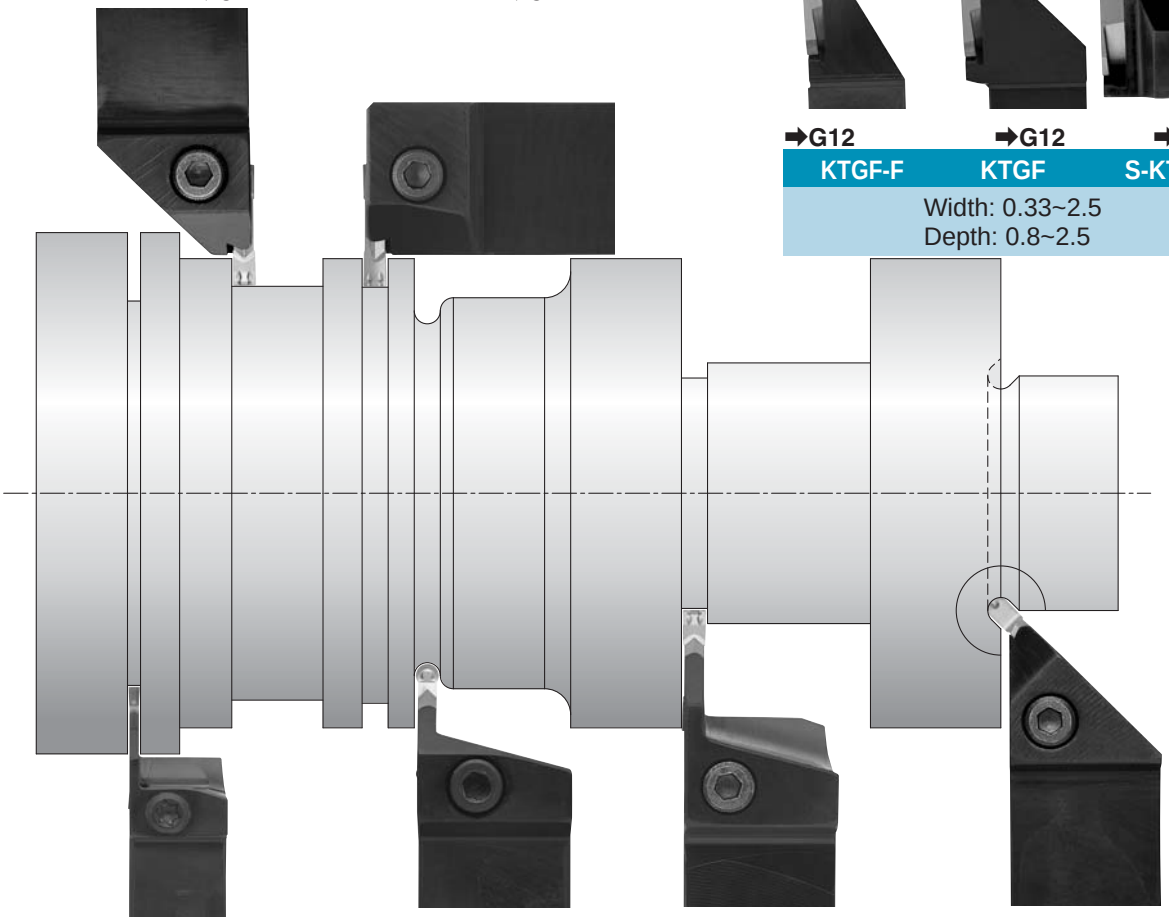
External Grooving & Traversing

Multi-function CERACUT Plunge & Turn



Width: 3.0~5.0
Depth: 4.8
KGMM
➡G24

Width: 3.0~5.0
Depth: 4.8
KGMS
➡G24

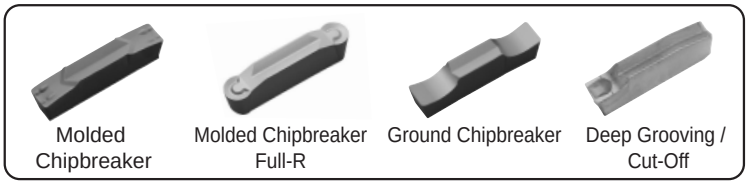


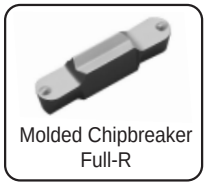
➡G22
KGM
Width: 1.5~4.0
Depth: 5~16

➡G23
KGM
Width: 3.0~8.0
Depth: 9~25

➡G23
KGM-T
Width: 2.0~6.0
Depth: 17~30

➡G25
KGMU
Width: 3.0~5.0
Depth: 4.8

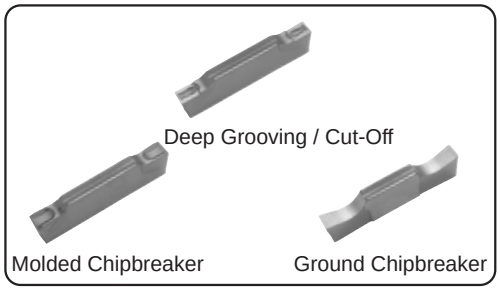


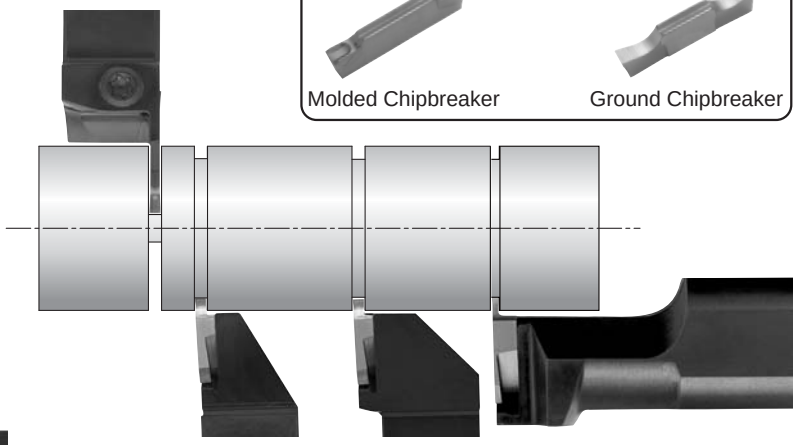


External Grooving of Precision Parts

Small Shank

Width: 1.5~4.0
Depth: 5~16
KGM
➡G16





➡G12 **KTGF-F**
➡G12 **KTGF**
➡G13 **S-KTGF**
Width: 0.33~2.5
Depth: 0.8~2.5

Applicable Inserts

(mm)

Description	A	T	ød
GBA32_	9.525	3.18	4.4
GBA43_	12.70	4.76	5.5
GBA43R/L480	12.70	5.00	5.5

P	Carbon Steel / Alloy Steel					◌	●			Classification of usage ●: Continuous-Light Interruption / 1st Choice ◌: Continuous-Light Interruption / 2nd Choice ●: Continuous / 1st Choice ○: Continuous / 2nd Choice
M	Stainless Steel					◌	●			
K	Cast Iron							●	◌	
N	Non-ferrous Metals								●	
S	Titanium Alloy								●	
H	Hard materials (under 40HRC)					○	●			
	Hard materials (over 40HRC)									

Insert (R-hand shown)	Description	(Previous Description)	W	B	rε	TC40	TN6020	TN90	PR630	PR930	PR1115	PR905	KW10	Applicable Toolholder	Reference Page for Toolholder
	GBA32R/L 033-005	-	0.33	0.8	0.05						●	●		KGBAR/L...16 KGBASR/L...16	G9 G11 G43
	050-005 *	GBA32R/L 050 *	0.50	1.0				●	○	●			●		
	050-005 *	-	0.50	1.2							●	●			
	075-005	GBA32R/L 075	0.75	2.0				●	○	●	●	●	●		
	095-005	095	0.95					●	○	●	●	●	●		
	100-005	100	1.00					●	○	●	●	●	●		
	110-005	110	1.10								●	●			
	120-005	120	1.20								●	●			
	125-020	125	1.25		0.2			●	○	●	●	●	●		
	130-020	130	1.30								●	●			
	140-020	140	1.40								●	●			
	145-020	145	1.45					●	○	●			●		
	145-020	-	1.45	2.5							●	●			
	150-020	GBA32R/L 150	1.50	2.0				●	○	●			●		
	150-020	-	1.50	2.5							●	●			
	160-020	GBA32R/L 160	1.60	2.0							●	●			
	170-020	170	1.70								●	●			
	175-020	GBA32R/L 175	1.75					●	○	●			●		
	175-020	-	1.75	2.5							●	●			
	200-020	GBA32R/L 200	2.00					●	○	●	●	●	●		
	225-020	225	2.25								●	●			
	250-020	250	2.50					●	○	●	●	●	●		
	300-020	300	3.00								●	●			
	GBA43R/L 125-010	-	1.25	2.0	0.1						●			KGBAR/L...22-15 KGBASR/L...22-15 KGBAR/L...22-25T5 KGBASR/L...22-25T5 KGBAR/L...22-25 KGBASR/L...22-25	
	125-020	GBA43R/L 125	1.25		0.2	●		●	○	●	●	●	●		
	140-020	140	1.40								●	●			
	145-020	145	1.45			●		●	○	●			●		
	145-020	-	1.45	3.5	0.2						●	●			
	150-010	-	1.50		0.1						●				
	150-020	GBA43R/L 150	1.50		0.2	●		●	○	●	●	●	●		
	170-020	170	1.70								●	●			
	175-020	175	1.75			●		●	○	●	●	●	●		
	185-020	185	1.85			●		●	○	●	●	●	●		
	195-020	195	1.95								●	●			
	200-010	-	2.00		0.1						●				
	200-020	GBA43R/L 200	2.00		0.2	●		●	○	●	●	●	●		
	225-020	225	2.25								●	●			
	230-020	230	2.30			●		●	○	●	●	●	●		
	250-010	-	2.50	5.0	0.1						●				
	250-030	GBA43R/L 250	2.50	4.0	0.3	●		●	○	●			●		
	250-030	-	2.50	5.0							●	●			
	265-030	GBA43R/L 265	2.65	4.0		●		●	○	●			●		
	265-030	-	2.65	5.0							●	●			

• Dimension B: shows available grooving depth.

* The edge width tolerance of GBA32R/L050 (with * mark) is different ($0.50^{+0.05}_{-0}$)

• For KIGBA Internal Grooving Toolholder, See page **G43**

For recommended cutting conditions, see page G72

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

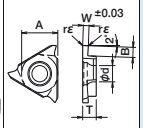
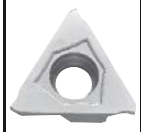
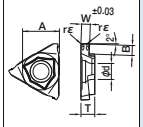
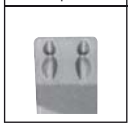
Inserts are sold in 10 piece boxes.

Applicable Inserts

(mm)

Description	A	T	ød
GBA32_	9.525	3.18	4.4
GBA43_	12.70	4.76	5.5
GBA43R/L480	12.70	5.00	5.5

P	Carbon Steel / Alloy Steel					◌	●			Classification of usage ●: Continuous-Light Interruption / 1st Choice ◌: Continuous-Light Interruption / 2nd Choice ●: Continuous / 1st Choice ○: Continuous / 2nd Choice
M	Stainless Steel					◌	●			
K	Cast Iron							●	◌	
N	Non-ferrous Metals								●	
S	Titanium Alloy								●	
H	Hard materials (under 40HRC)					○	●			
	Hard materials (over 40HRC)									

Insert (R-hand shown)	Description	(Previous Description)	Dimension (mm) W	B	rε	Cermet TC40	TN6020	TN90	PVD Coated Carbide PR630	PR930	PR1115	PR905	Carbide KW10	Applicable Toolholder	Reference Page for Toolholder
	GBA43R/L 280-030	GBA43R/L 280	2.80	4.0	0.3	●		●	○	●			●	KGBAR/L...22-25 KGBASR/L...22-25 KGBAR/L...22-25T5 KGBASR/L...22-25T5	G9 G11 G43
	280-030	-	2.80	5.0							●	●		KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	300-010	-	3.00	5.0	0.1						●				
	300-030	GBA43R/L 300	3.00	4.0		●		●	○	●			●	KGBAR/L...22-25 KGBASR/L...22-25 KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	300-030	-	3.00	5.0	0.3						●	●		KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	325-030	GBA43R/L 325	3.25	4.0							R	R		KGBAR/L...22-25 KGBASR/L...22-25	
	330-030	330	3.30			●		●	○	●			●	KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	330-030	-	3.30	5.0							●	●		KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	350-010	-	3.50	5.0	0.1						●				
	350-030	GBA43R/L 350	3.50	5.0	0.3	●		●	○	●	●	●	●	KGBAR/L...22-35 KGBASR/L...22-35	
	400-010	-	4.00		0.1						●				
	400-040	GBA43R/L 400	4.00		0.4	●		●	○	●	●	●	●		
	430-040	430	4.30			●		●	○	●	●	●	●		
	450-040	450	4.50			●		●	○	●	●	●	●		
	480-040	480	4.80			●		●	○	●	●	●	●		
 With Molded Chipbreaker  MY Chipbreaker 	GBA43R/L 175-020MY	GBA43R/L 175MY	1.75	3.5	0.2		●			●	●			KGBAR/L...22-15 KGBASR/L...22-15	G9 G11 G43
	185-020MY	185MY	1.85				●			●	●				
	200-020MY	200MY	2.00				●			●	●				
	230-020MY	230MY	2.30				●			●	●				
	250-030MY	GBA43R/L 250MY	2.50	4.0	0.3		●			●				KGBAR/L...22-25 KGBASR/L...22-25 KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	250-030MY	-	2.50	5.0							●			KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	265-030MY	GBA43R/L 265MY	2.65	4.0			●			●				KGBAR/L...22-25 KGBASR/L...22-25 KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	265-030MY	-	2.65	5.0							●			KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	300-030MY	GBA43R/L 300MY	3.00	4.0			●			●				KGBAR/L...22-25 KGBASR/L...22-25 KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	300-030MY	-	3.00	5.0							●			KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	330-030MY	GBA43R/L 330MY	3.30	4.0			R			R				KGBAR...22-25 KGBASL...22-25 KGBAR...22-25T5 KGBASL...22-25T5	
	330-030MY	-	3.30	5.0							●			KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	350-030MY	GBA43R/L 350MY	3.50	5.0			●			●	●			KGBAR/L...22-35 KGBASR/L...22-35	
	400-040MY	400MY	4.00		0.4		●			●	●				

• Dimension B: shows available grooving depth.

• For KIGBA type Internal Grooving Toolholder, See page **G43**

For recommended cutting conditions, see page ➡ **G72**

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

Inserts are sold in 10 piece boxes.

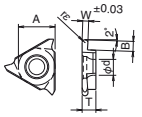
Applicable Inserts

(mm)

Description	A	T	ød
GBA32_	9.525	3.18	4.4
GBA43_	12.70	4.76	5.5
GBA43R/L480	12.70	5.00	5.5

P	Carbon Steel / Alloy Steel	◌ ●
M	Stainless Steel	◌ ●
K	Cast Iron	● ●
N	Non-ferrous Metals	●
S	Titanium Alloy	●
H	Hard materials (under 40HRC)	○ ●
	Hard materials (over 40HRC)	

Classification of usage
●: Continuous-Light Interruption / 1st Choice
◌: Continuous-Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice

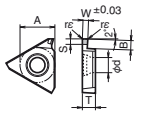
Insert (R-hand shown)	Description	(Previous Description)	W	B	rε	TC40	TN6020	TN90	PR630	PR930	PR1115	PR905	KW10	Applicable Toolholder	Reference Page for Toolholder
Full-R	GBA32R/L 200-100R	-	2.00	2.5	1.00						R			KGBAR...16 KGBASL...16	G9 G11 G43
	300-150R		3.00		1.50						R				
Full-R (Round)	GBA43R/L 100-050R	GBA43R/L 050R	1.00	2.0	0.50			●	○	●	●	●	●	KGBAR/L...22-15 KGBASR/L...22-15	
	150-075R	075R	1.50	3.5	0.75			●	○	●	●	●	●		
	200-100R	100R	2.00		1.00			●	○	●	●	●	●		
	250-125R	125R	2.50	4.0	1.25			●	○	●	●	●	●	KGBAR/L...22-25 KGBASR/L...22-25	
	300-150R	150R	3.00		1.50			●	○	●	●	●	●	KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	400-200R	200R	4.00	5.0	2.00			●	○	●	●	●	●	KGBAR/L...22-35 KGBASR/L...22-35	

(mm)

Description	A	T	ød
GBA32_	9.525	3.18	4.4
GBA43_	12.70	4.76	5.5
GBA43R/L480	12.70	5.00	5.5

P	Carbon Steel / Alloy Steel	
M	Stainless Steel	
K	Cast Iron	
N	Non-ferrous Metals	●
S	Titanium Alloy	●
H	Hard materials (under 40HRC)	
	Hard materials (over 40HRC)	○ ●

Classification of usage
●: Continuous-Light Interruption / 1st Choice
◌: Continuous-Light Interruption / 2nd Choice
●: Continuous / 1st Choice
●: Continuous / 2nd Choice

Insert (R-hand shown)	Description	(Previous Description)	W	B	rε	KBN10B	KBN510	KBN525	KPD001	KPD010	Applicable Toolholder	Reference Page for Toolholder
1-Edge	GBA32R/L 125-010	GBA32R/L 125	1.25	2.0	0.1					R	KGBAR...16 KGBASL...16	G9 G11 G43
	150-010	150	1.50						R	R		
 GBA32 S=1.7 GBA43 S=1.9	GBA43R/L 125-010	GBA43R/L 125	1.25	2.0	0.1					●		
	125-020	125			0.2	●	●	●				
	150-010	150	1.50	3.5	0.1				●	●	KGBAR/L...22-15 KGBASR/L...22-15	
	150-020	150			0.2	●	●	●				
	200-010	200	2.00		0.1				●	●		
	200-020	200			0.2	●	●	●				
	250-010	250	2.50	4.0	0.1				●	●	KGBAR/L...22-25 KGBASR/L...22-25 KGBAR/L...22-25T5 KGBASR/L...22-25T5	
	250-020	250			0.2	●	●	●				
	300-010	300	3.00		0.1				●	●		
	300-020	300			0.2	●	●	●				

• Dimension B: shows available grooving depth.
• For KIGBA Internal Grooving Toolholder, See page **G43**

For recommended cutting conditions, see page ➡ **G72**

GBA applicable for KGBA / KGBAS toolholders are also usable for KGB / KGBS toolholders.

The following is a table for application compatibility.

KGBA	(KGB)
KGBAR/L ...22-15	KGBR/L ...22-15
KGBAR/L ...22-25	KGBR/L ...22-25
KGBAR/L ...22-35	KGBR/L ...22-35
KGBAR/L ...22-25T5	KGBR/L ...22-25 (Available grooving depth has a limit)

KGBAS	(KGBS)
KGBASR/L ...22-15	KGBSR/L ...22-15
KGBASR/L ...22-25	KGBSR/L ...22-25
KGBASR/L ...22-35	KGBSR/L ...22-35
KGBASR/L ...22-25T5	KGBSR/L ...22-25 (Available grooving depth has a limit)

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

External Grooving Toolholders KGBA Short Shank types are available

For NC lathe and HSK tooling, KGBAR2020K22-○○ (Overall length 125mm)
short shank type KGBAR2020H22-○○ (Overall length 100mm) is available.
No longer required for the users to cut the shank portion.

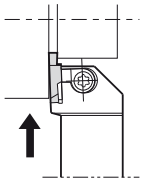
Inserts are sold in 10 piece boxes.

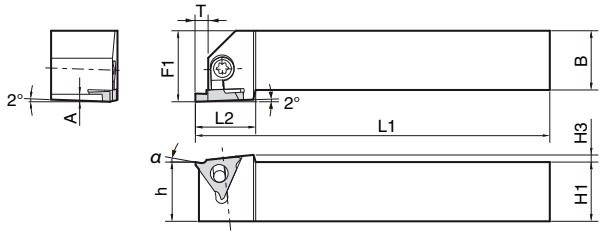
CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Item ○ : Check Availability
R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

External Shallow Grooving Toolholders

KGBA

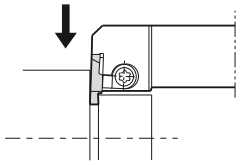


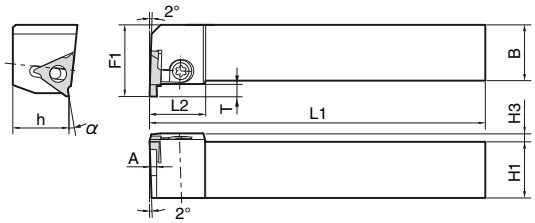


• Right-hand shown

R-hand Insert for R-hand Toolholder, L-hand Insert for L-hand Toolholder.

KGBAS





• Right-hand shown

L-hand Insert for R-hand Toolholder, R-hand Insert for L-hand Toolholder.

Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H3	B	L1	L2	F1	A	T	Spare Parts: Clamp Set	Spare Parts: Wrench	Applicable Inserts
KGBA R/L	1616H-16	●	●	16	4.0	16	100	24	20	-	2.5	LGBA-16 R/LS	FT-15	GBA32 R/L type
	2020K-16	●	●	20	4.0	20	125	24	25	-	2.5			
	2525M-16	●	●	25		25	150		30					
	2020K22-15	●	●	20	4.0	20	125	25.5	25	1.0	4.0	LGBA-22 R/LS		GBA43 R/L type
	2525M22-15	●	●	25		25	150		30					
	2020K22-25	●	●	20	4.0	20	125	25.5	25	2.0	4.5			
	2525M22-25	●	●	25		25	150		30					
	2020K22-25T5	●	●	20	4.0	20	125	25.5	25	2.0	5.5			
	2525M22-25T5	●	●	25		25	150		30					
	2020K22-35	●	●	20	4.0	20	125	25.5	25	3.0				
	2525M22-35	●	●	25		25	150		30					
	2020H22-15*	●		20	4.0	20	100	25.5	25	1.0	4.0			
	2020H22-25*	●								2.0	4.5			
	2020H22-35*	●								3.0	5.5			
KGBAS R/L	2020K-16	●	●	20	4.0	20	125	25	25	-	2.5	LGBA-16 L/RS	FT-15	GBA32 L/R type
	2525M-16	●	●	25	4.5	25	150		30					
	2020K22-15	●	●	20	4.5	20	125	25	27	1.0	4.0	LGBA-22 L/RS		GBA43 L/R type
	2525M22-15	●	●	25	5.0	25	150		32					
	2020K22-25	●	●	20	4.5	20	125	25	27	2.0	4.5			
	2525M22-25	●	●	25	5.0	25	150		32					
	2020K22-25T5	●	●	20	4.5	20	125	25	27	2.0	5.5			
	2525M22-25T5	●	●	25	5.0	25	150		32					
	2020K22-35	●	●	20	4.5	20	125	25	27	3.0				
	2525M22-35	●	●	25	5.0	25	150		32					

• Dimension T shows the distance from the Toolholder to the cutting edge. Dimension B shows available grooving depth.

∗ mark indicates short shank type.

• Clamp Set: KGBA R/L ... LGBA-○RS for Right-hand Toolholder, and LGBA-○LS for Left-hand Toolholder.
KGBAS R/L ... LGBA-○LS for Right-hand Toolholder, and LGBA-○RS for Left-hand Toolholder.

Rake Angle (α) after Installment of GBA

GBA32 R/L○○○-○○○		GBA43 R/L○○○-○○○		GBA43 R/L○○○-○○○ R (Full-R)		
α	Insert Grades	α	Insert Grades	α	Insert Grades	Full-R Description
10°	TN90 PR630 PR930 PR1115 PR905 KPD001, KPD010	0°	KBN510, KBN525	10°	TN90 PR630 PR930 PR1115 PR905	050R~150R
		10°	TC40, TN90 PR630 PR930 PR1115 PR905 KPD001, KPD010	14°	TN90 PR630 PR930 PR1115 PR905	200R
20°	KW10	20°	KW10		KW10	050R~200R

Rake Angle (α) after Installment of GBA-MY

α	Description
15°	GBA43 R/L175MY ⟆ GBA43 R/L350MY
14°	GBA43 R/L400MY

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

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

Grooving Inserts

[GB insert changes to GBA (G6-G8).]

Applicable Inserts

(mm)

Description	A	T
GB32_	9.525	3.18
GB43_	12.70	4.76
GB43R/L480	12.70	5.00

P	Carbon Steel / Alloy Steel	
M	Stainless Steel	
K	Cast Iron	
N	Non-ferrous Metals	
S	Titanium Alloy	
H	Hard materials (under 40HRC)	
	Hard materials (over 40HRC)	

Classification of usage
◕: Continuous-Light Interruption / 1st Choice
◔: Continuous-Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice

Insert (Right-hand Shown)	Description	Dimension (mm) W	B	C or rε	Cermet TC40	Cermet TC60	PVD Coated Carbide PR630	PVD Coated Carbide PR930	Carbide KW10	Diamond KPD001	Diamond KPD010	Applicable Toolholder	Ref. Page for Toolholder
General (Square) (Corner is C shape) GB32 type	GB32R/L 050 *	0.50	1.0	C0.05		○	R					KGBR/L ···16 KGBSR/L ···16	G11
	075	0.75	2.0	C0.05		○	R						
	095	0.95				○	R						
	100	1.00				○	○						
	125	1.25		C0.10		○	R						
	145	1.45				○	R						
	150	1.50				○	R						
	200	2.00	2.5			○	R						
	250	2.50				○	R						
	GB43R/L 125	1.25	2.0	0.1	○	○	○	○				KGBR/L ···22-15 KGBSR/L ···22-15	
	125			0.2									
	145	1.45	2.0	0.2	○	○	R						
	150	1.50	3.5	0.1				○					
	150			0.2	○	○	○						
	175	1.75		0.2	○	○	R						
	185	1.85		0.2	○	○	R						
	200	2.00		0.1				○					
	200			0.2	○	○	○						
	230	2.30		0.2	○	○	R						
	250	2.50	4.0	0.1				○				KGBR/L ···22-25 KGBSR/L ···22-25	
	250			0.3	○	○	○						
	265	2.65		0.3	○	○	R						
	280	2.80		0.3	○	○	R						
	300	3.00		0.1				○					
	300			0.3	○	○	○						
	330	3.30		0.3	○	○	R						
GB type insert changes to GBA type in order. When replacing with GBA Insert, be careful for the Corner-R(rε) specification.	350	3.50	5.0	0.1				○				KGBR/L ···22-35 KGBSR/L ···22-35	
	350			0.3	○	○	○						
	400	4.00		0.1				○					
	400			0.4	○	○	○						
	430	4.30		0.4	○	○	R						
	450	4.50		0.4	○	○	○						
	480	4.80		0.4	○	○	○						
1-Edge	GB43R/L 125	1.25	2.0	0.1							○	KGBR/L ···22-15 KGBSR/L ···22-15	
	150	1.50	3.5								○		
	200	2.00									○		
	250	2.50	4.0								○	KGBR/L ···22-25 KGBSR/L ···22-25	
	300	3.00									○		
Full-R	GB43R/L 050R	1.00	2.0	0.50		○	○					KGBR/L ···22-15 KGBSR/L ···22-15	
	075R	1.50	3.5	0.75		○	○						
	100R	2.00		1.00		○	○						
	125R	2.50	4.0	1.25		○	○					KGBR/L ···22-25 KGBSR/L ···22-25	
	150R	3.00		1.50		○	○						
	200R	4.00	5.0	2.00		○	○					KGBR/L ···22-35 KGBSR/L ···22-35	

• Dimension B shows available grooving depth.

The edge width tolerance of GB32R/L050 is different.$0.50^{+0.05}_{-0}$ (*)

For recommended cutting conditions, see page ➡ G72

* Material selection standard when changing to GBA.

GB Insert ➡	GBA Insert
TC40	TC40
TC60	TN90
PR630	PR1115 (PR630)
PR930	PR1115 (PR930)
KPD010	KPD001 (KPD010)

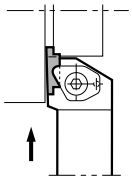
* Check the cornner-R(rε) of the insert when changing.

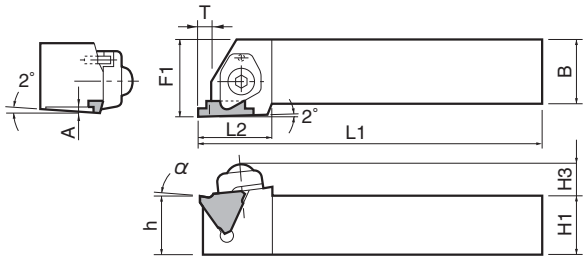
Inserts are sold in 10 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Item ○ : Check Availability
R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

KGB (Changes to KGBA ➡ G9)

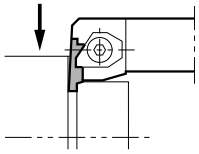


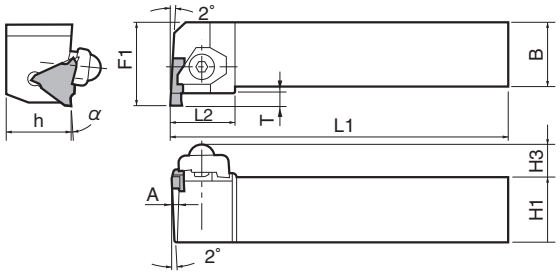


● Right-hand shown

R-hand insert for R-hand toolholder, L-hand insert for L-hand toolholder.

KGBS (Changes to KGBAS ➡ G9)





● Right-hand shown

L-hand insert for R-hand toolholder, R-hand insert for L-hand toolholder.

Toolholder Dimensions

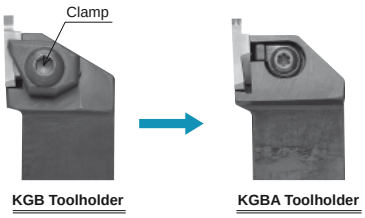
Description		Std. R	Std. L	Dimension (mm) H1=h	H3	B	L1	L2	F1	A	T	Spare Parts: Clamp	Clamp Bolt	Spring	Wrench	Applicable Inserts ➡ G6~G8 ➡ G10
KGB$^{R}_{L}$	2020K-16	●	●	20	11	20	125	24	25	-	2.5	CGB$^{R}_{L}$	BH6X25	SP-6	LW-4	GB32$^{R}_{L}$ GBA32$^{R}_{L}$
	2525M-16	●	●	25		25	150		30							
	2020K22-15	●	●	20	11.5	20	125	25.5	25	1.0	4.0					GB43$^{R}_{L}$ GBA43$^{R}_{L}$
	2525M22-15	●	●	25		25	150		30							
	2020K22-25	●	●	20	11.5	20	125	25.5	25	2.0	4.5					
	2525M22-25	●	●	25		25	150		30							
	2020K22-35	●	●	20	11.5	20	125	25.5	25	3.0	5.5					
	2525M22-35	●	●	25		25	150		30							
KGBS$^{R}_{L}$	2020K-16	●	●	20	11	20	125	25	25	-	2.5	CGB$^{L}_{R}$	BH6X25	SP-6	LW-4	GB32$^{L}_{R}$ GBA32$^{L}_{R}$
	2525M-16	●	●	25		25	150		30							
	2020K22-15	●	●	20	11.5	20	125	25	27	1.0	4.0					GB43$^{L}_{R}$ GBA43$^{L}_{R}$
	2525M22-15	●	●	25		25	150		32							
	2020K22-25	●	●	20	11.5	20	125	25	27	2.0	4.5					
	2525M22-25	●	●	25		25	150		32							
	2020K22-35	●	●	20	11.5	20	125	25	27	3.0	5.5					
	2525M22-35	●	●	25		25	150		32							

• Dimension T shows the distance from the Toolholder to the cutting edge. Dimension B shows available grooving depth.

Clamp: KGB$^{R}_{L}$ ... CGBR for Right-hand Toolholder, and CGBL for Left-hand Toolholder.
KGBS$^{R}_{L}$ ... CGBR for Right-hand Toolholder, and CGBL for Left-hand Toolholder.

Rake Angle (α) after Installment of GBA

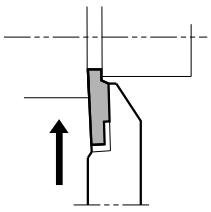
GB32$^{R}_{L}$ ○○○		GB43$^{R}_{L}$ ○○○		GBA43$^{R}_{L}$ ○○○ R (Full-R)	
α	Insert Grades	α	Insert Grades	α	Insert Grades
5°	TC60 PR630	5°	TC40 TC60 PR630 PR930	5°	TC60 PR630 } 050R~150R
20°	KW10	10°	KPD010	14°	TC60 PR630 } 200R KW10…050R~200R
		20°	KW10		

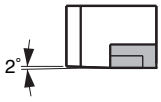


* KGB / KGBS toolholder changes to KGBA / KGBAS. Better Chip flow.
* For applicable insert, GB insert changes to GBA. GBA insert has various types of material available for user's cutting condition requirements.

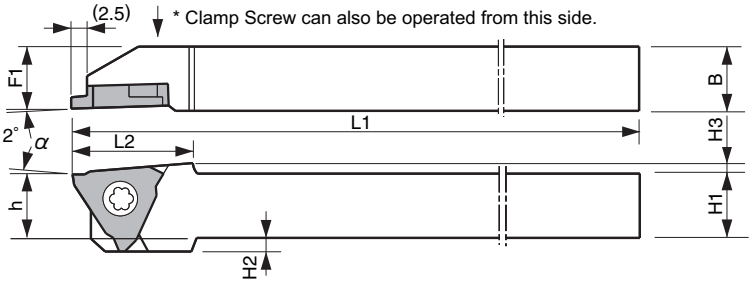
● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

KTGF-F (Without Offset)





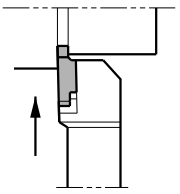
α	Insert Grades
20°	TN90, TC60 PR1115, PR930, KW10
11°	KPD010, KPD001
6°	TC40

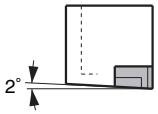


● Right-hand shown

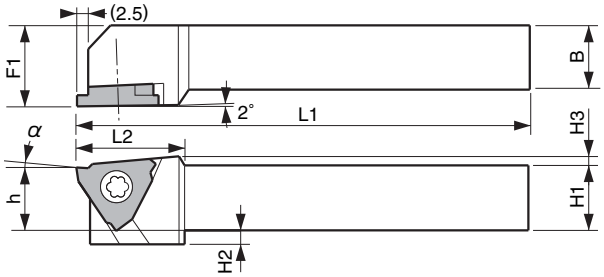
R-hand insert for R-hand toolholder, L-hand insert for L-hand toolholder.

KTGF (With Offset)





α	Insert Grades
20°	TN90, TC60 PR1115, PR930, KW10
11°	KPD010, KPD001
6°	TC40



● Right-hand shown

R-hand insert for R-hand toolholder, L-hand insert for L-hand toolholder.

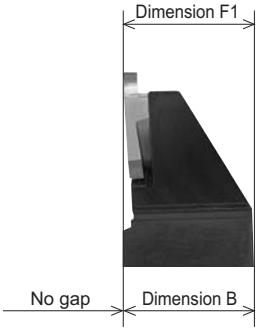
Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	F1	Spare Parts: Clamp Screw	Spare Parts: Wrench
KTGF R/L	1010K-16F	●	●	10	2	2.5	10	125	18.5	10	SB-4070TRW	FT-8
	1212F-16F	●		12	-		12	85		12		
	1212M-16F	●	●					150				
	1616M-16F	●	●	16			16	150		16		
KTGF R/L	1010F-16	●	●	10	4	2.5	10	80	18.5	12	SB-4070TRS	FT-10
	1212H-16	●	●	12	2		12	100		16		
	1616H-16	●	●	16	-		16	100		20		
	2,020K-16	●	●	20			20	125	20	25		
	2525M-16	●	●	25			25	150		32		

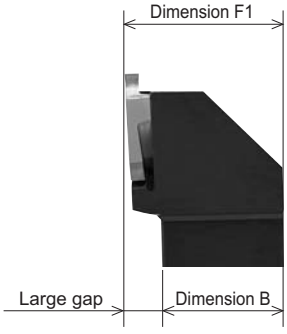
Usage difference between KTGF-F and KTGF toolholders

Q: What is the difference between “Without Offset” and “With Offset” of KTGF toolholders for external grooving?

A: When operating the automatic lathe, the toolholder come very close to the chuck. In such cases, the “With Offset” toolholder sometimes interferes with the chuck due to the large gap between B and F1 dimensions as shown below.
It is necessary to use “Without Offset” in such cases.



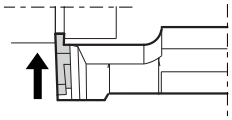
Without Offset Type (KTGF-F)

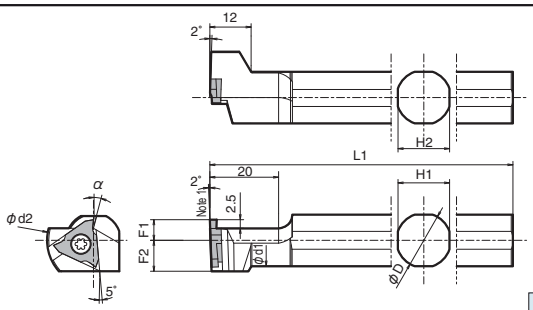


With Offset Type (KTGF)

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

S-KTGF (Sleeve Holder)





α	Insert Grades
20°	TN90, TC60 PR1115, PR930, KW10
11°	KPD010, KPD001
6°	TC40

● Left-hand shown

R-hand Insert for L-hand Toolholder.

Note 1. Dimension B shows available grooving depth.

Toolholder Dimensions

Description	Std.	Dimension (mm)							Spare Parts	
									Clamp Screw	Wrench
		øD	L1	F1	F2	ød1	ød2	H1=H2		
S12F-KTGFL16	●	12.0	80	6	9.0	11.0	27	11	SB-4070TRS	FT-10
S14H-KTGFL16	●	14.0	100			13.0		13		
S15F-KTGFL16	●	15.875	85			14.6		15		
S16F-KTGFL16	●	16.0								
S19G-KTGFL16	●	19.05	90		10.5	17.6		17		
S19K-KTGFL16	●		120							
S20G-KTGFL16	●	20.0	90		11.0	18.6		18		
S20K-KTGFL16	●		120							
S25.0H-KTGFL16	●	25.0	100	10	14.0	23.6	32	23		
S25K-KTGFL16	●	25.4	120							

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

Applicable Inserts

(mm)

Description	A	T	ød
TGF32_	9.525	3.18	4.5
TGF32R/L325	9.525	3.40	4.5
TGF32R/L315-SRC	9.525	3.40	4.5

P	Carbon Steel / Alloy Steel						◔	●				
M	Stainless Steel						◔	●				
K	Cast Iron								●			
N	Non-ferrous Metals								●	●		
S	Titanium Alloy								●	●		
H	Hard materials (under 40HRC)						○	●				
	Hard materials (over 40HRC)											

Classification of usage
- ● : Continuous-Light Interruption / 1st Choice
- ◔ : Continuous-Light Interruption / 2nd Choice
- ● : Continuous / 1st Choice
- ○ : Continuous / 2nd Choice

Insert (R-hand shown)		Description	Dimension (mm) W	B	C or rε	Cermet TN60	TN90	TC40	TC60	PVD Coated Carbide PR630	PR930	PR1115	Carbide KW10	PCD KPD001	KPD010	Applicable Toolholder	Ref. Page for Toolholder
General (Square) (Corner is C shape) TGF32R/L ○○○	TGF32R/L○○○-S type Edge Width Tolerance W+0.12 +0.06	TGF32R/L033	0.33	0.8	C0.05						R		●			KTGFR/L…16F KTGFR/L…16 S…KTGFL16	G12 G13
		050	0.50	1.2		●	R				●		●				
		060	0.60			●											
		075	0.75	2.0	C0.1		●				●		●				
		080	0.80			●											
		090	0.90			●											
		095	0.95				R				●		●				
		100	1.00			●	●				●		●				
		120	1.20			●					●						
		125	1.25				●				●		●				
		130	1.30			●											
		140	1.40			●					●						
		145	1.45				R				●		●				
		150	1.50			●	R				●		●				
		170	1.70			●											
		175	1.75				R				●		●				
		185	1.85	2.5							●						
		190	1.90			●											
		200	2.00			●	R				●		●				
		225	2.25			●											
		250	2.50			●	R				●		●				
		275	2.75	3.0	0.2	●					●						
		300	3.00			●					●						
		325	3.25			●					●						
General (Square) (Corner is R shape) TGF32R/L ○○○ - ○○○		TGF32R/L033-005	0.33	0.8	0.05			R			R	R	R				
		050-005	0.50	1.2				R			●	●	R				
		075-010	0.75	2.0	0.1			R			●	●	R				
		095-010	0.95					R			●	●	R				
		100-010	1.00					R			●	●	R				
		125-010	1.25					R			●	●	R				
		145-010	1.45					R			●	●	R				
		150-010	1.50					R			●	●	R				
		175-010	1.75					R			●	●	R				
		200-010	2.00	2.5				R			●	●	R				
		250-010	2.50					R			●	●	R				
	TGF32R/L○○○-SRG type Edge Width Tolerance W+0 -0.05 For Circlip Grooves (DIN 471 / 472)	TGF32R/LS090-S	0.90	2.0	C0.05	●											
		110-S	1.10			●											
		130-S	1.30			●											
		160-S	1.60			●											
		185-S	1.85	2.5		●											
		TGF32R/LS080-SRG	0.87	2.0	rε max 0.03	●											
		090-SRG	0.97			●											
		100-SRG	1.07			●											
		110-SRG	1.24			●											
		130-SRG	1.44			●											
		160-SRG	1.74			●											
		185-SRG	1.99	2.5		●											
		215-SRG	2.29			●											
		265-SRG	2.79	3.0		●											
		315-SRG	3.29			●											
1-Edge	125~150 S=1.7 200 S=1.9	TGF32R/L125	1.25	2.0	C0.1									R	R		
		150	1.50											R	R		
		200	2.00	2.5										R	R		
		TGF32R/L125-010	1.25	2.0	0.1									R			
		150-010	1.50											R			
		200-010	2.00	2.5										R			

• Dimension B shows available grooving depth.

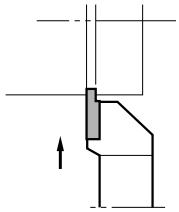
For recommended cutting conditions, see page G73

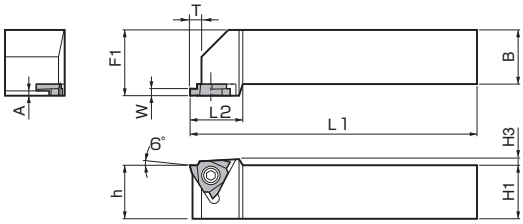
Inserts are sold in 10 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

● : Std. Item ○ : Check Availability
R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

KTG (Changes to KGBA ➡ G9)





● Right-hand shown

R-hand insert for R-hand toolholder, L-hand insert for L-hand toolholder.

Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H3	B	L1	L2	F1	A	T	Spare Parts: Clamp Screw	Clamp Screw	Wrench	Wrench
KTG$^{R}_{L}$	2020K-16	●	●	20	3.0	20	125	20	25	-	2.5	SB-4TR	-	FT-15	-
	2525M-16	●	●	25		25	150		30						
	2020K22-15	●	●	20	3.0	20	125	25	25	1.0	4.0	-	GS-50	-	LW-3
	2525M22-15	●	●	25		25	150		30						
	2020K22-25	●	●	20	3.0	20	125	25	25	2.0	4.5				
	2525M22-25	●	●	25		25	150		30						
	2020K22-35	●	●	20	3.0	20	125	25	25	3.0	5.5				
	2525M22-35	●	●	25		25	150		30						

• Dimension T shows the distance from the Toolholder to the cutting edge. Dimension B shows available grooving depth.

* GBA Insert cannot be installed to this toolholder.

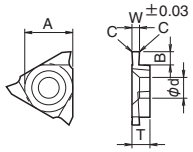
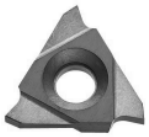
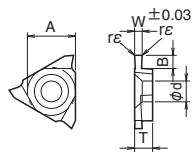
Applicable Inserts

(TG insert changes to GBA ➡ G6~➡ G8)

(mm)

Description	A	T	ød
TG32_	9.525	3.18	4.5
TG43_	12.75	4.76	5.5

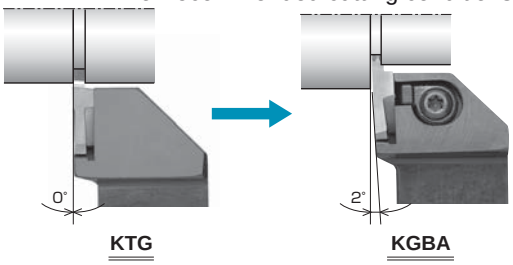
P	Carbon Steel / Alloy Steel	Classification of usage
M	Stainless Steel	
K	Cast Iron	◕: Continuous-Light Interruption / 1st Choice
N	Non-ferrous Metals	◔: Continuous-Light Interruption / 2nd Choice
S	Titanium Alloy	●: Continuous / 1st Choice
H	Hard materials (under 40HRC)	○: Continuous / 2nd Choice
	Hard materials (over 40HRC)	

Insert (R-hand shown)		Description		Dimension (mm) W	B	C or rε	Cermet TN60	TN90	TC40	TC60	Applicable Toolholder	Ref. Page for Toolholder
General (Square) (Corner is C shape) TG32 type	 (Corner is C shape)	TG32$^{R}_{L}$	075	0.75	2.0	C0.1	●				KTG$^{R}_{L}$...16	G15
			095	0.95			●					
			125	1.25			●					
			145	1.45			●					
			150	1.50			●					
			175	1.75			●					
			200	2.00			●					
 General (Square) (Corner is R shape) TG43 type		TG43$^{R}_{L}$	150	1.50	3.5	0.2	●				KTG$^{R}_{L}$...22-15	G15
			175	1.75			●					
			200	2.00			●					
			230	2.30			●					
			250	2.50	4.0	0.3	●				KTG$^{R}_{L}$...22-25	
			265	2.65			●					
			280	2.80			●					
			300	3.00			●					
			330	3.30			●					
			350	3.50	5.0		●				KTG$^{R}_{L}$...22-35	
			400	4.00		0.4	●					
			430	4.30			●					
			450	4.50			●					

• Dimension B shows available grooving depth.

For recommended cutting conditions, see page ➡ G73

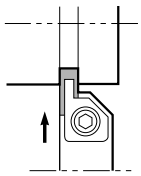
* KTG will be switched to KGBA.
  Machining against the wall is available.
* For applicable insert, TG insert changes to GBA.
  Change Insert Grade TN60 for TN90.
  GBA insert has various types of material available for user's cutting condition requirements.
* Check the cornner-R(rε) of the insert when changing.

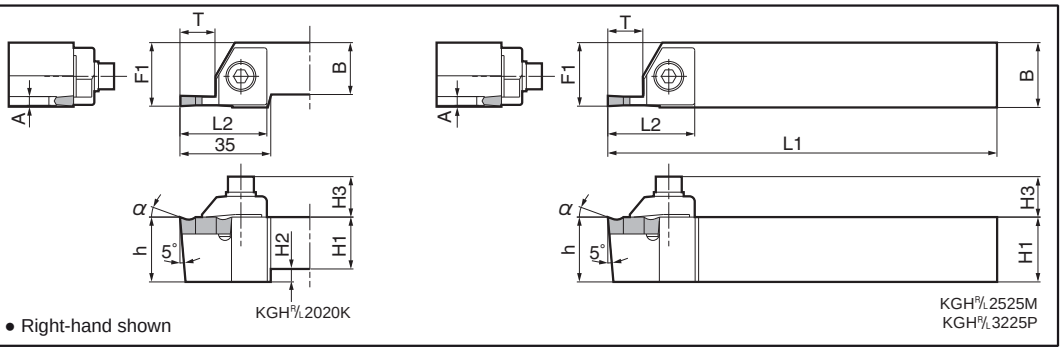


● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

Inserts are sold in 10 piece boxes.

KGH

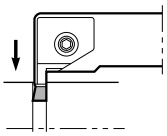


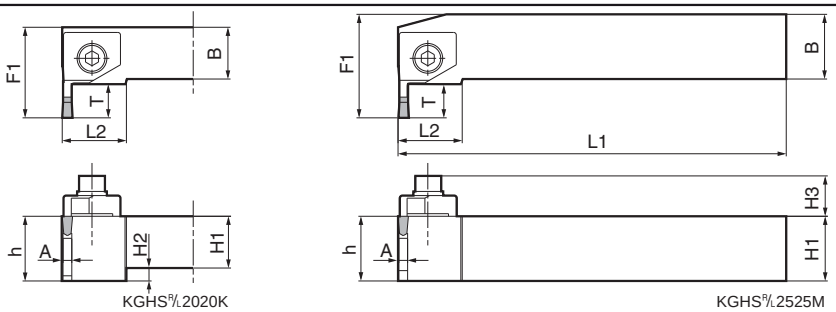


KGH R/L 2020K
KGH R/L 2525M
KGH R/L 3225P

● Right-hand shown

KGHS





KGHS R/L 2020K
KGHS R/L 2525M

● Right-hand shown

● Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	F1	A	T	Spare Parts Clamp	Clamp Bolt	Washer	Spring	Wrench
KGH R/L	2020K-4	●	●	20	5	15.6	20	125	33.5	24.5-24.8	3.4	13	CGH-1 R/L	HH6X25	W-6	SP-6	LW-5
	2525M-4	●	●	25	-		25	150		24.5-24.8							
	2020K-5	●	●	20	5	15.6	20	125	33.5	25.0-25.8	4.2	13	CGH-1 R/L				
	2525M-5	●	●	25	-		25	150		25.0-25.8							
	3225P-5	●	●	32	-		25	170		25.0-25.8							
	2020K-7	●	●	20	5	15.6	20	125	33.5	24.5-25.0	5.8	13	CGH-2 R/L				
	2525M-7	●	●	25	-		25	150		24.5-25.0							
	2525M-10	●	●	25	-	16.1	25	150	41	25.5-26.5	9.0	17	CGH-3 R/L				
	3225P-10	●		32	-		25	170		25.5-26.5							
KGHS R/L	2020K-4	●	●	20	5	15.6	20	125	25	35	3.4	13	CGH-1 L/R	HH6X25	W-6	SP-6	LW-5
	2525M-4	●	●	25	-		25	150		40							
	2020K-5	●	●	20	5	15.6	20	125	25	35	4.2	13	CGH-1 L/R				
	2525M-5	●	●	25	-		25	150		40							
	2525M-7	●	●	25	-	15.6	25	150	25	40	5.8	13	CGH-2 L/R				

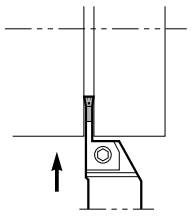
• Dimension T shows available grooving depth.
• Dimension F1 of KGH R/L Toolholder depends on the insert's edge width.
• Clamp: KGH R/L ... CGH- ○ R for Right-hand Toolholder, and CGH- ○ L for Left-hand Toolholder.
KGHS R/L ... CGH- ○ L for Right-hand Toolholder, and CGH- ○ R for Left-hand Toolholder.

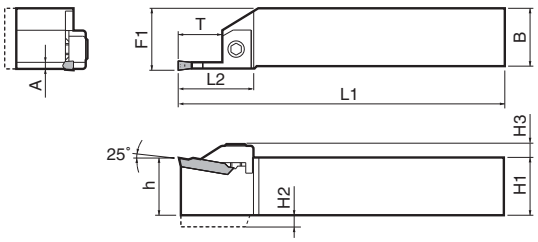
● Rake Angle (α) after Installment of GH / GHU insert

GH ○○○○ - ○○		GHU ○○○○	
α	Insert Grades	α	Insert Grades
0°	A65, A66N	10°	TN60 CR9025
10°	TC40		
20°	TN90, TC60 PR630, PR930 KW10		

● : Std. Item ○ : Check Availability
R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

KGA





• Right-hand shown

Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	F1	A	T	Spare Parts: Clamp	Clamp Bolt	Spring	Wrench
KGA R/L	2020K-3	●	●	20	5	6	20	125	37	21.5	2.3	20	CGA-3 R/L	HH6X20	SP-6	LW-5
	2525M-3	●	●	25	-		25	150		26.5						
	2020K-4	●		20	5	6	20	125	37	21.5	3.3	20	CGA-4 R/L			
	2525M-4	●	●	25	-		25	150		26.5						
	2020K-5	●		20	5	6	20	125	42	21.5	4.3	25	CGA-5 R/L			
	2525M-5	●	●	25	-		25	150		26.5						
KGA R/L	2020K-3S	●		20	5	6	20	125	34	21.5	2.3	16	CGA-3 R/L	HH6X20	SP-6	LW-5
	2525M-3S	●	●	25	-		25	150		26.5						
	2020K-4S	●		20	5	6	20	125	34	21.5	3.3	16	CGA-3 R/L			
	2525M-4S	●	●	25	-		25	150		26.5						

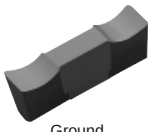
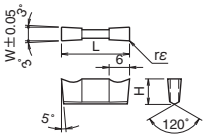
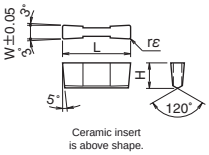
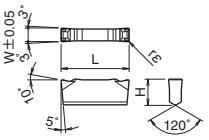
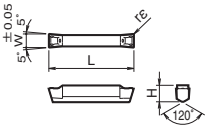
• Dimension T shows available grooving depth.
• Clamp: CGA-○ R for Right-hand Toolholder, and CGA-○ L for Left-hand Toolholder.

Applicable Inserts

(mm)

Description	L	H
GH4020-○○ ~GH8020-○○	20	7.5
GH10025-05~GH12025-05	25	
GHU ○○○○	20	
GA30, GA40	25	5.0
GA50	30	

		Classification of usage
P	Carbon Steel / Alloy Steel	◕: Continuous-Light Interruption / 1st Choice
M	Stainless Steel	◔: Continuous-Light Interruption / 2nd Choice
K	Cast Iron	●: Continuous / 1st Choice
N	Non-ferrous Metals	○: Continuous / 2nd Choice
S	Titanium Alloy	
H	Hard materials (under 40HRC)	
	Hard materials (over 40HRC)	

Insert		Description		Dimension (mm) W	rε	Cermet TN60	TN90	TC40	TC60	CVD Coated Carbide CR9025	PVD Coated Carbide PR630	PR930	Carbide KW10	Ceramic A65	A66N	PT600M	Applicable Toolholder	Ref. Page for Toolholder
 Ground Chipbreaker		GH	4020-02	4.0	0.2		●	●				●	●				KGH R/L...4	G16
			4020-05		0.5		●	●				●	●	●	●	●	KGHS R/L...4	
			4520-02	4.5	0.2			●										
			4520-05		0.5			●										
			5020-02	5.0	0.2		●	●				●	●					
			5020-05		0.5		●	●				●	●	●	●	●		
			5520-02	5.5	0.2			●									KGH R/L...5	
			5520-05		0.5			●									KGHS R/L...5	
			6020-02	6.0	0.2		●	●				●	●					
			6020-05		0.5		●	●				●	●	●		●		
			6520-02	6.5	0.2			●										
			6520-05		0.5			●										
Ceramic	 Ceramic insert is above shape.		7020-02	7.0	0.2		●	●				●	●					
			7020-05		0.5		●	●				●	●	●		●		
			7520-02	7.5	0.2			●									KGH R/L...7	
			7520-05		0.5			●									KGHS R/L...7	
			8020-02	8.0	0.2		●	●				●	●					
			8020-05		0.5		●	●				●	●					
			10025-05	10.0	0.5							●	●				KGH R/L...10	
			12025-05	12.0	0.5							●	●					
Molded Chipbreaker		GHU	4020	4.0	0.25	●				●							KGH R/L...4 KGHS R/L...4	G16
			5020	5.0	0.30	●				●							KGH R/L...5 KGHS R/L...5	
			6020	6.0	0.30	●				●								
		GA	30	3.0	0.20	●				●							KGA R/L...3	G17
			40	4.0	0.25	●				●							KGA R/L...4	
			50	5.0	0.30	●				●							KGA R/L...5	

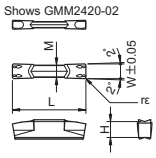
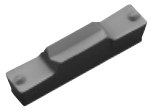
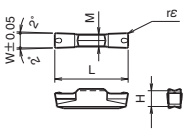
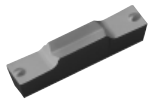
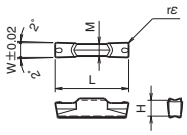
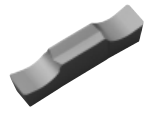
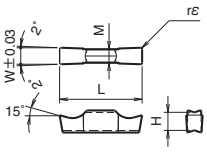
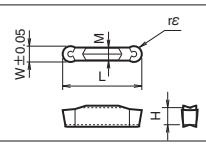
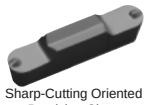
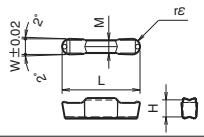
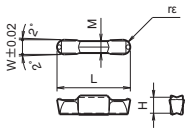
For recommended cutting conditions, see page ➔ G73~G74

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

Inserts are sold in 10 piece boxes.

GMM / GMG

Classification of usage									
◕: Continuous-Light Interruption / 1st Choice ◔: Continuous-Light Interruption / 2nd Choice ●: Continuous / 1st Choice ○: Continuous / 2nd Choice	P	Carbon Steel / Alloy Steel			◔	◕			
	M	Stainless Steel			◕	◔			
	K	Cast Iron					◕	◔	
	N	Non-ferrous Metals						◕	
	S	Titanium Alloy						◕	
	H	Hard materials (under 40HRC)			○	●			
		Hard materials (over 40HRC)							

Insert (R-hand shown)		Description	(Previous Description)	W	rε	M	L	H	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PVD Coated Carbide PR930	PVD Coated Carbide PR905	Carbide KW10	Ref. Page for Toolholder
Chip Control Oriented M Class		GMM 2420-020MW	GMM 2420-02	2.4	0.2	1.9	20	4.3	●	●	●	●	●	●	G22 G23 G24
		GMM 3020-020MW	GMM 3020-02	3.0	0.2	2.3			●	●	●	●	●	●	
		GMM 3020-040MW	GMM 3020-04		0.4				●	●	●	●	●	●	
		GMM 4020-020MW	GMM 4020-02	4.0	0.2	3.3			●	●	●	●	●	●	
		GMM 4020-040MW	GMM 4020-04		0.4				●	●	●	●	●	●	
		GMM 4020-080MW	GMM 4020-08		0.8				●	●	●	●	●	●	
		GMM 5020-040MW	GMM 5020-04	5.0	0.4	4.2			●	●	●	●	●	●	
		GMM 5020-080MW	GMM 5020-08		0.8				●	●	●	●	●	●	G22 G23
		GMM 6020-040MW	GMM 6020-04	6.0	0.4	5.2			●	●	●	●	●	●	
		GMM 6020-080MW	GMM 6020-08		0.8				●	●	●	●	●	●	
		GMM 8030-080MW	GMM 8030-08	8.0	0.8	6.0	30	5.5		●	●	●	●	●	G23
 Sharp-Cutting Oriented M Class		GMM 3020-020MS	GMM 3020-02MS	3.0	0.2	2.3	20	4.3	●	●	●	●		●	G22 G23 G24
		GMM 3020-040MS	GMM 3020-04MS		0.4				●	●	●	●		●	
		GMM 4020-040MS	GMM 4020-04MS	4.0	0.4	3.3			●	●	●	●		●	
		GMM 5020-040MS	GMM 5020-04MS	5.0		4.2			●	●	●	●		●	
		GMM 6020-040MS	GMM 6020-04MS	6.0		5.2				●		●		●	G22, G23
 Sharp-Cutting Oriented Precision Class		GMG 3020-000MS	GMG 3020-00	3.0	0.0	2.3	20	4.3		●	●	●		●	G22 G23 G24
		GMG 3020-020MS	GMG 3020-02		0.2				●	●	●	●		●	
		GMG 3020-040MS	GMG 3020-04		0.4				●	●	●	●		●	
		GMG 4020-020MS	GMG 4020-02	4.0	0.2	3.3			●	●	●	●		●	
		GMG 4020-040MS	GMG 4020-04		0.4				●	●	●	●		●	
		GMG 4020-080MS	GMG 4020-08		0.8				●	●	●	●		●	
		GMG 5020-040MS	GMG 5020-04	5.0	0.4	4.2			●	●	●	●		●	
		GMG 5020-080MS	GMG 5020-08		0.8				●	●	●	●		●	
		GMG 6020-040MS	GMG 6020-04	6.0	0.4	5.2				●		●		●	G22
		GMG 6020-080MS	GMG 6020-08		0.8					●		●		●	G23
 Sharp-Cutting Oriented Precision Class Ground Chipbreaker		GMG 2520-030MG	GMG 2520-03MG	2.5	0.3	2.0	20	4.3	●	●	●	●	●	●	G22 G23 G24
		GMG 3020-030MG	GMG 3020-03MG	3.0		2.3			●	●	●	●	●	●	
		GMG 3520-030MG	GMG 3520-03MG	3.5		2.8			●	●	●	●	●	●	
		GMG 4020-040MG	GMG 4020-04MG	4.0	0.4	3.3			●	●	●	●	●	●	
		GMG 5020-040MG	GMG 5020-04MG	5.0		4.2			●	●	●	●	●	●	
		GMG 6020-040MG	GMG 6020-04MG	6.0		5.2			●	●		●	●	●	G22,G23
		GMG 8030-050MG	GMG 8030-05MG	8.0	0.5	6.0	30	5.5	●	●		●	●	●	G23
Chip Control Oriented M Class Full-R / Copying		GMM 3020-150R	GMM 3020-15R	3.0	1.5	2.3	20	4.3	●	●	●	●	●	●	G22 G23 G24
		GMM 4020-200R	GMM 4020-20R	4.0	2.0	3.3			●	●	●	●	●	●	
		GMM 5020-250R	GMM 5020-25R	5.0	2.5	4.2			●	●	●	●	●	●	
		GMM 6020-300R	GMM 6020-30R	6.0	3.0	5.2			●	●	●	●	●	●	G22,G23
 Sharp-Cutting Oriented Precision Class Full-R / Copying		GMG 3020-150R	GMG 3020-15R	3.0	1.5	2.3	20	4.3	●	●		●		●	G22 G23 G24
		GMG 4020-200R	GMG 4020-20R	4.0	2.0	3.3			●	●		●		●	
		GMG 5020-250R	GMG 5020-25R	5.0	2.5	4.2				●		●		●	
		GMG 6020-300R	GMG 6020-30R	6.0	3.0	5.2				●		●		●	G22,G23
Undercutting Chip Control Oriented		GMG 3020-150RU	GMG 3020-15RU	3.0	1.5	2.3	20	4.3		●		●		●	G24 G25
		GMG 4020-200RU	GMG 4020-20RU	4.0	2.0	3.3				●		●		●	
		GMG 5020-250RU	GMG 5020-25RU	5.0	2.5	4.2				●		●		●	

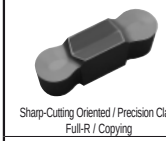
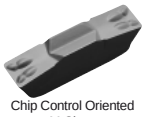
For recommended cutting conditions, see page ➔ G76~G77

Inserts are sold in 10 piece boxes.

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

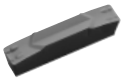
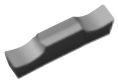
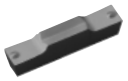
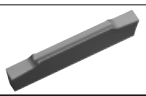
GMM / GMGA / FGG

Classification of usage							Ref. Page for Toolholder
◕: Continuous-Light Interruption / 1st Choice ◔: Continuous-Light Interruption / 2nd Choice ●: Continuous / 1st Choice ○: Continuous / 2nd Choice	P	Carbon Steel / Alloy Steel			◔	◕		
	M	Stainless Steel			◕	◔		
	K	Cast Iron					◕	
	N	Non-ferrous Metals					◕	
	S	Titanium Alloy					◕	
	H	Hard materials (under 40HRC)			○	●		
		Hard materials (over 40HRC)						

Insert (R-hand shown)	Description	(Previous Description)	Dimension (mm) W	rε	M	L	H	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PVD Coated Carbide PR930	Carbide KW10	Ref. Page for Toolholder
 Sharp-Cutting Oriented / Precision Class Full-R / Copying	**GMGA 6020-300R**	**GMGA 6020-30R**	6.0	3.0	4.3	20	4.3					●	**G23**
Sharp-Cutting Oriented / Precision Class Full-R / Copying	**GMGA 8030-400R**	**GMGA 8030-40R**	8.0	4.0	6.0	30	5.5					●	
 Chip Control Oriented M Class	**GMM 3014-04**	-	3.0	0.4	2.3	14	4.3	●	●	●	●	●	
Chip Control Oriented / M Class Full-R / Copying	**GMM 3014-15R**	-	3.0	1.5	2.3	14	4.3	●	●		●	●	**G24**
Undercutting Chip Control Oriented	**GMM 3014-15RU**	-	3.0	1.5	2.3	14	4.3		●		●	●	
Face Grooving Chip Control Oriented Precision Class	**FGG R/L 3020-02** **4020-04** **5020-04**	-	3.0 4.0 5.0	0.2 0.4 0.4	2.3 3.3 4.2	20	4.3	● ● ●	● ● ●		● ● ●	● ● ●	**G24**

For recommended cutting conditions, see page **G76~G77**

Multi-Function Tool CERACUT Plunge & Turn Chipbreakers

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

Edge Preparation

Edge Preparation		
	Chamfer + R-honed Corner-R(rε) = 0.05	Chamfer + R-honed Sharp Corner
MT Chipbreaker.	**CR9025 / PR915**	**PR930 / KW10**
Edge Preparation	Chamfer + R-honed Corner-R(rε) = 0.2-0.3	Sharp Edge Corner-R(rε) = 0.2-0.3
TK Chipbreaker	**CR9025 / PR915**	**PR930 / KW10**
Edge Preparation	R Honing Corner-R(rε) = 0.05	Sharp Edge Sharp Corner
Without Chipbreaker (-NB)	**CR9025**	**PR930 / KW10**

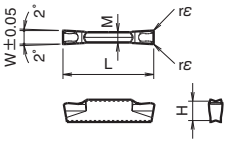
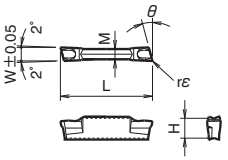
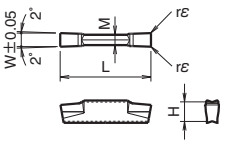
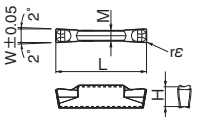
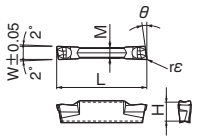
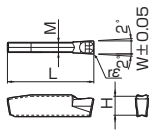
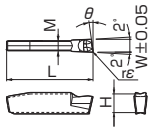
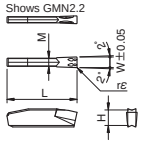
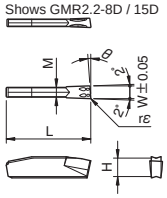
• Sharp Edge Spec. can reduce cutting resistance 40% less than that of chamfer edge.

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

Inserts are sold in 10 piece boxes.

GMM / GMN

Classification of usage								
● : Continuous-Light Interruption / 1st Choice (●) : Continuous-Light Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	P	Steel			(●)	●		Ref. Page for Toolholder
	M	Stainless Steel			●	(●)		
	K	Cast Iron					●	
	N	Non-ferrous Metals					●	
	S	Titanium Alloy					●	
	H	Hard materials (under 40HRC)			○	●		
		Hard materials (over 40HRC)						

Insert (R-hand shown)		Description	Dimension (mm) W	rε	M	L	H	Angle (°) θ	Cermet TN90	CVD Coated Carbide CR9025	PVD Coated Carbide PR915	PVD Coated Carbide PR930	Carbide KW10	Ref. Page for Toolholder
Deep Grooving / Cut-Off Sharp-Cutting Oriented		GMM 1520-MT	1.5	0.0 0.05	1.2	20	4.3	-				●	●	G22 G23 G24
		GMM 2020-MT	2.0	0.0 0.05	1.5	20	4.3	-			●	●	●	
		GMM 2520-MT	2.5	0.0 0.05	1.9	20	4.3	-		●	●			
		GMM 3020-MT	3.0	0.0 0.05	2.3	20	4.3	-		●	●	●	●	
Cut-Off Sharp-Cutting Oriented / With lead angle		GMM 1520R/L-MT-15D	1.5	0.0 0.05	1.2	20	4.3	15°			R	●	●	
		GMM 2020R/L-MT-15D	2.0	0.0 0.05	1.5	20	4.3	15°		●	R	●	●	
		GMM 2520R/L-MT-15D	2.5	0.0 0.05	1.9	20	4.3	15°		●	R	●	●	
		GMM 3020R/L-MT-15D	3.0	0.0 0.05	2.3	20	4.3	15°		●	R	●	●	
Deep Grooving / Cut-Off Sharp-Cutting Oriented Without Chipbreaker		GMM 1520-NB	1.5	0.0 0.05	1.2	20	4.3	-				●	●	
		GMM 2020-NB	2.0	0.0 0.05	1.5	20	4.3	-		●		●	●	
		GMM 2520-NB	2.5	0.0 0.05	1.9	20	4.3	-		●		●	●	
		GMM 3020-NB	3.0	0.0 0.05	2.3	20	4.3	-		●		●	●	
Deep Grooving / Cut-Off Stability-Oriented		GMM 2020-TK 2520-TK 3020-TK	2.0 2.5 3.0	0.20 0.20 0.25	1.5 1.9 2.3	20	4.3	-		● ●	● ● ●	● ● ●	● ● ●	
Cut-Off Stability-Oriented / With lead angle		GMM 2020R/L-TK-8D 2520R/L-TK-8D 3020R/L-TK-8D	2.0 2.5 3.0	0.20 0.20 0.25	1.5 1.9 2.3	20	4.3	8°		R R	R R R	R R R	R R R	
Cut-Off / Stability-oriented 1-Edge		GMN 2-TK 3-TK 4-TK	2.0 3.0 4.0	0.20 0.25 0.30	1.8 2.3 3.3	20	4.3	-		● ●	● ● ●	● ● ●	● ● ●	
Cut-Off / Stability-oriented 1-Edge / With lead angle		GMR/L 2-TK-8D 3-TK-8D 4-TK-8D	2.0 3.0 4.0	0.20 0.25 0.30	1.8 2.3 3.3	20	4.3	8°		R R	R R R	R R R	R R R	
Deep Grooving / Cut-Off 1-Edge	 Shows GMN2.2	GMN 2.2 3 4 5 6	2.2 3.0 4.0 5.0 6.0	0.17 0.20 0.25 0.8 0.8	1.8 2.3 3.3 4.2 5.2	20	4.3	-	● ● ● ● ●	● ● ● ● ●		● ● ● ● ●	● ● ● ● ●	
Cut-Off / Sharp-Cutting 1-Edge / With lead angle	 Shows GMR2.2-8D / 15D	GMR/L 2.2-8D 2.2-15D 3-4D 3-15D 4-4D	2.2 2.2 3.0 3.0 4.0	0.17 0.00 0.20 0.20 0.25	1.8 1.8 2.3 2.3 3.3	20	4.3	8° 15° 4° 15° 4°	R R R	● ● ● ●		● ● ● R	● ● ●	

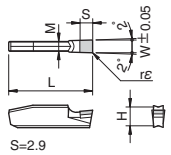
For recommended cutting conditions, see page ➡ G76

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

Inserts are sold in 10 piece boxes.

GMN

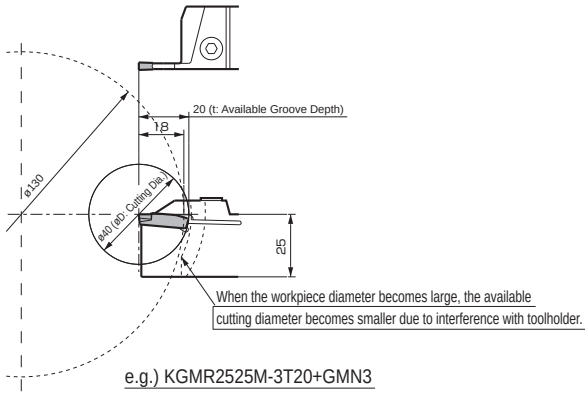
Classification of usage								
● : Continuous-Light Interruption / 1st Choice ◔ : Continuous-Light Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	P	Carbon Steel / Alloy Steel						
	M	Stainless Steel						
	K	Cast Iron						
	N	Non-ferrous Metals				●		
	S	Titanium Alloy				●		
	H	Hard materials (under 40HRC)						
		Hard materials (over 40HRC)		○	●			

Insert	Description	Dimension (mm)					Angle (°)	CBN			PCD		Ref. Page for Toolholder
		W	rε	M	L	H	θ	KBN10B	KBN510	KBN525	KPD001	KPD010	
Deep Grooving 1-Edge	GMN 2	2.0	0.2	1.8	20	4.3	-	●	●	●	●	●	G22 G23 G24
			0.4										
 S=2.9	3	3.0	0.2	2.3							●	●	
			0.4					●	●	●			
	4	4.0	0.2	3.3							●	●	
			0.4					●	●	●			
	5	5.0	0.2	4.2							●	●	
			0.4					●	●	●			
	6	6.0	0.2	5.2								●	
			0.4					●	●	●			

For recommended cutting conditions, see page ➡ G74

Available cutting diameter of KGM (For automatic lathe) / KGM-T type

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



e.g.) KGMR2525M-3T20+GMN3

◆ KGM Available Cutting Diameter Table

Toolholder		øD (Cutting Dia.)																
KGMR/L	0810K-1.5-125	-	-	-	-	-	-	-	-	-	-	-	-	10	14	16	32	∞
	1010K-1.5-125	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞	∞	
	1212F-1.5-85 1212M-1.5-150	-	-	-	-	25	26	28	32	36	40	60	100					
	0810K-2-125	-	-	-	-	-	-	-	-	-	-	-	-	10	14	16	32	
	1010K-2-125	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞	∞	
	1212F-2-85 1212M-2-150	-	-	-	-	25	26	28	50	∞	∞	∞	∞					
	1616M-2-150	32	40	50	60	80	100	∞	∞									
	1010K-2.5-125	-	-	-	-	-	-	-	20	25	32	40	60					
	1212F-2.5-85 1212M-2.5-150	-	-	-	-	25	26	28	32	36	40	60	100					
	1616M-2.5-150	32	40	50	60	80	100	∞	∞	∞	∞	∞	∞					
	1616M-3-150	32	40	50	60	80	100											
Available Grooving Depth t (mm)		16	15	14	13	12.5	12	11	10	9	8	7	6	5	4	3	2	1

◆ KGM-T Available Cutting Diameter Table (GMN, GMR/L When using 1-edge insert)

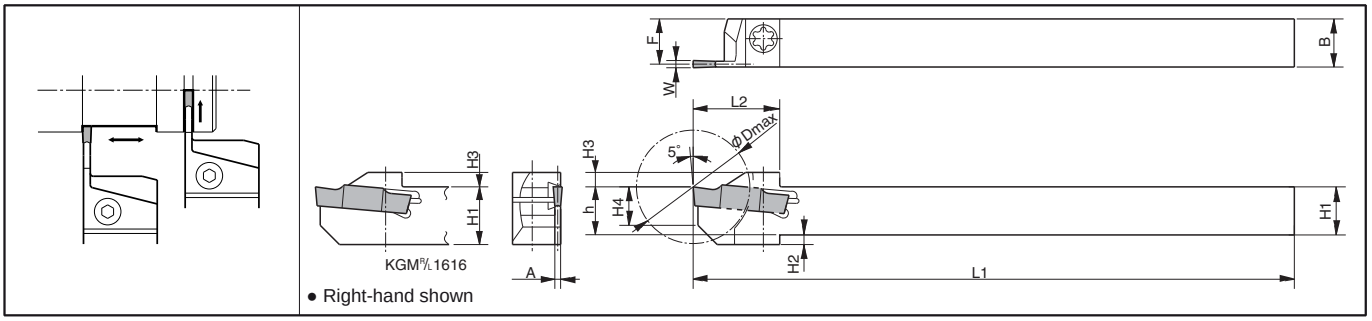
Toolholder		øD (Cutting Dia.)												
KGMR/L	2012K-2T17 2020K-2T17 2525M-2T17	-	-	-	-	-	-	-	-	66	80	130	260	∞
	1616H-3T20	-	-	-	-	-	40	54	70	100	180	∞	∞	
	2012K-3T20 2020K-3T20 2525M-3T20 2020K-4T20 2525M-4T20	-	-	-	-	-	40	90	130	240	∞			
	2525M-4T25 2525M-5T25	-	-	50	140	240	∞	∞	∞	∞				
	3232P-5T25	-	-	50	280	600								
	2525M-6T30	100	300	∞	∞	∞								
Available Grooving Depth t (mm)		30	27	25	23	22	20	19	18	17	16	15	14	Under 13

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

CBN & PCD Inserts are sold in 1 piece boxes.

KGM (For automatic lathe)

Width: 1.5~4.0mm



Toolholder Dimensions

Description		Std. R	Std. L	Cutting Dia. øDmax	Dimension (mm) H1=h	H2	H3	H4	B	L1	L2	F	A	Width W (mm) MIN.	MAX.	Spare Parts Screw	Spare Parts Wrench
KGMR/L	0810K-1.5-125	●	●	10	8	4	3	8	10	125	18	9.4	1.2	1.5	2.0	SE-40120TR	LTW-15S
	1010K-1.5-125	●	●	20	10	2											
	1212F-1.5-85	●		25	12		4	10	12	85	19	11.4					
	1212M-1.5-150	●	●							150							
	0810K-2-125	●	●	10	8	4	3	8	10	125	18	9.2	1.6	2.0	3.0	SE-40120TR	LTW-15S
	1010K-2-125	●	●	20	10	2						9.15	1.7				
	1212F-2-85	●		25	12		4	10	12	85	19	11.15	1.7				
	1212M-2-150	●	●							150							
	1616M-2-150	●	●	32	16	-	4	9	16	150	24.5	15.15				SE-50125TR	LTW-20
	1010K-2.5-125	●	●	20	10	2	3	8	10	125	18	9	2.0	2.4	3.0	SE-40120TR	LTW-15S
	1212F-2.5-85	●		25	12	2	4	10	12	85	19	11					
	1212M-2.5-150	●	●							150							
	1616M-2.5-150	●	●	32	16	-		9	16	150	25.5	15				SE-50125TR	LTW-20
	1616M-3-150	●	●	32	16	-	4	9	16	150	25.5	14.8	2.4	3.0	4.0	SE-50125TR	LTW-20

Applicable Inserts

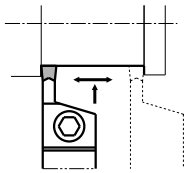
Applications	Grooving / Traversing	Grooving / Traversing	Grooving	Full-R / Copying	Full-R / Copying	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving / Cut-off	Deep Grooving
Ref. Page	G18	G18	G18	G18	G19	G20	G20	G20	G20	G20	G21
Insert / Toolholder	MW	MS	MG			MT	NB	TK	TK		CBN PCD
KGMR/L...1.5	-	-	-	-	-	GMM1520..MT GMM2020..MT GMM1520R/L..MT GMM2020R/L..MT	GMM1520..NB GMM2020..NB	GMM2020..TK GMM2020R/L..TK	GMN2..TK GMR/L2..TK	-	-
KGMR/L...2(T)	GMM2420..MW GMM3020..MW	GMG3020..MS GMM3020..MS	GMG2520..MG GMG3020..MG	GMG3020..R GMM3020..R	-	GMM2020..MT GMM2520..MT GMM3020..MT GMM2020R/L..MT GMM2520R/L..MT GMM3020R/L..MT	GMM2020..NB GMM2520..NB GMM3020..NB	GMM2020..TK GMM2520..TK GMM3020..TK GMM2020R/L..TK GMM2520R/L..TK GMM3020R/L..TK	GMN2..TK GMN3..TK GMR/L2..TK GMR/L3..TK	GMN2 GMN2.2 GMN3 GMR/L2.2 GMR/L3	GMN2 GMN3
KGMR/L...2.5	GMM2420..MW GMM3020..MW	GMG3020..MS GMM3020..MS	GMG2520..MG GMG3020..MG	GMG3020..R GMM3020..R	-	GMM2520..MT GMM3020..MT GMM2520R/L..MT GMM3020R/L..MT	GMM2520..NB GMM3020..NB	GMM2520..TK GMM3020..TK GMM2520R/L..TK GMM3020R/L..TK	GMN3..TK GMR/L3..TK	GMN3 GMR/L3	GMN3
KGMR/L...3(T)	GMM3020..MW GMM4020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS	GMG3020..MG GMG3520..MG GMG4020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R	-	GMM3020..MT GMM3020R/L..MT	GMM3020..NB	GMM3020..TK GMM3020R/L..TK	GMN3..TK GMN4..TK GMR/L3..TK GMR/L4..TK	GMN3 GMN4 GMR/L3 GMR/L4	GMN3 GMN4
KGMR/L...4(T)	GMM4020..MW GMM5020..MW	GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG4020..MG GMG5020..MG	GMG4020..R GMM4020..R GMG5020..R GMM5020..R	-	-	-	-	GMN4..TK GMR/L4..TK	GMN4 GMN5 GMR/L4	GMN4 GMN5
KGMR/L...5(T)	GMM5020..MW GMM6020..MW	GMG5020..MS GMM5020..MS GMG6020..MS GMM6020..MS	GMG5020..MG GMG6020..MG	GMG5020..R GMM5020..R GMG6020..R GMM6020..R	GMGA6020..R	-	-	-	-	GMN5 GMN6	GMN5 GMN6
KGMR/L...6T	GMM6020..MW	GMG6020..MS GMM6020..MS	GMG6020..MG	GMG6020..R GMM6020..R	GMGA6020..R	-	-	-	-	GMN6	GMN6
KGMR/L...8	GMM8030..MW	-	GMG8030..MG	-	GMGA8030..R	-	-	-	-	-	-

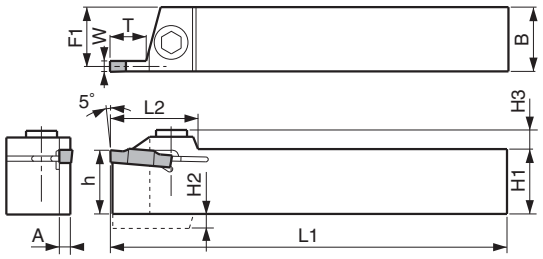
For recommended cutting conditions, see page G76
For recommended cutting conditions of CBN / PCD, see page G74

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

KGM

Width: 3.0~8.0mm





• Right-hand shown

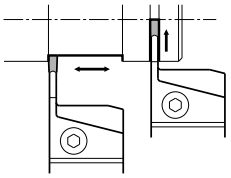
Toolholder Dimensions

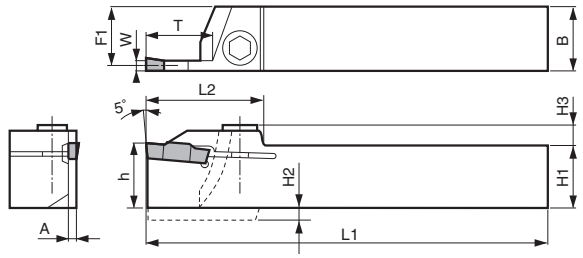
Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	F1	A	T	Width W (mm) MIN.	Width W (mm) MAX.	Spare Parts: Screw	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench
KGM R/L	1212H-3	●	●	12	4	6	12	100	27	10.8	2.4	9	3.0	3.0	SB-5TR	-	LTW-20	-
	1616H-3	●	●	16		7	16			14.8								
	2020K-3	●	●	20	-	7	20	125		18.8			3.0	4.0	-	HH5X16	-	LW-4
	2525M-3	●	●	25			25	150		23.8						HH5X25		
	2020K-4	●	●	20	-	7	20	125	27	18.3	3.4	10	4.0	5.0	-	HH5X16	-	LW-4
	2525M-4	●	●	25			25	150		23.3						HH5X25		
	2020K-5	●	●	20	-	7	20	125	27	17.8	4.4	10	5.0	6.0	-	HH5X16	-	LW-4
	2525M-5	●	●	25			25	150		22.8						HH5X25		
	3232P-5	●	●	32			32	170		29.8								
	2525M-8	●	●	25	7.5	10.5	25	150	40	22.0	6.0	25	8.0	8.0	-	HH6X25	-	LW-5
	3232P-8	●	●	32	-		32	170		29.0								

• Dimension T shows available grooving depth.
• 4.0mm width Insert can be installed in KGM R/L 1212H-3, but is not recommended due to the toolholder's rigidity.

KGM-T (Deep Grooving Type)

Width: 2.0~6.0mm





• Right-hand shown

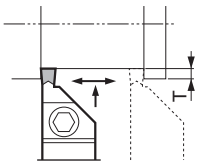
Toolholder Dimensions

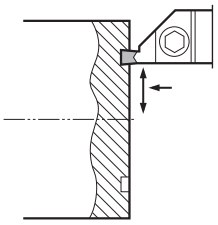
Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	F1	A	T	Width W (mm) MIN.	Width W (mm) MAX.	Spare Parts: Screw	Spare Parts: Screw	Spare Parts: Wrench	Spare Parts: Wrench
KGM R/L	2012K-2T17	●	●	20			12	125		11.15					SB-5TR	-	LTW-20	-
	2020K-2T17	●	●	20	-	7	20	125	33	19.15	1.7	17	2.0	3.0	-	HH5X16	-	LW-4
	2525M-2T17	●	●	25			25	150		24.15						HH5X25		
	1616H-3T20	●	●	16	4		16	100		14.8					-	HH5X16	-	LW-4
	2012K-3T20	●	●	20	-	7	12	125	36	10.8	2.4	20	3.0	4.0	SB-5TR	-	LTW-20	-
	2020K-3T20	●	●	20	-		20	125		18.8					-	HH5X16	-	LW-4
	2525M-3T20	●	●	25	-		25	150		23.8						HH5X25		
	2020K-4T20	●	●	20	-	7.5	20	125	36	18.3	3.4	20	4.0	5.0	-	HH5X16	-	LW-4
	2525M-4T20	●	●	25			25	150	36	23.3		20				HH5X25		
	2525M-4T25	●	●	25			25	150	41	23.3		25						
	2525M-5T25	●	●	25	-	8.5	25	150	42	22.8	4.4	25	5.0	6.0	-	HH5X25	-	LW-4
	3232P-5T25	●	●	32			32	170		29.8								
	2525M-6T30	●	●	25	-	9.5	25	150	45	22.4	5.2	30	6.0	6.0	-	HH5X25	-	LW-4

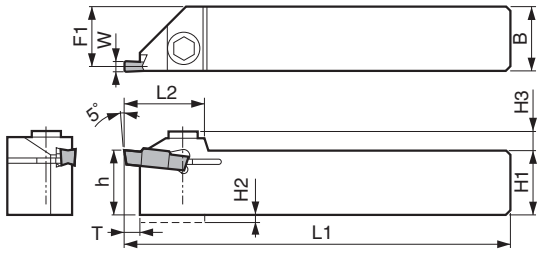
• Dimension T shows the distance from the Toolholder to the cutting edge. Refer to the Table (**G21**) for the relationship between the available Grooving Depth and the Cutting Dia.
• When using GMG / GMM type (2-Edge) insert, set the groove depth under 15mm.

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

KGMM

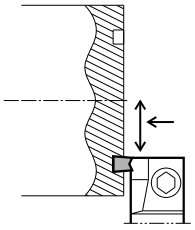


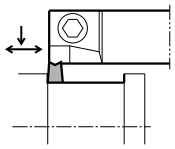


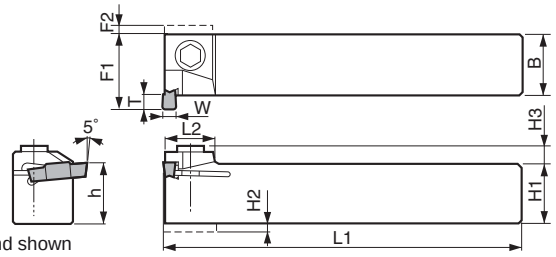


● Right-hand shown

KGMS







● Right-hand shown

Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	F1	F2	T		Width W (mm) MIN	MAX	Spare Parts: Screw	Screw	Wrench	Wrench
KGMM R/L	1212H-3	●	●	12	4	5	12	100	25	10.8	-	4.8		3.0	5.0	SB-5TR	-	LTW-20	-
	1616H-3	●	●	16	-		16			14.8						-	HH5X16	-	LW-4
	2020K-3	●	●	20		6	20	125		18.8						-		-	
	2525M-3	●	●	25			25	150		23.8						-	HH5X25	-	
KGMS R/L	1212H-3	●	●	12	4	5	12	100	17	17	1.5	4.8		3.0	3.0	SB-5TR	-	LTW-20	-
	1616H-3	●	●	16	-		16			21.5				3.0	5.0	GS-50	-	-	LW-3
	2020K-3	●	●	20		6	20	125		25	-					-	HH5X16	-	LW-4
	2525M-3	●	●	25			25	150		30						-	HH5X25	-	

• Dimension T shows available grooving depth. (See the table **G52** for Face Grooving)

Applicable Inserts [External Grooving]

Applications	Grooving / Traversing	Grooving / Traversing	Grooving	Full-R / Copying	Grooving	Grooving	Grooving	Grooving	Grooving	Grooving
Ref. Page	G18	G18	G18	G18	G20	G20	G20	G20	G20	G21
Insert / Toolholder	MW	MS	MG		MT	NB	TK	TK		CBN PCD
KGMS R/L1212H-3	GMM3014..	-	-	GMM3014..R	-	-	-	-	-	-
KGMM R/L...3 KGMS R/L...3	GMM3020..MW GMM4020..MW GMM5020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG3020..MG GMG3520..MG GMG4020..MG GMG5020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R GMG5020..R GMM5020..R	GMM3020..MT	GMM3020..NB	GMM3020..TK	GMN3..TK GMN4..TK	GMN3 GMN4 GMN5	GMN3 GMN4 GMN5

Applicable Inserts [Face Grooving]

Applications	Grooving / Traversing	Grooving / Traversing	Grooving / Traversing	Grooving / Traversing	Grooving	Full-R / Copying	Grooving	Grooving	Grooving	Grooving
Ref. Page	G19	G18.19	G18	G18	G18	G18	G20	G20	G20	G20, G21
Insert / Toolholder			MW	MS	MG		MT	NB	TK	
KGMS R/L1212H-3	-	GMM3014..RU	-	-	-	-	-	-	-	-
KGMM R/L...3 KGMS R/L...3	FGG R/L3020.. FGG R/L4020.. FGG R/L5020..	GMG3020..RU GMG4020..RU GMG5020..RU	GMM3020..MW GMM4020..MW GMM5020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG3020..MG GMG3520..MG GMG4020..MG GMG5020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R GMG5020..R GMM5020..R	GMM3020..MT	GMM3020..NB	GMM3020..TK	GMN3 GMN4 GMN5 GMN3..TK GMN4..TK

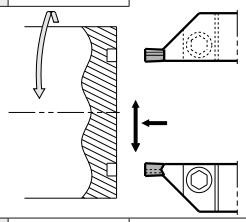
For recommended cutting conditions, see page **G76**
For recommended cutting conditions of CBN / PCD, see page **G74**

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

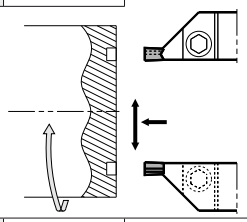
Selection of Insert & Toolholder (Face Grooving)

Case of KGMM

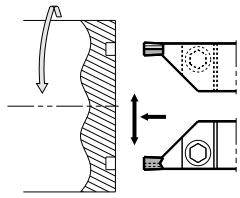
Toolholder	L-hand
Insert	L-hand



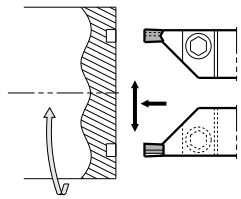
Toolholder	R-hand
Insert	R-hand



Toolholder	R-hand
Insert	L-hand

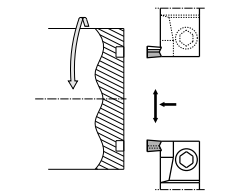


Toolholder	L-hand
Insert	R-hand

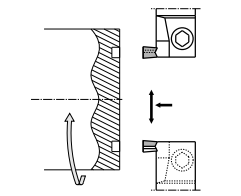


Case of KGMS

Toolholder	R-hand
Insert	L-hand

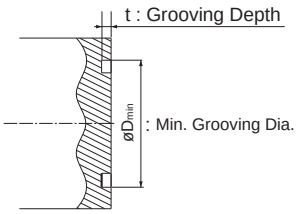


Toolholder	L-hand
Insert	R-hand



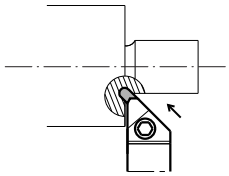
Min. Cutting Dia. (Face Grooving)

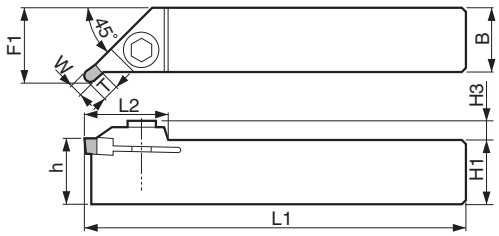
KGMM / KGMS (Common)



Description	øDmin	t
GMG / GMM3020-○○□□	ø100	4.8
GMG / GMM4020-○○□□		
GMG / GMM5020-○○□□		
FGGR/L3020-02	ø22	4.3
FGGR/L4020-04	ø28	4.8
FGGR/L5020-04	ø30	
GMG3020-150RU	ø22	4.3
GMG4020-200RU	ø28	4.8
GMG5020-250RU	ø30	

KGMU (External Undercutting Toolholder)





• Right-hand shown

Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H3	B	L1	L2	F1	T				Edge Width W (mm) MIN.	MAX.	Spare Parts Screw		Spare Parts Wrench	
KGMUR/L	2020K	●	●	20	6	20	125	28.5	23.6	4.8				3.0	5.0	HH5X16		LW-4	
	2525M	●	●	25		25	150		28.6						(6.0)	HH5X25			

• Dimension T shows the distance from the Toolholder to the cutting edge. See the table below for the available Grooving Depth.

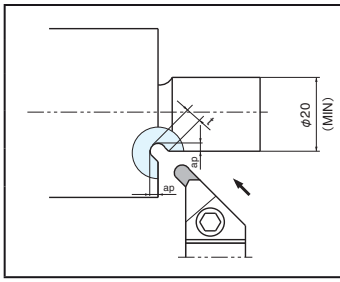
Dimension F1 shows at GMM5020-RU. ( ) indicates external grooving inserts when installed.

Applicable Insert

Applications	Undercutting		
Ref. Page	G18		
Shape / Toolholder			
KGMUR/L 2020K 2525M	GMG3020..RU GMG4020..RU GMG5020..RU		

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

Undercut Depth t



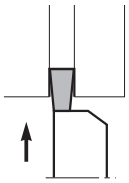
Description	Undercut Depth t (mm)	Distance from the face of the workpiece. ap (mm)
GMG3020-15RU	3.5	1.8
GMG4020-20RU	4.0	1.9
GMG5020-25RU	4.5	2.1

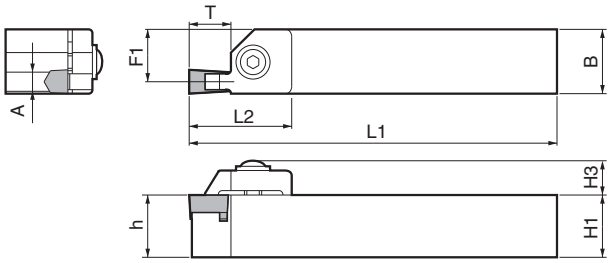
* In case of undercutting for the diameter over 100mm, external grooving inserts
GMG ○○ 20- ○○ , GMM ○○ 20- ○○□□ ,
GMN ○ are also available.

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

External Shallow Grooving Toolholders [Ceramic TG Insert]

KN91





• Right-hand shown

Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H3	B	L1	L2	F1	A	T			Spare Parts Clamp	Clamp Bolt	Washer	Spring	Wrench
KN91R/L	44-4	●	●	25	16	25	150	40	22.5	3.4	15			CE-111 / 121	BH8X30	W-8	SP-8	LW-5
	44-5	●	●					42	22.5	4.4	17							
	44-7	●						42	21	6.4	17			CE-131 / 141				

• Dimension T shows available grooving depth.

Clamp: KN91R/L 44-4 / 5 ... CE-111 for Right-hand Toolholder, and CE-121 for Left-hand Toolholder.
KN91R/L 44-7 ... CE-131 for Right-hand Toolholder, and CE-141 for Left-hand Toolholder.

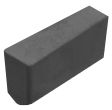
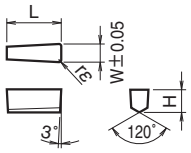
Applicable Inserts

(mm)

Description	L	H
GS91-4	12	5.0
GS91-5~GS91-8	15	7.5

		Ceramic	PVD Ceramic
P	Carbon Steel / Alloy Steel		
M	Stainless Steel		
K	Cast Iron	●	
N	Non-ferrous Metals		
S	Titanium Alloy		
H	Hard materials (under 40HRC)		
	Hard materials (over 40HRC)	○	

Classification of usage
◕: Continuous-Light Interruption / 1st Choice
◔: Continuous-Light Interruption / 2nd Choice
●: Continuous / 1st Choice
○: Continuous / 2nd Choice

Insert		Description		Dimension (mm) W	rε	Ceramic A65	PVD Ceramic A66N	Applicable Toolholder	Ref. Page for Toolholder
		GS	91-4	4.0	0.5			KN91R/L...4	G26
			91-5	5.0		●		KN91R/L...5	
			91-6	6.0	0.8				
			91-7	7.0				KN91R/L...7	
			91-8	8.0		●			

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Cutting Speed m/min) Ceramic A65	f (mm/rev) GS91-4 GS91-5 GS91-6	GS91-7 GS91-8
Cast Iron (FC / FCD, etc.)	★ 150~300	0.03~0.07	0.04~0.08
Hard Materials	★ 40~80	0.02~0.05	0.04~0.07

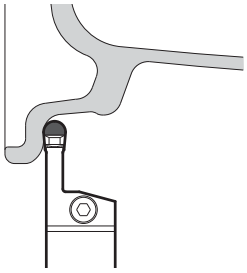
★ : 1st Recommendation

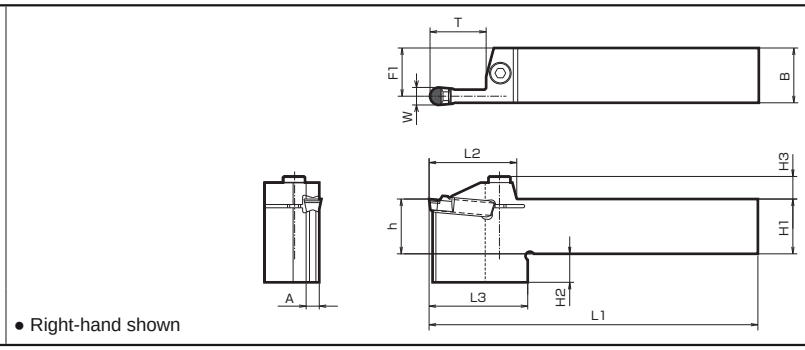
Inserts are sold in 10 piece boxes.

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

For Aliminum Wheel External Grooving

KGMW (External / Facing / Copying)



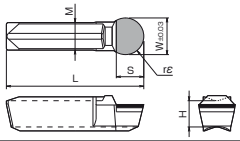
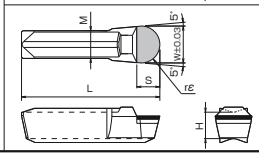


• Right-hand shown

Toolholder Dimensions

Description		Std. R	Std. L	Dimension (mm) H1=h	H2	H3	B	L1	L2	L3	F1	A	T	Spare Parts Screw	Spare Parts Wrench	Applicable Inserts
KGMW R/L	2525M-6	●	●	25	13	10.3	25	150	40	55	22.8	4.4	25	HH6X25	LW-5	GMGW6030-30R
	2525M-8	●	●								22	6				GMGW8030-40R GMGW8030-40R-HR

Applicable Inserts

Shape		Description		Dimension (mm) W	rε	L	H	M	S	No. of Edge	PCD KPD001
		GMGW	6030-30R	6	3	30	5.5	5	4.5	1	●
			8030-40R	8	4			6	6	1	●
		GMGW	8030-40R-HR	8	4	30	5.5	6	5	1	●

• GMGW insert is exclusively used for KGMW type / KIGMW type toolholder. It cannot be used for other toolholder because of its different installation angle.

Recommended Cutting Conditions

Workpiece Material	Insert Grade (Vc: m/min) PCD KPD001	① f at Grooving (mm/rev) ② f at Traversing (mm/rev) ③ ap at Traversing (mm)
Aluminum	★ 150~2700	① 0.05~0.3 mm/rev ② 0.2~0.8 mm/rev ③ MAX.3 mm

★ : 1st Recommendation

● : Std. Item ○ : Check Availability R : Std. Item (R-hand Only) L : Std. Item (L-hand Only)

Recommended Cutting Conditions

GBA insert (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)									① f at Grooving (mm/rev) ② f at Traversing (mm/rev) ③ 〃 ap (mm)					Remarks
	Cermet		PVD Coated Carbide				Carbide	CBN	PCD						
	TC40	TN90	PR630	PR930	PR1115	PR905	KW10	KBN510 KBN525	KPD001 (KPD010)	GBA○○R/L 033~100	GBA○○R/L 125~200	GBA○○R/L 230~300	GBA○○R/L 330~400	GBA○○R/L 400~480	
Carbon Steel	☆ 150-220	☆ 150-220	☆ 80-200	☆ 80-180	★ 80-180	-	-	-	-	①0.03~0.08 ②Traversing N.A. ③Traversing N.A.	①0.04~0.09 ②0.04~0.09 ③Max. 0.3	①0.05~0.1 ②0.05~0.1 ③Max. 0.5	①0.05~0.12 ②0.05~0.1 ③Max. 0.5	①0.05~0.12 ②0.05~0.1 ③Max. 0.8	Coolant
Alloy Steel	☆ 130-200	☆ 130-200	☆ 80-180	☆ 80-160	★ 80-160	-	-	-	-	①0.03~0.07 ②Traversing N.A. ③Traversing N.A.	①0.04~0.08 ②0.04~0.08 ③Max. 0.3	①0.05~0.09 ②0.05~0.09 ③Max. 0.5	①0.05~0.1 ②0.05~0.1 ③Max. 0.5	①0.05~0.1 ②0.05~0.1 ③Max. 0.8	
Stainless Steel	-	☆ 70-150	☆ 60-150	☆ 60-130	★ 60-130	-	-	-	-	①0.03~0.07 ②Traversing N.A. ③Traversing N.A.	①0.04~0.08 ②0.04~0.08 ③Max. 0.3	①0.05~0.09 ②0.05~0.09 ③Max. 0.5	①0.05~0.1 ②0.05~0.1 ③Max. 0.5	①0.05~0.1 ②0.05~0.1 ③Max. 0.8	
Cast Iron	-	-	-	-	-	★ 80-180	☆ 60-120	★ 150-400	-	①0.03~0.08 ②Traversing N.A. ③Traversing N.A.	①0.04~0.09 ②0.04~0.09 ③Max. 0.3	①0.05~0.1 ②0.05~0.1 ③Max. 0.5	①0.05~0.12 ②0.05~0.1 ③Max. 0.5	①0.05~0.12 ②0.05~0.1 ③Max. 0.8	
Aluminum	-	-	-	-	-	-	★ 150-400	-	★ 150-2000	①0.05~0.12 ②Traversing N.A. ③Traversing N.A.	①0.05~0.15 ②0.05~0.15 ③Max. 0.5	①0.05~0.15 ②0.05~0.15 ③Max. 0.8	①0.08~0.15 ②0.08~0.15 ③Max. 0.8	①0.08~0.15 ②0.08~0.15 ③Max. 0.8	
Brass	-	-	-	-	-	-	★ 150-300	-	★ 200-800	①0.05~0.12 ②Traversing N.A. ③Traversing N.A.	①0.05~0.15 ②0.05~0.15 ③Max. 0.5	①0.05~0.15 ②0.05~0.15 ③Max. 0.8	①0.08~0.15 ②0.08~0.15 ③Max. 0.8	①0.08~0.15 ②0.08~0.15 ③Max. 0.8	
Hard Materials	-	-	-	-	-	-	-	★ 80-120	-	-	①0.02~0.05 ②Traversing N.A. ③Traversing N.A.	①0.03~0.07 ②0.01~0.04 ③Max. 0.1	-	-	

* Above cutting condition is for external grooving. Set both cutting speed and feed rate lower than 10% for internal grooving. ★ : 1st Recommendation ☆ : 2nd Recommendation

GBA insert (MY Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)								① f at Grooving (mm/rev) ② f at Traversing (mm/rev) ③ 〃 ap (mm)					Remarks
	Cermet		PVD Coated Carbide			Carbide	CBN	PCD						
	TN6020	TC40	PR630	PR930	PR1115	KW10	KBN510	KPD001 (KPD010)	GBA43R/L 175MY~200MY	GBA43R/L 230MY~265MY	GBA43R/L 300MY	GBA43R/L 330MY ~350MY	GBA43R/L 400MY	
Carbon Steel	☆ 150-220	-	-	☆ 80-200	★ 80-200	-	-	-	①0.03~0.08 ②0.03~0.08 ③Max. 0.3	①0.04~0.09 ②0.04~0.09 ③Max. 0.3	①0.05~0.1 ②0.05~0.1 ③Max. 0.5	①0.05~0.12 ②0.05~0.1 ③Max. 0.5	①0.05~0.12 ②0.05~0.1 ③Max. 0.8	Coolant
Alloy Steel	☆ 130-200	-	-	☆ 80-180	★ 80-180	-	-	-	①0.03~0.07 ②0.03~0.1 ③Max. 0.3	①0.04~0.08 ②0.04~0.08 ③Max. 0.3	①0.05~0.09 ②0.05~0.09 ③Max. 0.5	①0.05~0.1 ②0.05~0.1 ③Max. 0.5	①0.05~0.1 ②0.05~0.1 ③Max. 0.8	
Stainless Steel	☆ 70-150	-	-	☆ 60-150	★ 60-150	-	-	-	①0.03~0.07 ②0.03~0.1 ③Max. 0.3	①0.04~0.08 ②0.04~0.08 ③Max. 0.3	①0.05~0.09 ②0.05~0.09 ③Max. 0.5	①0.05~0.1 ②0.05~0.1 ③Max. 0.5	①0.05~0.1 ②0.05~0.1 ③Max. 0.8	

* Above cutting condition is for external grooving. Set both cutting speed and feed rate lower than 10% for internal grooving. ★ : 1st Recommendation ☆ : 2nd Recommendation

GB insert (Ground Chipbreaker)

➡ changes to GBA type.

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)								① f at Grooving (mm/rev) ② f at Traversing (mm/rev) ③ 〃 ap (mm)					Remarks
	Cermet			PVD Coated Carbide		Carbide	CBN	PCD						
	TN90	TC40	TC60	PR630	PR930	KW10	KBN510	KPD001 (KPD010)	GB○○R/L 050~100	GB○○R/L 125~200	GB○○R/L 230~300	GB○○R/L 330~400	GB○○R/L 400~480	
Carbon Steel	-	☆ 150-220	☆ 100-150	☆ 80-200	★ 80-180	-	-	-	①0.03~0.08 ②Traversing N.A. ③Traversing N.A.	①0.04~0.09 ②0.04~0.09 ③Max. 0.3	①0.05~0.1 ②0.05~0.1 ③Max. 0.5	①0.05~0.12 ②0.05~0.1 ③Max. 0.5	①0.05~0.12 ②0.05~0.1 ③Max. 0.8	Coolant
Alloy Steel	-	☆ 130-200	☆ 80-130	☆ 80-180	★ 80-160	-	-	-	①0.03~0.07 ②Traversing N.A. ③Traversing N.A.	①0.04~0.08 ②0.04~0.08 ③Max. 0.3	①0.05~0.09 ②0.05~0.09 ③Max. 0.5	①0.05~0.1 ②0.05~0.1 ③Max. 0.5	①0.05~0.1 ②0.05~0.1 ③Max. 0.8	
Stainless Steel	-	-	☆ 60-100	☆ 60-150	★ 60-130	-	-	-	①0.03~0.07 ②Traversing N.A. ③Traversing N.A.	①0.04~0.08 ②0.04~0.08 ③Max. 0.3	①0.05~0.09 ②0.05~0.09 ③Max. 0.5	①0.05~0.1 ②0.05~0.1 ③Max. 0.5	①0.05~0.1 ②0.05~0.1 ③Max. 0.8	
Cast Iron	-	-	-	-	-	★ 60-100	-	-	①0.03~0.08 ②Traversing N.A. ③Traversing N.A.	①0.04~0.09 ②0.04~0.09 ③Max. 0.3	①0.05~0.1 ②0.05~0.1 ③Max. 0.5	①0.05~0.12 ②0.05~0.1 ③Max. 0.5	①0.05~0.12 ②0.05~0.1 ③Max. 0.8	
Aluminum	-	-	-	-	-	★ 150-400	-	★ 150-2000	①0.05~0.12 ②Traversing N.A. ③Traversing N.A.	①0.05~0.15 ②0.05~0.15 ③Max. 0.5	①0.05~0.15 ②0.05~0.15 ③Max. 0.8	①0.08~0.15 ②0.08~0.15 ③Max. 0.8	①0.08~0.15 ②0.08~0.15 ③Max. 0.8	
Brass	-	-	-	-	-	★ 150-300	-	★ 200-800	①0.05~0.12 ②Traversing N.A. ③Traversing N.A.	①0.05~0.15 ②0.05~0.15 ③Max. 0.5	①0.05~0.15 ②0.05~0.15 ③Max. 0.8	①0.08~0.15 ②0.08~0.15 ③Max. 0.8	①0.08~0.15 ②0.08~0.15 ③Max. 0.8	

* Above cutting condition is for external grooving. Set both cutting speed and feed rate lower than 10% for internal grooving. ★ : 1st Recommendation ☆ : 2nd Recommendation

◆ TGF insert (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)								① f at Grooving (mm/rev) ② f at Traversing (mm/rev) ③ // ap (mm)				Remarks
	Cermet			PVD Coated Carbide		Carbide	CBN	PCD					
	TN90	TC40	TC60	PR930	PR1115	KW10	KBN510	KPD001 (KPD010)	TGF32R/L 033~050	TGF32R/L 075~095	TGF32R/L 100~145	TGF32R/L 150~250	
Carbon Steel	☆ 150-220	☆ 150-220	☆ 100-150	☆ 80-180	★ 80-180	-	-	-	①0.01~0.05 ②Traversing N.A. ③Traversing N.A.	①0.02~0.07 ②Traversing N.A. ③Traversing N.A.	①0.03~0.08 ②0.03~0.06 ③Max. 0.2	①0.03~0.08 ②0.03~0.06 ③Max. 0.2	Coolant
Alloy Steel	☆ 130-200	☆ 130-200	☆ 80-130	☆ 80-160	★ 80-160	-	-	-	①0.01~0.04 ②Traversing N.A. ③Traversing N.A.	①0.02~0.06 ②Traversing N.A. ③Traversing N.A.	①0.03~0.07 ②0.02~0.05 ③Max. 0.2	①0.03~0.07 ②0.02~0.05 ③Max. 0.2	
Stainless Steel	☆ 70-150	-	☆ 60-100	☆ 60-130	★ 60-130	-	-	-	①0.01~0.04 ②Traversing N.A. ③Traversing N.A.	①0.02~0.06 ②Traversing N.A. ③Traversing N.A.	①0.03~0.07 ②0.02~0.05 ③Max. 0.2	①0.03~0.07 ②0.02~0.05 ③Max. 0.2	
Cast Iron	-	-	-	-	-	★ 60-100	-	-	①0.01~0.05 ②Traversing N.A. ③Traversing N.A.	①0.02~0.07 ②Traversing N.A. ③Traversing N.A.	①0.03~0.08 ②0.03~0.06 ③Max. 0.2	①0.03~0.08 ②0.03~0.06 ③Max. 0.2	
Aluminum	-	-	-	-	-	★ 150-400	-	★ 150-2000	①0.01~0.05 ②Traversing N.A. ③Traversing N.A.	①0.02~0.07 ②Traversing N.A. ③Traversing N.A.	①0.03~0.08 ②0.03~0.06 ③Max. 0.2	①0.03~0.08 ②0.03~0.06 ③Max. 0.2	
Brass	-	-	-	-	-	★ 150-300	-	★ 200-800	①0.01~0.04 ②Traversing N.A. ③Traversing N.A.	①0.02~0.06 ②Traversing N.A. ③Traversing N.A.	①0.03~0.07 ②0.02~0.05 ③Max. 0.2	①0.03~0.07 ②0.02~0.05 ③Max. 0.2	

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ TG insert (Ground Chipbreaker)

changes to GBA.

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)								Feed Rate (mm/rev)					Remarks
	Cermet			PVD Coated Carbide		Carbide	CBN	PCD						
	TN60	TC40	TC60	PR630	PR930	KW10	KBN510	KPD001 (KPD010)	TG○○R/L 075~095	TG○○R/L 125~200	TG○○R/L 230~300	TG○○R/L 330~400	TG○○R/L 430~450	
Carbon Steel	★ 150-220	-	-	-	-	-	-	-	0.03~0.07	0.03~0.08	0.05~0.1	0.05~0.12	0.05~0.12	Coolant
Alloy Steel	★ 130-200	-	-	-	-	-	-	-	0.02~0.06	0.03~0.07	0.05~0.09	0.05~0.1	0.05~0.1	

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

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ GH insert (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)								① f at Grooving (mm/rev) ② f at Traversing (mm/rev) ③ // ap (mm)				Remarks
	Cermet			PVD Coated Carbide		Carbide	Ceramic						
	TN90	TC40	TC60	PR630	PR930	KW10	A65	A66N	GH 40~50	GH 55~70	GH 75~80	GH 100~120	
Carbon Steel	☆ 150-220	☆ 150-220	☆ 100-150	☆ 80-200	★ 80-180	-	-	-	①0.07~0.2 ②0.07~0.15 ③Max. 1.0	①0.07~0.2 ②0.07~0.15 ③Max. 1.0	①0.1~0.25 ②0.1~0.2 ③Max. 1.5	①0.15~0.3 ②0.15~0.25 ③Max. 2.0	Coolant
Alloy Steel	☆ 130-200	☆ 130-200	☆ 80-130	☆ 80-180	★ 80-160	-	-	-	①0.07~0.18 ②0.07~0.13 ③Max. 1.0	①0.07~0.18 ②0.07~0.13 ③Max. 1.0	①0.1~0.23 ②0.1~0.18 ③Max. 1.5	①0.15~0.27 ②0.15~0.22 ③Max. 2.0	
Stainless Steel	☆ 70-150	-	☆ 60-100	☆ 60-150	★ 60-130	-	-	-	①0.07~0.16 ②0.07~0.13 ③Max. 1.0	①0.07~0.16 ②0.07~0.13 ③Max. 1.0	①0.1~0.21 ②0.1~0.18 ③Max. 1.5	①0.15~0.25 ②0.15~0.22 ③Max. 2.0	
Cast Iron	-	-	-	-	-	★ 60~100	☆ 150~300	☆ 150~300	KW10 ①0.07~0.2 ②0.07~0.15 ③Max. 1.0 A65 / A66N ①0.03~0.07 ②Traversing N.A. ③Traversing N.A.	KW10 ①0.07~0.2 ②0.07~0.15 ③Max. 1.0 A65 / A66N ①0.03~0.07 ②Traversing N.A. ③Traversing N.A.	KW10 ①0.1~0.25 ②0.1~0.2 ③Max. 1.5 A65 / A66N ①0.05~0.09 ②Traversing N.A. ③Traversing N.A.	KW10 ①0.15~0.3 ②0.15~0.25 ③Max. 2.0 A65 / A66N ①0.05~0.09 ②Traversing N.A. ③Traversing N.A.	
Aluminum	-	-	-	-	-	★ 150-400	-	-	①0.07~0.2 ②0.07~0.15 ③Max. 1.0	①0.07~0.2 ②0.07~0.15 ③Max. 1.0	①0.1~0.25 ②0.1~0.2 ③Max. 1.5	①0.15~0.3 ②0.15~0.25 ③Max. 2.0	
Brass	-	-	-	-	-	★ 150-300	-	-	①0.07~0.2 ②0.07~0.15 ③Max. 1.0	①0.07~0.2 ②0.07~0.15 ③Max. 1.0	①0.1~0.25 ②0.1~0.2 ③Max. 1.5	①0.15~0.3 ②0.15~0.25 ③Max. 2.0	
Hard Materials	-	-	-	-	-	-	☆ 40-80	☆ 40-80	①0.02~0.05 ②0.01~0.03 ③Max. 0.1	①0.02~0.05 ②0.01~0.03 ③Max. 0.2	①0.02~0.05 ②0.01~0.04 ③Max. 0.2		

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

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ GHU insert (Molded Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)								① f at Grooving (mm/rev) ② f at Traversing (mm/rev) ③ // ap (mm)					Remarks
	Cermet			CVD Coated Carbide	PVD Coated Carbide		Ceramic							
	TN60	TC40	TC60	CR9025	PR630	PR930	A65	A66N	GHU 40	GHU 50	GHU 60			
Carbon Steel	☆ 130-200	-	-	☆ 80-180	-	-	-	-	①0.06~0.12 ②0.05~0.1 ③Max. 1.0	①0.06~0.12 ②0.05~0.1 ③Max. 1.0	①0.06~0.15 ②0.05~0.12 ③Max. 1.5			Coolant
Alloy Steel	☆ 100-180	-	-	☆ 80-160	-	-	-	-	①0.06~0.12 ②0.05~0.1 ③Max. 1.0	①0.06~0.12 ②0.05~0.1 ③Max. 1.0	①0.06~0.15 ②0.05~0.12 ③Max. 1.5			
Stainless Steel	-	-	-	☆ 60-130	-	-	-	-	①0.06~0.1 ②0.05~0.08 ③Max. 0.8	①0.06~0.1 ②0.05~0.08 ③Max. 0.8	①0.06~0.12 ②0.05~0.1 ③Max. 1.2			

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

★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Cutting Conditions

GA insert (Molded Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)								① f at Grooving (mm/rev) ② f at Traversing (mm/rev) ③ 〃 ap (mm)					Remarks
	Cermet				CVD Coated Carbide	PVD Coated Carbide		Carbide						
	TN60	TN90	TC40	TC60	CR9025	PR630	PR930	KW10	GA 30	GA 40	GA 50			
Carbon Steel	☆ 130-200	-	-	-	★ 80-180	-	-	-	①0.06~0.18 ②0.05~0.15 ③Max. 0.8	①0.06~0.21 ②0.05~0.17 ③Max. 1.0	①0.06~0.25 ②0.05~0.2 ③Max. 1.3			Coolant
Alloy Steel	☆ 100-180	-	-	-	★ 80-160	-	-	-	①0.06~0.15 ②0.05~0.12 ③Max. 0.3	①0.06~0.18 ②0.05~0.15 ③Max. 0.5	①0.06~0.22 ②0.05~0.18 ③Max. 0.8			
Stainless Steel	-	-	-	-	★ 60-130	-	-	-	①0.06~0.1 ②0.05~0.08 ③Max. 0.8	①0.06~0.1 ②0.05~0.08 ③Max. 0.8	①0.06~0.12 ②0.05~0.1 ③Max. 1.2			

★ : 1st Recommendation ☆ : 2nd Recommendation

GIA insert (Molded Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)								① f at Grooving (mm/rev) ② f at Traversing (mm/rev) ③ 〃 ap (mm)					Remarks
	Cermet				CVD Coated Carbide	PVD Coated Carbide		Carbide						
	TN60	TN90	TC40	TC60	CR9025	PR630	PR930	KW10	GIA 30	GIA 40	GIA 50			
Carbon Steel	☆ 60-120	-	-	-	★ 60-120	-	-	-	①0.04~0.08 ②0.02~0.08 ③Max. 0.3	①0.04~0.09 ②0.02~0.08 ③Max. 0.4	①0.05~0.1 ②0.05~0.08 ③Max. 0.5			Coolant
Alloy Steel	☆ 60-100	-	-	-	★ 60-100	-	-	-	①0.04~0.07 ②0.02~0.07 ③Max. 0.3	①0.04~0.07 ②0.02~0.07 ③Max. 0.4	①0.05~0.08 ②0.05~0.08 ③Max. 0.5			
Stainless Steel	-	-	-	-	★ 60-80	-	-	-	①0.04~0.07 ②0.02~0.07 ③Max. 0.3	①0.04~0.07 ②0.02~0.07 ③Max. 0.4	①0.05~0.08 ②0.05~0.08 ③Max. 0.5			

★ : 1st Recommendation ☆ : 2nd Recommendation

GMN insert (CBN / PCD)

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)		① f at Grooving (mm/rev) ② f at Traversing (mm/rev) ③ 〃 ap (mm)				Remarks
	CBN	PCD					
	KBN510 KBN525 (KBN10B)	KPD001 (KPD010)	GMN2	GMN3	GMN4 GMN5	GMN6	
Aluminum	-	★ 150-2000	①0.05~0.15 ②0.05~0.15 ③Max. 0.5	①0.05~0.15 ②0.05~0.15 ③Max. 0.8	①0.08~0.18 ②0.08~0.18 ③Max. 0.8	①0.10~0.20 ②0.10~0.20 ③Max. 0.8	Coolant
Brass	-	★ 200-800	①0.05~0.15 ②0.05~0.15 ③Max. 0.5	①0.05~0.15 ②0.05~0.15 ③Max. 0.8	①0.08~0.18 ②0.08~0.18 ③Max. 0.8	①0.10~0.20 ②0.10~0.20 ③Max. 0.8	
Cast Iron	★ 150-400	-	①0.04~0.09 ②0.04~0.09 ③Max. 0.3	①0.05~0.1 ②0.05~0.1 ③Max. 0.5	①0.05~0.12 ②0.05~0.12 ③Max. 0.5	①0.05~0.15 ②0.05~0.15 ③Max. 0.8	
Hard Materials	★ 80-120	-	①0.02~0.05 ②0.01~0.03 ③Max. 0.1	①0.03~0.07 ②0.01~0.05 ③Max. 0.2	①0.03~0.08 ②0.03~0.08 ③Max. 0.3	①0.05~0.1 ②0.05~0.1 ③Max. 0.4	

* Above cutting condition is for external grooving. Set feed rate lower than 20% for face grooving.

★ : 1st Recommendation

◆ GV insert (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)						① f at Grooving (mm/rev) ② f at Traversing (mm/rev) ③ // ap (mm)							Remarks
	Cermet			PVD Coated Carbide		Carbide	GV$^{R}_{L}$ 100SS~300SS 100S~300S	GV$^{R}_{L}$ 145B~185B	GV$^{R}_{L}$ 200B~280B	GV$^{R}_{L}$ 300B~400B				
	TN90	TC40	TC60	PR630	PR930	KW10	GV$^{R}_{L}$ 100A~340A 100AR~150AR		GV$^{R}_{L}$ 100BR	GV$^{R}_{L}$ 150BR	GV$^{R}_{L}$ 280C~300C	GV$^{R}_{L}$ 340C~400C	GV$^{R}_{L}$ 430C~500C	
Carbon Steel	☆ 120-180	☆ 120-180	☆ 80-120	☆ 80-160	★ 80-140	-	①0.03-0.08 ②0.03-0.08 ③Max. 0.3	①0.03-0.08 ②0.03-0.08 ③Max. 0.3	①0.04-0.09 ②0.04-0.09 ③Max. 0.3	①0.05-0.12 ②0.05-0.1 ③Max. 0.5	①0.04-0.09 ②0.04-0.09 ③Max. 0.3	①0.05-0.12 ②0.05-0.1 ③Max. 0.5	①0.05-0.12 ②0.05-0.1 ③Max. 0.5	Coolant
Alloy Steel	☆ 100-160	☆ 100-160	☆ 80-100	☆ 80-140	★ 80-120	-	①0.03-0.07 ②0.03-0.1 ③Max. 0.3	①0.03-0.07 ②0.03-0.1 ③Max. 0.3	①0.04-0.08 ②0.04-0.08 ③Max. 0.3	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.04-0.08 ②0.04-0.08 ③Max. 0.3	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	
Stainless Steel	☆ 70-130	-	☆ 60-100	☆ 60-130	★ 60-110	-	①0.03-0.07 ②0.03-0.1 ③Max. 0.3	①0.03-0.07 ②0.03-0.1 ③Max. 0.3	①0.04-0.08 ②0.04-0.08 ③Max. 0.3	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.04-0.08 ②0.04-0.08 ③Max. 0.3	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	
Cast Iron	-	-	-	-	-	★ 60-100	①0.03-0.08 ②0.03-0.08 ③Max. 0.3	①0.03-0.08 ②0.03-0.08 ③Max. 0.3	①0.04-0.09 ②0.04-0.09 ③Max. 0.3	①0.05-0.12 ②0.05-0.1 ③Max. 0.5	①0.04-0.09 ②0.04-0.09 ③Max. 0.3	①0.05-0.12 ②0.05-0.1 ③Max. 0.5	①0.05-0.12 ②0.05-0.1 ③Max. 0.5	
Aluminum	-	-	-	-	-	★ 150-300	①0.05-0.12 ②0.05-0.12 ③Max. 0.5	①0.05-0.12 ②0.05-0.12 ③Max. 0.5	①0.05-0.15 ②0.05-0.15 ③Max. 0.5	①0.08-0.15 ②0.08-0.15 ③Max. 0.8	①0.05-0.15 ②0.05-0.15 ③Max. 0.5	①0.08-0.15 ②0.08-0.15 ③Max. 0.8	①0.08-0.15 ②0.08-0.15 ③Max. 0.8	
Brass	-	-	-	-	-	★ 100-250	①0.05-0.12 ②0.05-0.12 ③Max. 0.5	①0.05-0.12 ②0.05-0.12 ③Max. 0.5	①0.05-0.15 ②0.05-0.15 ③Max. 0.5	①0.08-0.15 ②0.08-0.15 ③Max. 0.8	①0.05-0.15 ②0.05-0.15 ③Max. 0.5	①0.08-0.15 ②0.08-0.15 ③Max. 0.8	①0.08-0.15 ②0.08-0.15 ③Max. 0.8	

* Use PVD coated grade or carbide for traversing with edge width 1mm (GV$^{R}_{L}$ 100SS / 100S / 100A)

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ GVF insert (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)								① f at Grooving (mm/rev) ② f at Traversing (mm/rev) ③ // ap (mm)					Remarks
	Cermet				CVD Coated Carbide	PVD Coated Carbide		Carbide	GVF$^{R}_{L}$ 200A~340A	GVF$^{R}_{L}$ 250B~350B	GVF$^{R}_{L}$ 400B~490B	GVF$^{R}_{L}$ 350C~450C	GVF$^{R}_{L}$ 500C~600C	
	TN60	TN90	TC40	TC60	CR9025	PR630	PR930	KW10	GVF$^{R}_{L}$ 100AR~150AR	GVF$^{R}_{L}$ 150BR	GVF$^{R}_{L}$ 200BR			
Carbon Steel	-	☆ 150-220	☆ 150-220	☆ 100-150	-	☆ 80-200	★ 80-180	-	①0.03-0.08 ②0.03-0.08 ③Max. 0.3	①0.04-0.09 ②0.04-0.09 ③Max. 0.3	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.05-0.12 ②0.05-0.1 ③Max. 0.5	①0.05-0.12 ②0.05-0.1 ③Max. 0.8	Coolant
Alloy Steel	-	☆ 130-200	☆ 130-200	☆ 80-130	-	☆ 80-180	★ 80-160	-	①0.03-0.07 ②0.03-0.1 ③Max. 0.3	①0.04-0.08 ②0.04-0.08 ③Max. 0.3	①0.05-0.09 ②0.05-0.09 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.8	
Stainless Steel	-	☆ 70-150	-	☆ 60-100	-	☆ 60-150	★ 60-130	-	①0.03-0.07 ②0.03-0.1 ③Max. 0.3	①0.04-0.08 ②0.04-0.08 ③Max. 0.3	①0.05-0.09 ②0.05-0.09 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.8	
Cast Iron	-	-	-	-	-	-	-	★ 60-100	①0.03-0.08 ②0.03-0.08 ③Max. 0.3	①0.04-0.09 ②0.04-0.09 ③Max. 0.3	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.05-0.12 ②0.05-0.1 ③Max. 0.5	①0.05-0.12 ②0.05-0.1 ③Max. 0.8	
Aluminum	-	-	-	-	-	-	-	★ 150-400	①0.05-0.12 ②0.05-0.12 ③Max. 0.5	①0.05-0.15 ②0.05-0.15 ③Max. 0.5	①0.05-0.15 ②0.05-0.15 ③Max. 0.8	①0.08-0.15 ②0.08-0.15 ③Max. 0.8	①0.08-0.15 ②0.08-0.15 ③Max. 0.8	
Brass	-	-	-	-	-	-	-	★ 150-300	①0.05-0.12 ②0.05-0.12 ③Max. 0.5	①0.05-0.15 ②0.05-0.15 ③Max. 0.5	①0.05-0.15 ②0.05-0.15 ③Max. 0.8	①0.08-0.15 ②0.08-0.15 ③Max. 0.8	①0.08-0.15 ②0.08-0.15 ③Max. 0.8	

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

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ FTK Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)					Edge Width (mm)					Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide		Carbide	4.0	5.0				
	TN90	CR9025	PR660	PR930	KW10	f (mm/rev)					
Carbon Steel	☆ 120~200	★ 80~180	☆ 60~130	☆ 60~130	-	0.05~0.15	0.05~0.15				Coolant
Alloy Steel	☆ 100~160	★ 70~150	☆ 60~130	☆ 60~130	-	0.05~0.15	0.05~0.15				
Stainless Steel	☆ 80~150	☆ 60~140	★ 50~120	☆ 50~120	-	0.05~0.15	0.05~0.15				
Cast Iron	-	-	-	-	★ 50~100	0.10~0.30	0.10~0.30				
Aluminum	-	-	-	-	★ 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

GMG • GMM • GMN • GMGA

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)						Grooving				Traversing				Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	Width (mm)				Width (mm)				
	TN90	CR9025	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)				
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	-	-	-	-	-	★ 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

◆ See the notes below for traversing conditions.

① Case of KGM Toolholder

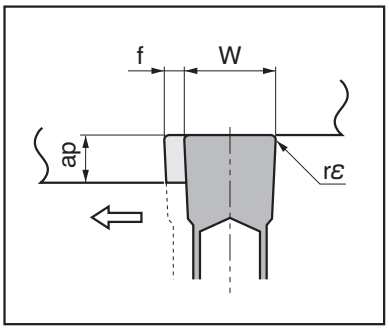
	Recommended Conditions
ap (MAX) mm	under 80% of Edge Width
f (MAX) mm/rev	under 10% of Edge Width

・ap≦0.8w
・f≦0.1w

(ap)×(f) shall not exceed 1/2 of ap(Max)×f(Max)

Load (mm^2) \ Edge Width (mm)	2.0~2.5	3.0	4.0	5.0	6.0	8.0
ap×f	~0.20	~0.36	~0.64	~1.00	~1.44	~2.56

・ap×f≦ $\frac{1}{2}$×0.8w×0.1w=0.04w^2



② Case of KGM-T Toolholder (Deep Grooving Type)
Use 90% of KGM conditions

③ Case of KGMM / KGMS / KFMS-8 Toolholder

	Recommended Conditions
ap (MAX) mm	under 50% of Edge Width
f (MAX) mm/rev	under 4% of Edge Width

・ap≦0.5w
・f≦0.04w

ap×f should be as follows. (Under 50% of KGM)

Load (mm^2) \ Edge Width (mm)	2.0~2.5	3.0	4.0	5.0	6.0	8.0
ap×f	~0.10	~0.18	~0.32	~0.50	~0.72	~1.28

・ap×f≦0.02w^2

④ Case of KIGM Toolholder

	Recommended Conditions
ap (MAX) mm	under 70% of Edge Width
f (MAX) mm/rev	under 8% of Edge Width

・ap≦0.7w
・f≦0.08w

ap×f should be as follows. (Under 70% of KGM)

Load (mm^2) \ Edge Width (mm)	3.0	4.0	5.0
ap×f	~0.25	~0.44	~0.70

・ap×f≦0.04w^2

GMG / GMM / GMGA 8030 (Face Grooving)

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)						Face Grooving			Traversing			Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	Width (mm)			Width (mm)			
	TN90	CR9025	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	-	-	-	-	-	★ 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

FMM • FMN

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)						Face Grooving (FMM type / FMN type)			Traversing (Case of FMM type)			Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	Width (mm)			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	-	-	-	-	-	★ 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 traversing. set to ap=0.2mm and under.

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ See the notes below for traversing conditions.

ap and f of FMM

	Recommended Conditions	
ap (MAX) mm	under 50% of Edge Width	・ap≦0.5w
f (MAX) mm/rev	under 3~5% of Edge Width	・f≦ [0.03 (Min.)~0.05 (MAX.)] w

ap×f should be as follows.

Load (mm^2) \ Edge Width (mm)	3.0	4.0	5.0	6.0
ap×f	~0.09	~0.14	~0.25	~0.36

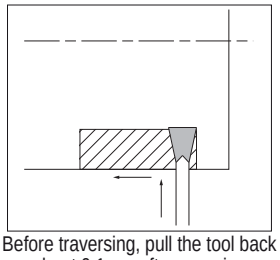
・ap×f≦0.01 w^2

Guide for External Machining

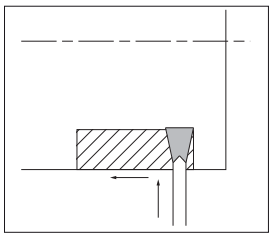
Point (Ⅰ) (Traversing after Grooving)

① Grooving Depth Over 0.5mm: At roughing (Refer to Fig.1)
Before traversing, pull the tool back about 0.1mm after grooving, instead of traversing subsequent to grooving.
(Failure to pull the tool back before traverse cutting will result in an unbalanced load applied on only one side of the cutting edge.)

② Grooving Depth under 0.5mm: At finishing (Refer to Fig.2)
Traversing subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.
(Dwell-motion is not necessary.)



Before traversing, pull the tool back about 0.1mm after grooving
(Grooving Depth Over 0.5mm: At roughing)
Fig.1



Traversing subsequent to grooving
(Grooving Depth under 0.5mm: At finishing)
Fig.2

Point (Ⅱ)

When widening the groove width, apply the “Step Turning” as shown in Fig.3.
The widened groove and side walls should be finished last.
(For better chip control, ap over 0.5mm is recommended.)
Note: If the workpiece is not supported at the center, reduce the feed rate when grooving towards center

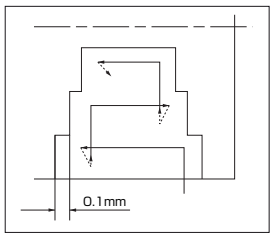


Fig.3

Guide for Face Grooving

〈Toolholder Selection〉

① Choose the best tool depending on the groove width.
The machining Dia. øD listed in the catalog indicates the depth of the first plunge of face grooving as shown in Fig.1.

② Confirm Grooving Depth (dimension T)

③ Toolholder's hand is recommended so as to be mounted in reverse. (Fig.2)
This will provide smooth chip flow and chip clearance.

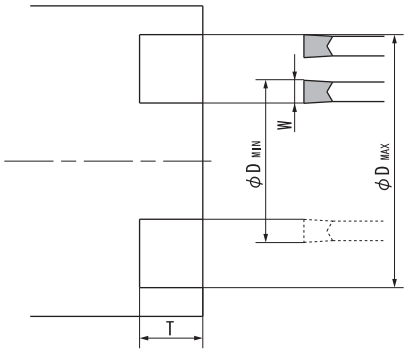


Fig.1

〈Traversing Tips〉

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

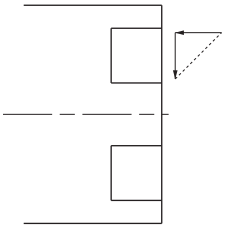


Fig.3

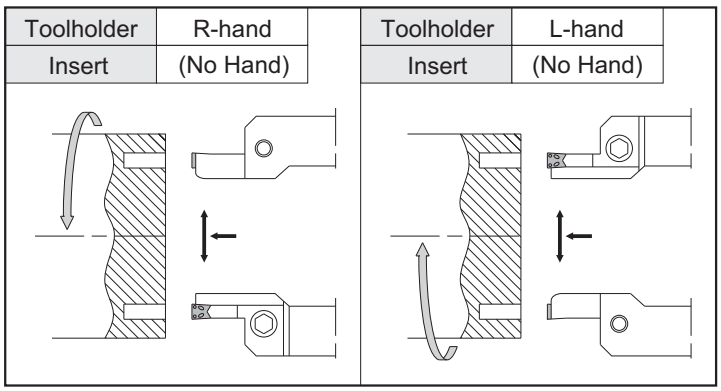
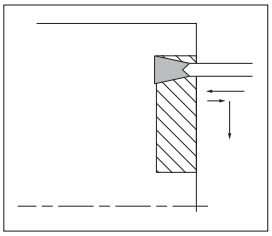


Fig.2 Toolholder's Hand and Rotation

Guide for Face Grooving (Continued)

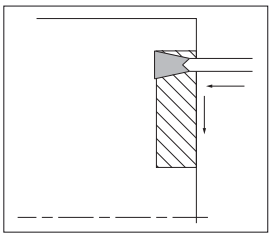
Point (Ⅰ) (Traversing after Grooving)

① Grooving Depth Over 0.5mm: At roughing (Refer to Fig.4)
Before traversing, pull the tool back about 0.1mm after grooving, instead of traversing subsequent to grooving.
(Failure to pull the tool back before traverse cutting will result in an unbalanced load applied on only one side of the cutting edge.)



Before traversing, pull the tool back about 0.1mm after grooving
(Grooving Depth Over 0.5mm: At roughing)
Fig.4

② Grooving Depth under 0.5mm: At finishing (Refer to Fig.5)
Traversing subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.
(Dwell-motion is not necessary.)



Traversing subsequent to grooving
(Grooving Depth under 0.5mm: At finishing)
Fig.5

Point (Ⅱ)

When widening the groove width, apply the “Step Turning” as shown in Fig.6.
The widened groove and side walls should be finished last.
(For better chip control, ap over 0.5mm is recommended.)

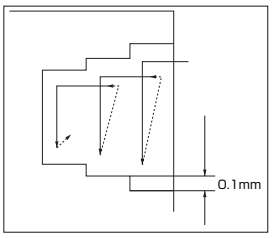
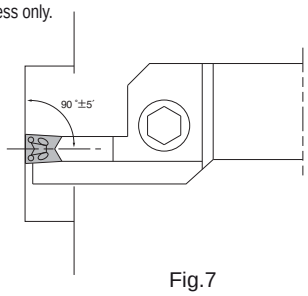


Fig.6

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 work face and adjust the toolholder within the angle of ±5'. (Fig.7)  Fig.7
Chips are entangled.	① Apply the toolholder's reverse mounting. 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 traversing.	Reverse the facing direction.
Groove is not straight.	Check the edge's parallelness. Decrease the feed rate.

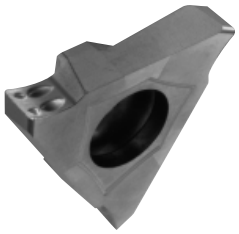
Guide for Grooving by Cermet Insert (Steel)

1. Set the f under 0.12mm/rev (0.05~0.10mm/rev normally).
2. Coolant is recommended.
3. Set the cutting speed V_C=150-220m/min.
4. Set the toolholder overhang as short as possible.

How to Improve Surface Finish (when surface roughness below 3 μm Rz is required)

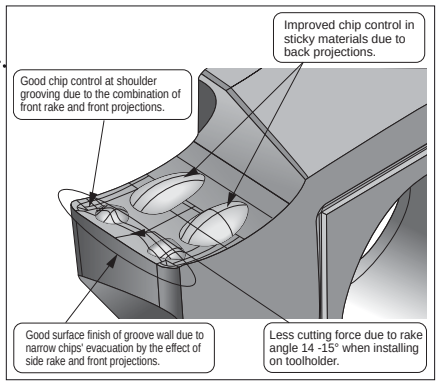
1. Increase the cutting speed (V_C=220m/min.MAX)
2. Program dwell-motion at the groove bottom.
3. Apply a light hone to the cutting edge by hand lapper.

Chip Control of Grooving Insert with Molded Chipbreaker



GBA-MY

3-Edge Molded Chipbreaker

- Advantages of MY Chipbreaker

1. Molded chipbreaker curls chips spirally and evacuates chips easily.
2. High precision molded Insert with economical 3 cutting edges.
3. Can be used in automated production.