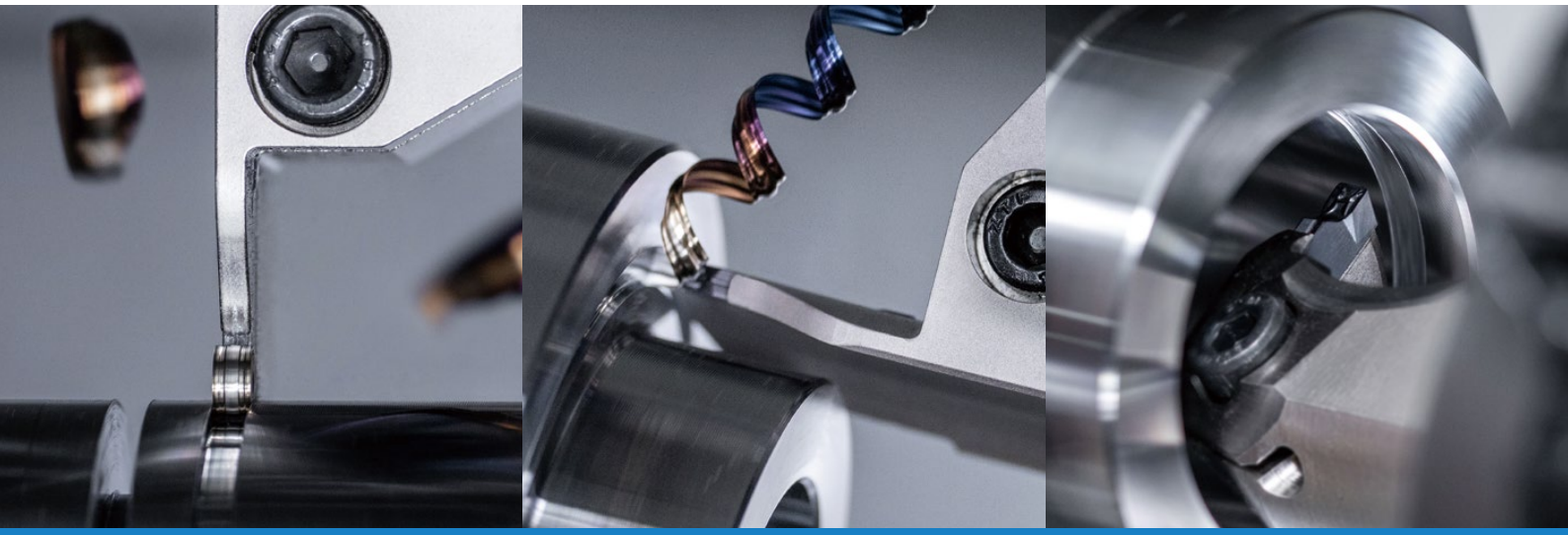
Multifunctional grooving and cut-off tools

KGX Series



Master a wide range of grooving applications with greater stability and longer tool life

Extensive lineup to meet a wide range of needs

Proprietary clamping mechanism for long-term stable machining

Common inserts for external, face, and internal grooving allows for tool consolidation

PR20 Series grades
Long tool life with MEGACOAT® NANO EX



External grooving	KGX	P13
Face grooving	KGXF	P21
Internal grooving	KGXI	P25

Multifunctional grooving and cut-off tools

KGX Series

An extensive lineup to meet a wide range of needs. The proprietary clamping mechanism and new PR20 Series grades deliver long-term stable machining. Common inserts can also be used across external, face, and internal grooving.

1 Extensive lineup to meet a wide range of needs

The lineup includes KGX for external grooving, KGXF for face grooving, and KGXI for internal grooving. Common inserts across external, internal, and face grooving holders support tool consolidation.

External grooving KGX P13

- Standard type KGX • JCT type for high-pressure coolant
- KGXM/KGXS types for external and face grooving

Face grooving KGXF P21

- Standard type KGXF
  (KGXM/KGXS types for external and face grooving)

Internal grooving KGXI P25

- Standard type KGXI (Minimum bore diameter ø25~)
  KGXI...S (Minimum bore diameter ø18~)



Extensive Insert Lineup

A wide selection of chipbreakers and grades to solve grooving challenges

PVD Coating P M K
PR2015 / PR2025 / PR2035

Uncoated Carbide N
GW15

External grooving General purpose **GM**		Low carbon steel **XM**	Low cutting force **GS**	High feed **PH**	Full-R **CM**	Full-R **CS**
	G-class		G-class			G-class

Cut-off **PM**		Face grooving General purpose **GMF**	Face grooving Small diameter **GMF**	Face grooving Deep groove **DMF**	Face grooving High feed **GHF**	Internal grooving General purpose **GMI**
	With lead angle					



Long tool life for both inserts and toolholders

New grooving solution for long-lasting, stable machining performance

MEGACOAT NANO EX | Grooving Cut-Off |

Grooving and cut-off grades for extended tool life



Unique clamping mechanism

Longer toolholder life

Common inserts

Tool consolidation

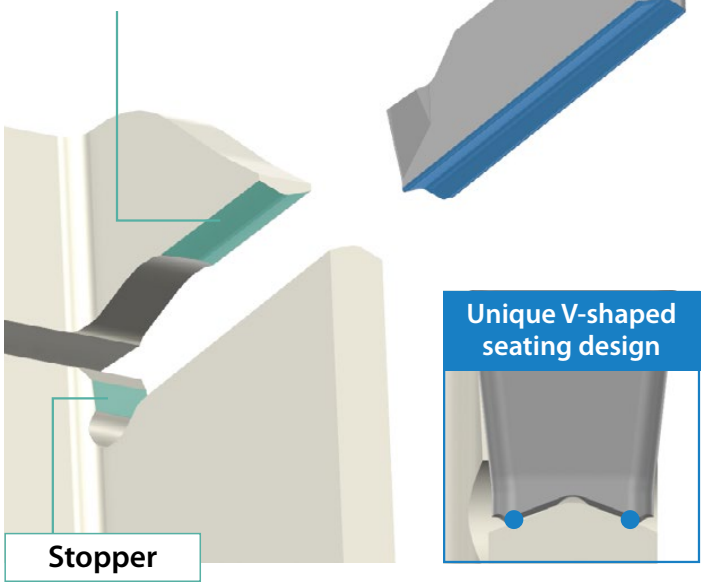
2 A unique clamp design engineered for long-lasting, stable machining

Secure insert clamping for excellent stability

The unique V-shaped seating design improves insert positioning accuracy and ensures stable machining.

Top clamp

Holds the insert securely



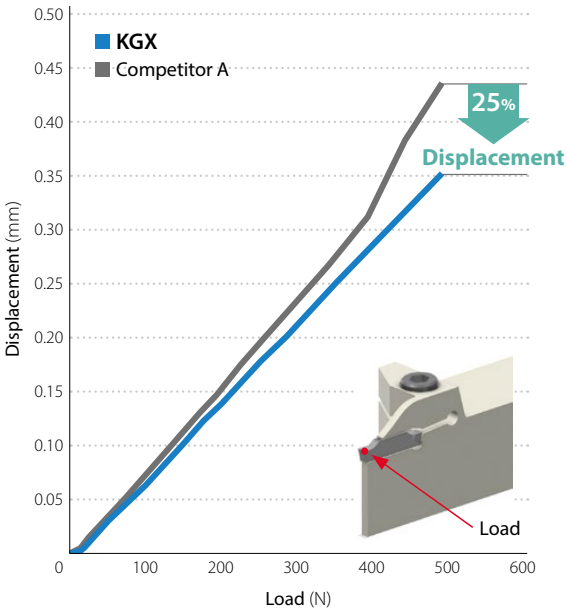
Stopper

Prevents the insert from backing out
Also makes insert mounting easy

Unique V-shaped seating design

Clamps the insert from the outside
Prevents lateral displacement

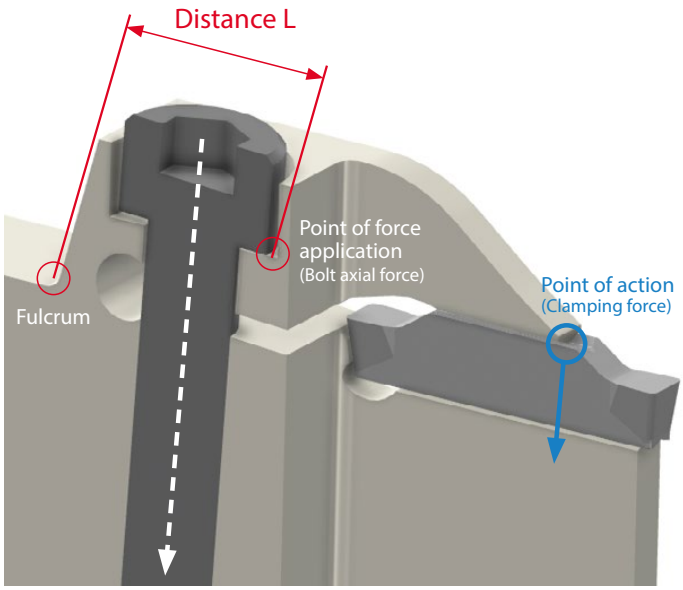
Insert displacement comparison (Internal evaluation)



KGXR2525M-3T20 GXM30020N-040GM

High-rigidity clamp for superior clamping force

The forward-tilted bolt secures distance L between the fulcrum and the point of force application
Effectively transmits clamping force to enhance insert retention

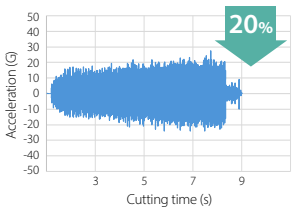


Machining vibration and stopper damage comparison
(Internal evaluation)

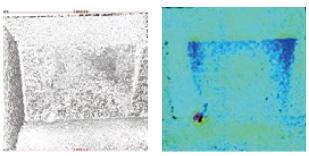
High clamping force reduces machining vibration by approx. 20%
Also reduces damage to the stopper surface

KGX

Machining vibration
(Measured with VIMOA)

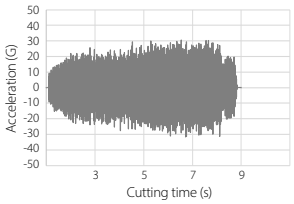


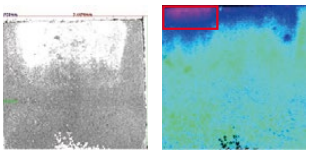
Stopper surface damage
(Difference analysis)



Few indentations, minimal damage

Competitor A





Visible indentations, significant damage

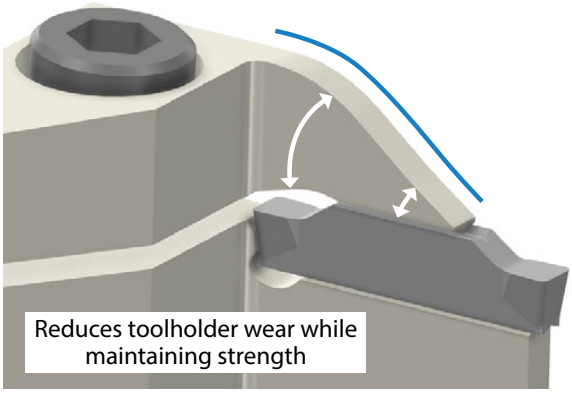
Vc = 120 m/min, f = 0.10 mm/rev, Groove depth 10 mm Wet
KGXR2525M-3T20 GXM30020N-040GM

Full chip control, plus longer toolholder life

KGX KGXF Streamlined upper clamp for long-term use

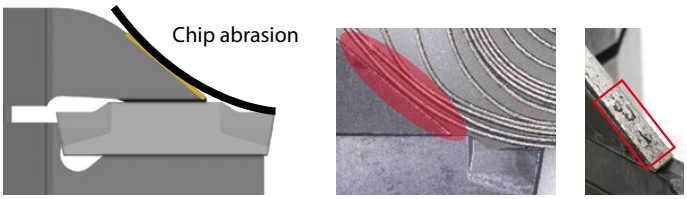
Streamlined upper clamp

Sharper upper jaw angle near the cutting edge reduces wear from chip abrasion.
The rear section, unaffected by chip abrasion, maintain strength through increased thickness.



Wear caused by chip abrasion (Illustration)

Wear of the upper jaw due to chip abrasion can shorten toolholder life.



KGX-JCT achieves even longer toolholder life with high-pressure coolant

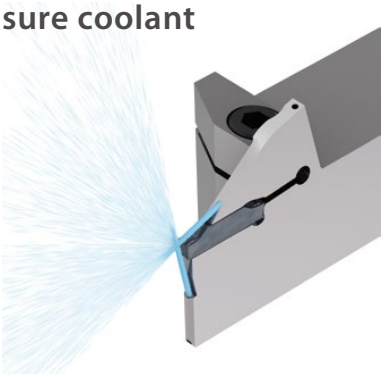
Coolant is delivered directly to the cutting edge, breaking chips into small pieces

Chip control comparison (Internal evaluation)



Good | Burned chips | Inconsistent

Vc = 150 m/min, f = 0.12 mm/rev,
Groove depth 10 mm
SCM415 Wet (Internal coolant 1MPa)
KGXR2525K-3T20JCT
GXM30020N-040GM



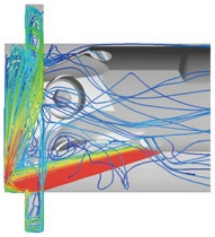
KGXI Delivers excellent chip evacuation performance through advanced flow analysis technology

Controls coolant flow to ensure smooth chip evacuation.

Three chip pockets



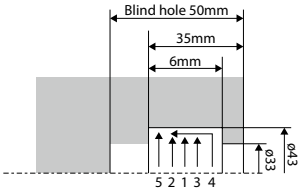
Fluid flow analysis
(Illustration)



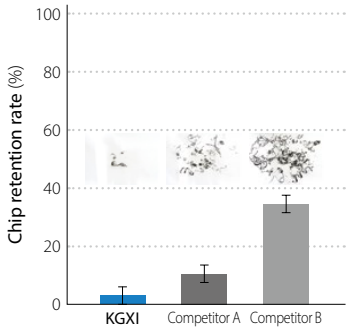
Visualizes coolant flow and helps optimize holder design.

Chip retention rate comparison (Internal evaluation)

$$\text{Retention rate} = \frac{\text{Weight of chips remaining in the workpiece}}{\text{Total chip weight}}$$



Vc = 150 m/min, f = 0.10 mm/rev
SCr420 Wet (External) n=3
KGXIR3225B-3 GXM30020N-040GMI



3 Common inserts for external, internal, and face grooving. Enables tool consolidation

Insert and toolholder clamping surfaces share a common design, supporting tool consolidation and easier tool management

For compatibility details, see page 29.

4 New insert grades PR20 Series with MEGACOAT NANO EX coating technology provides longer tool life

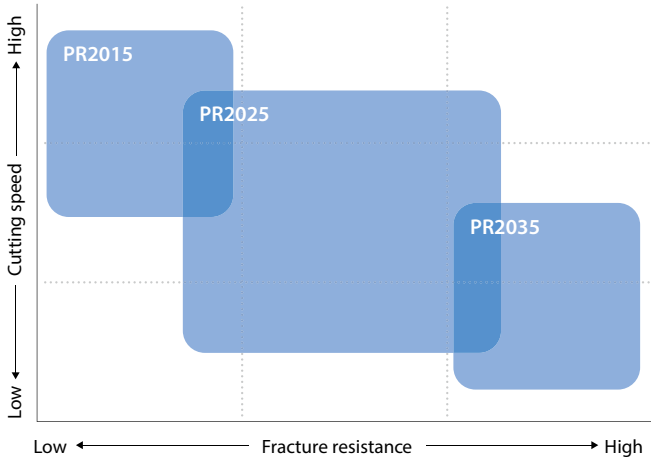
New PVD-coated grades for grooving and cut-off

PR20 Series NEW

PR2015 1st recommendation for cast iron
Also available for steel and stainless steel

PR2025 1st recommendation for steel
Also available for stainless steel

PR2035 1st recommendation for stainless steel
Also available for steel



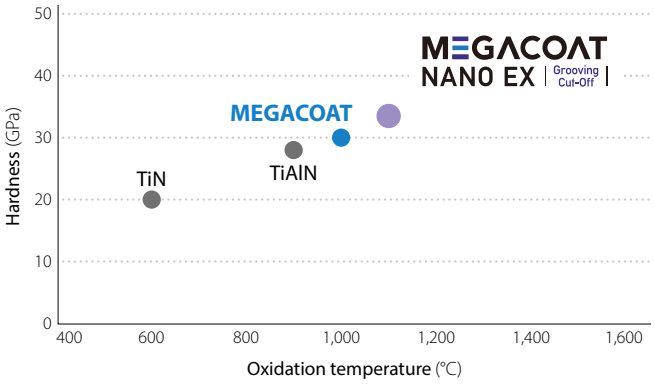
A new coating developed for grooving and cut-off

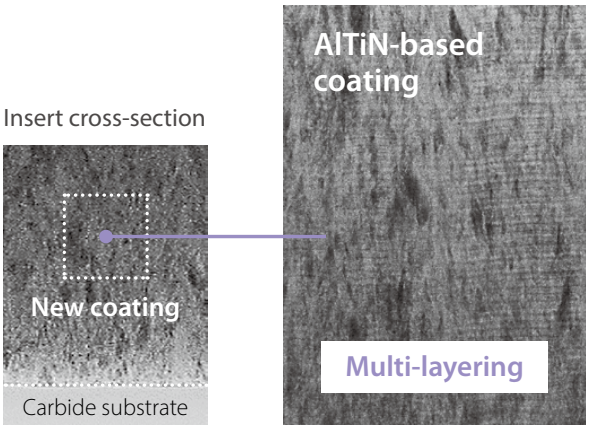
MEGACOAT NANO EX | Grooving Cut-Off |

High content aluminum (Al) × **Special nano coating layer**

delivers longer tool life and stable machining

Coating characteristics (Internal evaluation)





Proprietary nano-multilayer structure

Long tool life Excellent wear and fracture resistance

Multi-layering of high content aluminum nano layers added with high melting point material having different concentration. Suppresses hexagonal crystal precipitation and achieves excellent oxidation resistance

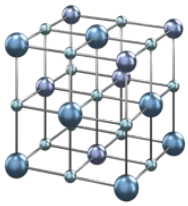
Stable machining High coating toughness

Crystal grain refinement
Optimized internal stress suppresses crack growth

Unique Technology (Patent pending)

Proprietary coating process improve high content aluminum nano layers performance

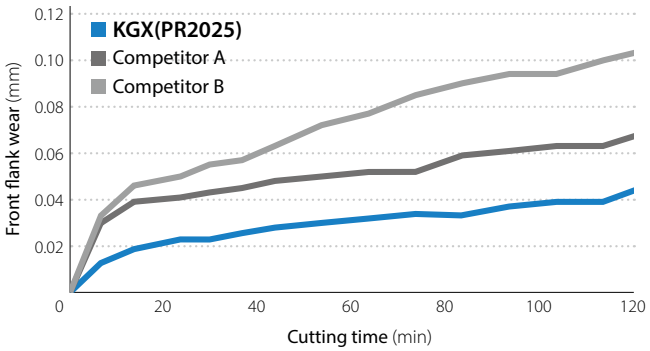
Maintains a cubic crystal structure to maximize the properties of aluminum (Al)



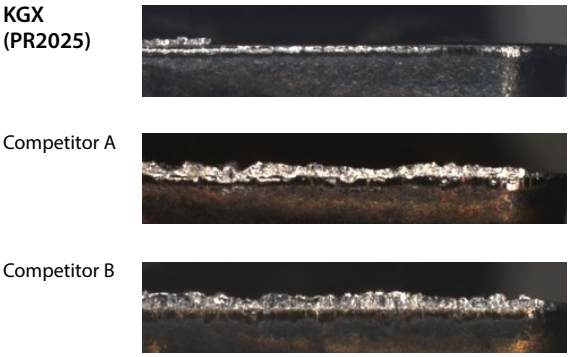
CG image

Superior wear resistance with KGX × PR20

Wear resistance comparison (Internal evaluation)



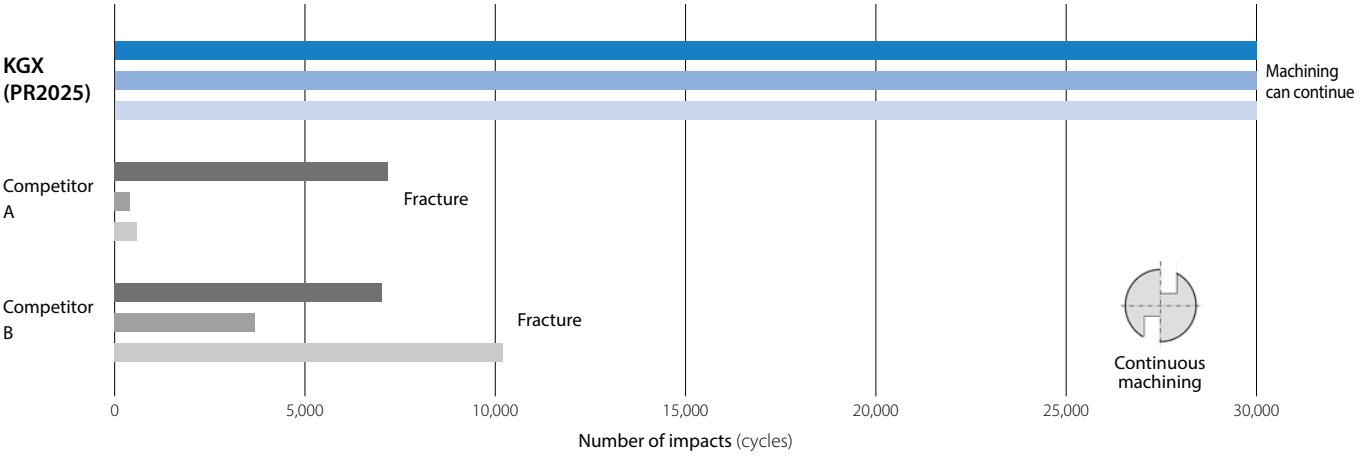
Front flank condition (after 120 min of cutting)



Vc = 100 m/min, f = 0.10 mm/rev, ae = 2.5 mm (Shouldering)
SCM435 Wet (External)
KGXR2525M-3T20 GXM30020N-040GM

Superior fracture resistance with KGX × PR20

Fracture resistance comparison (Internal evaluation)



Vc = 80 m/min, f = 0.10 mm/rev, Goove depth 10 mm
SCM435 ø70 (2-Flute) Dry n = 3
KGXR2525M-3T20 GXM30020N-040GM

Case studies

Chuck S45C

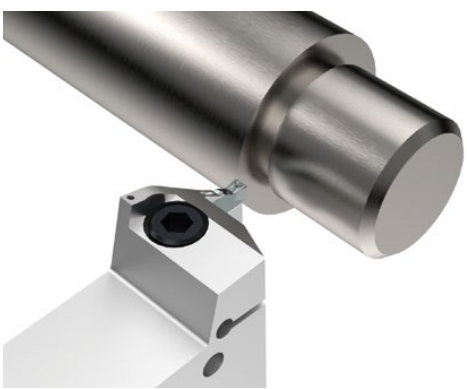
Vc = 155 m/min, f = 0.17 mm/rev, Wet (Internal coolant)
KGXR2525K-3T10JCT GXM30020N-020GM PR2025

Number of parts

KGX-JCT **750 pcs/corner** — Tool life 1.8x

Conventional **400 pcs/corner**

KGX-JCT achieved more than 1.8× longer tool life.
Quieter machining with significantly reduced vibration.
(User evaluation)



Chipbreaker lineup

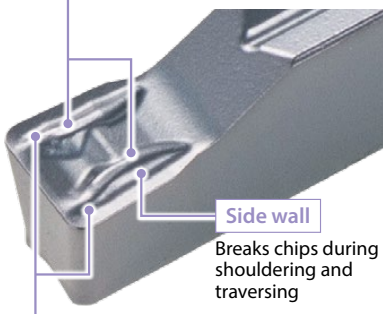
Delivers excellent chip control for external, face, and internal grooving applications

External grooving

GM Chipbreaker for general purpose

Center and rear dots

Promotes chip lifting and curling



Face grooving

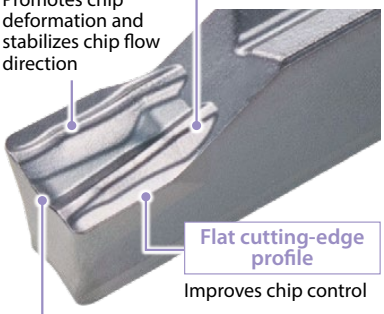
GMF Chipbreaker for general purpose

Smooth wall surface extending from the cutting edge to the rear

Promotes chip deformation and stabilizes chip flow direction

Gradually rising wall surface

Stabilizes chip curling





Internal grooving

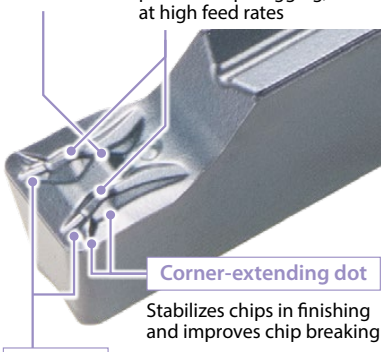
GMI Chipbreaker for general purpose

Rear dot

Promotes chip deformation

Center dot

Chip narrowing helps prevent chip clogging, even at high feed rates



GM Chipbreaker (M-Class)

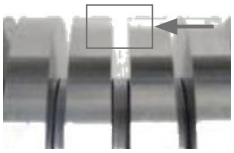
Wiper edge delivers a superior surface finish on groove walls

Groove wall finish comparison (Internal evaluation)

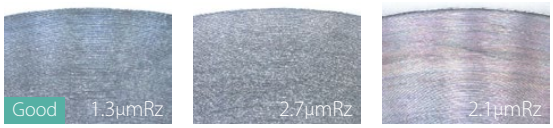
Wiper edge



Observed area (Groove wall surface)



KGX-GM (M-Class) | Competitor A | Competitor B



Vc = 100 m/min, f = 0.08 mm/rev, Groove depth 10 mm Wet SCr420

GM Chipbreaker (G-Class)

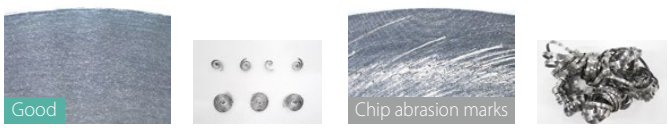
Suitable for standard grooves such as retaining ring (circlip) and O-ring grooves (Cutting width tolerance: ±0.02 mm)

Available cutting widths (mm)						
1.95	2.00	2.25	2.39	2.50	2.75	3.00
3.18	3.25	4.00	4.25			

G-Class ground chipbreaker comparison (Internal evaluation)

3D chipbreaker × G-class tolerance delivers both superior surface finish and chip control

KGX-GM (G-Class) | Conventional (G-Class ground chipbreaker)



Vc = 100 m/min, f = 0.08 mm/rev, Groove depth 10 mm Wet SCr420

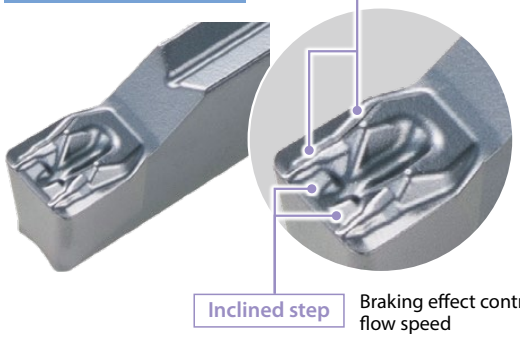
A wide variety of chipbreakers available to suit different machining applications

For low carbon steel

XM Chipbreaker

Two-step dot

Promotes chip curling through chip contact



Excellent chip control, even in low carbon steels where chips are typically difficult to manage

S10C Chip retention rate comparison (Internal evaluation)

KGX | Competitor A | Competitor B



Vc = 150 m/min, f = 0.12 mm/rev, Groove depth 15 mm Wet

Chipbreaker lineup

Chipbreaker application map

	Grooving · Traversing			Cut-off	Copying Full-R	Non-ferrous metals
	External	Internal	Face			
1st Choice	**GM** General purpose	**GMI** General purpose	**GMF** General purpose	**PM** General purpose	**CM** General purpose For widths 2 mm and above	**GS** Low cutting force For widths 2 mm and above
Applications	**GM (G-Class)** High precision (Standard groove compatible)	**XM** Low carbon steel	**DMF** Deep grooving **GHF** High feed **GMFS** Small-diameter **GS** Low cutting force **PM**	**PH** High feed· Interruption **PM** With lead angle	**CS** Low cutting force(Full-R) For widths 2 mm and above	
	GS Low cutting force	**PH** High feed· Interruption				

Inserts can be shared across external, internal, and face grooving holders

*See page 29 for compatibility details.

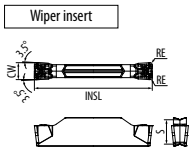
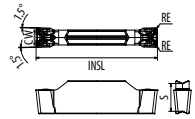
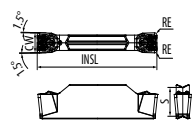
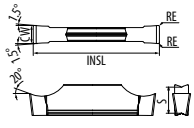
Insert identification system

Tolerance	Edge width	Hand of tool							
G : G-Class M : M-Class	200 : 2.0mm 400 : 4.0mm 300 : 3.0mm etc.	R : Right-hand L : Left-hand N : Neutral							
GX	**M**	**300**	**20**	**N**	**-**	**025**	**PM**	**(-6D)**	
Series			Insert length 20 : 20mm 26 : 26mm etc.			RE 020 : 0.2mm 040 : 0.4mm 150R- : 1.5 mm (Full-R) etc.	Chipbreaker	Lead angle No Indication : 0° 6D : 6°	Others S : Short Type (Internal Grooving)

Insert GXM/GXG

Applicable inserts

Usage classification							
◕ : Continuous to Light Interruption /1st Choice ◔ : Continuous to 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 (≤40HRC)					
		Hard Materials (≥40HRC)					

Insert			Description		No. of Edges	Dimensions(mm)				Tolerance(mm)		Carbide				Applicable toolholder
												PVD			-	
						CW	S	RE	INSL	CW min.	CW max.	PR2015	PR2025	PR2035	GW15	
Grooving • Traversing		 General purpose	GXM	20020N-020GM	2	2.00	3.9	0.2	20.9	-0.03	+0.03	●	●	●	-	KGX R/L...2... , KGXI R/L...2 *1
				24020N-020GM	2	2.40	3.9	0.2	20.9	-0.03	+0.03	●	●	●	-	KGX R/L...2.4... , KGX R/L...2... , KGXI R/L...2 *1
				30020N-020GM	2	3.00	4.4	0.2	20.9	-0.03	+0.03	●	●	●	-	KGX R/L...3... , KGXM R/L...3 , KGXS R/L...3 , KGXI R/L...3 *1 , KGXF R/L...3 *2
				30020N-040GM	2			0.4				●	●	●	-	
				40026N-020GM	2	4.00	4.4	0.2	26.4	-0.03	+0.03	●	●	●	-	KGX R/L...4... , KGXM R/L...4 , KGXS R/L...4 , KGXI R/L...4 , KGXF R/L...4 *3
				40026N-040GM	2			0.4				●	●	●	-	
				40026N-080GM	2			0.8				●	●	●	-	
		 General purpose(G-Class)	GXG	19520N-010GM	2	1.95	3.9	0.1	20.9	-0.02	+0.02	●	●	●	●	KGX R/L...2... , KGXI R/L...2 *1
				20020N-020GM	2	2.00	3.9	0.2	20.9	-0.02	+0.02	●	●	●	●	
				22520N-015GM	2	2.25	3.9	0.15	20.9	-0.02	+0.02	●	●	●	●	
				23920N-020GM	2	2.39	3.9	0.2	20.9	-0.02	+0.02	●	●	●	●	
				25020N-020GM	2	2.50	3.9	0.2	20.9	-0.02	+0.02	●	●	●	●	KGX R/L...2.4... , KGX R/L...2... , KGXI R/L...2 *1
				27520N-020GM	2	2.75	3.9	0.2	20.9	-0.02	+0.02	●	●	●	●	
				30020N-020GM	2	3.00	4.4	0.2	20.9	-0.02	+0.02	●	●	●	●	KGX R/L...3... , KGXM R/L...3 , KGXS R/L...3 , KGXI R/L...3 *1 , KGXF R/L...3 *2
				30020N-040GM	2			0.4				●	●	●	●	
				31820N-020GM	2	3.18	4.4	0.2	20.9	-0.02	+0.02	●	●	●	●	
				32520N-020GM	2	3.25	4.4	0.2	20.9	-0.02	+0.02	●	●	●	●	
				40026N-020GM	2	4.00	4.4	0.2	26.4	-0.02	+0.02	●	●	●	●	KGX R/L...4... , KGXM R/L...4 , KGXS R/L...4 , KGXI R/L...4 , KGXF R/L...4 *3
				40026N-040GM	2			0.4				●	●	●	●	
				42526N-020GM	2	4.25	4.4	0.2	26.4	-0.02	+0.02	●	●	●	●	
		 Low carbon steel	GXM	20020N-020XM	2	2.00	3.9	0.2	20.9	-0.03	+0.03	●	●	●	-	KGX R/L...2... , KGXI R/L...2 *1
				30020N-020XM	2	3.00	4.4	0.2	20.9	-0.03	+0.03	●	●	●	-	KGX R/L...3... , KGXM R/L...3 , KGXS R/L...3 , KGXI R/L...3 *1 , KGXF R/L...3 *2
				30020N-040XM	2			0.4				●	●	●	-	
				40026N-020XM	2	4.00	4.4	0.2	26.4	-0.03	+0.03	●	●	●	-	KGX R/L...4..., KGXM R/L...4, KGXS R/L...4, KGXI R/L...4, KGXF R/L...4 *3
				40026N-040XM	2			0.4				●	●	●	-	
		 Low cutting force	GXG	20013N-020GS-S	2	2.00	3.9	0.2	13.5	-0.02	+0.02	●	●	●	●	KGXI R/L...2-S
				30015N-020GS-S	2	3.00	4.4	0.2	15.5	-0.02	+0.02	●	●	●	●	KGXI R/L...3-S
				20020N-020GS	2	2.00	3.9	0.2	20.9	-0.02	+0.02	●	●	●	●	KGX R/L...2... , KGXI R/L...2 *1
				25020N-020GS	2	2.50	3.9	0.2	20.9	-0.02	+0.02	●	●	●	●	KGX R/L...2.4... , KGX R/L...2... , KGXI R/L...2 *1
				30020N-020GS	2	3.00	4.4	0.2	20.9	-0.02	+0.02	●	●	●	●	KGX R/L...3... , KGXM R/L...3 , KGXS R/L...3 , KGXI R/L...3 *1 , KGXF R/L...3
				35020N-020GS	2	3.50	4.4	0.2	20.9	-0.02	+0.02	●	●	●	●	KGX R/L...3... , KGXM R/L...3 , KGXS R/L...3 , KGXI R/L...3 *1 , KGXF R/L...3
				40026N-040GS	2	4.00	4.4	0.4	26.4	-0.02	+0.02	●	●	●	●	KGX R/L...4... , KGXM R/L...4 , KGXS R/L...4 , KGXI R/L...4 , KGXF R/L...4

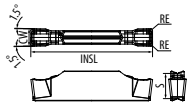
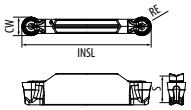
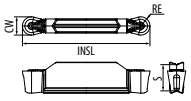
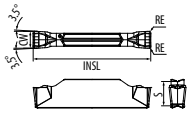
* Note 1) KGXI R/L****_*_-S are not compatible.
2) KGXF****M25*** and KGXF****M30*** are not compatible.
3) KGXF****M25*** and KGXF****M35*** are not compatible.

● : Available

Insert GXM/GXG

Applicable inserts

Usage classification						
● : Continuous to Light Interruption /1st Choice ◔ : Continuous to 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 (≤40HRC)				
		Hard Materials (≥40HRC)				

Insert			Description		No. of Edges	Dimensions(mm)				Tolerance(mm)		Carbide				Applicable toolholder
												PVD			-	
						CW	S	RE	INSL	CW min.	CW max.	PR2015	PR2025	PR2035	GW15	
Grooving•Traversing		 High feed	GXM	20020N-020PH	2	2.00	3.9	0.2	20.9	-0.03	+0.03	●	●	●	-	KGX R/L...2... KGXI R/L...2 *1
				30020N-030PH	2	3.00	4.4	0.3	20.9	-0.03	+0.03	●	●	●	-	KGX R/L...3... , KGXM R/L...3 , KGXS R/L...3 , KGXI R/L...3 *1, KGXF R/L...3 *2
				40026N-030PH	2	4.00	4.4	0.3	26.4	-0.03	+0.03	●	●	●	-	KGX R/L...4... , KGXM R/L...4 , KGXS R/L...4 , KGXI R/L...4 , KGXF R/L...4 *3
Full-R-Copying		 Full-R	GXM	20013N-100R-CM-S	2	2.00	3.9	1.0	13.6	-0.03	+0.03	●	●	●	-	KGXI R/L...2-S
				30015N-150R-CM-S	2	3.00	4.4	1.5	15.6	-0.03	+0.03	●	●	●	-	KGXI R/L...3-S
			GXM	20020N-100R-CM	2	2.00	3.9	1.0	21.0	-0.03	+0.03	●	●	●	-	KGX R/L...2... KGXI R/L...2 *1
				30020N-150R-CM	2	3.00	4.4	1.5	21.0	-0.03	+0.03	●	●	●	-	KGX R/L...3... , KGXM R/L...3 , KGXS R/L...3 , KGXI R/L...3 *1 , KGXF R/L...3 *2
				40026N-200R-CM	2	4.00	4.4	2.0	26.5	-0.03	+0.03	●	●	●	-	KGX R/L...4... , KGXM R/L...4 , KGXS R/L...4 , KGXI R/L...4 , KGXF R/L...4 *3
		 Full-R Low cutting force(G-Class)	GXG	20020N-100R-CS	2	2.00	3.9	1.0	21.0	-0.02	+0.02	●	●	●	●	KGX R/L...2... , KGXI R/L...2 *1
				30020N-150R-CS	2	3.00	4.4	1.5	21.0	-0.02	+0.02	●	●	●	●	KGX R/L...3... , KGXM R/L...3 , KGXS R/L...3 , KGXI R/L...3 *1 , KGXF R/L...3 *2
				40026N-200R-CS	2	4.00	4.4	2.0	26.5	-0.02	+0.02	●	●	●	●	KGX R/L...4... , KGXM R/L...4 , KGXS R/L...4 , KGXI R/L...4, KGXF R/L...4 *3
Cut-off		Wiper insert  General purpose(Cut-off)	GXM	20020N-020PM	2	2.00	3.9	0.2	20.9	-0.03	+0.03	●	●	●	-	KGX R/L...2... , KGXI R/L...2 *1
				25020N-020PM	2	2.50	3.9	0.2	20.9	-0.03	+0.03	●	●	●	-	KGX R/L...2.4... , KGX R/L...2... , KGXI R/L...2 *1
				30020N-025PM	2	3.00	4.4	0.25	20.9	-0.03	+0.03	●	●	●	-	KGX R/L...3... , KGXM R/L...3 , KGXS R/L...3 , KGXI R/L...3 *1 , KGXF R/L...3 *2
				40026N-030PM	2	4.00	4.4	0.3	26.4	-0.03	+0.03	●	●	●	-	KGX R/L...4... , KGXM R/L...4 , KGXS R/L...4 , KGXI R/L...4 , KGXF R/L...4 *3

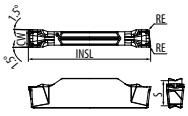
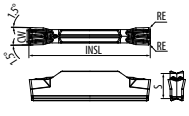
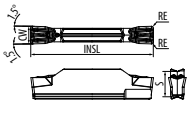
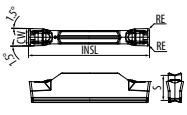
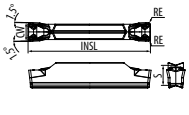
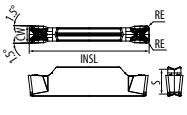
* Note 1) KGXI R / L ****_*_-S are not compatible.
2) KGXF****M25*** and KGXF****M30*** are not compatible.
3) KGXF****M25*** and KGXF****M35*** are not compatible.

● : Available

Insert GXM/GXG

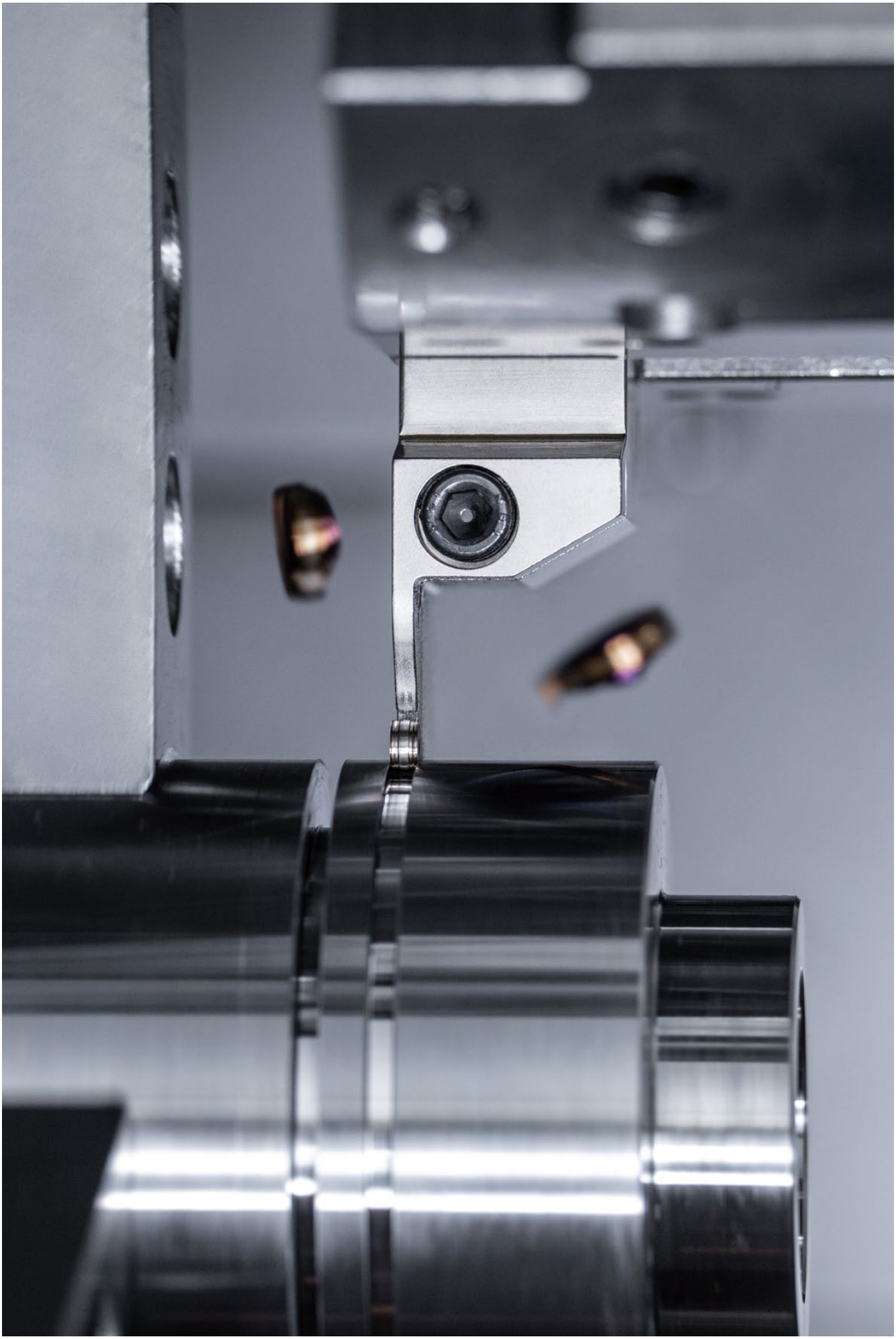
Applicable inserts

Usage classification								Applicable toolholder
◕ : Continuous to Light Interruption /1st Choice ◔ : Continuous to 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 (≤40HRC)						
		Hard Materials (≥40HRC)						

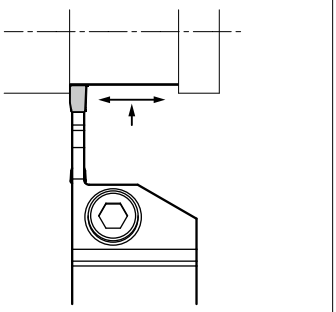
Insert			Description		No. of Edges	Dimensions(mm)				Tolerance(mm)		Carbide				
												PVD			-	
						CW	S	RE	INSL	CW min.	CW max.	PR2015	PR2025	PR2035	GW15	
Cut-off		 General purpose(Cut-off) With lead angle	GXM	20020R-020PM-6D	2	2.00	3.9	0.2	21.0	-0.03	+0.03	●	●	●	-	KGX R/L...2... , KGXI R/L...2 *1
				25020R-020PM-6D	2	2.50	3.9	0.2	21.0	-0.03	+0.03	●	●	●	-	KGX R/L...2.4... , KGX R/L...2... , KGXI R/L...2 *1
				30020R-025PM-6D	2	3.00	4.4	0.25	21.0	-0.03	+0.03	●	●	●	-	KGX R/L...3... , KGXM R/L...3 , KGXS R/L...3 , KGXI R/L...3 *1 , KGXF R/L...3 *2
Face grooving		 General purpose(Face)	GXM	30020N-030GMF	2	3.00	4.4	0.3	20.9	-0.03	+0.03	●	●	●	-	KGX R/L...3... , KGXM R/L...3 , KGXS R/L...3 , KGXI R/L...3 *1 , KGXF R/L...3
				40026N-040GMF	2	4.00	4.4	0.4	26.4	-0.03	+0.03	●	●	●	-	KGX R/L...4... , KGXM R/L...4 , KGXS R/L...4 , KGXI R/L...4 , KGXF R/L...4
		 External・Face grooving (for small-diameter facing holders)	GXG	30020 R/L-030GMFS	2	3.00	4.4	0.3	20.9	-0.03	+0.03	●	●	●	-	KGX R/L...3... , KGXM R/L...3 , KGXS R/L...3 , KGXI R/L...3 *1 , KGXF R/L...3
				40026 R/L-040GMFS	2	4.00	4.4	0.4	26.4	-0.03	+0.03	●	●	●	-	KGX R/L...4... , KGXM R/L...4 , KGXS R/L...4 , KGXI R/L...4 , KGXF R/L...4
		 Deep face grooving	GXM	30020N-030DMF	2	3.00	4.4	0.3	20.9	-0.03	+0.03	●	●	●	-	KGX R/L...3... , KGXM R/L...3 , KGXS R/L...3 , KGXI R/L...3 *1 , KGXF R/L...3
				40026N-040DMF	2	4.00	4.4	0.4	26.4	-0.03	+0.03	●	●	●	-	KGX R/L...4... , KGXM R/L...4 , KGXS R/L...4 , KGXI R/L...4 , KGXF R/L...4
		 High feed (Face grooving)	GXM	40026N-040GHF	2	4.00	4.4	0.4	26.4	-0.03	+0.03	●	●	●	-	KGX R/L...4... , KGXM R/L...4 , KGXS R/L...4 , KGXI R/L...4 , KGXF R/L...4
Internal grooving		 General purpose(Internal)	GXM	20013N-020GMI-S	2	2.00	3.9	0.2	13.5	-0.03	+0.03	●	●	●	-	KGXI R/L...2-S
				30015N-040GMI-S	2	3.00	4.4	0.4	15.5	-0.03	+0.03	●	●	●	-	KGXI R/L...3-S
			GXM	20020N-020GMI	2	2.00	3.9	0.2	20.9	-0.03	+0.03	●	●	●	-	KGX R/L...2... , KGXI R/L...2 *1
				30020N-040GMI	2	3.00	4.4	0.4	20.9	-0.03	+0.03	●	●	●	-	KGX R/L...3... , KGXM R/L...3 , KGXS R/L...3 , KGXI R/L...3 *1 , KGXF R/L...3 *2
				40026N-040GMI	2	4.00	4.4	0.4	26.4	-0.03	+0.03	●	●	●	-	KGX R/L...4... , KGXM R/L...4 , KGXS R/L...4 , KGXI R/L...4 , KGXF R/L...4 *3

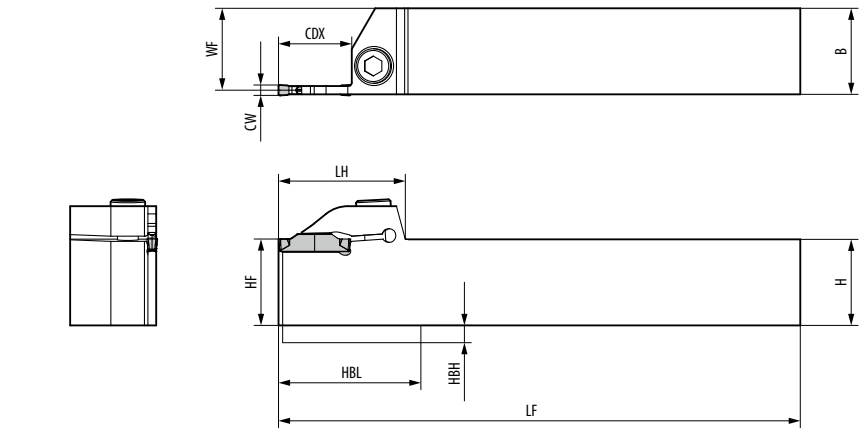
* Note 1) KGXI R / L ****_*_-S are not compatible.
2) KGXF****M25*** and KGXF****M30*** are not compatible.
3) KGXF****M25*** and KGXF****M35*** are not compatible.

● : Available



KGX (External grooving)





Right-hand (R) Shown

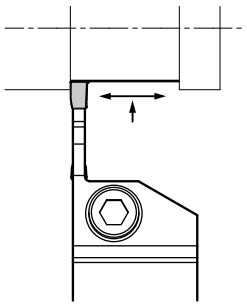
Toolholder dimensions

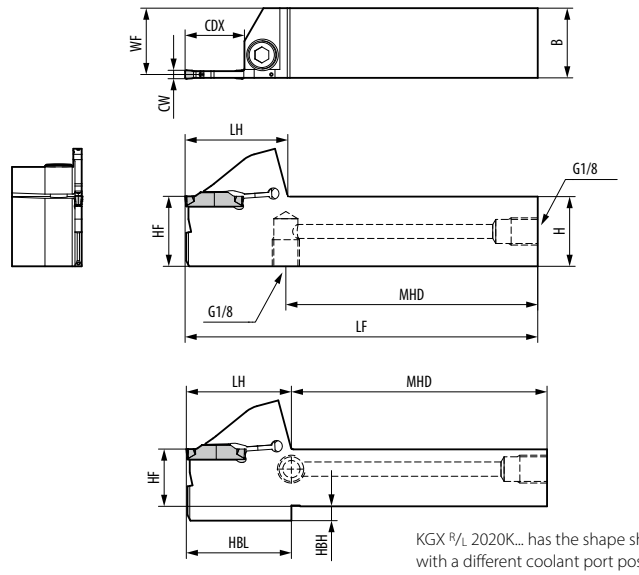
Description		Availability		Dimensions (mm)											Spare parts		Recommended tightening torque (N/m)	Applicable Inserts
															Clamp bolt	Wrench		
		R	L	CDX	H	B	LH	HF	HBH	HBL	LF	WF	CW min.	CW max.				
KGX R/L	1616H-2T06	●	●	6	16	16	29.2	16	4	29.2	100	15.2	1.95	2.75	HH5×16	LW-4	6.5	GXG19520... GX*2**20...
	1616H-2T10	●	●	10			31.7			31.7								
	1616H-2T17	●	●	17			33.7			33.7								
	2020K-2T06	●	●	6	20	20	29.2	20	-	-	125	19.2						
	2020K-2T10	●	●	10			31.7											
	2020K-2T17	●	●	17			33.7											
	2020K-2T20	●	●	20(18)			36.7											
	2525M-2T06	●	●	6	25	25	29.2	25			150	24.2			HH5×25			
	2525M-2T10	●	●	10			31.7											
	2525M-2T17	●	●	17			33.7											
	2525M-2T20	●	●	20(18)			36.7											
KGX R/L	2020K-2.4T17	●	●	17	20	20	33.7	20	-	-	125	19.0	2.40	2.75	HH5×16	LW-4	6.5	GXM24020... GX*25020... GXG27520...
KGX R/L	1616H-3T06	●	●	6	16	16	29.2	16	4	29.2	100	14.8	3.00	3.50	HH6×16	LW-5	9.0	GX*3**20...
	1616H-3T10	●	●	10			31.7			31.7								
	1616H-3T20	●	●	20(18)			36.7			36.7								
	2012K-3T20	●	●	20(18)	20	12	36.7	20	-	-	125	10.8						
	2020K-3T06	●	●	6		20	29.2					18.8						
	2020K-3T10	●	●	10			31.7											
	2020K-3T20	●	●	20(18)			36.7											
	2525M-3T06	●	●	6	25	25	29.2	25			150	23.8			HH6×25			
	2525M-3T10	●	●	10			31.7											
	2525M-3T20	●	●	20(18)			36.7											
	2020K-4T10	●	●	10	20	20	31.7	20	-	-	125	18.3	4.00	4.25	HH6×16	LW-5	9.0	GX*4**26...
	2020K-4T20	●	●	20			36.7											
	2525M-4T10	●	●	10	25	25	31.7	25	-	-	150	23.3			HH6×25			
	2525M-4T20	●	●	20			36.7											
	2525M-4T25	●	●	25(23.4)			41.7											

CDX indicates the maximum achievable grooving depth. Dimensions in parentheses correspond to the CDX value when using a 2-edge insert.

● : Available

KGX-JCT (External grooving with high-pressure coolant)





KGX R/L 2020K... has the shape shown above, with a different coolant port position.

Right-hand (R) Shown

Pressure resistance: up to ~15MPa

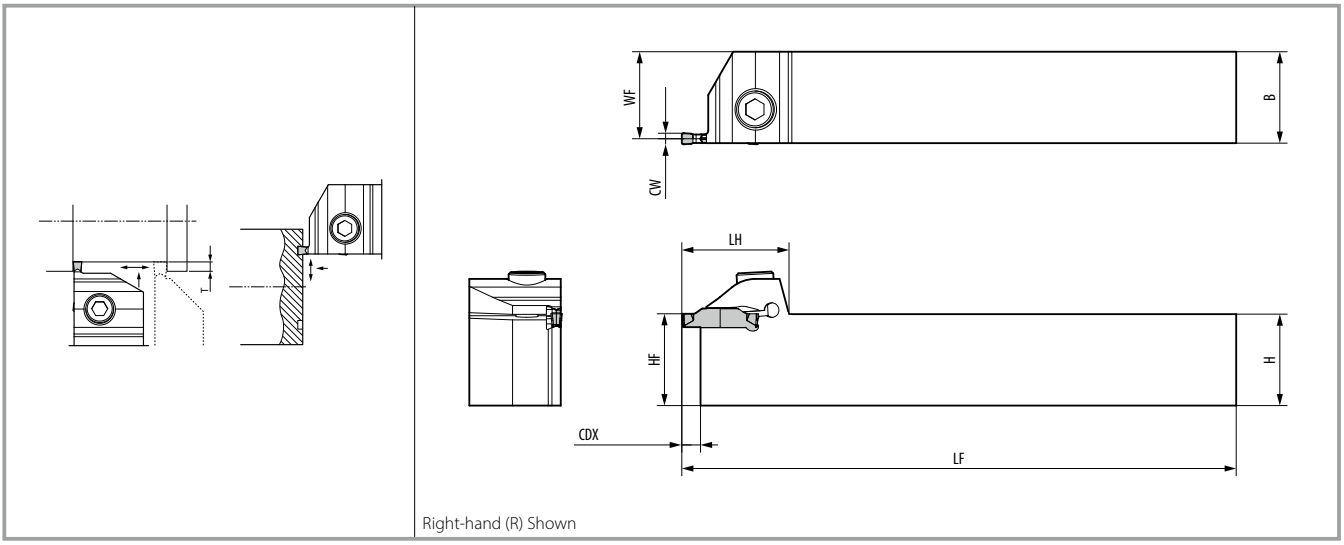
Toolholder dimensions

Description		Availability		Dimensions (mm)												Spare parts			Recommended tightening torque (N/m)	Applicable Inserts
																Clamp bolt	Plug	Wrench		
		R	L	CDX	H	B	LH	HF	HBH	HBL	LF	WF	MHD	CW min.	CW max.					
KGX R/L	2020K-2T06JCT	●	●	6	20	20	29.2	20	5	29.2	125	19.2	96.7	1.95	2.75	HH5×25	HSG1/8×8.0	LW-4	6.5	GXG19520... GX*2**20...
	2020K-2T10JCT	●	●	10			31.7			31.7			94.2							
	2020K-2T17JCT	●	●	17			33.7			33.7			92.2							
	2020K-2T20JCT	●	●	20(18)			36.7			36.7			89.2							
	2525K-2T06JCT	●	●	6	25	25	29.2	25	-	-		24.2	97.0							
	2525K-2T10JCT	●	●	10			31.7						94.5							
	2525K-2T17JCT	●	●	17			33.7						92.5							
	2525K-2T20JCT	●	●	20(18)			36.7						89.5							
KGX R/L	2020K-3T06JCT	●	●	6	20	20	29.2	20	5	29.2		18.8	95.8	3.00	3.50	HH6×25	HSG1/8×8.0	LW-5	9.0	GX*3**20...
	2020K-3T10JCT	●	●	10			31.7			31.7			93.3							
	2020K-3T20JCT	●	●	20(18)			36.7			36.7			88.3							
	2525K-3T06JCT	●	●	6	25	25	29.2	25	-	-		23.8	95.5							
	2525K-3T10JCT	●	●	10			31.7						94.0							
	2525K-3T20JCT	●	●	20(18)			36.7						89.0							
KGX R/L	2020K-4T10JCT	●	●	10	20	20	31.7	20	5	31.7		18.3	92.8	4.00	4.25	HH6×25	HSG1/8×8.0	LW-5	9.0	GX*4**26...
	2020K-4T20JCT	●	●	20			36.7			36.7			87.8							
	2525K-4T10JCT	●	●	10	25	25	31.7	25	-	-		23.3	93.0							
	2525K-4T20JCT	●	●	20			36.7						88.0							
	2525K-4T25JCT	●	●	25 (23.4)			41.7						84.0							

CDX indicates the maximum achievable grooving depth. Dimensions in parentheses correspond to the CDX value when using a 2-edge insert.

● : Available

KGXM (External and face grooving)



Right-hand (R) Shown

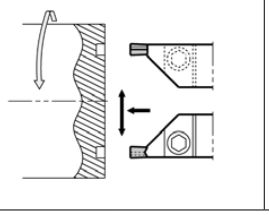
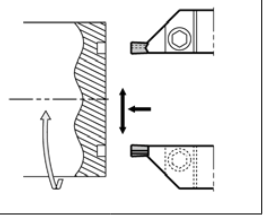
Toolholder dimensions

Description	Availability		Face Grooving External Diameter(mm) *4	Dimensions (mm)									Spare parts		Recommended tightening torque (N/m)	Applicable Inserts
													Clamp bolt	Wrench		
	R	L	DAXN (min.)	CDX Face Grooving	CDX external grooving	H	B	LH	HF	LF	WF	CW min.	CW max.				
KGXM R/L 2525M-3	●	●	ø38~ (ø22~) *1	4.6	6.0	25	25	29.2	25	150	23.8	3.0	3.5	HH6×25	LW-5	9.0	GXG30020 R/L-030GMFS GXM30020N-030GMF GXM30020N-030DMF GXG30020N-020GS GXG35020N-020GS GXG30020N-150R-CS *2
KGXM R/L 2525M-4	●	●	ø35~ (ø28~) *1	4.8	6.9			31.7				4.0	4.0				GXG40026 R/L-040GMFS GXM40026N-040GMF GXM40026N-040DMF GXM40026N-040GHF GXG40026N-040GS GXG40026N-200R-CS *3

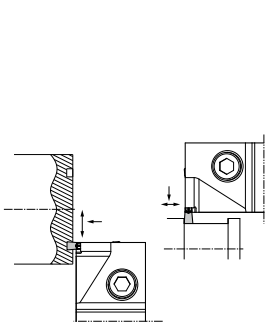
● : Available

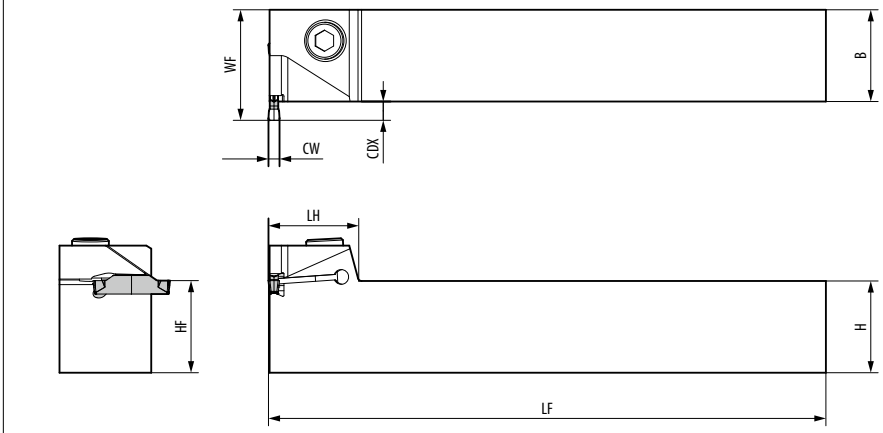
CDX: Maximum grooving depth. The maximum depth varies by application.
*1: Indicates the machinable diameter for face grooving operations. Dimensions in parentheses indicate the machinable diameter when using a "GMFS" insert.
*2: Indicates the applicable inserts for face grooving. For external grooving, the applicable inserts are GX*3**20...
*3: Indicates the applicable inserts for face grooving. For external grooving, the applicable inserts are GX*4**26...**
*4: For precautions on face grooving, see page 18.

For KGXM

Toolholder	Right-hand (R)	Toolholder	Right-hand (R)
Insert	Left-hand (L)	Insert	Right-hand (R)
			

KGXS (External and face grooving)





Right-hand (R) Shown

Toolholder dimensions

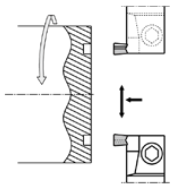
Description		Availability		Face Grooving External Diameter(mm) *4	Dimensions (mm)									Spare parts		Recommended tightening torque (N/m)	Applicable Inserts
														Clamp bolt	Wrench		
		R	L	DAXN (min.)	CDX Face Grooving	CDX external grooving	H	B	LH	HF	LF	WF	CW min.	CW max.				
KGXS R/L	2525M-3	●	●	ø38~ (ø22~) *1	4.6	4.8	25	25	24.5	25	150	30	3.0	3.5	HH6×25	LW-5	9.0	GXG30020 R/L-030GMFS GXM30020N-030GMF GXM30020N-030DMF GXG30020N-020GS GXG35020N-020GS GXG30020N-150R-CS *2
KGXS R/L	2525M-4	●	●	ø35~ (ø28~) *1	4.8	4.8						30.1	4.0	4.0				GXG40026 R/L-040GMFS GXM40026N-040GMF GXM40026N-040DMF GXM40026N-040GHF GXG40026N-040GS GXG40026N-200R-CS *3

● : Available

CDX: Maximum grooving depth. The maximum depth varies by application.
*1: Indicates the machinable diameter for face grooving operations. Dimensions in parentheses indicate the machinable diameter when using a "GMFS" insert.
*2: Indicates the applicable inserts for face grooving. For external grooving, the applicable inserts are GX*3**20...
*3: Indicates the applicable inserts for face grooving. For external grooving, the applicable inserts are GX*4**26...**
*4: For precautions on face grooving, see page 18.

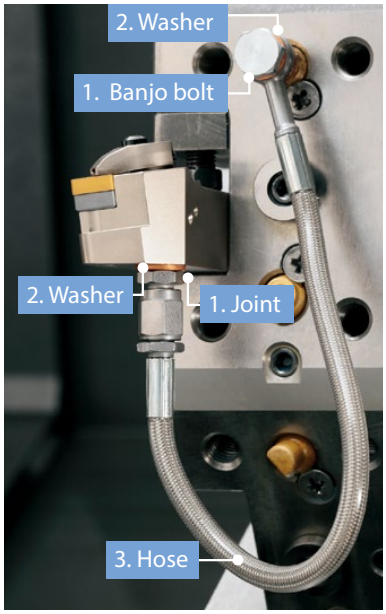
For KGXS

Toolholder	Right-hand (R)
Insert	Left-hand (L)



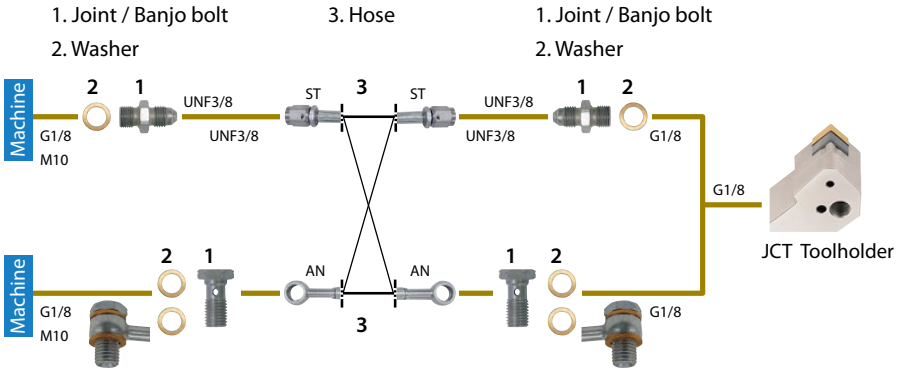
Internal coolant connection method

Easy connection with high-pressure hoses and fittings



- **Can be used for internal coolant at standard pressure, even without a high-pressure pump unit**
- **Banjo bolts (for angled hoses) also available to fit a wide variety of machines**

<Piping installation guide>

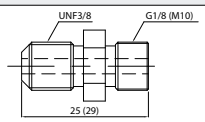
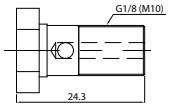


Piping parts

Optional piping parts available
Select 1, 2, and 3 to suit your machine specifications and piping method
1. Joint / Banjo bolt × 2 2. Washer × 2-4 3. Hose × 1

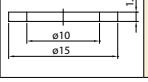
1. Joint / Banjo bolt

Pressure resistance: up to ~30MPa

Shape		Part number	Stock	Thread standard Holder/machine connection side
		J-G1/8-UNF3/8	●	G1/8
		J-M10X1.5-UNF3/8	●	M10X1.5
Banjo bolt (for angled hose) 		BB-G1/8	●	G1/8
		BB-M10X1.5	●	M10X1.5

2. Washer

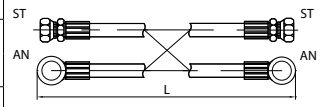
Pressure resistance: up to ~30MPa

Shape		Part number	Stock
		WS-10	●

* Use 2 washers for a banjo bolt

3. Hose

Pressure resistance: up to ~30MPa

Shape		Part number	Stock	Thread standard		Dimensions (mm) L
Straight / Straight 		HS-ST-ST-200	●	UNF3/8	UNF3/8	200
		HS-ST-ST-250	●			250
Straight / Angle 		HS-ST-AN-200	●	UNF3/8	_ (Banjo bolt)	200
		HS-ST-AN-250	●			250
Angle / Angle 		HS-AN-AN-200	●	_ (Banjo bolt)	_ (Banjo bolt)	200
		HS-AN-AN-250	●			250

Precautions

1. Use this product only with the machine door fully closed.
2. Always apply thread sealant to the male threads of piping parts and confirm they are connected correctly.
For any unused coolant ports, apply thread sealant to the supplied plugs before installation.
3. Secure the coolant hose firmly before use.
4. Slight leakage may occur with copper washers, but it does not affect performance.
5. Commercially available piping parts can also be connected if the thread standard matches. Check the pressure rating before use.
6. Replace the coolant system filter regularly.

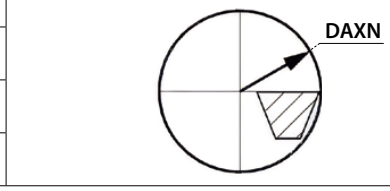
KGX Recommended cutting conditions ★1st recommendation ☆2nd recommendation

Workpiece	Recommended insert grade (Vc : m/min)				Notes
	MEGACOAT NANO EX			Carbide	
	PR2015	PR2025	PR2035	GW15	
Carbon steel	☆ 80 - 220	★ 80 - 220	☆ 80 - 200	-	Coolant
Alloy steel	☆ 80 - 200	★ 80 - 200	☆ 80 - 200	-	
Stainless steel	☆ 60 - 150	☆ 60 - 150	★ 60 - 150	-	
Cast iron	★ 80 - 200	-	-	-	
Aluminum alloy	-	-	-	★ 200 - 450	
Brass	-	-	-	★ 100 - 200	
Titanium alloy	-	-	-	★ 30 - 90	

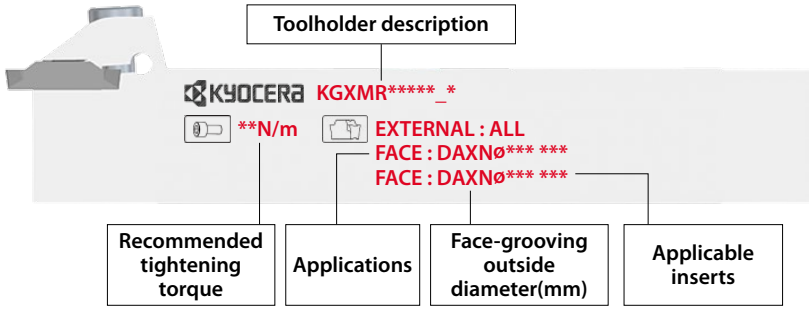
Precautions for face grooving with KGXM/KGXS

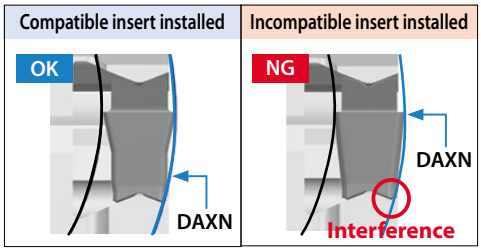
Always use the compatible insert within the face-grooving outside diameter range listed in the table.
Using an incompatible insert will cause interference.

Applicable inserts

Toolholder description	Face-grooving outside diameter (mm) (DAXN)		Applicable inserts
KGXM(S) R/L*****-3	ø22~		GXG3**20 R/L-***GMFS
	ø38~		GX*3**20*-***GMF/DMF/GS/CS
KGXM(S) R/L*****-4	ø28~		GXG4**26 R/L-***GMFS
	ø35~		GX*4**26*-***GMF/DMF/GHF/GS/CS

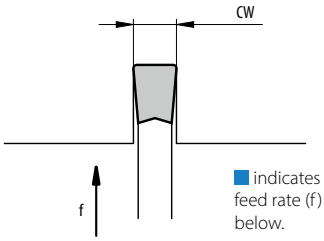
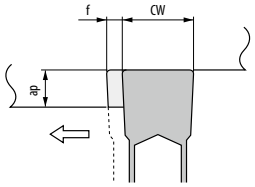
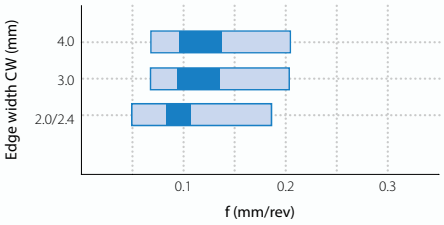
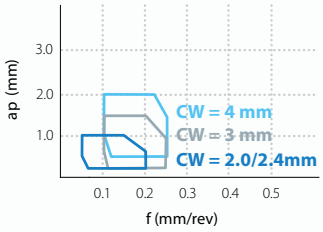
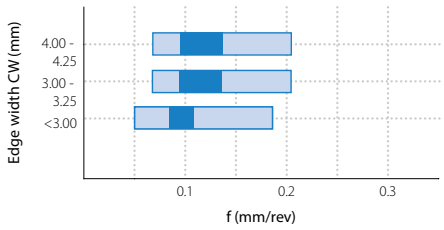
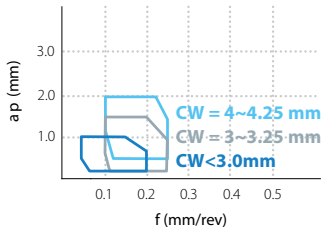
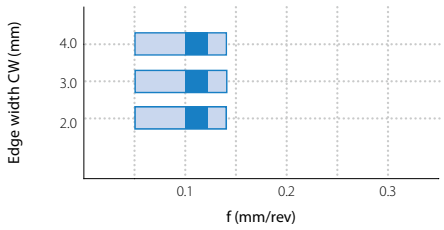
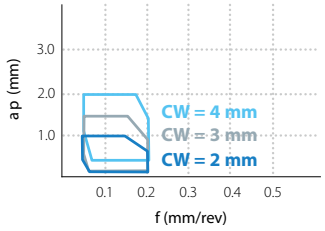
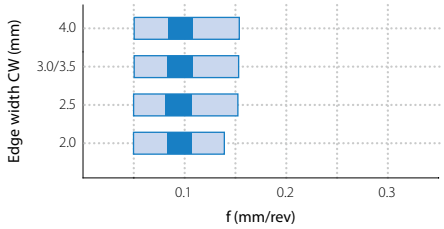
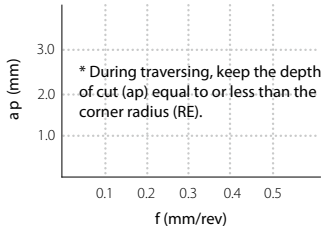
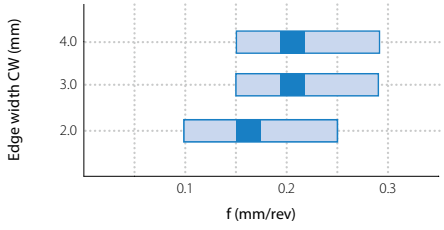
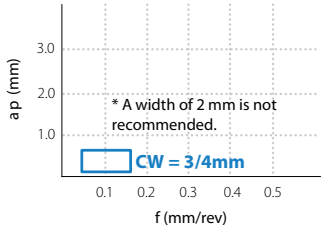
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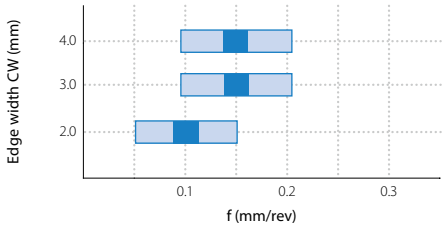
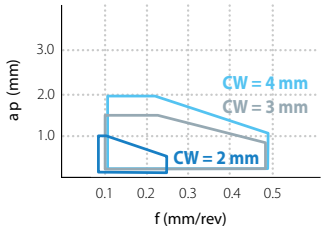
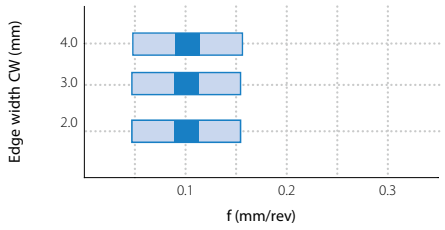
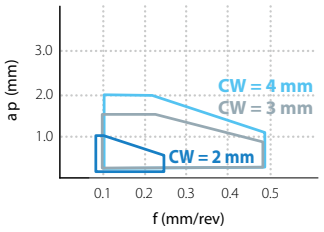
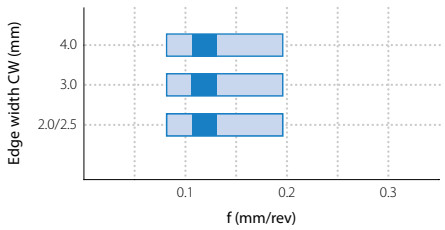
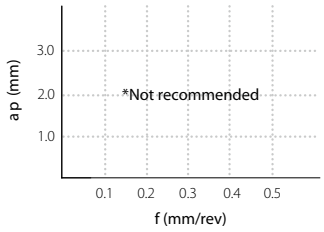
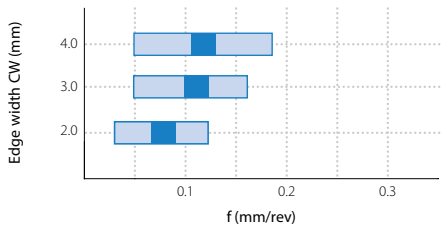
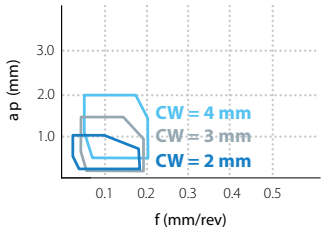
KGX Recommended cutting conditions (Feed rate and depth of cut)

(Workpiece material: SCr420)

Chipbreaker	Grooving	Traversing
	 ■ indicates the midpoint feed rate (f) in the graph below.	
GM General purpose		
GM(G-Class) General purpose		
XM Low carbon steel	 (S10C)	 (S10C)
GS Low cutting force		
PH High feed		

KGX Recommended cutting conditions (Feed rate and depth of cut)

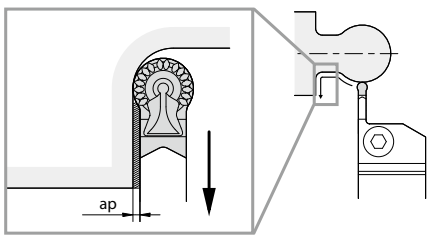
(Workpiece material: SCr420)

	Grooving	Traversing
CM Copying		
CS Copying (Low cutting force)		
PM Cut-off (General purpose)		
GMI Internal grooving (General purpose)		

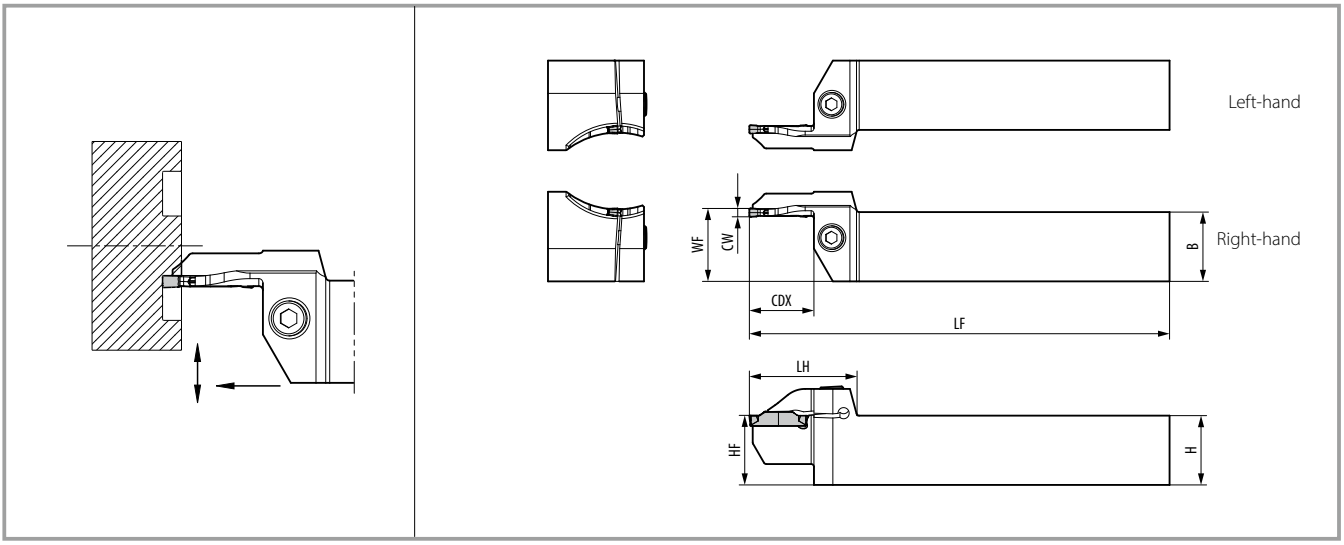
CM/CS Chipbreakers: Depth of cut (ap) for pull-up machining

Maximum recommended depth of cut (ap) for pull-up machining

Description		Maximum depth of cut (ap : mm)		
		Toolholder description		
		KGX…-2T…	KGX…-3T…	KGX…-4T…
GXM	20013N-100R-CM-S	0.05	–	–
	30015N-150R-CM-S	–	0.18	–
	20020N-100R-CM	0.05	–	–
	30020N-150R-CM	–	0.18	–
	40026N-200R-CM	–	–	0.19
GXG	20020N-100R-CS	0.05	–	–
	30020N-150R-CS	–	0.18	–
	40026N-200R-CS	–	–	0.19



KGXF (Face grooving)



Toolholder dimensions

Description		Availability		Face-grooving outside diameter (mm) *1		Dimensions (mm)									Spare parts		Recommended tightening torque (N/m)	Applicable inserts
															Clamp bolt	Wrench		
		R	L	DAXN (min.)	DAXX (max.)	CDX	H	B	LH	HF	LF	WF	CW min.	CW max.				
KGXF R/L	2525M25-3T13	●	●	25	30	13	25	25	31.7	25	150	26.2	3.00	3.50	HH5×25	LW-4	5.0	GXM30020N-030GMF GXM30020N-030DMF GXG30020N-020GS GXG35020N-020GS GXG30020N-150R-CS GXG30020 R/L-030GMFS
	2525M30-3T13	●	●	30	35													
	2525M35-3T13	●	●	35	40													GXM30020N-030GMF GXM30020N-030DMF GXG30020N-020GS GXG35020N-020GS GXG30020N-150R-CS GXM30020N-025PM GXM30020N-150R-CM GXG30020 R/L-030GMFS
	2525M40-3T13	●	●	40	50													
	2525M50-3T22	●	●	50	65	22 (18)			38.7									
	2525M65-3T22	●	●	65	85													
	2525M85-3T25	●	●	85	110	25 (18)			41.7									
	2525M110-3T25	●	●	110	145													
KGXF R/L	2525M25-4T12	●	●	25	35	12	25	25	30.7	25	150	26.2	4.00	4.00	HH5×25	LW-4	5.0	GXM40026N-040GMF GXM40026N-040DMF GXM40026N-040GHF GXG40026N-040GS GXG40026N-200R-CS GXG40026 R/L-040GMFS
	2525M35-4T20	●	●	35	40	20			36.7									
	2525M40-4T20	●	●	40	50													GXM40026N-040GMF GXM40026N-040DMF GXM40026N-040GHF GXG40026N-040GS GXG40026N-200R-CS GXM40026N-030PM GXM40026N-200R-CM GXG40026 R/L-040GMFS
	2525M50-4T25	●	●	50	70	25 (23.4)			41.7									
	2525M70-4T25	●	●	70	100													
	2525M100-4T25	●	●	100	150													
	2525M150-4T25	●	●	150	220													
	2525M220-4T25	●	●	220	∞													

CDX indicates the maximum achievable grooving depth. Dimensions in parentheses correspond to the CDX value when using a 2-edge insert.

● : Available

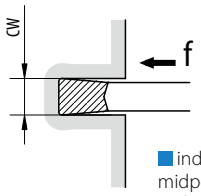
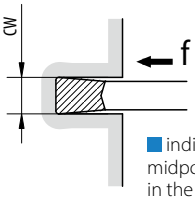
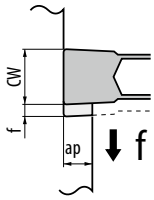
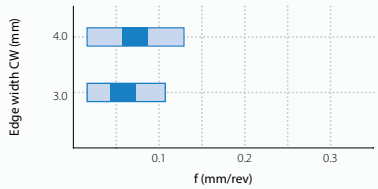
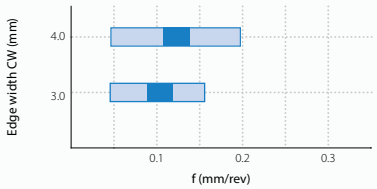
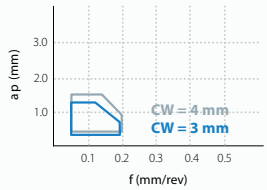
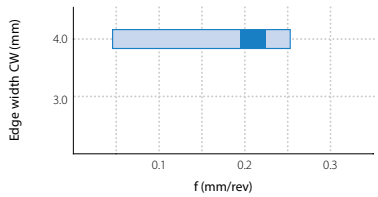
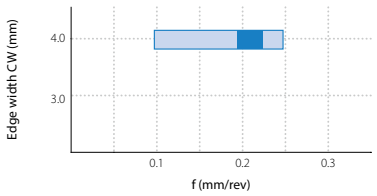
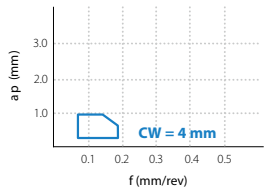
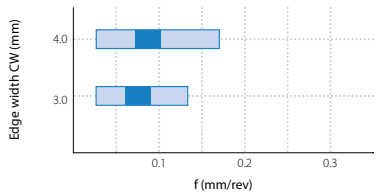
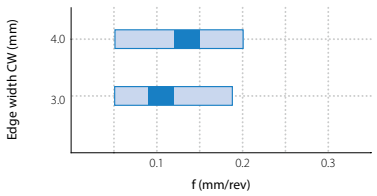
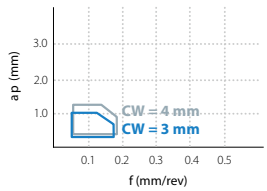
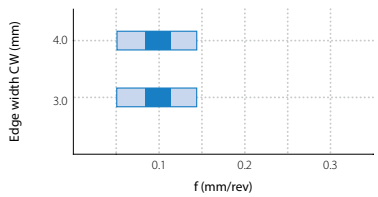
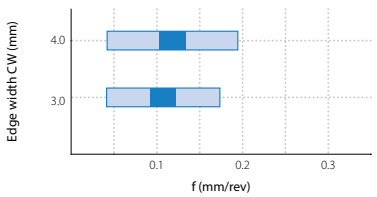
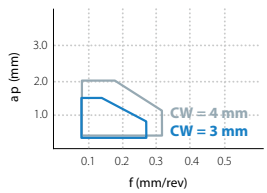
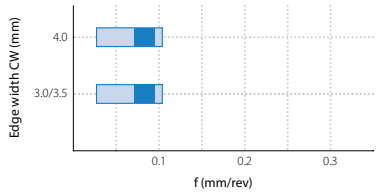
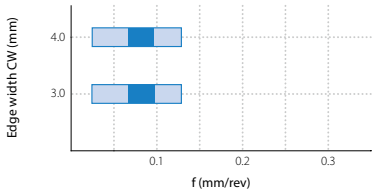
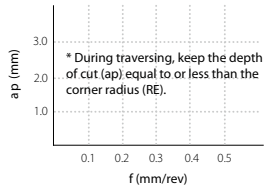
*1 : See page 24 for precautions regarding face-grooving outside diameter.

KGXF Recommended cutting conditions ★1st recommendation ☆2nd recommendation

Workpiece	Recommended insert grade (Vc : m/min)				Notes
	MEGACOAT NANO EX			Carbide	
	PR2015	PR2025	PR2035	GW15	
Carbon Steel	☆ 80 - 220	★ 80 - 220	☆ 80 - 200	-	Coolant
Alloy Steel	☆ 80 - 200	★ 80 - 200	☆ 80 - 200	-	
Stainless Steel	☆ 60 - 150	☆ 60 - 150	★ 60 - 150	-	
Cast Iron	★ 80 - 200	-	-	-	
Aluminum Alloy	-	-	-	★ 200 - 450	
Brass	-	-	-	★ 100 - 200	
Titanium alloy	-	-	-	★ 30 - 90	

KGXF Recommended cutting conditions (Feed rate and depth of cut)

(Workpiece material:SCr420)

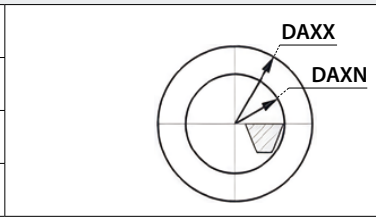
Chipbreaker	Grooving	Shoulder machining (Side cutting)	Traversing
	 ■ indicates the midpoint feed rate (f) in the graph below.	 ■ indicates the midpoint feed rate (f) in the graph below.	
GMF(GMFS) General face grooving (Small diameter)			
GHF High feed			
DMF Deep groove			
CM · CS Copying			
GS Low cutting force			

For shoulder machining (side cutting), use a higher feed rate (f) for small widths of cut and a lower feed rate (f) for large widths of cut.

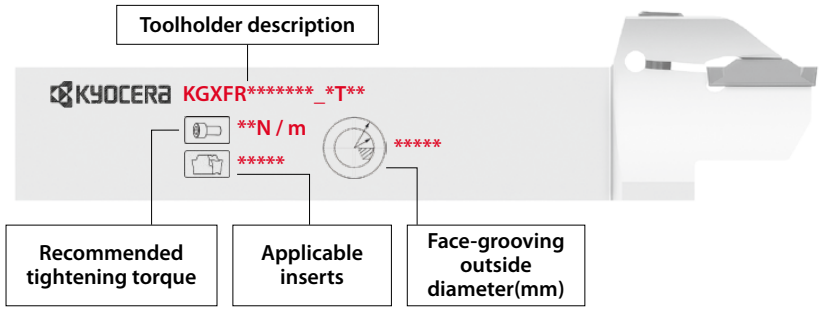
Precautions for face grooving with KGXF

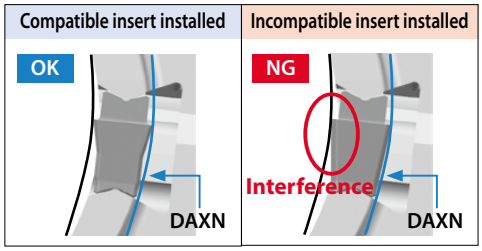
Always use the compatible insert within the face-grooving outside diameter range listed in the table.
Using an incompatible insert will cause interference.

Applicable inserts

Toolholder description	Face-grooving outside diameter (mm) (DAXN-DAXX)		Applicable inserts
KGXF R/L*****25-3T13	ø25~ø30		GX*3**20*-***GMF/DMF/GS/CS
KGXF R/L*****30-3T13	ø30~ø35		
KGXF R/L*****25-4T12	ø25~ø35		GX*4**26*-***GMF/DMF/GHF/GS/CS
KGXF R/L*****35-4T20	ø35~ø40		

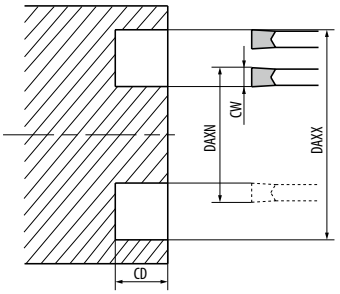
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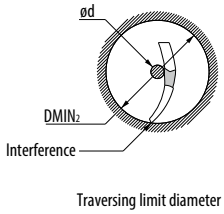
Face-grooving outside diameter(DAXN/DAXX)

The face-grooving outside diameter (DAXN–DAXX) is the range in which the first groove can be cut into solid material, as shown in Fig. 1.
The groove can then be widened inward to the center (except for the toolholders in the table below) and outward without limit (∞).



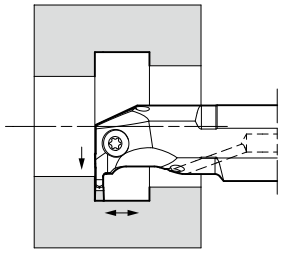
Traversing limit dimensions for small-diameter machining

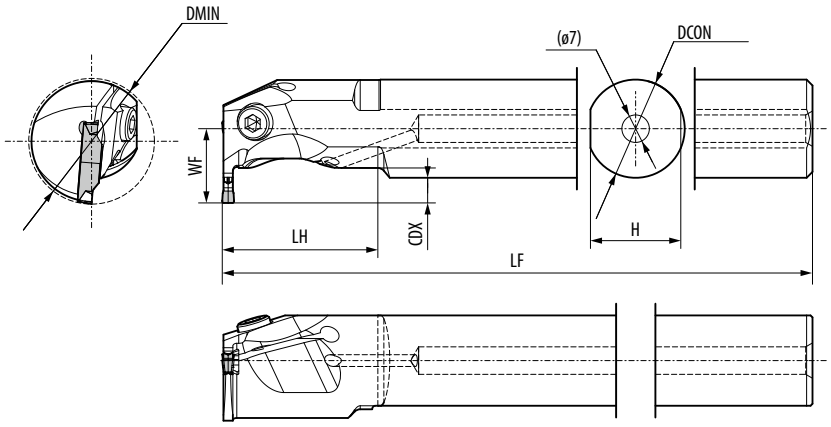
For small diameters, machining to the centerline is limited due to interference between the holder and the workpiece.



Description \ DMIN2	25	26	≥27
	ød(mm)		
KGXF R/L2525M25-3T13	5.1	2.2	0 (No center pip remaining)
KGXF R/L2525M25-4T12	4.7	1.8	

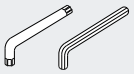
KGXI (Internal grooving)





Right-hand (R) Shown

Toolholder dimensions

Description		Availability				Dimensions (mm)							Spare parts				Recommended tightening torque (N/m)	Applicable inserts
													Clamp bolt		Wrench			
		R	L	DMIN	DCON	CDX	H	LH	LF	WF	CW min.	CW max.						
KGXI R/L	1816B-2-S	●	●	18	16	4.5	15	25	150	9.5	2.00	2.00	-	SB-50130TR	-	LTW-20	4.5	GXM20013N-020GMI-S GXG20013N-020GS-S GXM20013N-100R-CM-S
	2520B-2	●	●	25	20	6	18	30	180	14.6	1.95	2.75						GXG19520... GX*2**20...
	3225B-2	●	●	32	25	7	23	40	200	18.9								
KGXI R/L	2016B-3-S	●	●	20	16	5.5	15	25	150	11.5	3.00	3.00	-	SB-50130TR	-	LTW-20	4.5	GXM30015N-040GMI-S GXG30015N-020GS-S GXM30015N-150R-CM-S
	2520B-3	●	●	25	20	6	18	30	180	14.6	3.00	3.50						GX*3**20...
	3225B-3	●	●	32	25	8	23	40	200	18.9			HH5×12	-	LW-4	-	6.5	
	3225B-4	●	●	32	25	8.5	23	40	200	18.9	4.00	4.25	HH5×12	-	LW-4	-	6.5	GX*4**26...
	4032B-4	●	●	40	32	11	29	50	220	23.4								

● : Available

KGXI Recommended cutting conditions ★1st recommendation ☆2nd recommendation

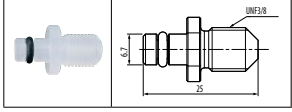
Workpiece	Recommended insert grade (Vc : m/min)				Notes
	MEGACOAT NANO EX			Carbide	
	PR2015	PR2025	PR2035	GW15	
Carbon steel	☆ 80 - 220	★ 80 - 220	☆ 80 - 200	-	Coolant
Alloy steel	☆ 80 - 200	★ 80 - 200	☆ 80 - 200	-	
Stainless steel	☆ 60 - 150	☆ 60 - 150	★ 60 - 150	-	
Cast iron	★ 80 - 200	-	–	-	
Aluminum alloy	-	-	–	★ 200 - 450	
Brass	-	-	–	★ 100 - 200	
Titanium alloy	-	-	–	★ 30 - 90	

Internal coolant supply : Piping connection

When using our piping components, use the resin adapter shown below to convert the thread to UNF 3/8.
Refer to page 17 for compatible piping components.

Resin adapter (with O-ring)

Pressure resistance: up to 1 Mpa

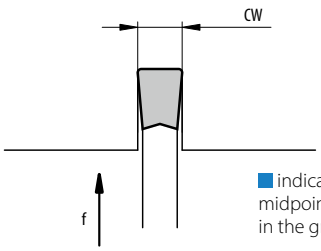
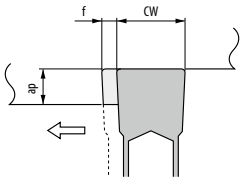
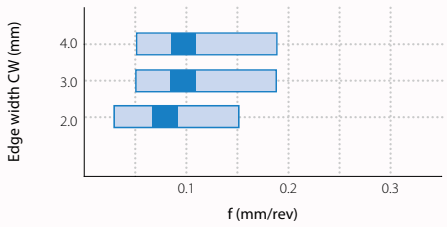
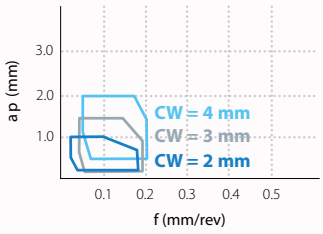
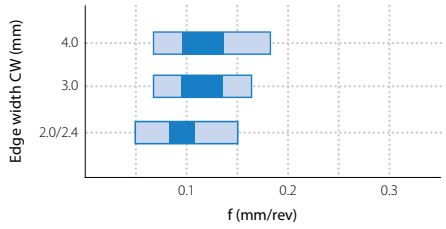
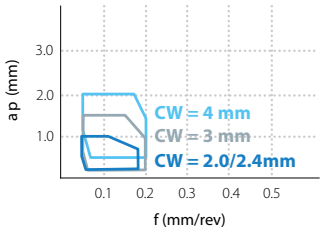
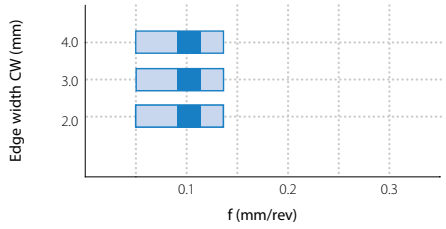
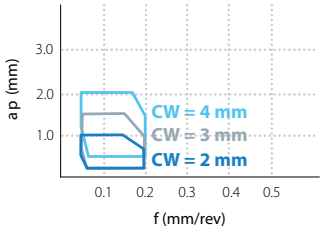
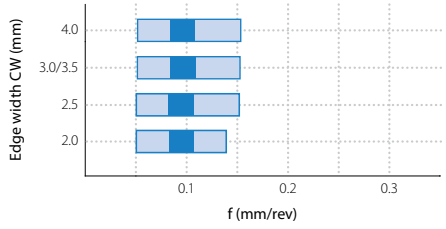
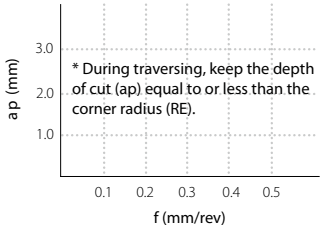
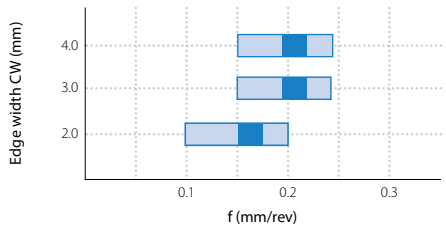
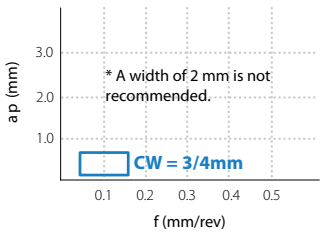
Shape	Part number	Stock	Thread standard
	PR07-ST-UNF3/8	●	UNF3/8

The supplied O-ring (GR-004-2) is also available separately.

● : Available

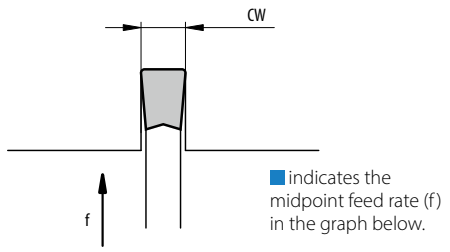
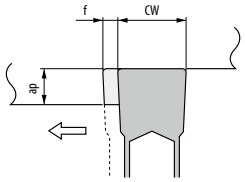
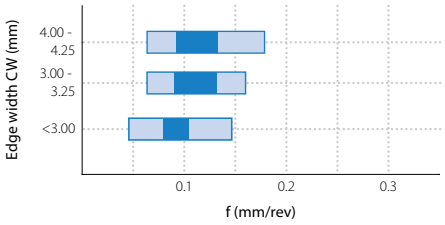
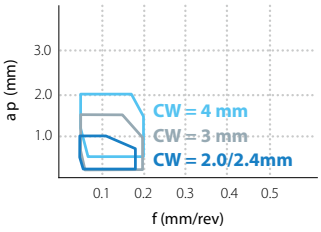
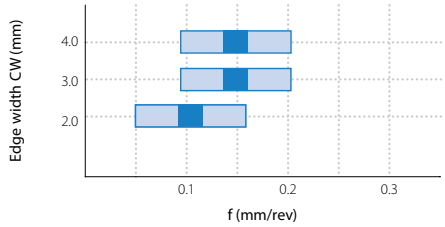
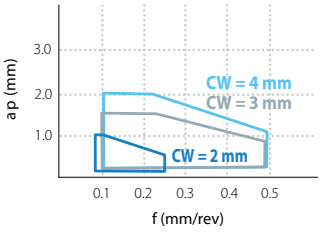
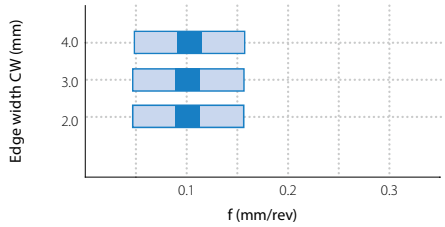
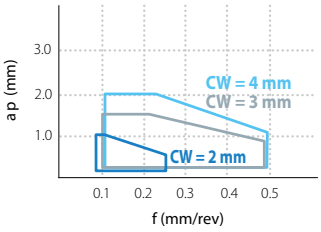
KGXI Recommended cutting conditions (Feed rate and depth of cut)

(Workpiece material:SCr420)

Chipbreaker	Grooving	Traversing
		
GMI Internal general purpose		
GM General purpose		
XM Low carbon steel	 (S10C)	 (S10C)
GS Low cutting force		
PH High feed		

KGXI Recommended cutting conditions (Feed rate and depth of cut)

(Workpiece material:SCr420)

Chipbreaker	Grooving	Traversing
		
GM (G-Class) General purpose		
CM Copying		
CS Copying (Low cutting force)		

Applicable insert chart

Please note that KGX series inserts and holders are not interchangeable with those of the KGZ, KGD, or KGM series.

KGX / KGX-JCT

◎: 1st choice ○: Applicable (recommended for specific applications)
△: Mountable, with machining limitations (groove bottom will not be flat) −: Not compatible \: Not available

Shank size (mm)	Edge width(mm)				Applicable chipbreakers															
	2.0	2.4 2.5*3	3.0	4.0	GM	GM (G-Class)*1	XM	GS		GMI		CM		CS	PM*2	PH	GMF	DMF	GHF	GMFS
								-S	No suffix	-S	No suffix	-S	No suffix							
□16	√				◎	○	○	-	○	-	○	-	○	○	◎	○				
			√		◎	○	○	-	○	-	○	-	○	○	◎	○	△	△		△
□20	√				◎	○	○	-	○	-	○	-	○	○	◎	○				
		√			◎	○		-	○						◎					
			√		◎	○	○	-	○	-	○	-	○	○	◎	○	△	△		△
				√	◎	○	○	-	○	-	○	-	○	○	◎	○	△	△	△	△
□25	√				◎	○	○	-	○	-	○	-	○	○	◎	○				
			√		◎	○	○	-	○	-	○	-	○	○	◎	○	△	△		△
				√	◎	○	○	-	○	-	○	-	○	○	◎	○	△	△	△	△

*1 GM cutting width: 1.95–2.25 mm → 2 mm-width holder; 2.50–2.75 mm → 2.4 mm-width holder; 3.00–3.25 mm → 3 mm-width holder; 4.00 to 4.25 mm → 4 mm-width holder
*2 1st choice for cut-off only. Groove bottom will not be flat when grooving. *3 KGX-JCT: Not available

KGXM / KGXS (External grooving)

◎: 1st choice ○: Applicable (Application-specific recommendation)
△: Mountable, with machining limitations (groove bottom will not be flat) −: Not compatible \: Not available

Shank size (mm)	Edge width(mm)		Applicable chipbreakers														
	3	4	GM	GM (G-Class)*1	XM	GS		GMI		CM		CS	PM	PH	GMF	DMF	GHF	GMFS
						-S	No suffix	-S	No suffix	-S	No suffix							
□25	√		◎	○	○	-	○	-	○	-	○	○	△	○	△	△		△
		√	◎	○	○	-	○	-	○	-	○	○	△	○	△	△	△	△

*1 GM (G-Class) cutting width: 3.00–3.25 mm → 3 mm-width holder

KGXM / KGXS (Face grooving)

◎: 1st choice ○: Applicable (Application-specific recommendation)
×: Not recommended −: Not compatible \: Not available

Shank size (mm)	Edge width(mm)		Minimum machining diameter (mm)	Applicable chipbreakers															
	3	4		GM	GM (G-Class)	XM	GS		GMI		CM		CS	PM*2	PH	GMF	DMF	GHF	GMFS
							-S	No suffix	-S	No suffix	-S	No suffix							
□25	√		ø22~	-	-	-	-	-	-	-	-	-	-	-	-	-	-		◎
	√		ø38~	-	-	-	-	○	-	-	-	-	○	-	-	◎	○		◎
	√		ø65~	×	×	×	-	○	-	×	-	○	○	○	×	◎	○		◎
□25		√	ø22~	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	◎
		√	ø38~	-	-	-	-	○	-	-	-	-	○	-	-	◎	○	○	◎
		√	ø70~	×	×	×	-	○	-	×	-	○	○	○	×	◎	○	○	◎

KGXF

◎: 1st choice ○: Applicable (Application-specific recommendation)
×: Not recommended −: Not compatible \: Not available

Shank size (mm)	Edge width(mm)		Machining diameter (mm)	Applicable chipbreakers															
	3	4		GM	GM (G-Class)	XM	GS		GMI		CM		CS	PM	PH	GMF	DMF	GHF	GMFS
							-S	No suffix	-S	No suffix	-S	No suffix							
□25	√		25~30	-	-	-	-	○	-	-	-	-	○	-	-	◎	○		○
	√		30~35	-	-	-	-	○	-	-	-	-	○	-	-	◎	○		○
	√		35~40	×	×	×	-	○	-	×	-	○	○	○	×	◎	○		○
	√		40~50	×	×	×	-	○	-	×	-	○	○	○	×	◎	○		○
	√		50~65	×	×	×	-	○	-	×	-	○	○	○	×	◎	○		○
	√		65~85	×	×	×	-	○	-	×	-	○	○	○	×	◎	○		○
	√		85~110	×	×	×	-	○	-	×	-	○	○	○	×	◎	○		○
	√		110~145	×	×	×	-	○	-	×	-	○	○	○	×	◎	○		○
		√	25~35	-	-	-	-	○	-	-	-	-	○	-	-	◎	○	○	○
		√	35~40	-	-	-	-	○	-	-	-	-	○	-	-	◎	○	○	○
		√	40~50	×	×	×	-	○	-	×	-	○	○	○	×	◎	○	○	○
		√	50~70	×	×	×	-	○	-	×	-	○	○	○	×	◎	○	○	○
		√	70~100	×	×	×	-	○	-	×	-	○	○	○	×	◎	○	○	○
		√	100~150	×	×	×	-	○	-	×	-	○	○	○	×	◎	○	○	○
		√	150~220	×	×	×	-	○	-	×	-	○	○	○	×	◎	○	○	○
		√	220~∞	×	×	×	-	○	-	×	-	○	○	○	×	◎	○	○	○

Applicable insert chart

Please note that KGX series inserts and holders are not interchangeable with those of the KGZ, KGD, or KGM series.

◎: 1st choice ○: Applicable (recommended for specific applications)
△: Mountable, with machining limitations (groove bottom will not be flat) －: Not compatible ＼: Not available

KGXI

Shank size (mm)	Edge width(mm)			Minimum machining diameter (mm)	Applicable chipbreakers														
	2	3	4		GM	GM (G-Class)*1	XM	GS		GMI		CM		CS	PM	PH	GMF	DMF	GHF	GMFS
								-S	No suffix	-S	No suffix	-S	No suffix							
ø16	√			18	-	-	-	○	-	◎	-	○	-	-	-	-	＼	＼	＼	＼
		√		20	-	-	-	○	-	◎	-	○	-	-	-	-	-	-	＼	-
ø20	√			25	○	○	○	-	○	-	◎	-	○	○	△	○	＼	＼	＼	＼
		√		25	○	○	○	-	○	-	◎	-	○	○	△	○	△	△	＼	△
ø25	√			32	○	○	○	-	○	-	◎	-	○	○	△	○	＼	＼	＼	＼
		√		32	○	○	○	-	○	-	◎	-	○	○	△	○	△	△	＼	△
			√	32	○	○	○	-	○	-	◎	-	○	○	△	○	△	△	△	△
ø32			√	40	○	○	○	-	○	-	◎	-	○	○	△	○	△	△	△	△

*1 GM (G-Class) cutting width: 1.95–2.75 mm → 2 mm-width holder; 3.00–3.25 mm → 3 mm-width holder; 4.00–4.25 mm → 4 mm-width holder

Reference: Standard groove dimensions

Description	Demensions(mm)				C-type retaining ring standard		E-type retaining ring standard	
					JIS B 2804:2010		JIS B 2804:2010	
	CW	CW min.	CW max.	RE	Nominal dimension(mm)	Tolerance(mm)	Nominal dimension(mm)	Tolerance(mm)
GXG19520N-010GM	1.95	-0.02	+0.02	0.1	1.90	+0.14 0	(2.20)	+0.14 0
GXG20020N-020GM/GS	2.00	-0.02	+0.02	0.2	1.90		(2.20)	
GXG22520N-015GM	2.25	-0.02	+0.02	0.15	2.20		2.20	
GXG23920N-020GM	2.39	-0.02	+0.02	0.2	(2.70)		-	-
GXG25020N-020GM/GS	2.50	-0.02	+0.02	0.2	(2.70)		-	-
GXG27520N-020GM	2.75	-0.02	+0.02	0.2	2.70		-	-
GXG30020N-020GM/GS	3.00	-0.02	+0.02	0.2	(3.20)	+0.18 0	-	-
GXG30020N-040GM	3.00	-0.02	+0.02	0.4	(3.20)		-	-
GXG31820N-020GM	3.18	-0.02	+0.02	0.2	(3.20)		-	-
GXG32520N-020GM	3.25	-0.02	+0.02	0.2	3.20		-	-
GXG40026N-020GM	4.00	-0.02	+0.02	0.2	(4.20)		-	-
GXG40026N-040GM/GS	4.00	-0.02	+0.02	0.4	(4.20)		-	-
GXG42526N-020GM	4.25	-0.02	+0.02	0.2	4.20		-	-

* Values shown in parentheses ( ) can be machined in multiple passes.

Description	Demensions(mm)				O-ring groove standard					
					ISO 3601-2:2008				JIS B 2401-2:2012	
	CW	CW min.	CW max.	RE	Nominal dimension(mm)	Tolerance(mm)	Nominal dimension(mm)	Tolerance(mm)	Nominal dimension(mm)	Tolerance(mm)
GXG19520N-010GM	1.95	-0.02	+0.02	0.1	(2.8)	+0.25 0	(2.9)	+0.2 0	(2.5)	+0.25 0
GXG20020N-020GM/GS	2.00	-0.02	+0.02	0.2	(2.8)		(2.9)		(2.5)	
GXG22520N-015GM	2.25	-0.02	+0.02	0.15	(2.8)		(2.9)		(2.5)	
GXG23920N-020GM	2.39	-0.02	+0.02	0.2	(2.8)		(2.9)		(2.5)	
GXG25020N-020GM/GS	2.50	-0.02	+0.02	0.2	(2.8)		(2.9)		(2.5)	
GXG27520N-020GM	2.75	-0.02	+0.02	0.2	(2.8)		(2.9)		(3.2)	
GXG30020N-020GM/GS	3.00	-0.02	+0.02	0.2	2.8		2.9		(3.2)	
GXG30020N-040GM	3.00	-0.02	+0.02	0.4	2.8		2.9		(3.2)	
GXG31820N-020GM	3.18	-0.02	+0.02	0.2	(3.8)		(3.2)(3.6)		(3.2)	
GXG32520N-020GM	3.25	-0.02	+0.02	0.2	(3.8)		3.2(3.6)		3.2(3.9)	
GXG40026N-020GM	4.00	-0.02	+0.02	0.2	3.8		(4.0)		(4.1)	
GXG40026N-040GM/GS	4.00	-0.02	+0.02	0.4	3.8		(4.0)		(4.1)(4.4)	
GXG42526N-020GM	4.25	-0.02	+0.02	0.2	4.2(5.0)		(4.8)(5.3)		4.1(4.4)	

* Values shown in parentheses ( ) can be machined in multiple passes.

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