

Cut-Off Solutions for Small Parts Machining

KGZ



Strong, Precise, and Reliable Cut-Off Performance

Provides stable machining and is easy to use with unique clamp design

New coating PR20 series provides longer tool life

Extensive product lineup for a wide variety of applications



KGZ

Provides stable machining and is easy to use with unique clamp design
New coating PR20 series provides longer tool life and supports a wide range of applications

Challenge

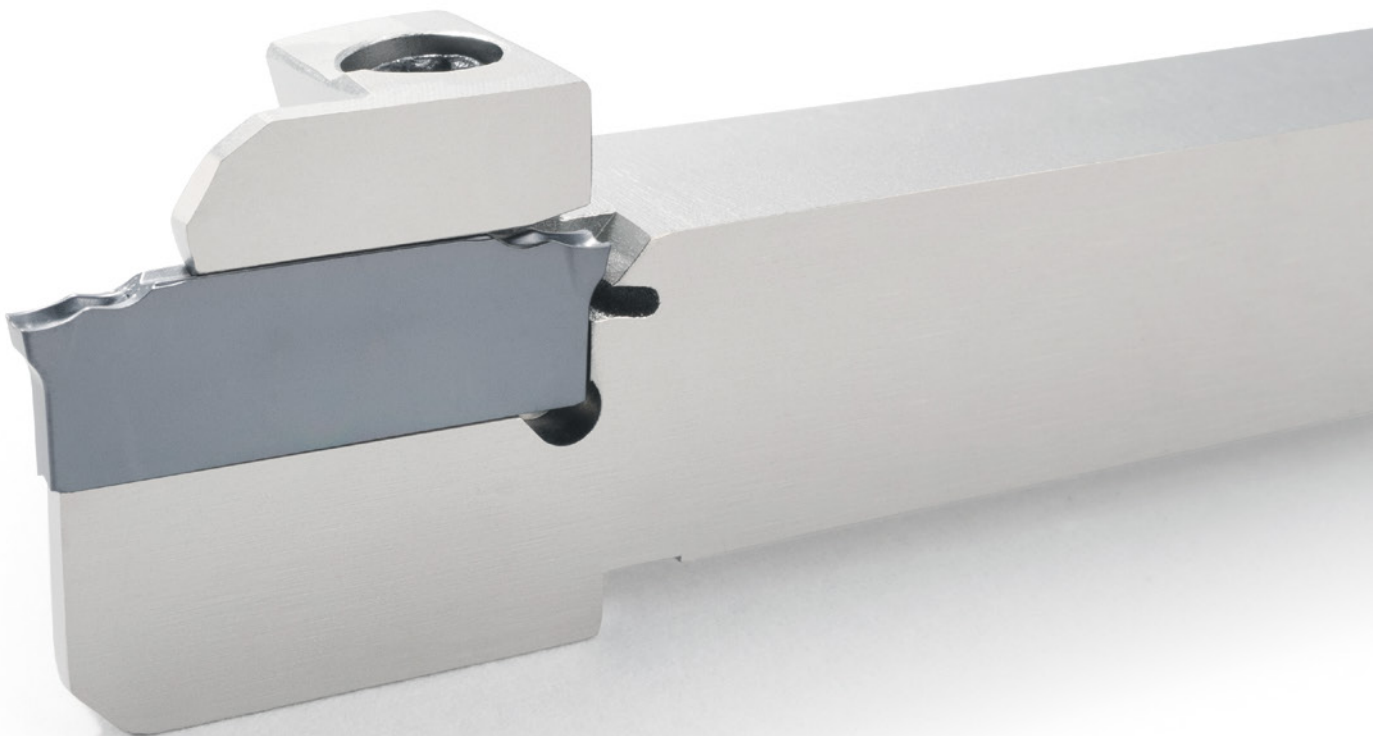
Cut-off is an important, but difficult process in small parts machining applications

Machining performance

High machining load and tool rigidity issues
Chatter / Insert and holder damage / Difficulty improving machining efficiency etc.

Usability

Inserts can be difficult to replace inside the machine resulting in time-consuming work and the possibility of insecure clamping



Newly developed clamp creates a strong and rigid hold

Strength

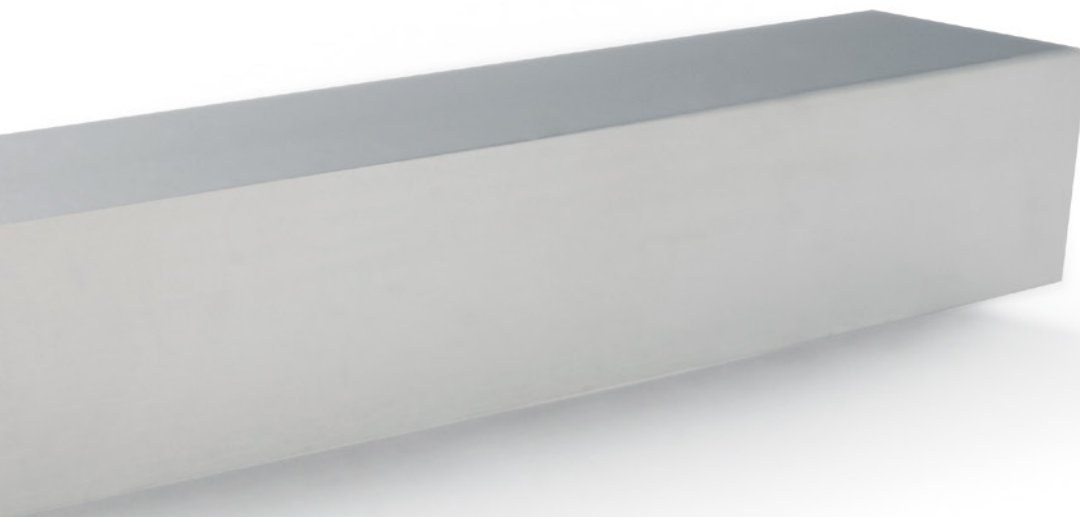
Stable machining with sturdy clamp design


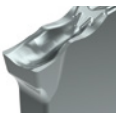

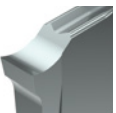
- Greater chatter resistance provides excellent surface finish and stable tool life
- Toolholder durability reduces down-time and cuts cost
- Supports high efficiency machining and reduces cycle time

Dependability

Easy insert management

- Fast and secure insert installation
- Inserts are more resistant to wear and reduce the frequency of tool changes



Insert CW : 1.3 ~ 3 mm	Low feed PF 	Medium feed PM 	High feed PH 	Low cutting force PG 	PVD coating P M K PR2015 / PR2025 / PR2035 NEW
					DLC coating N Non-coated carbide K N PDL025 GW15
Toolholder 1010 ~ 2525	Internal coolant JCTM Series for direct coolant		External coolant Standard type / for Sub-spindle tooling		

1 Achieved stable machining with newly developed clamp structure

Toolholder Sturdy clamps

Three unique features

Strength

1. Gap section
Tapered slit

2. Top clamp
Pulls insert down and back

3. Stopper
Obtuse angle stopper

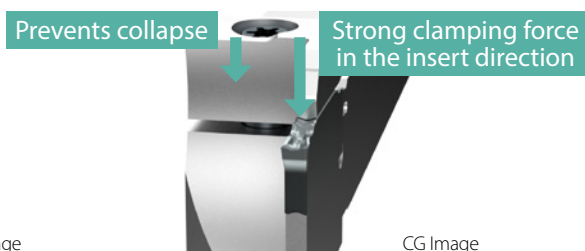
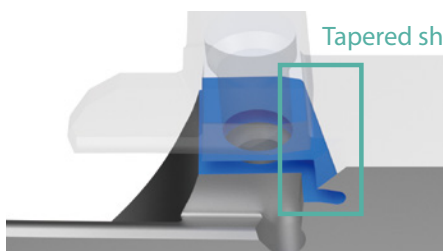
Cutting edge movement comparison
(Internal evaluation)

Load (N)	KGZ (mm)	Competitor A (mm)
0	0.00	0.00
40	~0.02	~0.04
80	~0.04	~0.07
120	~0.06	~0.10
160	~0.09	~0.14

Amount of movement (mm) vs Load (N). Legend: KGZ (blue), Competitor A (grey). A red arrow labeled 'Load' points to the right.

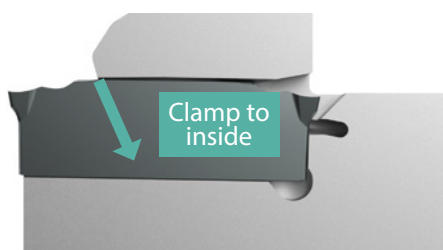
KGZR1212JX-2

1. Gap section Tapered slit creates strong insert hold



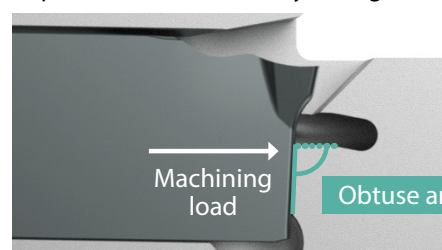
2. Top clamp

Pulls insert inward to increase hold



3. Stopper

The insert stop is designed with an obtuse shape to resist machining load and a large surface area distributes stress
Improved holder durability for high-efficiency machining



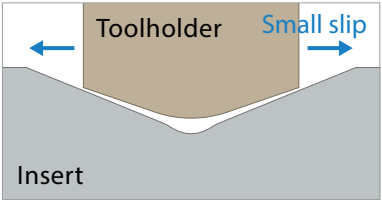
Insert Ease insert installation

Top V Shape Dependability

Different groove angles at ends and center

Groove End

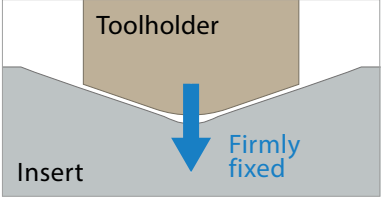
Small groove angle on top of insert
These grooves prevent the insert from shifting and provide fast and accurate insert mounts



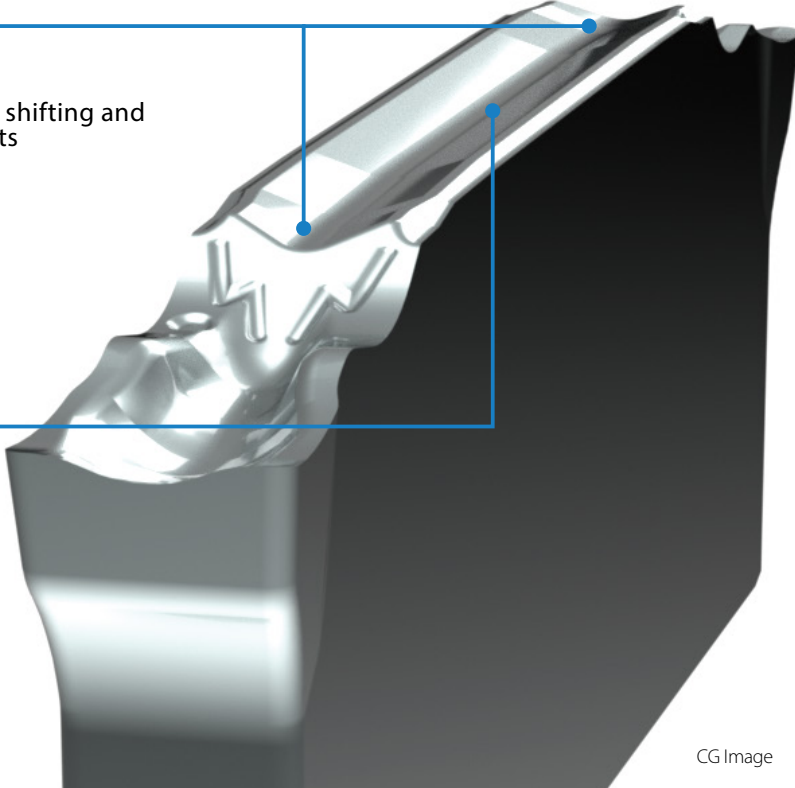
Image

Center of groove

Large groove angle on top of insert
Firmly engages the toolholder to increase hold



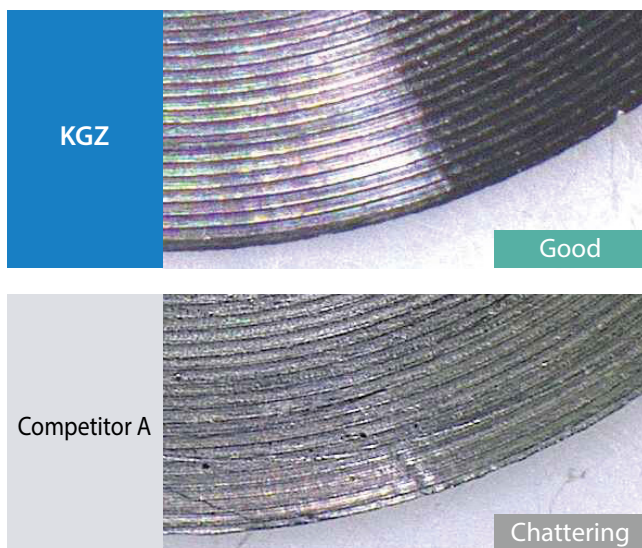
Image



CG Image

Excellent chatter resistance

Machined surface comparison (Internal evaluation)





Cutting conditions : $V_c \sim 60$ m/min, $f = 0.12$ mm/rev
Workpiece : SUS303 ($\phi 14$) Wet (External coolant) KGZR1212JX-2
Edge width : 2 mm (PM Chipbreaker)

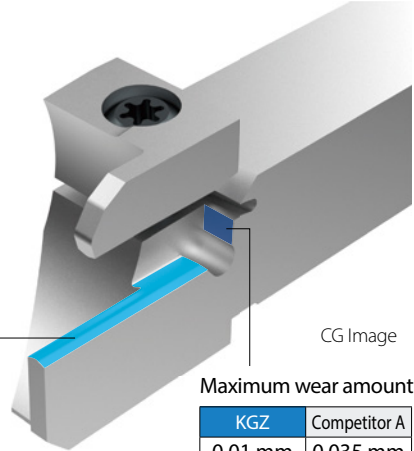
Strong toolholder durability

Toolholder durability comparison (Internal evaluation)

Toolholder damage comparison after 100,000 cuts



Maximum wear amount

KGZ	Competitor A
0.015 mm	0.02 mm
	 Large



CG Image

Maximum wear amount

KGZ	Competitor A
0.01 mm	0.035 mm
	 Large

Cutting conditions : $V_c \sim 80$ m/min, $f = 0.1$ mm/rev
Workpiece : SUS303 ($\phi 14$) Wet (External coolant) KGZR1212JX-2
Edge width : 2 mm (PM Chipbreaker)

2

New insert grades PR20 series is available MEGACOAT NANO EX coating technology provides longer tool life

New insert grades for grooving and cut-off solutions

PR20 Series

NEW

PR2015

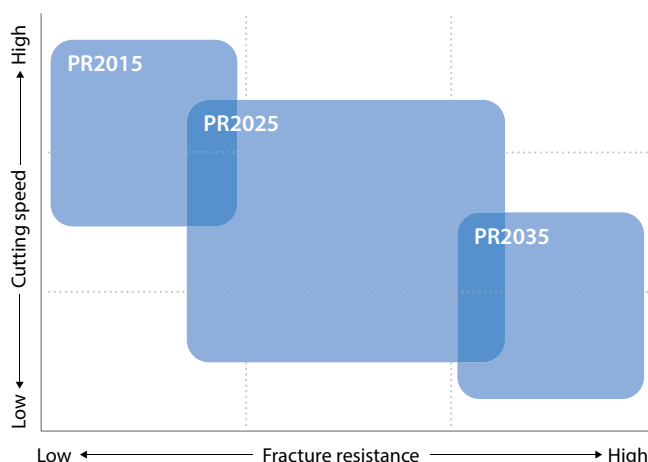
1st recommendation for cast iron
Also available for steel and stainless steel

PR2025

1st recommendation for steel
Also available for stainless steel

PR2035

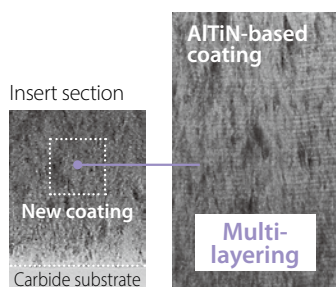
1st recommendation for stainless steel
Also available for steel



New coating for grooving and cut-off machining



Achieve long tool life and high stability with the combination of high content aluminum nano coating layer



Special nano coating layer

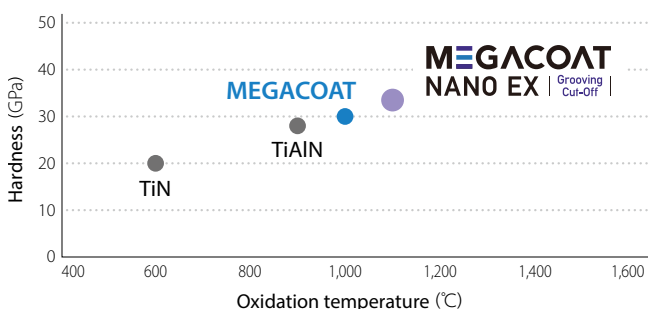
Long tool life **Excellent wear and fracture resistance**

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

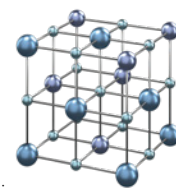
Coating characteristics (Internal evaluation)



Unique Technology (Patent applied)

Proprietary coating process
Improve high content aluminum nano layers performance

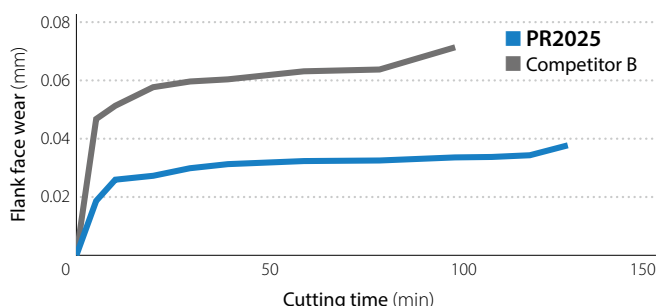
Maintains a cubic crystal structure to maximize the properties of aluminum (Al)



CG image

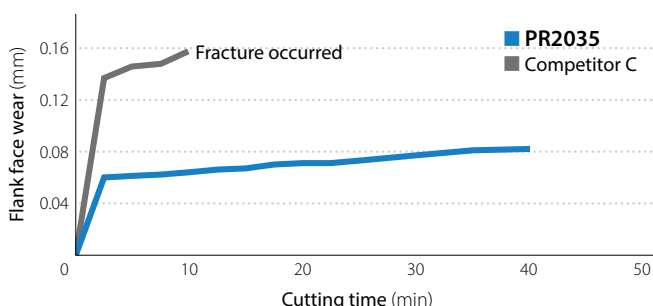
Cutting performance

S45C Wear resistance comparison (Internal evaluation)



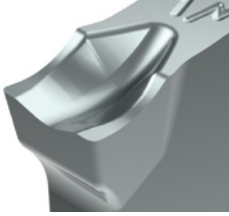
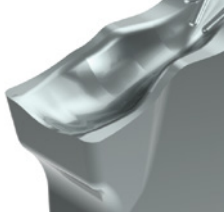

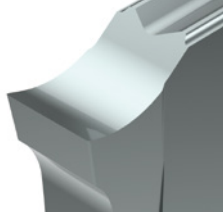








Cutting conditions : Vc = ~ 100 m/min, f = 0.1 mm/rev
Workpiece : S45C (ø20) Wet (External coolant) GZM2020N-020PM

SUS304 Wear resistance comparison (Internal evaluation)



Cutting conditions : Vc = ~ 80 m/min, f = 0.05 mm/rev
Workpiece : SUS304 (ø20) Wet (External coolant) GZM2020N-020PM

3 Choose from a variety of insert and chipbreaker combinations for a wide range of applications

	Chip control oriented			Sharp edge
Chipbreakers	Low feed machining PF Chipbreaker  With/Without Lead angle	Medium feed machining PM Chipbreaker  With/Without Lead angle	High feed machining PH Chipbreaker  No Lead angle	Low cutting force PG Chipbreaker  With/Without Lead angle
Grades	PR2015 PR2025 PR2035	PR2015 PR2025 PR2035	PR2015 PR2025 PR2035	PR2025 PR2035 PDL025 GW15
Features	Edge width from 1.3 mm For reducing cost of steel workpiece   S10C "Chip control" video	High versatility For a variety of machining   SUS304 "Chip control" video	Reduced cycle time For high feed machining   S45C "Chip control" video	Superior sharpness For aluminum alloy machining   A6061 "Chip control" video

Solution High efficiency machining with PH chipbreaker

Supports high feed machining with $f = \sim 0.2$ mm/rev (steel) and $f = \sim 0.16$ mm/rev (stainless steel)
 Excellent chip control in a wide range of machining area

S45C Chip control comparison (Internal evaluation)

f (mm/rev)	0.1	0.15	0.2
KGZ PH			
Competitor D	 Entanglement		
Competitor E			 Unstable

Cutting conditions : $V_c = \sim 150$ m/min Workpiece : S45C ($\phi 14$) Wet (External coolant)
 KGZR1616JX-2 Edge width : 2 mm (PH Chipbreaker)

SUS304 Chip control comparison (Internal evaluation)

f (mm/rev)	0.1	0.12	0.16
KGZ PH			
Competitor D	 Entanglement		
Competitor E	 Entanglement	 Entanglement	 Unstable

Cutting conditions : $V_c = \sim 80$ m/min Workpiece : SUS304 ($\phi 14$) Wet (External coolant)
 KGZR1616JX-2 Edge width : 2 mm (PH Chipbreaker)

4

Supports vibration/oscillation machining with stable chip control and longer tool life

Stable machining

Breaks chips into small pieces with vibration machining

SUS304 Chip control comparison (Internal evaluation)

PF Chipbreaker



Good

Vibration machining



Breaks chips into small pieces

PM Chipbreaker



Good

Vibration machining



Breaks chips into small pieces

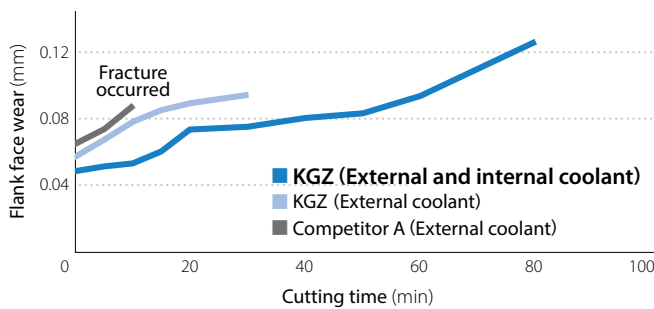
Cutting conditions : $V_c = \sim 120$ m/min, $f = 0.03$ mm/rev
Workpiece : SUS304 ($\phi 14$) Wet (External coolant) KGZR1212JX-2 Edge width : 2 mm

Cutting conditions : $V_c = \sim 120$ m/min, $f = 0.05$ mm/rev
Workpiece : SUS304 ($\phi 14$) Wet (External coolant) KGZR1616JX-2 Edge width : 2 mm

Long tool life

Extended tool life in combination with internal coolant (JCTM)

Wear resistance comparison (Internal evaluation)



Cutting edge condition

KGZ (External and internal coolant)



After 40 minutes machining

Competitor A (External coolant)



After 15 minutes machining

Cutting conditions : $V_c = \sim 120$ m/min, $f = 0.05$ mm/rev Workpiece : SUS304 ($\phi 14$) Wet KGZR1218JX-2JCTM Edge width : 2 mm (PM Chipbreaker)

Direct Coolant Holder for Small Parts Machining

JCTM Series

Long tool life and stable machining by internal coolant with/without piping system

Rectangular shank with optimized coolant channel design

1st recommendation

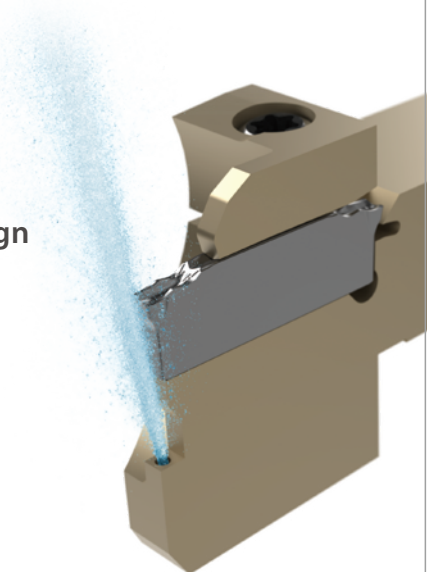
Square shank is also available

Without Piping When the tool turret supports direct coolant

- Coolant is supplied directly from tool turret into the holder
- No need for piping just by installing tools

With Piping

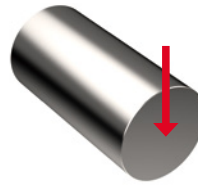
- Compatible with internal coolant on any machine with standard piping parts



CG Image



1 Pin SUS304



Cutting conditions
 $V_c = \sim 36$ m/min
 $f = 0.02$ mm/rev
 Wet (External coolant)
 $\phi 15$
 KGZL1616JX-2
 GZM2020N-020PM (PR2035)

Number of parts

KGZ **10,000 pcs/corner**

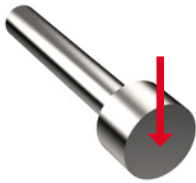
Tool life
2x

Competitor F **5,000 pcs/corner**

Tool life was extended in stainless steel machining. Machining surface quality and chip control were good.

(User evaluation)

2 Base metal S45C



Cutting conditions (KGZ)
 $V_c = \sim 104$ m/min, $f = 0.02 \sim 0.05$ mm/rev
 Wet (External coolant) $\phi 9.7$
 Edge width : 2 mm
 KGZL1212JX-2
 GZM2020N-020PM (PR2025)
 Cutting conditions (Competitor G)
 $V_c = \sim 86$ m/min, $f = 0.02 \sim 0.05$ mm/rev
 Wet (External coolant) $\phi 9.7$
 Edge width : 2 mm

Machining efficiency

KGZ **$V_c = \sim 104$ m/min**

Machining efficiency
UP

Competitor G **$V_c = \sim 86$ m/min**

KGZ machined the workpieces equivalent to competitor G with higher cutting speed.

The cutting edge was good. (User evaluation)

3 Automotive parts SUS304F



Cutting conditions
 $V_c = \sim 108$ m/min
 $f = 0.12$ mm/rev
 Wet (External coolant)
 $\phi 15.2$
 KGZR1212JX-2
 GZM2020N-020PM (PR2035)

Number of parts

KGZ **250 pcs/corner**

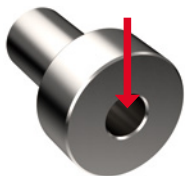
Tool life
1.9x

Competitor H **130 pcs/corner**

Competitor H had welding. KGZ had no welding and good chip control. Achieved about 1.9 times longer tool life.

(User evaluation)

4 Wedge S48C



Cutting conditions
 $n = 2,100$ min⁻¹ (Constant)
 $f = 0.12$ mm/rev
 Wet (External coolant)
 $\phi 20$
 KGZR1616JX-3
 GZM3020N-025PM (PR2015)

Number of parts

KGZ **2,000 pcs/corner**

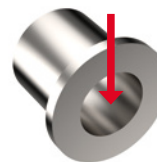
Tool life
1.1x

Competitor I **1,800 pcs/corner**

Longer tool life under high feed conditions ($f = 0.12$ mm/rev).

(User evaluation)

5 Sleeve 12Cr



Cutting conditions
 $V_c = \sim 72$ m/min
 $f = 0.08$ mm/rev
 Wet (External coolant)
 $\phi 65$
 KGZR2020JX-3D42
 GZM3020N-025PM (PR2025)

Number of parts

KGZ **200 pcs/corner**

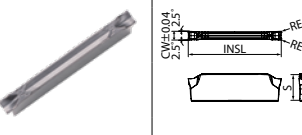
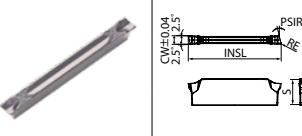
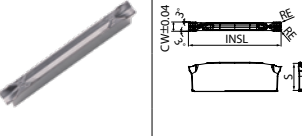
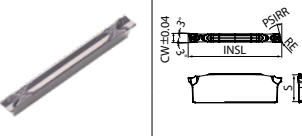
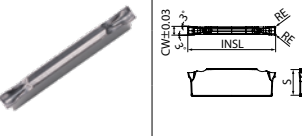
Tool life
2x

Competitor J **100 pcs/corner**

Stable machining was possible even with hollow workpiece. Double the tool life.

(User evaluation)



GZM

Shape	Description	No. of corners	Dimensions (mm)				Angle	MEGACOAT NANO EX				DLC coating	Carbide	Applicable toolholders																
			CW	S	RE	INSL		PSIR R/L	PR2015	PR2025	PR2035				PDL025	GW15														
																	Tolerance													
Handed insert shows Right-hand		GZM	1.3	+0.04 -0.04	4.4	16	-	●	●	●				KGZ R/L...1.3(D16) KGZS R/L...1.3A/B																
															1316N-015PF	0.03	0.15	0.03	0.15	●	●	●								
															1516N-003PF	0.03	0.15	0.03	0.15	●	●	●								
															1516N-015PF	0.03	0.15	0.03	0.15	●	●	●								
		GZM	1.3	+0.04 -0.04	4.4	16	15°	●	●	●					KGZ R/L...1.3(D16) KGZS R/L...1.3A/B															
																1316L-003PF-15D	0.03	0.15	0.03	0.15	●	●	●							
																1516R-003PF-15D	0.03	0.15	0.03	0.15	●	●	●							
																1516L-003PF-15D	0.03	0.15	0.03	0.15	●	●	●							
	Low feed		GZM	2	+0.04 -0.04	5.9	20	-	●	●	●					KGZ R/L...2(...) KGZS R/L...2A/B														
																	2020N-015PF	0.03	0.15	0.03	0.15	●	●	●						
																	2520N-003PF	0.03	0.15	0.03	0.15	●	●	●						
																	2520N-015PF	0.03	0.15	0.03	0.15	●	●	●						
3020N-003PF																	0.03	0.15	0.03	0.15	●	●	●							
3020N-015PF																	0.03	0.15	0.03	0.15	●	●	●							
		GZM	2	+0.04 -0.04	5.9	20	15°	●	●	●					KGZ R/L...2(...) KGZS R/L...2A/B															
																2020L-003PF-15D	0.03	0.15	0.03	0.15	●	●	●							
																2520R-003PF-15D	0.03	0.15	0.03	0.15	●	●	●							
																2520L-003PF-15D	0.03	0.15	0.03	0.15	●	●	●							
																2520R-015PF-15D	0.03	0.15	0.03	0.15	●	●	●							
																3020R-003PF-15D	0.03	0.15	0.03	0.15	●	●	●							
Medium feed		GZM	2	+0.03 -0.03	5.9	20	-	●	●	●					KGZ R/L...2(...) KGZS R/L...2A/B															
																2520N-020PM	0.2	0.25	0.2	0.25	●	●	●							
																3020N-025PM	0.2	0.25	0.2	0.25	●	●	●							
																2020R-020PM-6D	0.2	0.25	0.2	0.25	●	●	●							
																2520R-020PM-6D	0.2	0.25	0.2	0.25	●	●	●							
																3020R-025PM-6D	0.2	0.25	0.2	0.25	●	●	●							

Using PF or PM chipbreaker for grooving will not create a flat bottom.
GZM and GZG inserts cannot be installed in KGM and KGD holders.

● : Standard Stock

GZM/GZG

Shape	Description	No. of corners	Dimensions (mm)				Angle	MEGACOAT NANO EX		DLC coating	Carbide	Applicable toolholders				
			CW	S	RE	INSL		PSIR R/L	PR2015				PR2025	PR2035	PDL025	GW15
High feed 	GZM 2020N-020PH	2						●	●	●		KGZ R/L...-2(...) KGZS R/L...-2A/B				
	2520N-020PH	2	2.5			0.2		●	●	●		KGZ R/L...-2(...) KGZ R/L...-2.4(...) KGZS R/L...-2A/B				
	3020N-030PH	3	+0.03 -0.03	5.9	0.3	20		●	●	●		KGZ R/L...-2(...) KGZ R/L...-3(...) KGZS R/L...-2A/B				
	GZMS 2020N-020PH	1	2			0.2		●	●	●		KGZ R/L...-2(...) KGZS R/L...-2A/B				
	3020N-030PH	3			0.3			●	●	●		KGZ R/L...-2(...) KGZ R/L...-2.4(...) KGZ R/L...-3(...) KGZS R/L...-2A/B				
	Low cutting force 	GZG 2020N-005PG	2							●	●	●	KGZ R/L...-2(...) KGZS R/L...-2A/B			
2520N-005PG		2	2.5						●	●	●	KGZ R/L...-2(...) KGZ R/L...-2.4(...) KGZS R/L...-2A/B				
3020N-005PG		3							●	●	●	KGZ R/L...-2(...) KGZ R/L...-2.4(...) KGZ R/L...-3(...) KGZS R/L...-2A/B				
GZG 2020R-005PG-15D		2	+0.02 -0.02	5.9	0.05	20			●	●	●	KGZ R/L...-2(...) KGZS R/L...-2A/B				
2520R-005PG-15D		2							●	●	●	KGZ R/L...-2(...) KGZ R/L...-2.4(...) KGZS R/L...-2A/B				
3020R-005PG-15D		3							●	●	●	KGZ R/L...-2(...) KGZ R/L...-2.4(...) KGZ R/L...-3(...) KGZS R/L...-2A/B				

● : Standard Stock

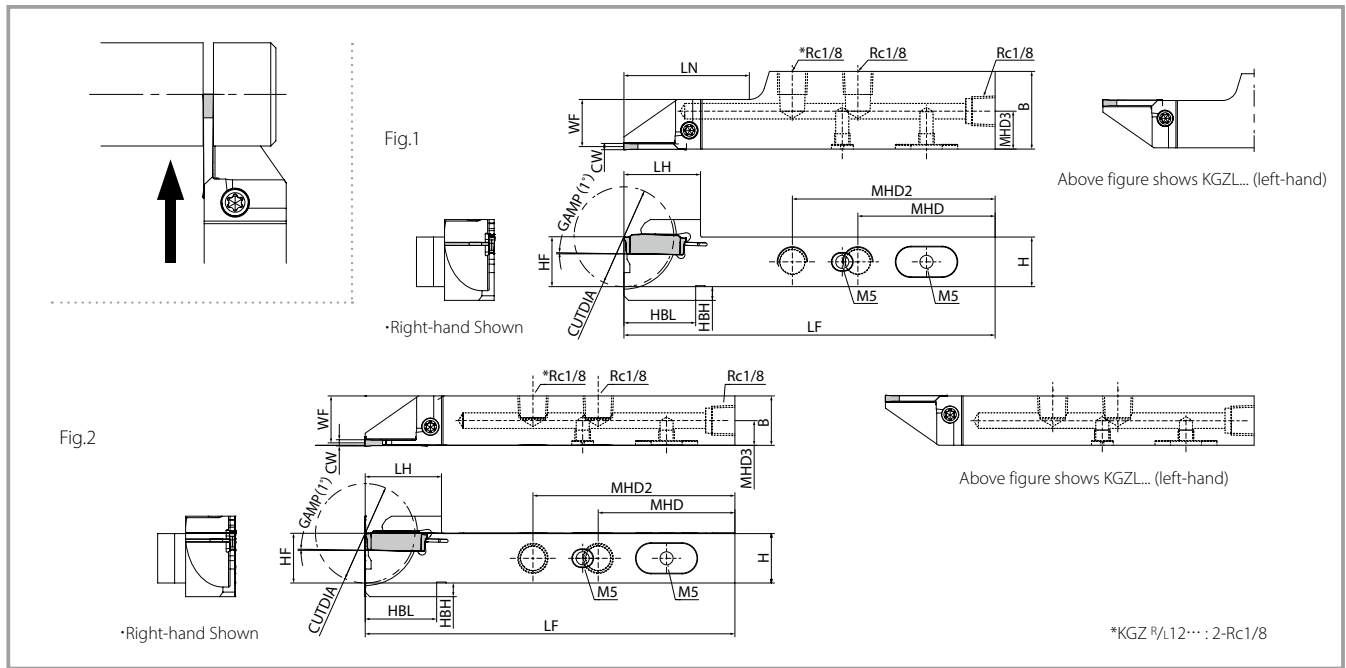
Inserts Identification System

Tolerance G : G-Class M : M-Class	Edge width 13 : 1.3mm 20 : 2mm 30 : 3mm 15 : 1.5mm 25 : 2.5mm	Hand of Tool R : Right-hand L : Left-hand N : Neutral	Chipbreaker PF : Low feed PH : High feed PM : Medium feed PG : Low cutting force
GZ	M	S	20
20	20	N	- 020
PH	(- 6D)		
No. of Edges No Indication : 2-edge S : 1-edge	Insert Length 16 : 16mm 20 : 20mm	RE 003 : 0.03mm 020 : 0.2mm 005 : 0.05mm 025 : 0.25mm 015 : 0.15mm 030 : 0.3mm	Lead angle No Indication : 0° 6D : 6° 15D : 15°

Recommended Cutting Conditions ★1st recommendation ☆2nd recommendation

Workpiece	Vc (m/min)					f (mm/rev)										Remarks
	MEGACOAT NANO EX		DLC	Carbide		PF (RE = 0.03)			PF (RE = 0.15)			PM	PH	PG		
	PR2015	PR2025	PR2035	PDL025	GW15	1.3~1.5	2.0	2.5~3.0	1.3~1.5	2.0	2.5~3.0	2.0~3.0	2.0~3.0	2.0	2.5~3.0	
Carbon steel	☆ 70~180	★ 70~150	☆ 70~150	-	-	0.01~0.04	0.02~0.06	0.02~0.08	0.01~0.05	0.03~0.08	0.04~0.10	0.05~0.15	0.10~0.20	0.01~0.04	0.01~0.05	Wet
Alloy steel	☆ 70~180	★ 70~150	☆ 70~150	-	-	0.01~0.03	0.01~0.04	0.01~0.05	0.01~0.04	0.03~0.07	0.04~0.08	0.04~0.12	0.08~0.16	0.01~0.03	0.01~0.04	
Stainless steel	☆ 60~150	☆ 60~120	★ 60~120	-	-	0.01~0.05	0.02~0.07	0.03~0.08	0.01~0.06	0.03~0.09	0.04~0.10	0.05~0.15	0.10~0.20	0.01~0.04	0.01~0.05	
Cast iron	★ 80~200	-	-	-	☆ 50~100	0.01~0.05	0.02~0.07	0.03~0.08	0.01~0.06	0.03~0.09	0.04~0.10	0.05~0.15	0.10~0.20	0.01~0.04	0.01~0.05	
Aluminum alloy	-	-	-	★ 200~500	☆ 200~450	-	-	-	-	-	-	-	-	0.01~0.05	0.01~0.06	
Brass	-	-	-	-	★ 100~200	-	-	-	-	-	-	-	-	0.01~0.07	0.01~0.08	

KGZ-JCTM (Internal coolant)



Description	Stock		Dimensions (mm)											Edge width CW (mm)		Shape	Spare Parts				Applicable Inserts		
	R	L	CUTDIA	H	B	LH	MHD	MHD2	MHD3	HF	HBH	HBL	LF	LN	WF		MIN.	MAX.	Plug 1	Plug 2		Clamp Screw	Wrench
KGZR 1218JX-2JCTM	●		24	12	18	19.8	54	-	8.4	12	8.5	19.8				2	3	Fig.1	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG2020... GZM2020... GZMS2020... GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZL 1218JX-2JCTM		●	24	12	18	19.8	54	-	7.7	12	8.5	19.8	120			2	3	Fig.1	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG2020... GZM2020... GZMS2020... GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZR 1625JX-2JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2				2.4	3	Fig.1	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZL 1625JX-2JCTM		●	32	16	25	24.8	44	65	7.7	16	4.5	23.2	120			2.4	3	Fig.1	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZR 1218JX-2.4JCTM	●		24	12	18	19.8	54	-	8.4	12	8.5	19.8				2.4	3	Fig.1	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZL 1218JX-2.4JCTM		●	24	12	18	19.8	54	-	7.7	12	8.5	19.8	120			2.4	3	Fig.1	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZR 1625JX-2.4JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2				3	3	Fig.1	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG3020... GZM3020... GZMS3020...
KGZL 1625JX-2.4JCTM		●	32	16	25	24.8	44	65	7.7	16	4.5	23.2	120			3	3	Fig.1	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG3020... GZM3020... GZMS3020...
KGZR 1212JX-2JCTM	●		24	12	12	19.8	59	-	6	12	6	19.8				2	3	Fig.2	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG2020... GZM2020... GZMS2020... GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZL 1212JX-2JCTM		●	24	12	12	19.8	59	-	6	12	6	19.8	120			2	3	Fig.2	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG2020... GZM2020... GZMS2020... GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZR 1616JX-2JCTM	●		32	16	16	24.8	44	65	8	16	4.5	23.2				2.4	3	Fig.2	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZL 1616JX-2JCTM		●	32	16	16	24.8	44	65	7.7	16	4.5	23.2	120			2.4	3	Fig.2	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZR 1212JX-2.4JCTM	●		24	12	12	19.8	59	-	6	12	6	19.8				3	3	Fig.2	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZL 1212JX-2.4JCTM		●	24	12	12	19.8	59	-	6	12	6	19.8	120			3	3	Fig.2	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZR 1616JX-2.4JCTM	●		32	16	16	24.8	44	65	8	16	4.5	23.2				3	3	Fig.2	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG3020... GZM3020... GZMS3020...
KGZL 1616JX-2.4JCTM		●	32	16	16	24.8	44	65	7.7	16	4.5	23.2	120			3	3	Fig.2	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG3020... GZM3020... GZMS3020...
KGZR 1212JX-3JCTM	●		24	12	12	19.8	59	-	6	12	6	19.8				3	3	Fig.2	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG3020... GZM3020... GZMS3020...
KGZL 1212JX-3JCTM		●	24	12	12	19.8	59	-	6	12	6	19.8	120			3	3	Fig.2	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG3020... GZM3020... GZMS3020...
KGZR 1616JX-3JCTM	●		32	16	16	24.8	44	65	8	16	4.5	23.2				3	3	Fig.2	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG3020... GZM3020... GZMS3020...
KGZL 1616JX-3JCTM		●	32	16	16	24.8	44	65	7.7	16	4.5	23.2	120			3	3	Fig.2	GP-1	HSSX 4LP	SB-40120 TR	LTW-15S	GZG3020... GZM3020... GZMS3020...

Recommended tightening torque : 2.0N · m(SB-40120TR)

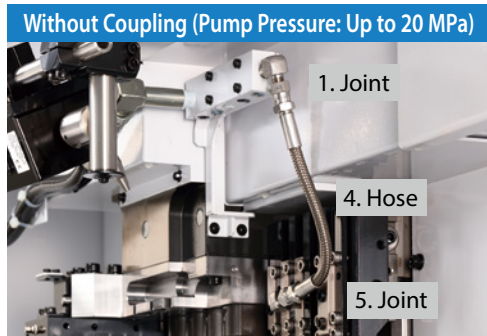
GM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

● : Standard Stock

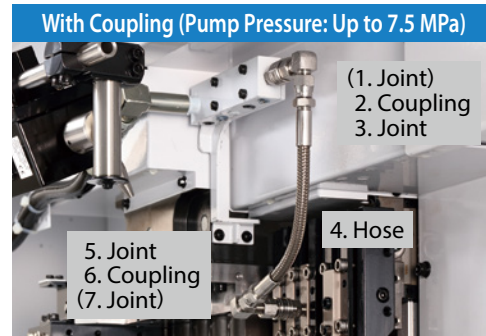
Piping Parts

Piping parts will be required separately if internal coolant is used.

Pump Pressure : Up to 20 MPa. Pump Pressure: Up to 7.5 MPa if coupling is used.



Without Coupling (Pump Pressure: Up to 20 MPa)



With Coupling (Pump Pressure: Up to 7.5 MPa)

Spare Parts	Description
1. Joint	J-AN-R1/8-G1/8
4. Hose	HS-G1/8-G1/8-200
5. Joint	J-AN-R1/8-G1/8

Convert the thread standards on the machine's side (Rc1/4, Rc1/8, NPT1/8, etc.) to the thread standard on the hose side (G1/8) for use.
Use sealing agents such as seal tapes when installing piping parts.

Spare Parts	Description
(1. Joint)	-
2. Coupling	CP-ST-R1/8, P-ST-RC1/8
3. Joint	J-AN-R1/8-G1/8
4. Hose	HS-G1/8-G1/8-200
5. Joint	J-AN-R1/8-G1/8
6. Coupling	P-ST-RC1/8, CP-ST-R1/8
(7. Joint)	-

Convert the thread standards on the machine's side (Rc1/4, Rc1/8, NPT1/8, etc.) to thread standards of the coupling (Rc1/8, etc.) or hose (G1/8) for use.
Use sealing agents such as seal tapes when installing piping parts.

Piping Part Dimensions

Joint (1/3/5/7) Pressure: ~20.0MPa

(Unit:mm)

Shape	Description	Stock	ød1	ød2	L	L1	L2	T1	T2
	J-ST-R1/4-G1/8	●	5.5	4.0	34	13	13	R1/4	G1/8
	J-ST-NPT1/8-G1/8	●	3.5	3.5	29	10	13	NPT1/8	G1/8
	J-ST-R1/8-G1/8	●	4.0	4.0	29	10	13	R1/8	G1/8
	J-AN-R1/8-G1/8	●	4.0	4.0	27	14	13	R1/8	G1/8
	J-ST-R1/4-RC1/8	●	-	-	17	12	-	R1/4	Rc1/8
	J-ST-NPT1/8-RC1/8	●	3.5	-	30	10	-	NPT1/8	Rc1/8
	J-ST-R1/8-RC1/8	●	3.5	-	33	13	-	R1/8	Rc1/8

Elbow piping (J-AN-R1/8-G1/8) is recommended.

● : Standard Stock

Coupling (2/6) Pressure: ~7.5MPa

(Unit:mm)

Shape	Description	Stock
	CP-ST-R1/8	●
	P-ST-RC1/8	●

● : Standard Stock

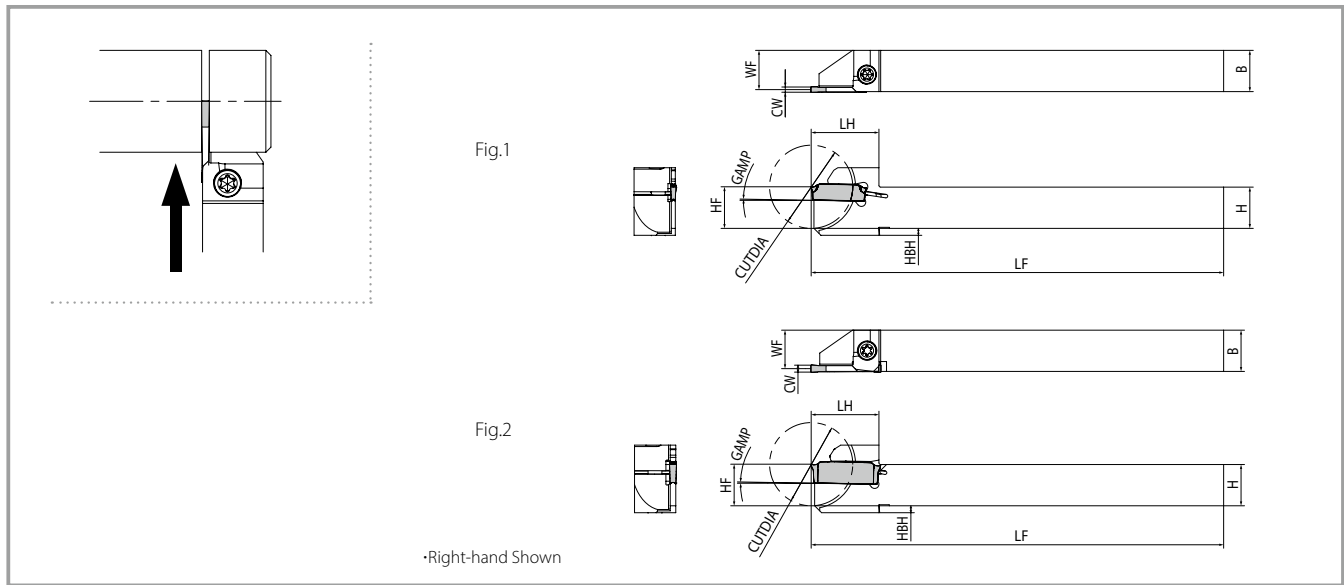
Hose (4) Pressure: ~20.0MPa

(Unit:mm)

Shape	Description	Stock	L
	HS-G1/8-G1/8-200	●	200
	HS-G1/8-G1/8-300	●	300
	HS-G1/8-G1/8-400	●	400
	HS-G1/8-G1/8-500	●	500
	HS-G1/8-G1/8-600	●	600
	HS-G1/8-G1/8-800	●	800

● : Standard Stock

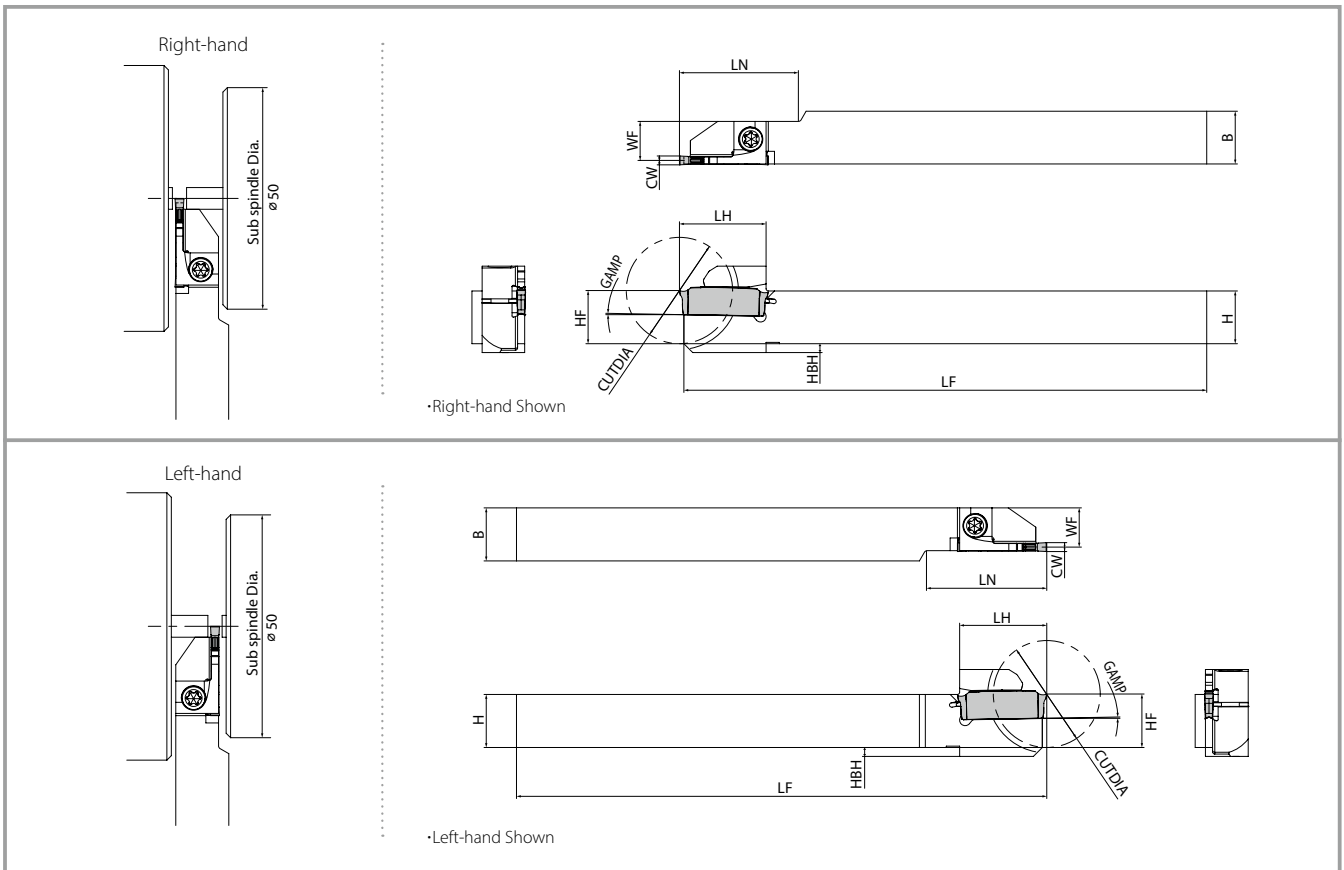
KGZ (Standard toolholders)



Description	Stock		Dimensions (mm)								Edge width CW (mm)		Angle	Shape	Spare Parts		Applicable Inserts
	R	L	CUTDIA	H	B	LH	HF	HBHL	LF	WF	MIN.	MAX.	GAMP		Clamp Screw	Wrench	
KGZ ^{R/L} 1010JX-1.3D16 1010JX-1.3 1212F-1.3D16 1212JX-1.3D16 1212F-1.3 1212JX-1.3	●	●	16	10	10	17.8	10	2.1	120	9.5	1.3	1.3	1°	Fig.1	SB-40120TR	LTW-15S	GZM1316...
	●	●	20			17.8											
	●	●	16	12	12	12	120										
	●	●	24			19.8	85										
	●	●	24	120													
KGZ ^{R/L} 1010JX-1.5D16 1010JX-1.5 1212F-1.5D16 1212JX-1.5D16 1212F-1.5 1212JX-1.5	●	●	16	10	10	17.8	10	2.1	120	9.4	1.5	1.5	1°	Fig.1	SB-40120TR	LTW-15S	GZM1516...
	●	●	20			17.8											
	●	●	16	12	12	12	120										
	●	●	24			19.8	85										
	●	●	24	120													
KGZ ^{R/L} 1010JX-2 1212F-2 1212JX-2 1616JX-2 2012K-2D34 2020K-2D34 2525K-2D34	●	●	20	10	10	18.7	10	2.1	120	9.2	2	3	2°	Fig.1	SB-40120TR	LTW-15S	GZG2020... GZM2020... GZMS2020... GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
	●	●	24			12											
	●	●	32	16	16	24.8	16	120	15.2								
	●	●	34	20	12	26.8	20	-	11.2								
	●	●	34	20	20	26.8	20	125	19.2								
	●	●	34	25	25	32.7	25	24.2	24.2								
	●	●	34	25	25	32.7	25	24.2	24.2								
KGZ ^{R/L} 1010JX-2.4 1212F-2.4 1212JX-2.4 1616JX-2.4 2012K-2.4D34 2020K-2.4D34 2525K-2.4D34	●	●	20	10	10	18.7	10	2.1	120	9	2.4	3	2°	Fig.2	SB-40120TR	LTW-15S	GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
	●	●	24			12											
	●	●	32	16	16	24.6	16	120	15								
	●	●	34	20	12	26.6	20	-	11								
	●	●	34	20	20	26.6	20	125	19								
	●	●	34	25	25	32.7	25	24	24								
KGZ ^{R/L} 1212JX-3 1616JX-3 1616JX-3D38 1913K-3D38 2012JX-3D42 2012JX-3D51 2020JX-3D42 2020JX-3D51 2525K-3D51	●	●	24	12	12	19.8	12	2.1	120	10.8	3	3	1°	Fig.2	SB-40120TR	LTW-15S	GZG3020... GZM3020... GZMS3020...
	●	●	32			16											
	●	●	38	19	13	28.6	19	125	11.8								
	●	●	42	20	12	30.7	20	-	120	10.8							
	●	●	51			35.2											
	●	●	42	20	20	30.7	20	120	18.8								
	●	●	51	25	25	41.7	25	125	23.8								

Recommended tightening torque : 2.0N·m(SB-40120TR)、2.5N·m(SE-50125TR)、6.5N·m (HH5X16) ● : Standard Stock
 When machining large cutting dia. (over 36 mm) with KGZ ^{R/L}...-3D38 or KGZ ^{R/L}...-3D42, please follow the instructions below
 · Use 1-edge inserts
 · Maximum workpiece diameter for 2-edge inserts is ø36
 KGM* and GD* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

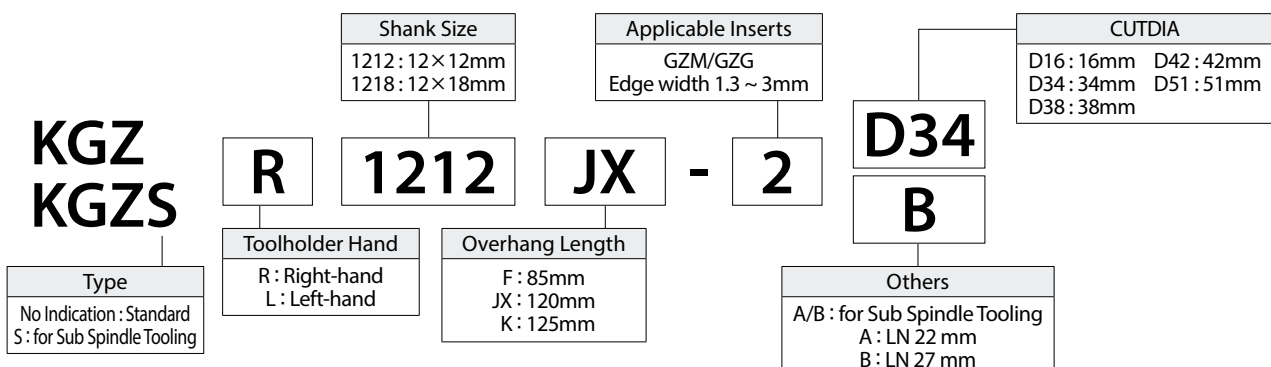
KGZS (for Cut-off operation near sub spindle side)



Description	Stock		Dimensions (mm)									Edge width CW (mm)		Angle	Spare Parts		Applicable Inserts				
	R	L	CUTDIA	H	B	LH	HF	HBH	LF	LN	WF	MIN.	MAX.		GAMP	Clamp Screw		Wrench			
KGZS ^{R/L}	1212F-1.3A	●	●	24	12	12	19.8	12	2.1	85	22	8.4	1.3	1.3	1°	SB-40120TR	LTW-15S	GZM1316...			
	1212JX-1.3B	●	●		16	16		16	-	120	27										
	1616JX-1.3B	●	●		16	16		16	-	120	27										
	1212F-1.5A	●	●		12	12		12	2.1	85	22								8.4	1.5	1.5
	1212JX-1.5B	●	●		16	16		16	-	120	27										
	1616JX-1.5B	●	●		16	16		16	-	120	27										
	1212F-2A	●	●		12	12		12	2.1	85	22								8.7	2	3
	1212JX-2B	●	●		16	16		16	-	120	27										
1616JX-2B	●	●	16	16	16	-	120	27								GZM2020..., GZM2020..., GZMS2020..., GZG2520..., GZM2520..., GZG3020..., GZM3020..., GZMS3020...					

● : Standard Stock

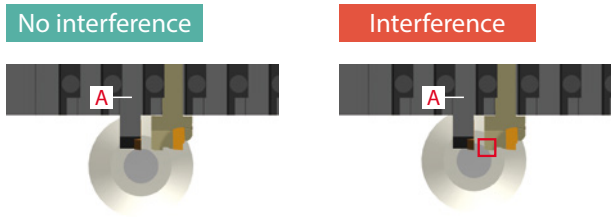
Toolholder Identification System



Precautions

Maximum ap of the next tool (indicated as tool A) and holder interference

When using JCTM holder 1218/1212, note maximum ap of the next tool to avoid interference.



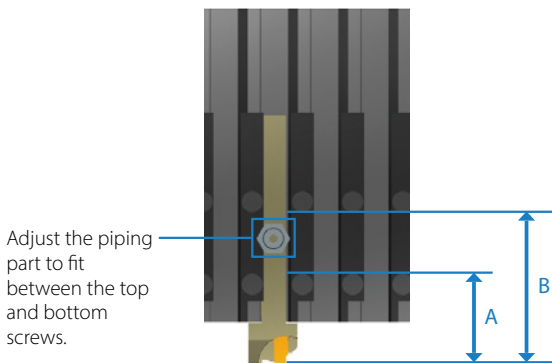
Estimated maximum ap of tool A (mm)

Workpiece dia.	ø12	ø16	ø20
JCTM Description			
KGZ ^{R/L} 1218JX-*JCTM	2.4	2.0	1.7
KGZ ^{R/L} 1212JX-*JCTM	5.0	3.5	2.8

Piping part interference avoidance

Rectangular shank (KGZ^{R/L}1218..., KGZ^{R/L}1625...) are recommended for use with piping parts connected to JCTM holders.

When connecting piping parts to the JCTM square shank, check the lengths of A and B below to avoid interference with the screws of the tool turret.



Shank Size	Availability of square shank use
1212	<p>"A" shorter than 51.5 mm and "B" longer than 68.5 mm → Available</p> <p>Other than the above conditions → Not available (Use a rectangular shank)</p>
1616	Available

Compatibility with conventional tools

KGZ is not compatible with the conventional tools (KGD/KGM)

