

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

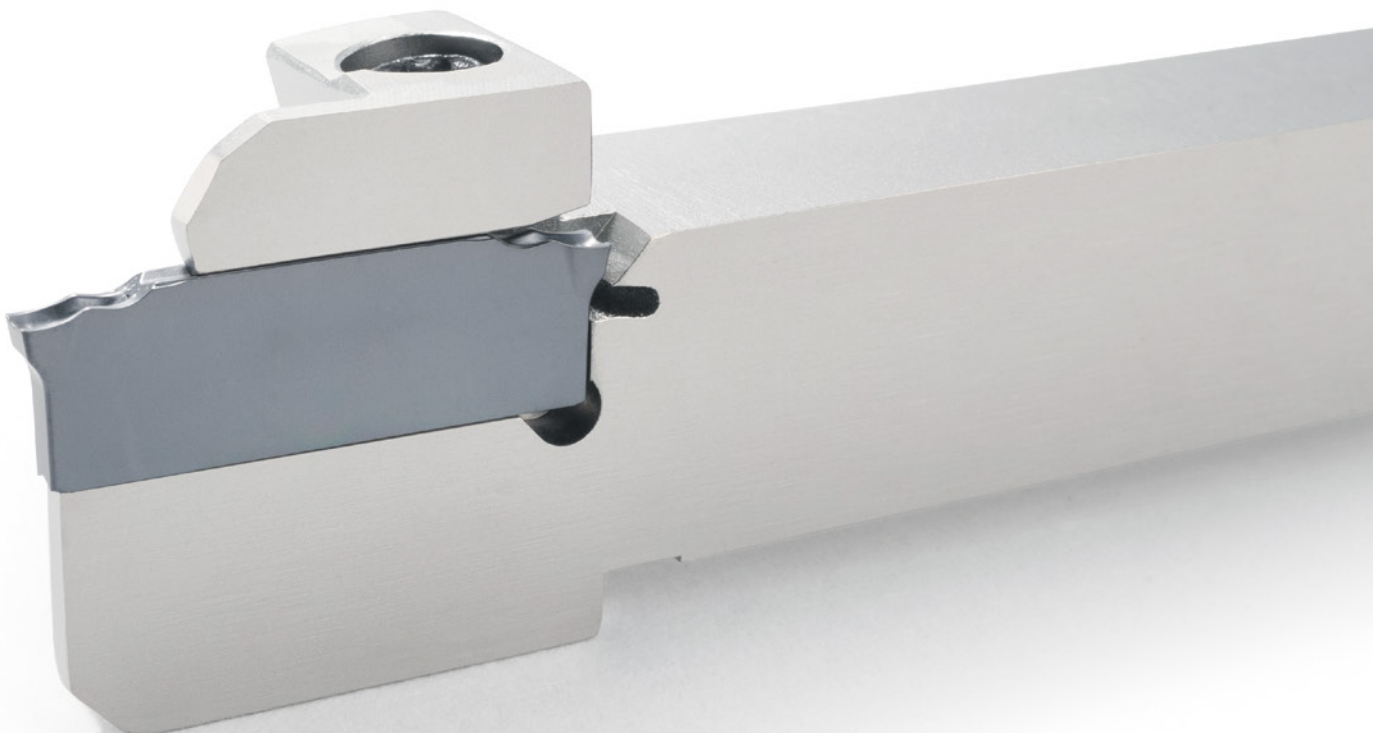
Cut-off is an important, but difficult process in small parts machining applications

### 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

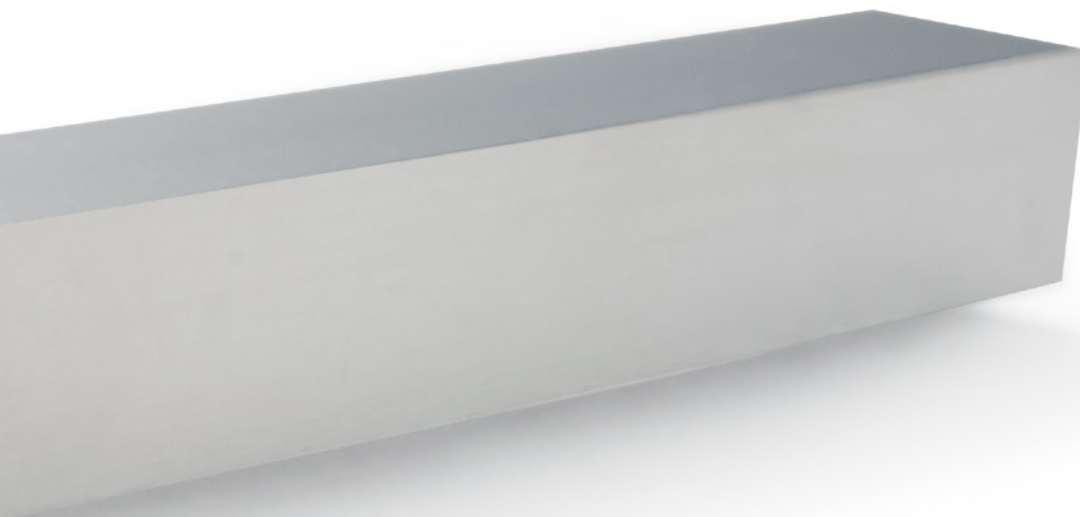
### Stable machining with sturdy clamp design


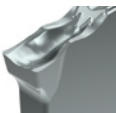

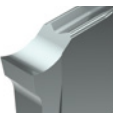
- Greater chatter resistance provides excellent surface finish and stable tool life
- Toolholder durability reduces down-time and cuts cost
- Supports high efficiency machining and reduces cycle time

## Dependability

### Easy insert management

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



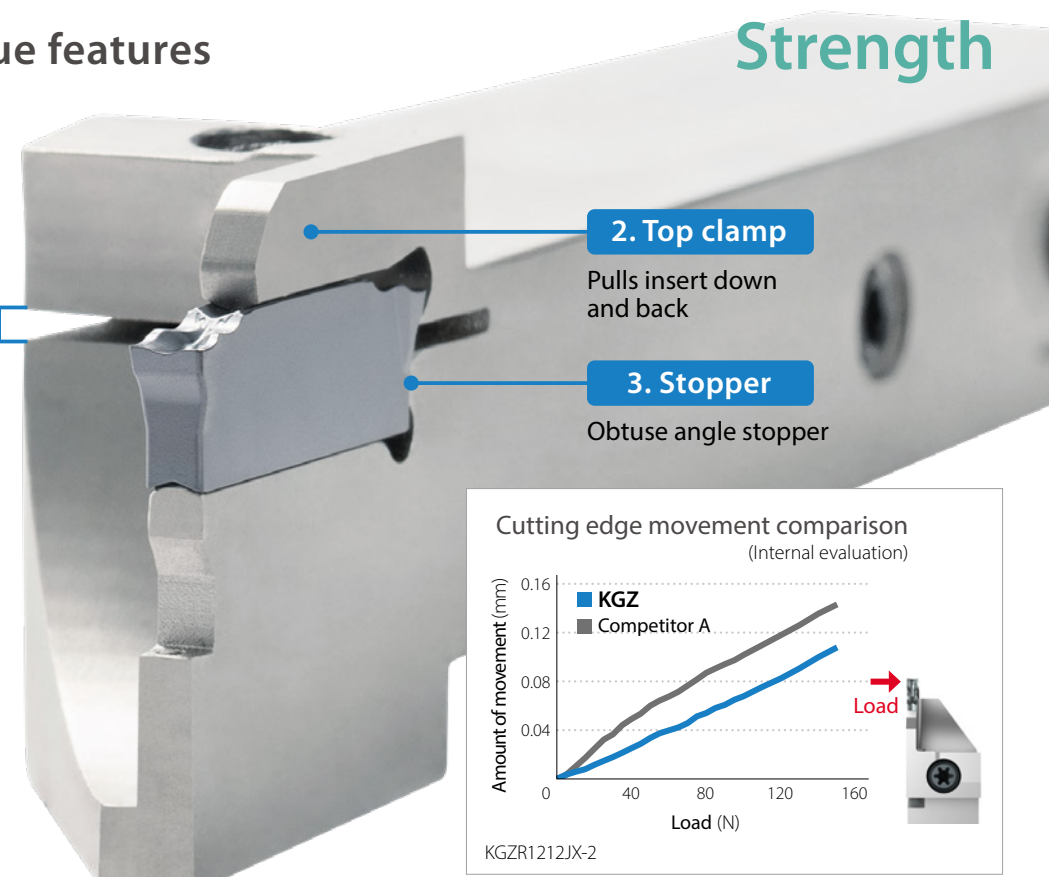
<b>Insert</b> CW : 1.3 ~ 3 mm	Low feed <b>PF</b> 	Medium feed <b>PM</b> 	High feed <b>PH</b> 	Low cutting force <b>PG</b> 	PVD coating <b>P M K</b> <b>PR2015 / PR2025 / PR2035</b> <span style="color:red">NEW</span>
					DLC coating <b>N</b> Non-coated carbide <b>K N</b> <b>PDL025</b> <b>GW15</b>
<b>Toolholder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

# 1 Achieved stable machining with newly developed clamp structure

## Toolholder Sturdy clamps

### Three unique features

# Strength

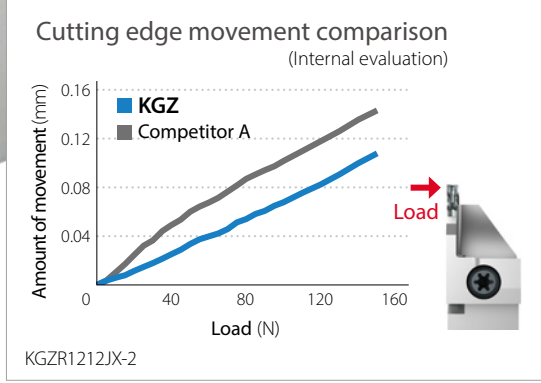


**1. Gap section**  
Tapered slit

**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)

Load (N)

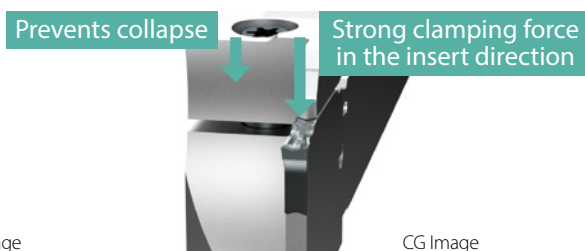
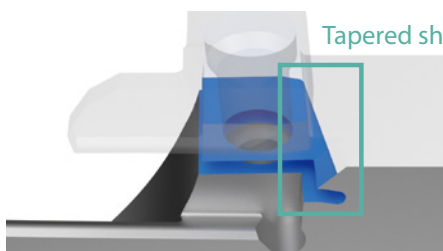
KGZ

Competitor A

Load

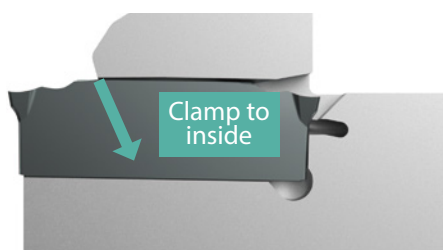
KGZR1212JX-2

### 1. Gap section Tapered slit creates strong insert hold



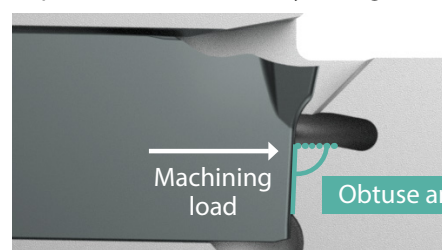
### 2. Top clamp

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



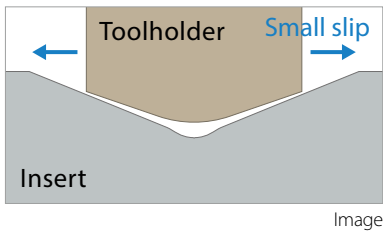
# Insert Ease insert installation

## Top V Shape Different groove angles at ends and center

## Dependability

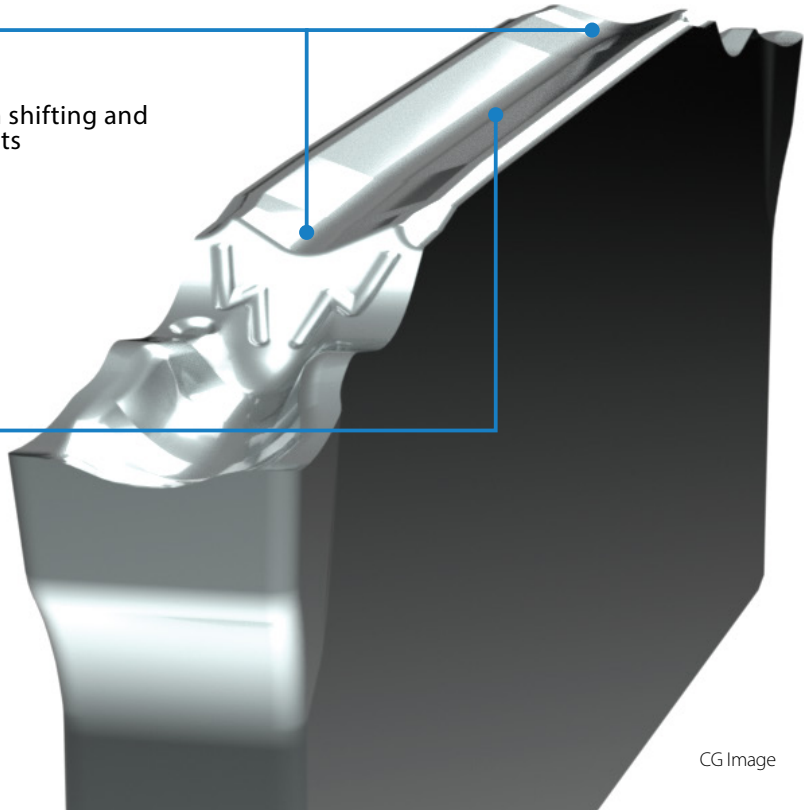
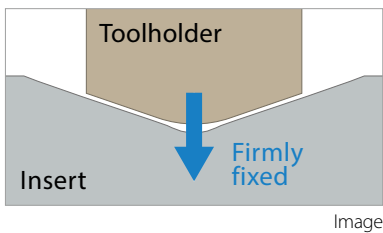
### Groove End

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



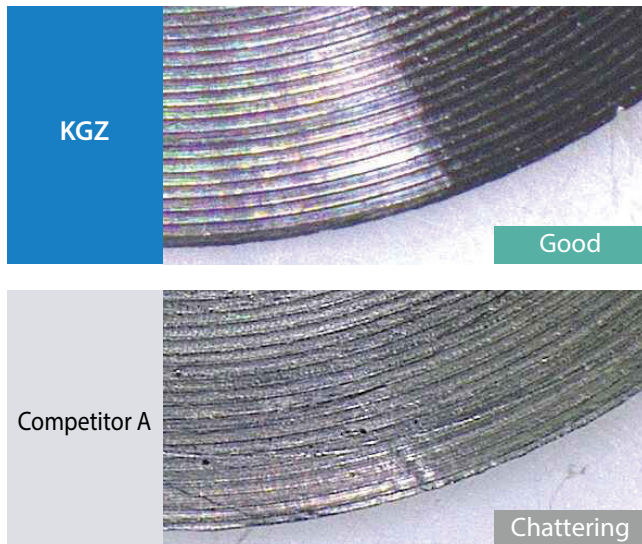
### Center of groove

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



## Excellent chatter resistance

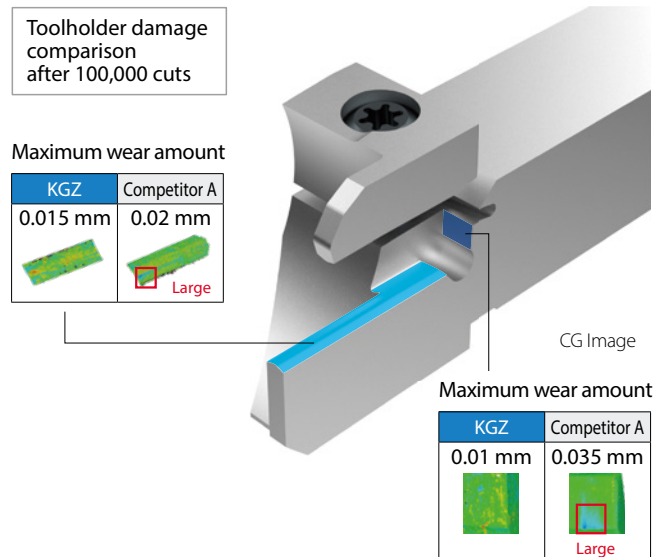
Machined surface comparison (Internal evaluation)



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)



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

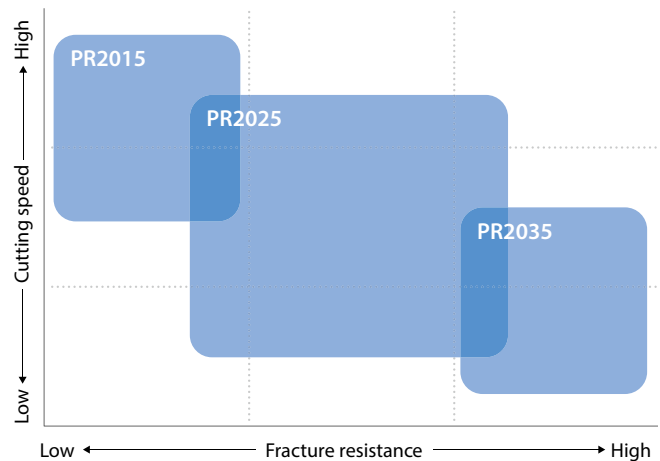
1st recommendation for cast iron  
Also available for steel and stainless steel

PR2025

1st recommendation for steel  
Also available for stainless steel

PR2035

1st recommendation for stainless steel  
Also available for steel

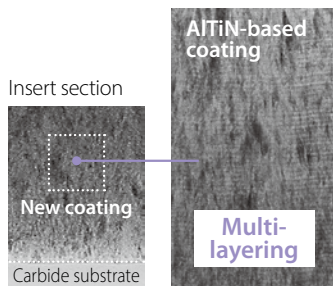
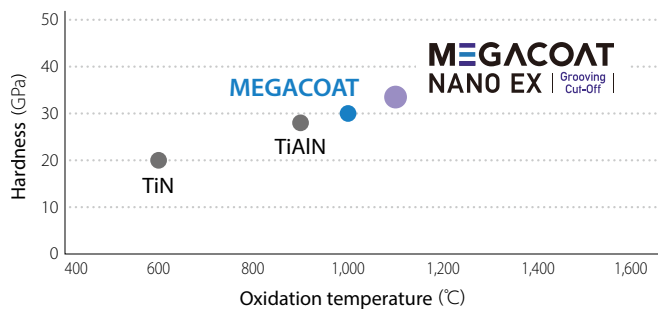


### New coating for grooving and cut-off machining



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

Coating characteristics (Internal evaluation)



#### 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

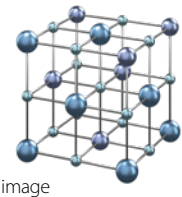
Stable machining    High coating toughness

Crystal grain refinement  
Optimized internal stress suppresses crack growth

#### Unique Technology (Patent applied)

Proprietary coating process  
Improve high content aluminum nano layers performance

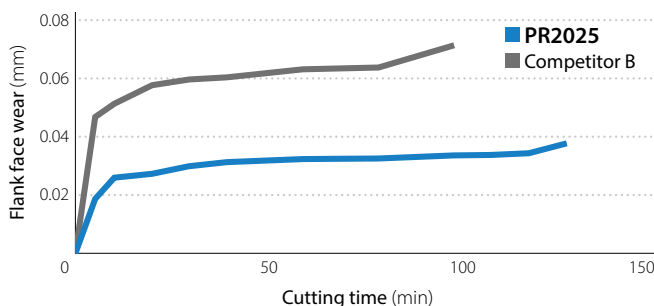
Maintains a cubic crystal structure to maximize the properties of aluminum (Al)



CG image

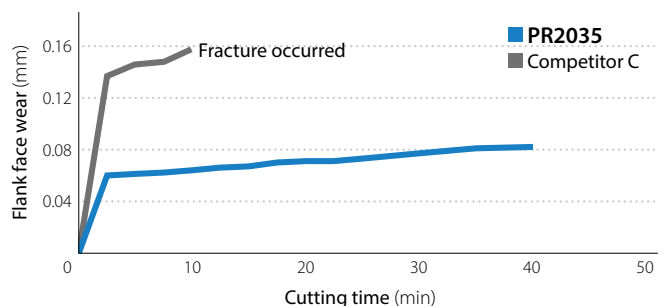
### Cutting performance

S45C Wear resistance comparison (Internal evaluation)



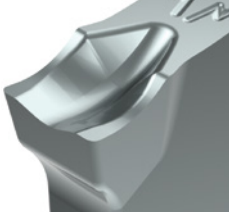
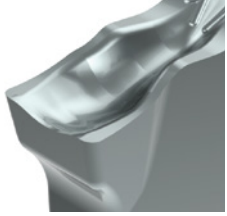

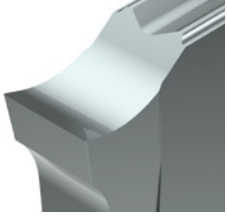



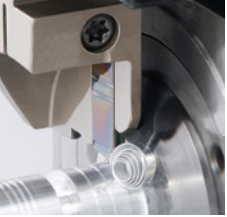




Cutting conditions : Vc = ~ 100 m/min, f = 0.1 mm/rev  
Workpiece : S45C (ø20) Wet (External coolant) GZM2020N-020PM

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

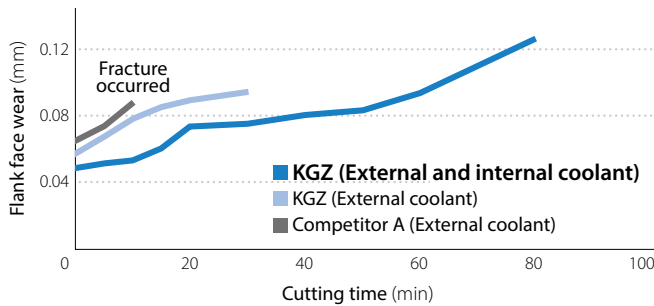
Cutting conditions :  $V_c = \sim 120$  m/min,  $f = 0.03$  mm/rev  
Workpiece : SUS304 ( $\phi 14$ ) Wet (External coolant) KGZR1212JX-2 Edge width : 2 mm

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

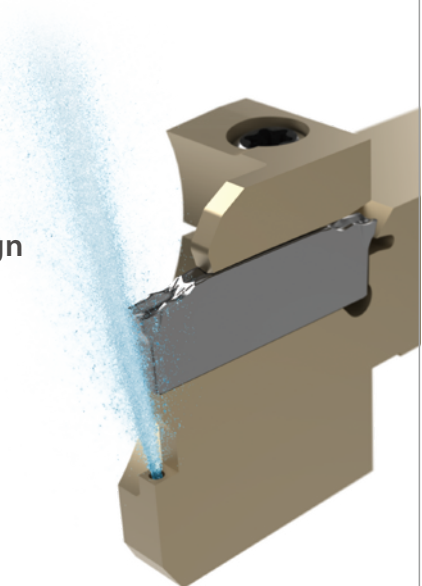
Square shank is also available

**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

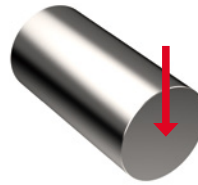


CG Image





## 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

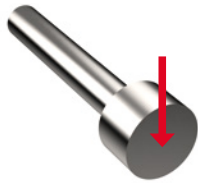
**2x**

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<sup>-1</sup> (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

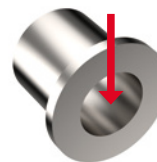
**1.1x**

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**

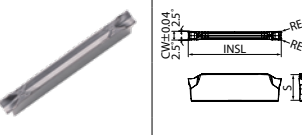
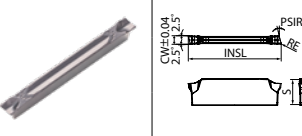
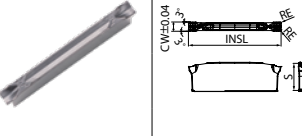
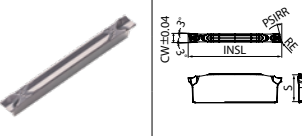
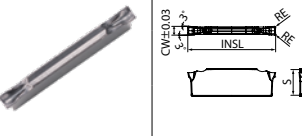
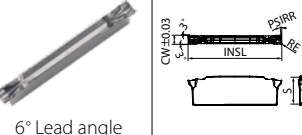
Tool life

**2x**

Competitor J **100 pcs/corner**

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

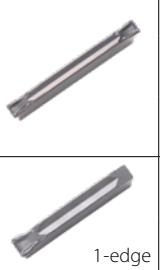
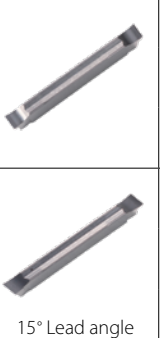
(User evaluation)

Shape	Description	No. of corners	Dimensions (mm)				Angle	MEGACOAT NANO EX				Carbide	Applicable toolholders							
			CW	S	RE	INSL		PSIR R/L	PR2015	PR2025	PR2035			PDL025						
															Tolerance	DLC coating	GW15			
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							
								●	●	●										
			1.5					●	●	●					KGZ R/L...1.5(D16) KGZS R/L...1.5A/B					
								●	●	●										
			1.3					●	●	●					KGZ R/L...1.3(D16) KGZS R/L...1.3A/B					
								●	●	●										
	15° Lead angle		GZM	1.3	+0.04 -0.04	4.4	16	15°	●	●	●			KGZ R/L...1.3(D16) KGZS R/L...1.3A/B						
									●	●	●									
				1.5					●	●	●					KGZ R/L...1.5(D16) KGZS R/L...1.5A/B				
									●	●	●									
				1.3					●	●	●					KGZ R/L...1.3(D16) KGZS R/L...1.3A/B				
									●	●	●									
Low feed		GZM	2	+0.04 -0.04	5.9	20	-	●	●	●			KGZ R/L...-2(...) KGZS R/L...-2A/B							
								●	●	●										
			2.5					●	●	●					KGZ R/L...-2(...) KGZ R/L...-2.4(...) KGZS R/L...-2A/B					
								●	●	●										
			3					●	●	●					KGZ R/L...-2(...) KGZ R/L...-2.4(...) KGZ R/L...-3(...) KGZS R/L...-2A/B					
								●	●	●										
	15° Lead angle		GZM	2	+0.04 -0.04	5.9	20	15°	●	●	●			KGZ R/L...-2(...) KGZS R/L...-2A/B						
									●	●	●									
				2.5					●	●	●					KGZ R/L...-2(...) KGZ R/L...-2.4(...) KGZS R/L...-2A/B				
									●	●	●									
				3					●	●	●					KGZ R/L...-2(...) KGZ R/L...-2.4(...) KGZ R/L...-3(...) KGZS R/L...-2A/B				
									●	●	●									
Medium feed		GZM	2	+0.03 -0.03	5.9	20	-	●	●	●			KGZ R/L...-2(...) KGZS R/L...-2A/B							
			2.5					●	●	●					KGZ R/L...-2(...) KGZ R/L...-2.4(...) KGZS R/L...-2A/B					
			3					●	●	●					KGZ R/L...-2(...) KGZ R/L...-3(...) KGZS R/L...-2A/B					
	6° Lead angle		GZM					2	+0.03 -0.03	5.9	20	6°	●	●	●			KGZ R/L...-2(...) KGZS R/L...-2A/B		
								2.5					●	●	●					KGZ R/L...-2(...) KGZ R/L...-2.4(...) KGZS R/L...-2A/B
								3					●	●	●					KGZ R/L...-2(...) KGZ R/L...-3(...) KGZS R/L...-2A/B

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		2.5							●	●	●	●	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		2.5							●	●	●	●	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	Edge width	Hand of Tool	Chipbreaker
G : G-Class M : M-Class	13 : 1.3mm 20 : 2mm 30 : 3mm 15 : 1.5mm 25 : 2.5mm	R : Right-hand L : Left-hand N : Neutral	PF : Low feed PH : High feed PM : Medium feed PG : Low cutting force

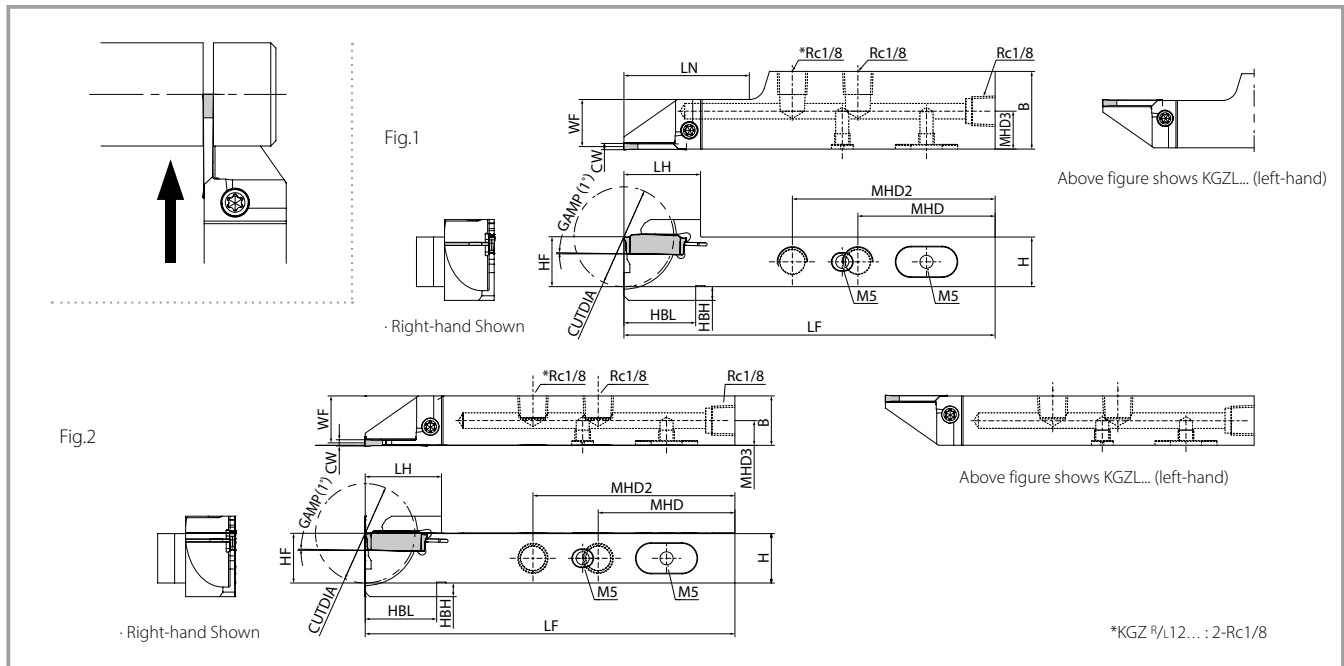
  

<b>GZ</b>	<b>M</b>	<b>S</b>	<b>20</b>	<b>20</b>	<b>N</b>	<b>-</b>	<b>020</b>	<b>PH</b>	<b>( - 6D )</b>
No. of Edges No Indication : 2-edge S : 1-edge		Insert Length 16 : 16mm 20 : 20mm		RE 003 : 0.03mm 020 : 0.2mm 005 : 0.05mm 025 : 0.25mm 015 : 0.15mm 030 : 0.3mm			Lead angle No Indication : 0° 6D : 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	
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	0.01~0.06	
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	120	43.7	11.2	2	3	Fig.1	GP-1	HS5X 4LP	SB-40120 TR	LTW-15S	GZG2020... GZM2020... GZMS2020... GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZL 1218JX-2JCTM		●							7.7														
KGZR 1625JX-2JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2	120	40.0	15.2	2.4	3	Fig.1	GP-1	HS5X 4LP	SB-40120 TR	LTW-15S	GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZL 1625JX-2JCTM		●							7.7														
KGZR 1218JX-2.4JCTM	●		24	12	18	19.8	54	-	8.4	12	8.5	19.8	120	43.7	11.0	2.4	3	Fig.1	GP-1	HS5X 4LP	SB-40120 TR	LTW-15S	GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZL 1218JX-2.4JCTM		●							7.7														
KGZR 1625JX-2.4JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2	120	40.0	15.0	3	3	Fig.1	GP-1	HS5X 4LP	SB-40120 TR	LTW-15S	GZG3020... GZM3020... GZMS3020...
KGZL 1625JX-2.4JCTM		●							7.7														
KGZR 1218JX-3JCTM	●		24	12	18	19.8	54	-	8.6	12	8.5	19.8	120	43.7	10.8	3	3	Fig.1	GP-1	HS5X 4LP	SB-40120 TR	LTW-15S	GZG3020... GZM3020... GZMS3020...
KGZL 1218JX-3JCTM		●							7.7														
KGZR 1625JX-3JCTM	●		32	16	25	24.8	44	65	12.2	16	4.5	23.2	120	40.0	14.8	3	3	Fig.1	GP-1	HS5X 4LP	SB-40120 TR	LTW-15S	GZG3020... GZM3020... GZMS3020...
KGZL 1625JX-3JCTM		●							7.7														
KGZR 1212JX-2JCTM	●		24	12	12	19.8	59	-	6	12	6	19.8	120	11.2		2	3	Fig.2	GP-1	HS5X 4LP	SB-40120 TR	LTW-15S	GZG2020... GZM2020... GZMS2020... GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZL 1212JX-2JCTM		●							6														
KGZR 1616JX-2JCTM	●		32	16	16	24.8	44	65	8	16	4.5	23.2	120	15.2		2.4	3	Fig.2	GP-1	HS5X 4LP	SB-40120 TR	LTW-15S	GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZL 1616JX-2JCTM		●							8														
KGZR 1212JX-2.4JCTM	●		24	12	12	19.8	59	-	6	12	6	19.8	120	11.0		2.4	3	Fig.2	GP-1	HS5X 4LP	SB-40120 TR	LTW-15S	GZG2520... GZM2520... GZG3020... GZM3020... GZMS3020...
KGZL 1212JX-2.4JCTM		●							6														
KGZR 1616JX-2.4JCTM	●		32	16	16	24.8	44	65	8	16	4.5	23.2	120	15.0		3	3	Fig.2	GP-1	HS5X 4LP	SB-40120 TR	LTW-15S	GZG3020... GZM3020... GZMS3020...
KGZL 1616JX-2.4JCTM		●							8														
KGZR 1212JX-3JCTM	●		24	12	12	19.8	59	-	6	12	6	19.8	120	10.8		3	3	Fig.2	GP-1	HS5X 4LP	SB-40120 TR	LTW-15S	GZG3020... GZM3020... GZMS3020...
KGZL 1212JX-3JCTM		●							6														
KGZR 1616JX-3JCTM	●		32	16	16	24.8	44	65	8	16	4.5	23.2	120	14.8		3	3	Fig.2	GP-1	HS5X 4LP	SB-40120 TR	LTW-15S	GZG3020... GZM3020... GZMS3020...
KGZL 1616JX-3JCTM		●							8														

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

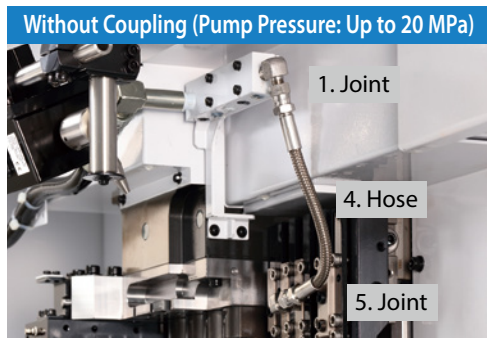
GM\* and GD\* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

● : Standard Stock

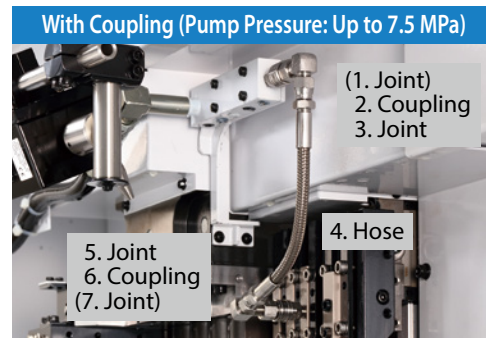
## Piping Parts

### 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

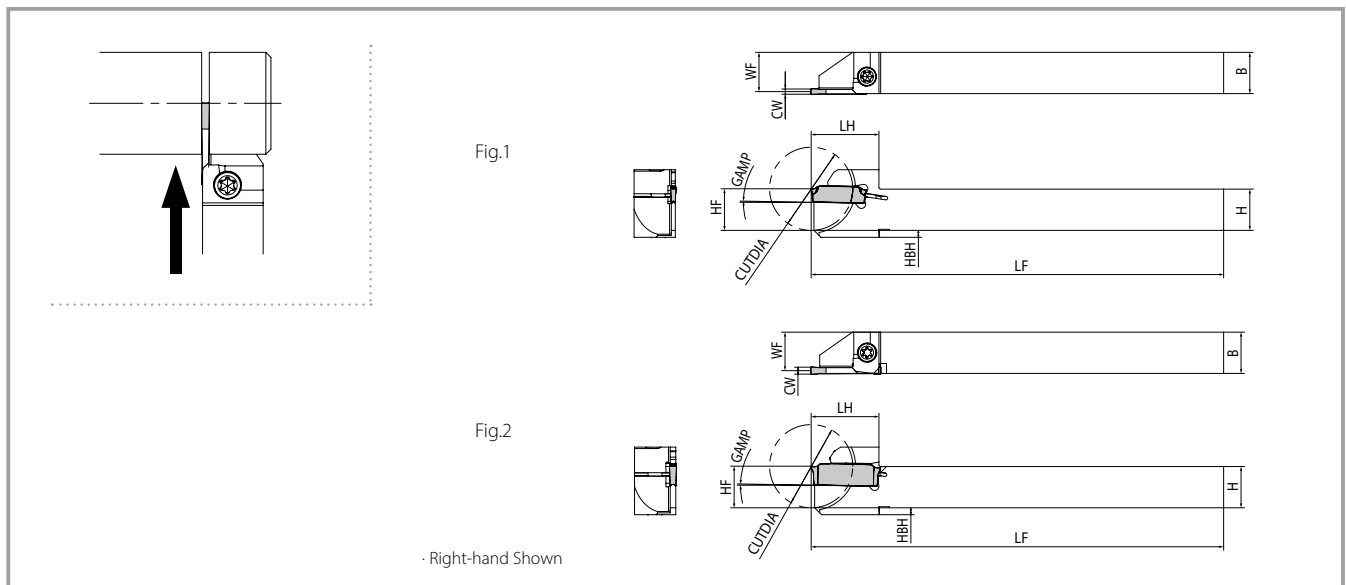
Hose (4) Pressure : ~20.0MPa

(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

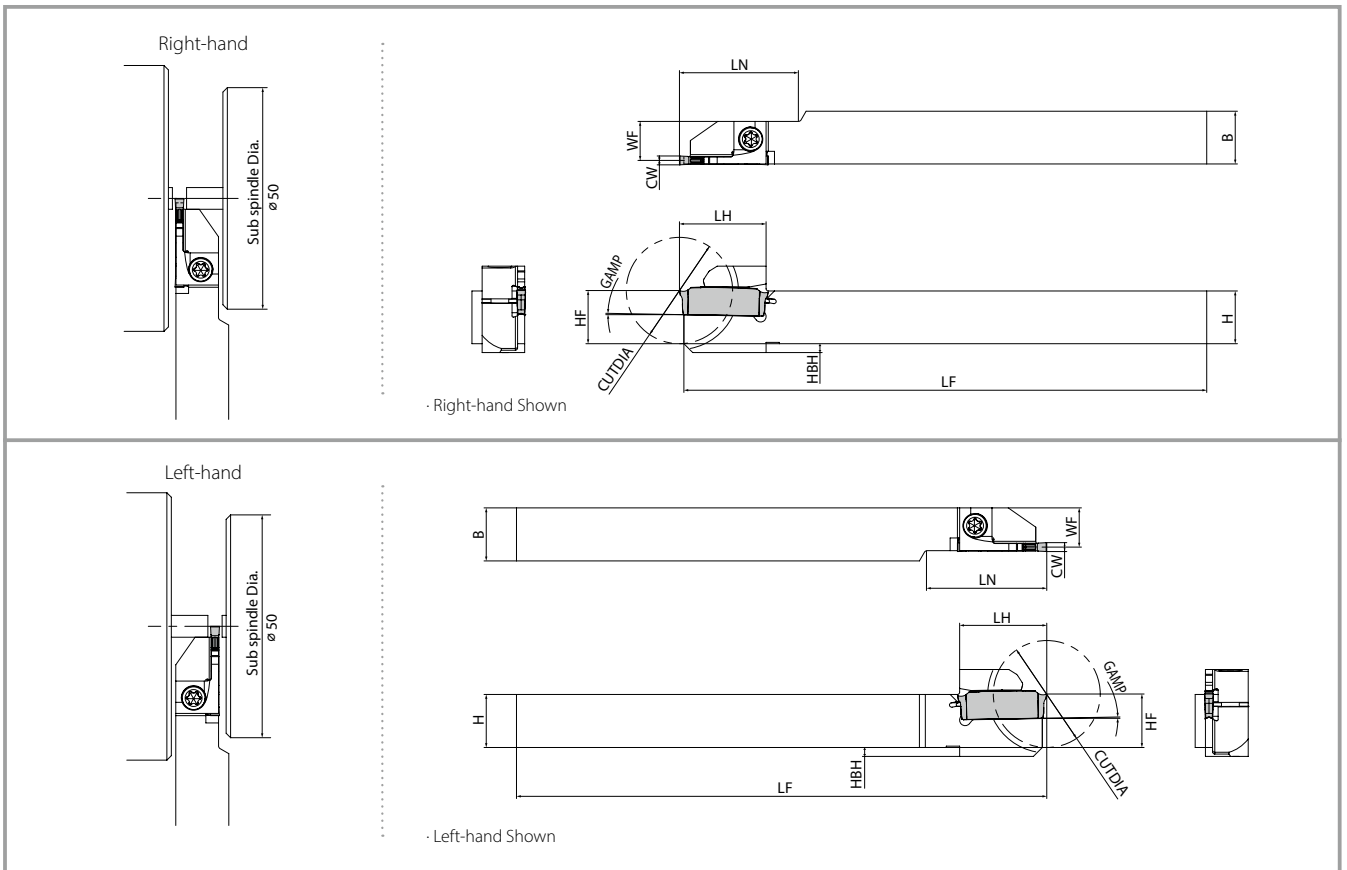
# KGZ (Standard toolholders)



Description	Stock		Dimensions (mm)								Edge width CW (mm)		Angle	Shape	Spare Parts		Applicable Inserts
	R	L	CUTDIA	H	B	LH	HF	HBH	LF	WF	MIN.	MAX.	GAMP		Clamp Screw	Wrench	
KGZ <sup>R/L</sup> 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	17.8	120												
	●	●	12	12	85												
	●	●	24	19.8	120												
KGZ <sup>R/L</sup> 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	17.8	120												
	●	●	12	12	85												
	●	●	24	19.8	120												
KGZ <sup>R/L</sup> 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	1°	Fig.2	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	-	19.2								
	●	●	25	25	32.7	25	-	125	24.2								
	●	●	25	25	32.7	25	-	125	24.2								
KGZ <sup>R/L</sup> 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	1°	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	-	19								
	●	●	25	25	32.7	25	-	125	24								
KGZ <sup>R/L</sup> 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	30.7	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<sup>R/L</sup>...-3D38 or KGZ<sup>R/L</sup>...-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).

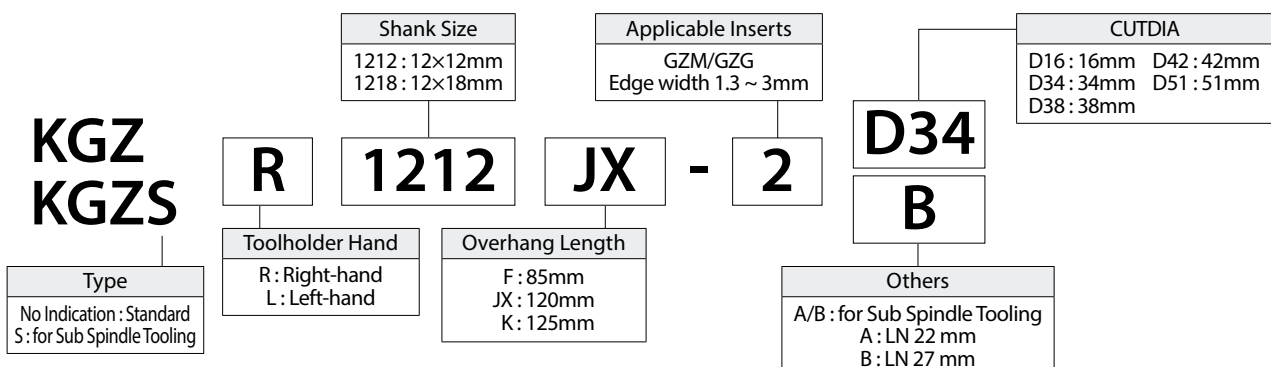
## KGZS (for Cut-off operation near sub spindle side)



Description	Stock		Dimensions (mm)									Edge width CW (mm)		Angle GAMP	Spare Parts		Applicable Inserts	
	R	L	CUTDIA	H	B	LH	HF	HBH	LF	LN	WF	MIN.	MAX.		Clamp Screw	Wrench		
KGZS <sup>R/L</sup>	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							
	1212JX-1.5B	●	●		16	16		16	-	120	27							
	1616JX-1.5B	●	●		12	12		12	2.1	85	22	8.7	2	3				
	1212F-2A	●	●		16	16		16	-	120	27							
	1212JX-2B	●	●		16	16		16	-	120	27							
1616JX-2B	●	●															GZM2020..., GZM2020..., GZMS2020..., GZG2520..., GZM2520..., GZG3020..., GZM3020..., GZMS3020...	

● : Standard Stock

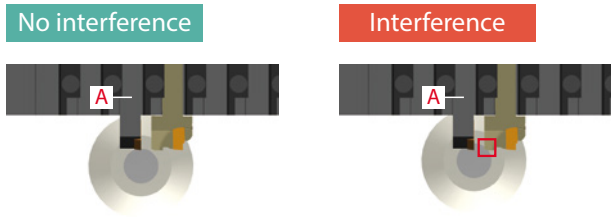
## Toolholder Identification System



## 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.



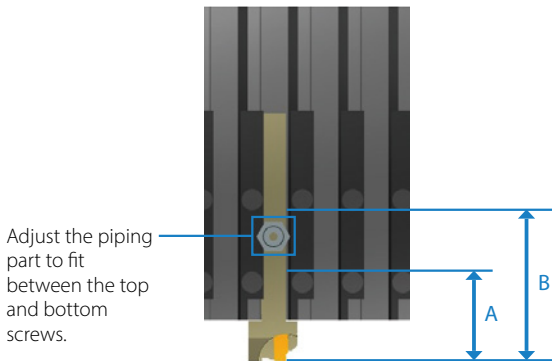
### Estimated maximum ap of tool A (mm)

Workpiece dia.	ø12	ø16	ø20
JCTM Description			
KGZ <sup>R/L</sup> 1218JX-*JCTM	2.4	2.0	1.7
KGZ <sup>R/L</sup> 1212JX-*JCTM	5.0	3.5	2.8

### Piping part interference avoidance

Rectangular shank (KGZ<sup>R/L</sup>1218..., KGZ<sup>R/L</sup>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)

