



# KGZ

Grooving / Cut-Off Solutions for Small Parts Machining



**Strong, Precise, and Reliable Grooving and 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

New grooving inserts now available 



# KGZ

Grooving / Cut-Off Solutions for Small Parts Machining

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

## Challenges

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

### Machining Performance

High machining loads and tool rigidity issues are common with cut-off operations. Chatter, insert and holder damage can make improving efficiency difficult.

### Usability

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



# Newly developed clamp design creates a strong and rigid hold

## Strength

### Stable machining with sturdy clamp design

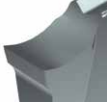
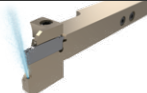
- Greater chatter resistance provides excellent surface finish and stable tool life
- Toolholder durability reduces down-time and cuts cost
- Supports high efficiency machining and reduces cycle time

## Dependability

### Easy insert management

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



| Insert      | Cut-off                                                                                                                                                 | Low Feed<br><b>PF</b><br>        | Medium Feed<br><b>PM</b><br> | High Feed<br><b>PH</b><br> | Low Cutting Force<br><b>PG</b><br> | Grades | PVD Coating <b>P M K</b><br><b>PR2015 / PR2025 / PR2035</b>                                                           |                                                                                                          |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
|             | Grooving                                                                                                                                                | General Purpose<br><b>GM</b><br> | Low Feed<br><b>GL</b><br>    | High Feed<br><b>PH</b><br> | Copying<br><b>CM</b><br>           |        | Low Cutting Force<br><b>GS</b><br> | PCD<br><b>NB</b><br> |
| Tool Holder | <b>Internal coolant</b><br>JCTM Series for High Pressure Coolant<br> |                                                                                                                     |                                                                                                                 |                                                                                                               |                                                                                                                       |        | <b>External Coolant</b><br>Standard Type and Styles for Sub-Spindle tooling                                           |                                                                                                          |

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# Achieve stable machining with newly developed clamp structure

## Toolholder Sturdy Clamp Design

### Features

### Strength

#### 1. Gap Section

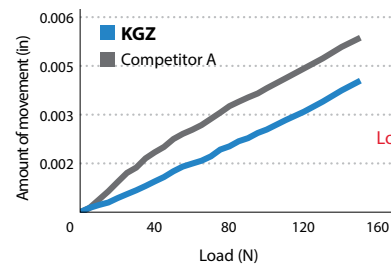
#### 2. Top Clamp

Pulls insert down and back

#### 3. Stopper

Obtuse angle stopper

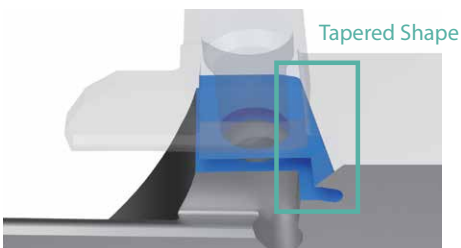
Cutting Edge Movement Comparison  
(Internal Evaluation)



KGZR1212JX-2

#### 1. Gap Section

Tapered slit creates strong insert hold



Prevents collapse

Strong clamping force in the insert direction



#### 2. Top Clamp

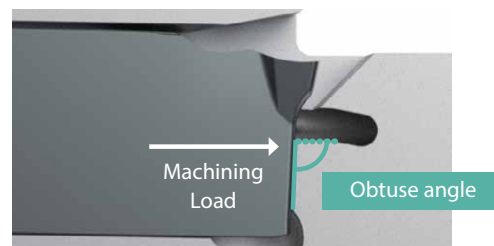
Pulls insert inward to increase hold



#### 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



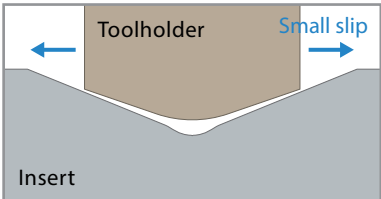
Insert Ease Insert Installation

Top V Shape Different groove angles at ends and center

Dependability

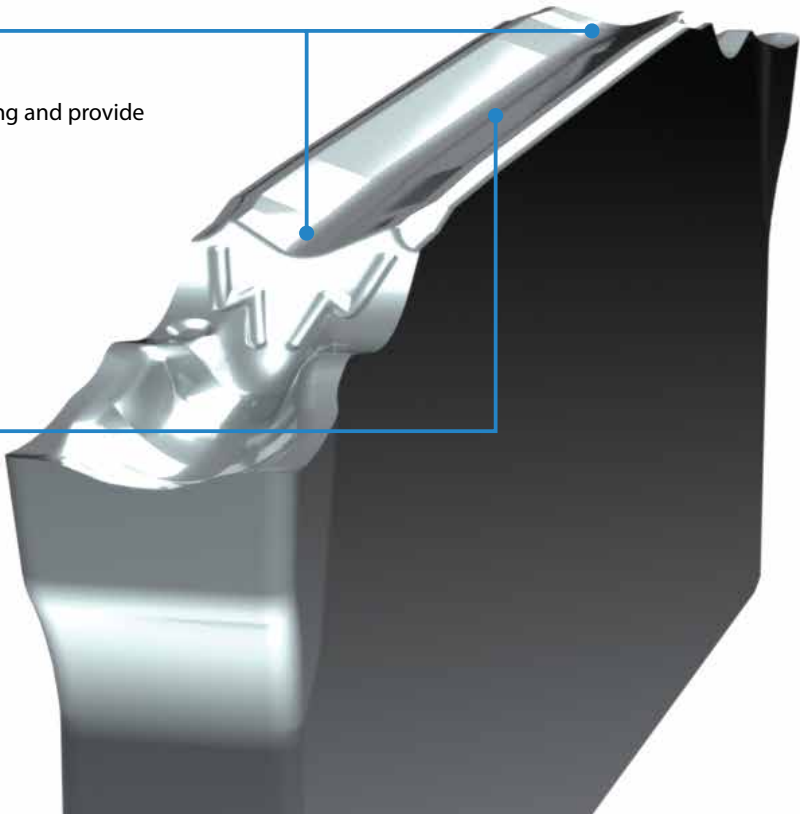
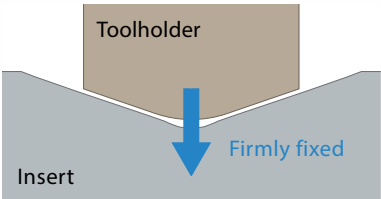
Groove End

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



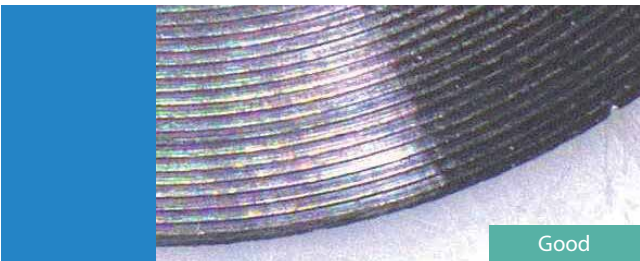
Groove Center

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



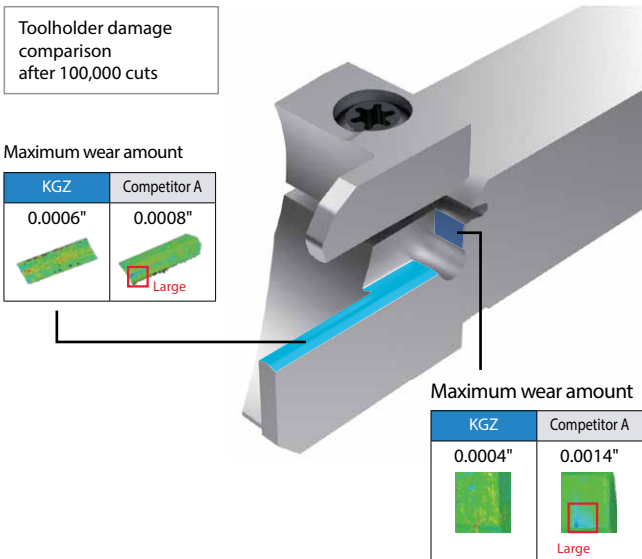
Excellent chatter resistance

Machined surface comparison (Internal evaluation)



Cutting Conditions : Vc = ~ 200 sfm, f = 0.005 ipr  
Workpiece : 303 (ø0.551") Wet (External coolant) KGZR1212JX-2  
Edge width 0.079" (2mm) (PM Chipbreaker)

Toolholder durability comparison (Internal evaluation)



Cutting Conditions : Vc = ~ 260 sfm, f = 0.004 ipr  
Workpiece : 303 (ø0.551") Wet (External coolant) KGZR1212JX-2  
Edge width : 0.079" (2mm) (PM Chipbreaker)

## 2 New insert grades PR20 series with MEGACOAT NANO EX coating technology provides longer tool life

# PR20 Series

PR2015

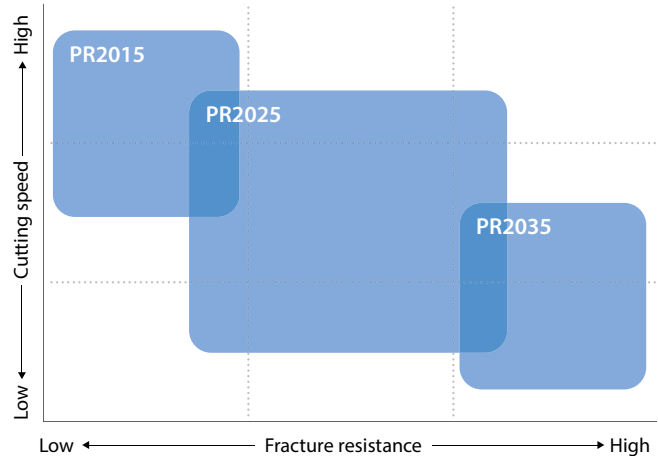
**1st recommendation for cast iron**  
Also available for steel and stainless steel

PR2025

**1st recommendation for steel**  
Also available for stainless steel

PR2035

**1st recommendation for stainless steel**  
Also available for steel

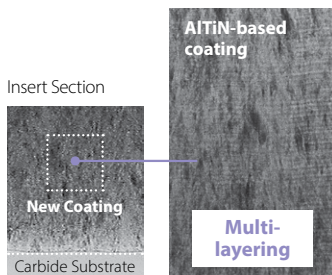
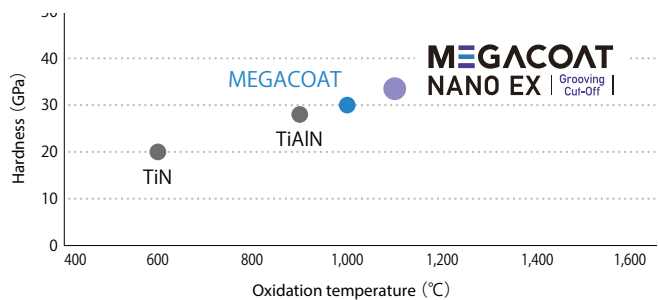


### New coating for grooving and cut-off machining



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

### Coating Characteristics (Internal Evaluation)



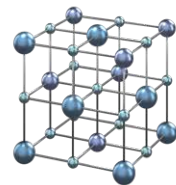
### Special Nano Coating Layer

- Long tool life**: Multi-layering of high content aluminum nano layers added with high melting point material having different concentration
- Excellent wear and fracture resistance**: Suppresses hexagonal crystal precipitation and achieves excellent oxidation resistance
- Stable machining**: Crystal grain refinement
- High coating toughness**: Optimized internal stress suppresses crack growth

### Unique Technology (Patent applied)

**Proprietary coating process**  
Improve high content aluminum nano layers performance

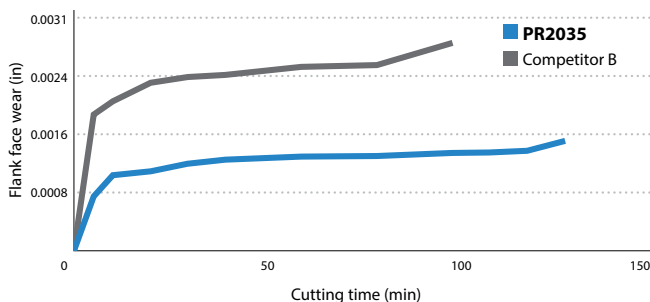
Maintains a cubic crystal structure to maximize the properties of aluminum (Al)



CG image

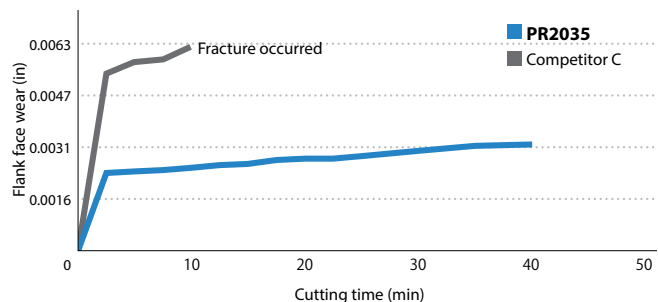
### Cutting Performance

#### 1045 Wear Resistance Comparison (Internal Evaluation)



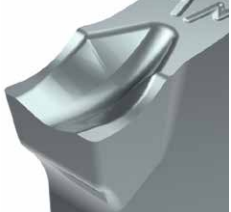
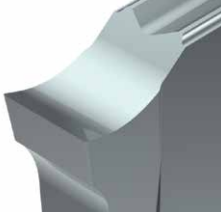
Cutting Conditions:  $V_c \sim 330$  sfm,  $f = 0.004$  ipr  
Workpiece: 1045 ( $\phi 0.787"$ ) Wet (External coolant) GZM2020N-020PM

#### 304 Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions:  $V_c \sim 260$  sfm,  $f = 0.002$  ipr  
Workpiece: 304 ( $\phi 0.787"$ ) Wet (External coolant) GZM2020N-020PM

## Large variety of insert and chipbreaker combinations for a wide range of applications

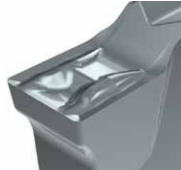
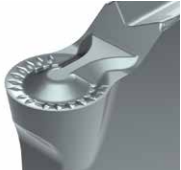
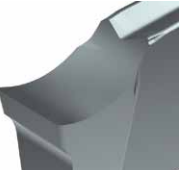
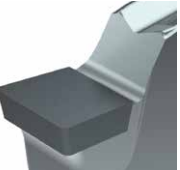
|                           | Chip Control Oriented                                                                                                                                                                           |                                                                                                                                                                     |                                                                                                                                                                      | Sharp Edge                                                                                                                                                                 |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chipbreakers<br>(Cut-Off) | Low Feed Machining<br><b>PF Chipbreaker</b>                                                                                                                                                     | Medium Feed Machining<br><b>PM Chipbreaker</b>                                                                                                                      | High Feed Machining<br><b>PH Chipbreaker</b>                                                                                                                         | Low Cutting Force<br><b>PG Chipbreaker</b>                                                                                                                                 |
|                           |                                                                                                                |                                                                                    |                                                                                    |                                                                                         |
|                           | With/Without Lead angle                                                                                                                                                                         | With/Without Lead angle                                                                                                                                             | No Lead angle                                                                                                                                                        | With/Without Lead angle                                                                                                                                                    |
| Grades                    | PR2015<br>PR2025<br>PR2035                                                                                                                                                                      | PR2015<br>PR2025<br>PR2035                                                                                                                                          | PR2015<br>PR2025<br>PR2035                                                                                                                                           | PR2025<br>PR2035<br>PDL025<br>GW15                                                                                                                                         |
| Features                  | Edge width from 0.051" (1.3mm)<br>For reducing cost of steel<br>workpiece<br><br>1010<br>"Chip control" video | High versatility<br>For a variety of machining<br><br>304<br>"Chip control" video | Reduced cycle time<br>For high feed machining<br><br>1045<br>"Chip control" video | Superior sharpness For<br>aluminum alloy machining<br><br>6061<br>"Chip control" video |

### Expanded lineup of grooving chipbreakers and insert grades NEW

For a variety of workpiece materials and applications

High precision molding technology with  $\pm 0.03\text{mm}$  tolerances

A comprehensive lineup of grades including new PR20 Series, Cermet, and PCD

|                            |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
|----------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Chipbreakers<br>(Grooving) | General Purpose<br><b>GM Chipbreaker</b>                                            | Low Feed<br><b>GL Chipbreaker</b>                                                   | Copying<br><b>CM Chipbreaker</b>                                                     | Low Cutting Force<br><b>GS Chipbreaker</b>                                            | PCD<br><b>NB (Without Chipbreaker)</b>                                                |
|                            |  |  |  |  |  |
| Grades                     | PR2015<br>PR2025<br>PR2035<br>TN620                                                 | PR2015<br>PR2025<br>PR2035<br>TN620                                                 | PR2015<br>PR2025<br>PR2035<br>TN620                                                  | PR2015<br>PR2025<br>PR2035<br>TN620<br>GW15                                           | KPD001                                                                                |

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

### Stable machining Breaks chips into small pieces with vibration machining

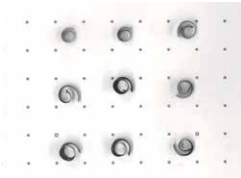
#### 304 Chip control comparison (Internal evaluation)

##### PF Chipbreaker



Good

Vibration  
machining



Breaks chips into  
small pieces

Cutting Conditions :  $V_c \sim 390$  sfm,  $f = 0.0012$  ipr

Workpiece : 304 ( $\phi 0.551"$ ) Wet (External coolant) KGZR1212JX-2 Edge width : 0.079" (2mm)

##### PM Chipbreaker



Good

Vibration  
machining



Breaks chips into  
small pieces

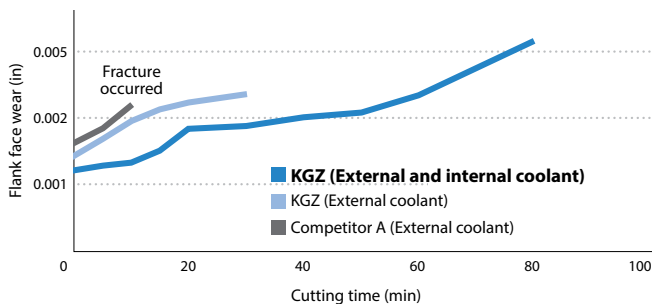
Cutting Conditions :  $V_c \sim 390$  sfm,  $f = 0.002$  ipr

Workpiece : 304 ( $\phi 0.551"$ ) Wet (External coolant) KGZR1616JX-2 Edge width : 0.079" (2mm)

### Long tool life

### Extended tool life in combination with internal coolant (JCTM)

#### Wear resistance comparison (Internal evaluation)



#### Cutting edge condition



After 40 minutes machining



After 15 minutes machining

Cutting Conditions :  $V_c \sim 390$  sfm,  $f = 0.002$  ipr Workpiece : 304 ( $\phi 0.551"$ ) Wet KGZR1218JX-2JCTM Edge width : 0.079" (2mm) (PM Chipbreaker)

## JCTM Series

Direct Coolant Holder for Small Parts Machining

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

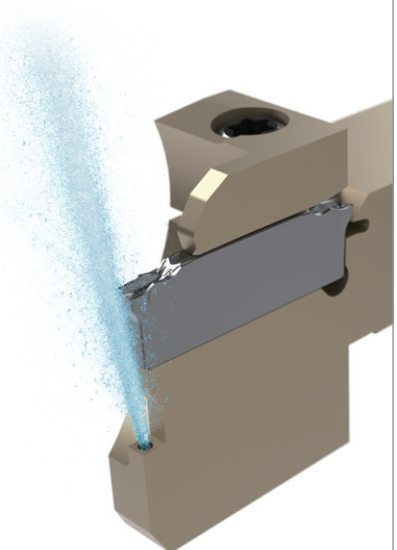
#### Without Piping

When the tool plate supports direct coolant

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

#### With Piping

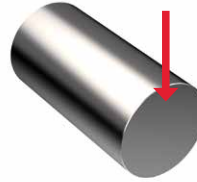
- Compatible with internal coolant on any machine with standard piping parts



## Case Studies



### 1 Pin 304



Cutting Conditions  
 $V_c \approx 120$  sfm  
 $f = 0.0008$  ipr  
 Wet (External coolant)  
 $\varnothing 0.591$ "  
 KGZL1616JX-2  
 GZM2020N-020PM (PR2035)

Number of Parts

KGZ

10,000 pcs/edge

Tool life

2x

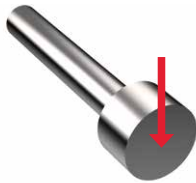
Competitor F

5,000 pcs/edge

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

(User Evaluation)

### 2 Base Metal 1045



Cutting Conditions (KGZ)  
 $V_c \approx 340$  sfm,  $f = 0.0008 - 0.0020$  ipr  
 Wet (External coolant)  $\varnothing 0.382$ "  
 Edge Width : 0.079" (2mm)  
 KGZL1212JX-2  
 GZM2020N-020PM (PR2025)  
 Cutting Conditions (Competitor G)  
 $V_c \approx 280$  sfm,  $f = 0.0008 - 0.0020$  ipr  
 Wet (External coolant)  $\varnothing 0.382$ "  
 Edge Width : 0.079"

Machining Efficiency

KGZ

$V_c \approx 340$  sfm

Machining Efficiency

UP

Competitor G

$V_c \approx 280$  sfm

KGZ machined the workpieces equivalent to competitor G with higher cutting speed.  
 The cutting edge was good.

(User Evaluation)

### 3 Automotive Parts 304F



Cutting Conditions  
 $V_c \approx 350$  sfm  
 $f = 0.0047$  ipr  
 Wet (External coolant)  
 $\varnothing 0.598$ "  
 KGZR1212JX-2  
 GZM2020N-020PM (PR2035)

Number of Parts

KGZ

250 pcs/edge

Tool life

1.9x

Competitor H

130 pcs/edge

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

(User Evaluation)

### 4 Wedge 1048



Cutting Conditions  
 $n = 2,100$  rpm (Constant)  
 $f = 0.0047$  ipr  
 Wet (External coolant)  
 $\varnothing 0.787$ "  
 KGZR1616JX-3  
 GZM3020N-025PM (PR2015)

Number of Parts

KGZ

2,000 pcs/edge

Tool life

1.1x

Competitor I

1,800 pcs/edge

Longer tool life under high feed conditions ( $f = 0.0047$  ipr).

(User Evaluation)

### 5 Sleeve 403



Cutting Conditions  
 $V_c \approx 240$  sfm  
 $f = 0.0031$  ipr  
 Wet (External coolant)  
 $\varnothing 2.559$ "  
 KGZR2020JX-3D42  
 GZM3020N-025PM (PR2025)

Number of Parts

KGZ

200 pcs/edge

Tool life

2x

Competitor J

100 pcs/edge

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

(User Evaluation)

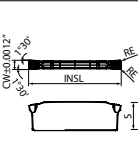
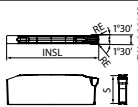
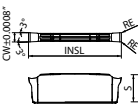
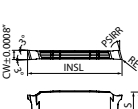
## GZM (Cut-Off Inserts)

| Shape<br><br>Right-Hand Insert Shown |                                                                                                                             |                     | Part Number | No. of Edges                               | Dimensions (mm) |    |                                                                                                                                                                                       | Angle | MEGACOAT NANO EX |    |      | DLC | Carbide                                                                                                                                                                               | Applicable Toolholders |        |        |        |        |        |      |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---------------------|-------------|--------------------------------------------|-----------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------|----|------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------|--------|--------|--------|--------|------|
|                                      |                                                                                                                             |                     |             |                                            | Edge Width CW   |    |                                                                                                                                                                                       |       | S                | RE | INSL |     |                                                                                                                                                                                       |                        | PSIR % | PR2015 | PR2025 | PR2035 | PDLO25 | GW15 |
|                                      |                                                                                                                             |                     |             |                                            | inch            | mm | Tolerance                                                                                                                                                                             |       |                  |    |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
| Low Feed (Cut-Off)                   | <br>CW=0.0016" 2.5°<br>INSL<br>RE<br>RE    | GZM 1316N-003PF     | 2           | +0.0016"<br>-0.0016"<br>+0.04mm<br>-0.04mm | 4.4             | 16 | 15°                                                                                                                                                                                   | ●     | ●                | ●  |      |     | KGZ $\frac{\text{P}}{\text{L}}$ ...1.3(D16)<br>KGZS $\frac{\text{P}}{\text{L}}$ ...1.3A/B                                                                                             |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 1316N-015PF         |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 1516N-003PF         |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     | KGZ $\frac{\text{P}}{\text{L}}$ ...1.5(D16)<br>KGZS $\frac{\text{P}}{\text{L}}$ ...1.5A/B                                                                                             |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 1516N-015PF         |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
|                                      | <br>CW=0.0016" 2.5°<br>INSL<br>PSIRR<br>RE | GZM 1316R-003PF-15D |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     | KGZ $\frac{\text{P}}{\text{L}}$ ...1.3(D16)<br>KGZS $\frac{\text{P}}{\text{L}}$ ...1.3A/B                                                                                             |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 1316L-003PF-15D     |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 1516R-003PF-15D     |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     | KGZ $\frac{\text{P}}{\text{L}}$ ...1.5(D16)<br>KGZS $\frac{\text{P}}{\text{L}}$ ...1.5A/B                                                                                             |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 1516L-003PF-15D     |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
|                                      | <br>CW=0.0016" 2°<br>INSL<br>RE           | GZM 2020N-003PF     |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     | KGZ $\frac{\text{P}}{\text{L}}$ ...-2(...)<br>KGZS $\frac{\text{P}}{\text{L}}$ ...-2A/B                                                                                               |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 2020N-015PF         |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 2520N-003PF         |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     | KGZ $\frac{\text{P}}{\text{L}}$ ...-2(...)<br>KGZ $\frac{\text{P}}{\text{L}}$ ...-2.4(...)<br>KGZS $\frac{\text{P}}{\text{L}}$ ...-2A/B                                               |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 2520N-015PF         |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 3020N-003PF         |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     | KGZ $\frac{\text{P}}{\text{L}}$ ...-2(...)<br>KGZ $\frac{\text{P}}{\text{L}}$ ...-2.4(...)<br>KGZ $\frac{\text{P}}{\text{L}}$ ...-3(...)<br>KGZS $\frac{\text{P}}{\text{L}}$ ...-2A/B |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 3020N-015PF         |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
|                                      | <br>CW=0.0016" 2°<br>INSL<br>PSIRR<br>RE | GZM 2020R-003PF-15D |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     | KGZ $\frac{\text{P}}{\text{L}}$ ...-2(...)<br>KGZS $\frac{\text{P}}{\text{L}}$ ...-2A/B                                                                                               |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 2020L-003PF-15D     |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 2020R-015PF-15D     |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 2520R-003PF-15D     |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     | KGZ $\frac{\text{P}}{\text{L}}$ ...-2(...)<br>KGZ $\frac{\text{P}}{\text{L}}$ ...-2.4(...)<br>KGZS $\frac{\text{P}}{\text{L}}$ ...-2A/B                                               |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 2520L-003PF-15D     |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 2520R-015PF-15D     |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
| 3020R-003PF-15D                      |                                                                                                                             | ●                   | ●           | ●                                          |                 |    | KGZ $\frac{\text{P}}{\text{L}}$ ...-2(...)<br>KGZ $\frac{\text{P}}{\text{L}}$ ...-2.4(...)<br>KGZ $\frac{\text{P}}{\text{L}}$ ...-3(...)<br>KGZS $\frac{\text{P}}{\text{L}}$ ...-2A/B |       |                  |    |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
| 3020L-003PF-15D                      |                                                                                                                             | ●                   | ●           | ●                                          |                 |    |                                                                                                                                                                                       |       |                  |    |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
| 3020R-015PF-15D                      | ●                                                                                                                           | ●                   | ●           |                                            |                 |    |                                                                                                                                                                                       |       |                  |    |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
|                                      | ●                                                                                                                           | ●                   | ●           |                                            |                 |    |                                                                                                                                                                                       |       |                  |    |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
| Medium Feed (Cut-Off)                | <br>CW=0.0012" 2°<br>INSL<br>RE          | GZM 2020N-020PM     | 2           | +0.0012"<br>-0.0012"<br>+0.03mm<br>-0.03mm | 5.9             | 20 | 6°                                                                                                                                                                                    | ●     | ●                | ●  |      |     | KGZ $\frac{\text{P}}{\text{L}}$ ...-2(...)<br>KGZS $\frac{\text{P}}{\text{L}}$ ...-2A/B                                                                                               |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 2520N-020PM         |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     | KGZ $\frac{\text{P}}{\text{L}}$ ...-2(...), KGZ $\frac{\text{P}}{\text{L}}$ ...-2.4(...)<br>KGZS $\frac{\text{P}}{\text{L}}$ ...-2A/B                                                 |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 3020N-025PM         |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     | KGZ $\frac{\text{P}}{\text{L}}$ ...-2(...), KGZ $\frac{\text{P}}{\text{L}}$ ...-2.4(...)<br>KGZ $\frac{\text{P}}{\text{L}}$ ...-3(...), KGZS $\frac{\text{P}}{\text{L}}$ ...-2A/B     |                        |        |        |        |        |        |      |
|                                      | <br>CW=0.0012" 2°<br>INSL<br>PSIRR<br>RE | GZM 2020R-020PM-6D  |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     | KGZ $\frac{\text{P}}{\text{L}}$ ...-2(...)<br>KGZS $\frac{\text{P}}{\text{L}}$ ...-2A/B                                                                                               |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 2520R-020PM-6D      |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     | KGZ $\frac{\text{P}}{\text{L}}$ ...-2(...), KGZ $\frac{\text{P}}{\text{L}}$ ...-2.4(...)<br>KGZS $\frac{\text{P}}{\text{L}}$ ...-2A/B                                                 |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             | 3020R-025PM-6D      |             |                                            |                 |    |                                                                                                                                                                                       | ●     | ●                | ●  |      |     | KGZ $\frac{\text{P}}{\text{L}}$ ...-2(...), KGZ $\frac{\text{P}}{\text{L}}$ ...-2.4(...)<br>KGZ $\frac{\text{P}}{\text{L}}$ ...-3(...), KGZS $\frac{\text{P}}{\text{L}}$ ...-2A/B     |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             |                     |             |                                            |                 |    |                                                                                                                                                                                       |       |                  |    |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             |                     |             |                                            |                 |    |                                                                                                                                                                                       |       |                  |    |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |
|                                      |                                                                                                                             |                     |             |                                            |                 |    |                                                                                                                                                                                       |       |                  |    |      |     |                                                                                                                                                                                       |                        |        |        |        |        |        |      |

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

●: Standard Item

## GZM / GZMS / GZG (Cut-Off Inserts)

| Shape<br><br>Right-Hand Insert Shown |                                                                                   |                                                                                                                                                                 | Part Number         | No. of Edges | Dimensions (mm) |     |                                            |     | Angle | MEGACOAT NANO EX |      |        | DLC                | Carbide | Applicable Toolholders |        |        |                                                                                 |        |      |   |   |                                                                                 |                                                                                 |
|--------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-----------------|-----|--------------------------------------------|-----|-------|------------------|------|--------|--------------------|---------|------------------------|--------|--------|---------------------------------------------------------------------------------|--------|------|---|---|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
|                                      |                                                                                   |                                                                                                                                                                 |                     |              | Edge Width CW   |     |                                            | S   |       | RE               | INSL | PSIR % |                    |         |                        | PR2015 | PR2025 | PR2035                                                                          | PDL025 | GW15 |   |   |                                                                                 |                                                                                 |
|                                      |                                                                                   |                                                                                                                                                                 |                     |              | inch            | mm  | Tolerance                                  |     |       |                  |      |        |                    |         |                        |        |        |                                                                                 |        |      |   |   |                                                                                 |                                                                                 |
| High Feed (Cut-Off / Grooving)       |  |  | GZM 2020N-020PH     | 2            | 0.079           | 2   | +0.0012"<br>-0.0012"<br>+0.03mm<br>-0.03mm | 5.9 | 0.2   | 20               | -    | -      | ●                  | ●       | ●                      |        |        | KGZ P/L ...-2(...)<br>KGZS P/L ...-2A/B                                         |        |      |   |   |                                                                                 |                                                                                 |
|                                      |                                                                                   |                                                                                                                                                                 | 2520N-020PH         |              | 0.098           | 2.5 |                                            |     |       |                  |      |        | ●                  | ●       | ●                      |        |        | KGZ P/L ...-2(...), KGZ P/L ...-2.4(...)<br>KGZS P/L ...-2A/B                   |        |      |   |   |                                                                                 |                                                                                 |
|                                      |                                                                                   |                                                                                                                                                                 | 3020N-030PH         |              | 0.118           | 3   |                                            |     |       |                  |      |        | ●                  | ●       | ●                      |        |        | KGZ P/L ...-2(...) KGZ P/L ...-2.4(...)<br>KGZ P/L ...-3(...) KGZS P/L ...-2A/B |        |      |   |   |                                                                                 |                                                                                 |
|                                      |  |  | GZMS 2020N-020PH    | 1            | 0.079           | 2   |                                            |     |       |                  |      |        | 5.9                | 0.05    | 20                     | -      | -      | ●                                                                               | ●      | ●    |   |   | KGZ P/L ...-2(...)<br>KGZS P/L ...-2A/B                                         |                                                                                 |
|                                      |                                                                                   |                                                                                                                                                                 | 3020N-030PH         |              | 0.118           | 3   |                                            |     |       |                  |      |        |                    |         |                        |        |        | ●                                                                               | ●      | ●    |   |   | KGZ P/L ...-2(...) KGZ P/L ...-2.4(...)<br>KGZ P/L ...-3(...) KGZS P/L ...-2A/B |                                                                                 |
|                                      |                                                                                   |                                                                                                                                                                 |                     |              |                 |     |                                            |     |       |                  |      |        |                    |         |                        |        |        |                                                                                 |        |      |   |   |                                                                                 |                                                                                 |
| Low Cutting Force (Cut-Off)          |  |  | GZG 2020N-005PG     | 2            | 0.079           | 2   | +0.0008"<br>-0.0008"                       | 5.9 | 0.05  | 20               | -    | -      |                    |         |                        |        |        |                                                                                 | ●      | ●    | ● | ● | KGZ P/L ...-2(...)<br>KGZS P/L ...-2A/B                                         |                                                                                 |
|                                      |                                                                                   |                                                                                                                                                                 | 2520N-005PG         |              | 0.098           | 2.5 |                                            |     |       |                  |      |        |                    |         |                        |        |        |                                                                                 | ●      | ●    | ● | ● | KGZ P/L ...-2(...), KGZ P/L ...-2.4(...)<br>KGZS P/L ...-2A/B                   |                                                                                 |
|                                      |                                                                                   |                                                                                                                                                                 | 3020N-005PG         |              | 0.118           | 3   |                                            |     |       |                  |      |        |                    |         |                        |        |        |                                                                                 | ●      | ●    | ● | ● | KGZ P/L ...-2(...) KGZ P/L ...-2.4(...)<br>KGZ P/L ...-3(...) KGZS P/L ...-2A/B |                                                                                 |
|                                      |  |  | GZG 2020R-005PG-15D | 2            | 0.079           | 2   |                                            |     |       |                  |      |        | +0.02mm<br>-0.02mm | 5.9     | 0.05                   | 20     | 15°    | -                                                                               |        | ●    | ● | ● | ●                                                                               | KGZ P/L ...-2(...)<br>KGZS P/L ...-2A/B                                         |
|                                      |                                                                                   |                                                                                                                                                                 | 2520R-005PG-15D     |              | 0.098           | 2.5 |                                            |     |       |                  |      |        |                    |         |                        |        |        |                                                                                 |        | ●    | ● | ● | ●                                                                               | KGZ P/L ...-2(...), KGZ P/L ...-2.4(...)<br>KGZS P/L ...-2A/B                   |
|                                      |                                                                                   |                                                                                                                                                                 | 3020R-005PG-15D     |              | 0.118           | 3   |                                            |     |       |                  |      |        |                    |         |                        |        |        |                                                                                 |        | ●    | ● | ● | ●                                                                               | KGZ P/L ...-2(...) KGZ P/L ...-2.4(...)<br>KGZ P/L ...-3(...) KGZS P/L ...-2A/B |

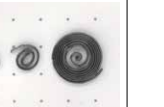
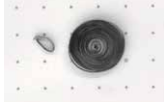
● : Standard Item

### Solution High efficiency machining with PH chipbreaker

Supports high feed machining with  $f = \sim 0.008$  ipr (steel) and  $f = \sim 0.006$  ipr (stainless steel)

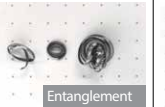
Excellent chip control in a wide range of machining area

#### 1045 Chip Control Comparison (Internal Evaluation)

| f (ipr)      | 0.004                                                                               | 0.006                                                                               | 0.008                                                                               |
|--------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| KGZ PH       |  |  |  |
| Competitor D |  |  |  |
| Competitor E |  |  |  |

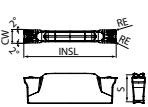
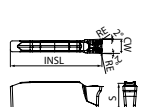
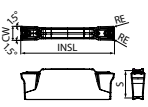
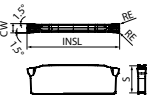
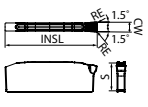
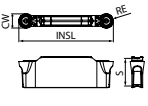
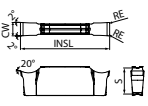
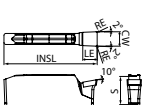
Cutting Conditions :  $V_c = \sim 490$  sfm Workpiece : 1045 ( $\phi 0.551"$ ) Wet (External coolant)  
KGZR1616JX-2 Edge Width : 0.079" (2mm) (PH Chipbreaker)

#### 304 Chip Control Comparison (Internal Evaluation)

| f (ipr)      | 0.004                                                                                | 0.005                                                                                 | 0.006                                                                                 |
|--------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| KGZ PH       |  |  |  |
| Competitor D |  |  |  |
| Competitor E |  |  |  |

Cutting Conditions :  $V_c = \sim 260$  sfm Workpiece : 304 ( $\phi 0.551"$ ) Wet (External coolant)  
KGZR1616JX-2 Edge Width : 0.079" (2mm) (PH Chipbreaker)

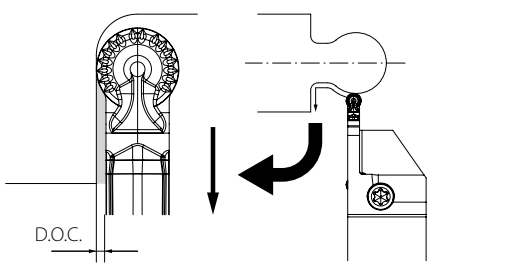
## GZM / GZMS / GZG (Grooving Inserts)

| Shape<br><br>Right-Hand Insert Shown |                                                                                     |                                                                                     | Part Number       | Edge Prep | No. of Edges | Dimensions (mm) |     |                                            |     | MEGACOAT<br>NANO EX |      |     | Carbide<br>GW15 | Cermet<br>TiN620 | PCD<br>KPD001 | Applicable<br>Toolholders                                                                                         |                                                                                                                   |        |        |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------|-----------|--------------|-----------------|-----|--------------------------------------------|-----|---------------------|------|-----|-----------------|------------------|---------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|--------|--------|
|                                      |                                                                                     |                                                                                     |                   |           |              | Edge Width CW   |     |                                            | S   | RE                  | INSL | LE  |                 |                  |               |                                                                                                                   | PR2015                                                                                                            | PR2025 | PR2035 |
|                                      |                                                                                     |                                                                                     |                   |           |              | inch            | mm  | Tolerance                                  |     |                     |      |     |                 |                  |               |                                                                                                                   |                                                                                                                   |        |        |
| General Purpose (Grooving)           |    |    | GZM 2420N-020GM   | -         | 2            | 0.094           | 2.4 | +0.0012"<br>-0.0012"                       | 5.9 | 0.2                 | 20   | -   | ●               | ●                | ●             | ●                                                                                                                 | KGZ <sup>®</sup> ...2(...), KGZ <sup>®</sup> ...2.4(...)<br>KGZS <sup>®</sup> ...2A/B                             |        |        |
|                                      |                                                                                     |                                                                                     | 3020N-020GM       |           |              | 0.118           | 3   |                                            |     | ●                   |      |     | ●               | ●                | ●             | KGZ <sup>®</sup> ...2(...), KGZ <sup>®</sup> ...2.4(...)<br>KGZ <sup>®</sup> ...3(...), KGZS <sup>®</sup> ...2A/B |                                                                                                                   |        |        |
|                                      |                                                                                     |                                                                                     | 3020N-040GM       |           |              | 0.118           | 3   |                                            |     | ●                   |      |     | ●               | ●                | ●             | KGZ <sup>®</sup> ...2(...), KGZ <sup>®</sup> ...2.4(...)<br>KGZ <sup>®</sup> ...3(...), KGZS <sup>®</sup> ...2A/B |                                                                                                                   |        |        |
|                                      |    |    | GZMS 2220N-020GM  | -         | 1            | 0.087           | 2.2 | +0.03mm<br>-0.03mm                         | 5.9 | 0.2                 | 20   | -   | ●               | ●                | ●             | ●                                                                                                                 | KGZ <sup>®</sup> ...2(...)<br>KGZS <sup>®</sup> ...2A/B                                                           |        |        |
|                                      |                                                                                     |                                                                                     | 3020N-040GM       |           |              | 0.118           | 3   |                                            |     | ●                   |      |     | ●               | ●                | ●             | KGZ <sup>®</sup> ...2(...), KGZ <sup>®</sup> ...2.4(...)<br>KGZ <sup>®</sup> ...3(...), KGZS <sup>®</sup> ...2A/B |                                                                                                                   |        |        |
|                                      |                                                                                     |                                                                                     |                   |           |              |                 |     |                                            |     |                     |      |     |                 |                  |               |                                                                                                                   |                                                                                                                   |        |        |
| Low Feed (Grooving)                  |    |    | GZM 2420N-020GL   | -         | 2            | 0.094           | 2.4 | +0.0012"<br>-0.0012"                       | 5.9 | 0.2                 | 20   | -   | ●               | ●                | ●             | ●                                                                                                                 | KGZ <sup>®</sup> ...2(...), KGZ <sup>®</sup> ...2.4(...)<br>KGZS <sup>®</sup> ...2A/B                             |        |        |
|                                      |                                                                                     |                                                                                     | 3020N-020GL       |           |              | 0.118           | 3   |                                            |     | ●                   |      |     | ●               | ●                | ●             | KGZ <sup>®</sup> ...2(...), KGZ <sup>®</sup> ...2.4(...)<br>KGZ <sup>®</sup> ...3(...), KGZS <sup>®</sup> ...2A/B |                                                                                                                   |        |        |
|                                      |                                                                                     |                                                                                     | 3020N-040GL       |           |              | 0.118           | 3   |                                            |     | ●                   |      |     | ●               | ●                | ●             | KGZ <sup>®</sup> ...2(...), KGZ <sup>®</sup> ...2.4(...)<br>KGZ <sup>®</sup> ...3(...), KGZS <sup>®</sup> ...2A/B |                                                                                                                   |        |        |
| High Feed (Cut-Off / Grooving)       |    |    | GZM 2020N-020PH   | -         | 2            | 0.079           | 2   | +0.0012"<br>-0.0012"                       | 5.9 | 0.2                 | 20   | -   | ●               | ●                | ●             | ●                                                                                                                 | KGZ <sup>®</sup> ...2(...)<br>KGZS <sup>®</sup> ...2A/B                                                           |        |        |
|                                      |                                                                                     |                                                                                     | 2520N-020PH       |           |              | 0.098           | 2.5 |                                            |     | ●                   |      |     | ●               | ●                | ●             | KGZ <sup>®</sup> ...2(...), KGZ <sup>®</sup> ...2.4(...)<br>KGZS <sup>®</sup> ...2A/B                             |                                                                                                                   |        |        |
|                                      |                                                                                     |                                                                                     | 3020N-030PH       |           |              | 0.118           | 3   |                                            |     | ●                   |      |     | ●               | ●                | ●             | KGZ <sup>®</sup> ...2(...), KGZ <sup>®</sup> ...2.4(...)<br>KGZ <sup>®</sup> ...3(...), KGZS <sup>®</sup> ...2A/B |                                                                                                                   |        |        |
|                                      |   |   | GZMS 2020N-020PH  | -         | 1            | 0.079           | 2   | +0.03mm<br>-0.03mm                         | 5.9 | 0.2                 | 20   | -   | ●               | ●                | ●             | ●                                                                                                                 | KGZ <sup>®</sup> ...2(...)<br>KGZS <sup>®</sup> ...2A/B                                                           |        |        |
|                                      |                                                                                     |                                                                                     | 3020N-030PH       |           |              | 0.118           | 3   |                                            |     | ●                   |      |     | ●               | ●                | ●             | KGZ <sup>®</sup> ...2(...), KGZ <sup>®</sup> ...2.4(...)<br>KGZ <sup>®</sup> ...3(...), KGZS <sup>®</sup> ...2A/B |                                                                                                                   |        |        |
|                                      |                                                                                     |                                                                                     |                   |           |              |                 |     |                                            |     |                     |      |     |                 |                  |               |                                                                                                                   |                                                                                                                   |        |        |
| Copying (Grooving)                   |  |  | GZM 3020N-150R-CM | -         | 2            | 0.118           | 3   | +0.0012"<br>-0.0012"<br>+0.03mm<br>-0.03mm | 5.9 | 1.5                 | 20   | -   | ●               | ●                | ●             | ●                                                                                                                 | KGZ <sup>®</sup> ...2(...), KGZ <sup>®</sup> ...2.4(...)<br>KGZ <sup>®</sup> ...3(...), KGZS <sup>®</sup> ...2A/B |        |        |
| Low Cutting Force (Grooving)         |  |  | GZG 2520N-020GS   | -         | 2            | 0.098           | 2.5 | +0.0008"<br>-0.0008"                       | 5.9 | 0.2                 | 20   | -   | ●               | ●                | ●             | ●                                                                                                                 | KGZ <sup>®</sup> ...2(...), KGZ <sup>®</sup> ...2.4(...)<br>KGZS <sup>®</sup> ...2A/B                             |        |        |
|                                      |                                                                                     |                                                                                     | 3020N-020GS       |           |              | 0.118           | 3   | +0.02mm<br>-0.02mm                         |     | ●                   |      |     | ●               | ●                | ●             | KGZ <sup>®</sup> ...2(...), KGZ <sup>®</sup> ...2.4(...)<br>KGZ <sup>®</sup> ...3(...), KGZS <sup>®</sup> ...2A/B |                                                                                                                   |        |        |
| PCD (Grooving)                       |  |  | GZGS 2020N-020NB  | F         | 1            | 0.079           | 2   | +0.0012"<br>-0.0012"                       | 5.9 | 0.2                 | 20   | 2.9 |                 |                  |               | ●                                                                                                                 | KGZ <sup>®</sup> ...2(...)<br>KGZS <sup>®</sup> ...2A/B                                                           |        |        |
|                                      |                                                                                     |                                                                                     | 3020N-020NB       |           |              | 0.118           | 3   | +0.03mm<br>-0.03mm                         |     |                     |      |     |                 |                  | ●             | KGZ <sup>®</sup> ...2(...), KGZ <sup>®</sup> ...2.4(...)<br>KGZ <sup>®</sup> ...3(...), KGZS <sup>®</sup> ...2A/B |                                                                                                                   |        |        |

● : Standard Item

## CM Chipbreaker [Depth of Cut (D.O.C.) when Back Copying]

| Insert Part Number | Maximum D.O.C.         |                    |                   |
|--------------------|------------------------|--------------------|-------------------|
|                    | Toolholder Part Number |                    |                   |
|                    | KGZ...2(...)           | KGZ...2.4(...)     | KGZ...3(...)      |
| GZM3020N-150R-CM   | 0.009"<br>(0.24mm)     | 0.009"<br>(0.24mm) | 0.008"<br>(0.2mm) |



D.O.C.

## Cut-Off

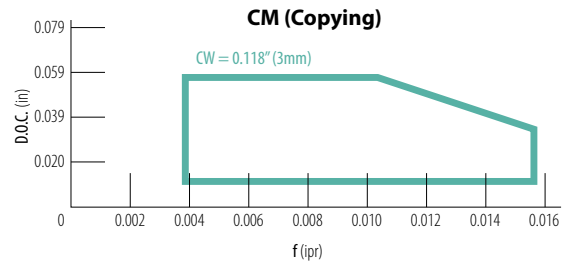
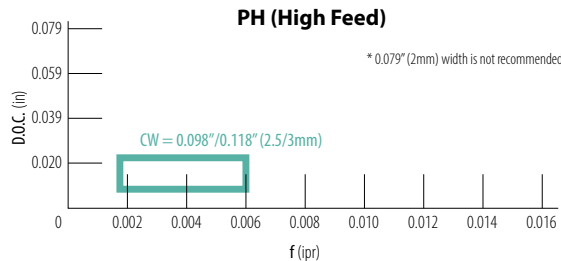
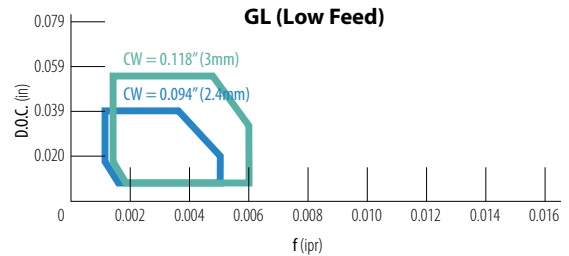
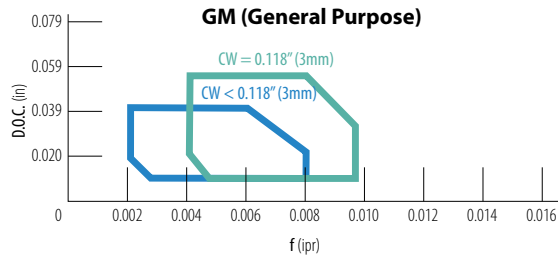
| Workpiece       | Recommended Insert Grade<br>(Vc : sfm) |              |              |               |               | f (ipr)                        |                   |                                |                              |                   |                                |                           |                           |                   |                                | Notes   |
|-----------------|----------------------------------------|--------------|--------------|---------------|---------------|--------------------------------|-------------------|--------------------------------|------------------------------|-------------------|--------------------------------|---------------------------|---------------------------|-------------------|--------------------------------|---------|
|                 |                                        |              |              |               |               | PF (RE = 0.0012")              |                   |                                | PF (RE = 0.0059")            |                   |                                | PM                        | PH                        | PG                |                                |         |
|                 | MEGACOAT NANO EX                       |              |              | DLC           | Carbide       | CW                             |                   |                                |                              |                   |                                |                           |                           |                   |                                |         |
|                 | PR2015                                 | PR2025       | PR2035       | PDL025        | GW15          | 0.051"~0.059"<br>(1.3mm~1.5mm) | 0.079"<br>(2mm)   | 0.098"~0.118"<br>(2.5mm~3.0mm) | 0.051~0.059<br>(1.3mm~1.5mm) | 0.079"<br>(2mm)   | 0.098"~0.118"<br>(2.5mm~3.0mm) | 0.079~0.118"<br>(2mm~3mm) | 0.079~0.118"<br>(2mm~3mm) | 0.079"<br>(2mm)   | 0.098"~0.118"<br>(2.5mm~3.0mm) |         |
| Carbon Steel    | ☆<br>230~590                           | ★<br>230~590 | ☆<br>230~490 | -             | -             | 0.0004~<br>0.0016              | 0.0008~<br>0.0024 | 0.0008~<br>0.0031              | 0.0004~<br>0.002             | 0.0012~<br>0.0031 | 0.0016~<br>0.0031              | 0.0020~<br>0.0059         | 0.0039~<br>0.0079         | 0.0004~<br>0.0016 | 0.0004~<br>0.002               | Coolant |
| Alloy Steel     | ☆<br>230~590                           | ★<br>230~590 | ☆<br>230~490 | -             | -             |                                |                   |                                |                              |                   |                                |                           |                           |                   |                                |         |
| Stainless Steel | ☆<br>200~490                           | ☆<br>200~390 | ★<br>200~390 | -             | -             | 0.0004~<br>0.0012              | 0.0004~<br>0.0016 | 0.0004~<br>0.0020              | 0.0004~<br>0.0016            | 0.0012~<br>0.0028 | 0.0016~<br>0.0031              | 0.0016~<br>0.0047         | 0.0031~<br>0.0063         | 0.0004~<br>0.0012 | 0.0004~<br>0.0016              |         |
| Cast Iron       | ★<br>260~660                           | -            | -            | -             | ☆<br>160~330  | 0.0004~<br>0.0020              | 0.001~<br>0.0028  | 0.0012~<br>0.0031              | 0.0004~<br>0.0024            | 0.0012~<br>0.0035 | 0.0016~<br>0.0039              | 0.002~<br>0.0059          | 0.0039~<br>0.0079         | 0.0004~<br>0.0016 | 0.0004~<br>0.002               |         |
| Aluminum Alloy  | -                                      | -            | -            | ★<br>660~1640 | ☆<br>660~1480 | -                              | -                 | -                              | -                            | -                 | -                              | -                         | -                         | 0.0004~<br>0.0020 | 0.0004~<br>0.0024              |         |
| Brass           | -                                      | -            | -            | -             | ★<br>330~660  | -                              | -                 | -                              | -                            | -                 | -                              | -                         | -                         | 0.0004~<br>0.0028 | 0.0004~<br>0.0031              |         |

## Grooving

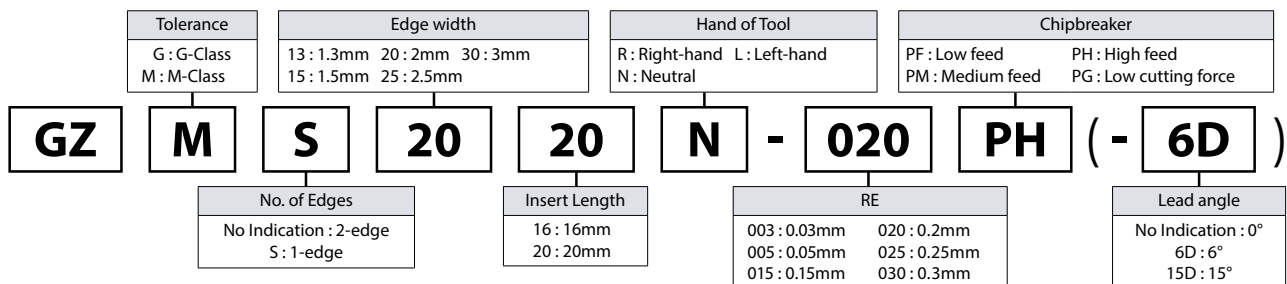
| Workpiece Material | Recommended Insert Grade<br>(Vc : sfm) |                |                |                |                 |                 | f (ipr)                        |                   |                   |                   |                                |                   |                                |                   |                   | Notes   |  |
|--------------------|----------------------------------------|----------------|----------------|----------------|-----------------|-----------------|--------------------------------|-------------------|-------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|-------------------|---------|--|
|                    |                                        |                |                |                |                 |                 | GM                             |                   | GL                |                   | PH                             | CM                | GS                             | NB                |                   |         |  |
|                    | MEGACOAT NANO EX                       |                |                |                | Cermet          | Carbide         | PCD                            | CW                |                   |                   |                                |                   |                                |                   |                   |         |  |
|                    | PR2015                                 | PR2025         | PR2035         | TN620          | GW15            | KPD001          | 0.087"~0.095"<br>(2.2mm~2.4mm) | 0.118"<br>(3.0mm) | 0.095"<br>(2.4mm) | 0.118"<br>(3.0mm) | 0.079"~0.118"<br>(2.0mm~3.0mm) | 0.118"<br>(3.0mm) | 0.098"~0.118"<br>(2.5mm~3.0mm) | 0.079"<br>(2.0mm) | 0.118"<br>(3.0mm) |         |  |
| Carbon Steel       | ☆<br>230 ~ 590                         | ★<br>230 ~ 490 | ☆<br>230 ~ 490 | ★<br>260 ~ 490 | -               | -               | 0.0020 ~ 0.0051                | 0.0028 ~ 0.0067   | 0.0012 ~ 0.0043   | 0.0016 ~ 0.0059   | 0.0039 ~ 0.0079                | 0.0020 ~ 0.0059   | 0.0016 ~ 0.0035                | -                 | -                 | Coolant |  |
| Alloy Steel        | ☆<br>230 ~ 590                         | ★<br>230 ~ 490 | ☆<br>230 ~ 490 | ★<br>260 ~ 490 | -               | -               |                                |                   |                   |                   |                                |                   |                                |                   |                   |         |  |
| Stainless Steel    | ☆<br>200 ~ 490                         | ☆<br>200 ~ 390 | ★<br>200 ~ 390 | -              | -               | -               | 0.0012 ~ 0.0047                | 0.0020 ~ 0.0059   | 0.0008 ~ 0.0039   | 0.0012 ~ 0.0047   | 0.0031 ~ 0.006                 | 0.0016 ~ 0.0047   | 0.0012 ~ 0.0031                | -                 | -                 |         |  |
| Cast Iron          | ★<br>260 ~ 660                         | -              | -              | -              | ☆<br>160 ~ 330  | -               | 0.0020 ~ 0.0051                | 0.0028 ~ 0.0067   | 0.0012 ~ 0.0043   | 0.0016 ~ 0.0059   | 0.0039 ~ 0.0079                | 0.0020 ~ 0.0059   | 0.0016 ~ 0.0035                | -                 | -                 |         |  |
| Aluminum Alloy     | -                                      | -              | -              | -              | ☆<br>660 ~ 1480 | ★<br>490 ~ 6560 | -                              | -                 | -                 | -                 | -                              | -                 | 0.0012 ~ 0.0028                | 0.0020 ~ 0.0059   | 0.0020 ~ 0.0059   |         |  |
| Brass              | -                                      | -              | -              | -              | ☆<br>330 ~ 660  | ★<br>660 ~ 2620 | -                              | -                 | -                 | -                 | -                              | -                 | -                              |                   |                   |         |  |

## Turning

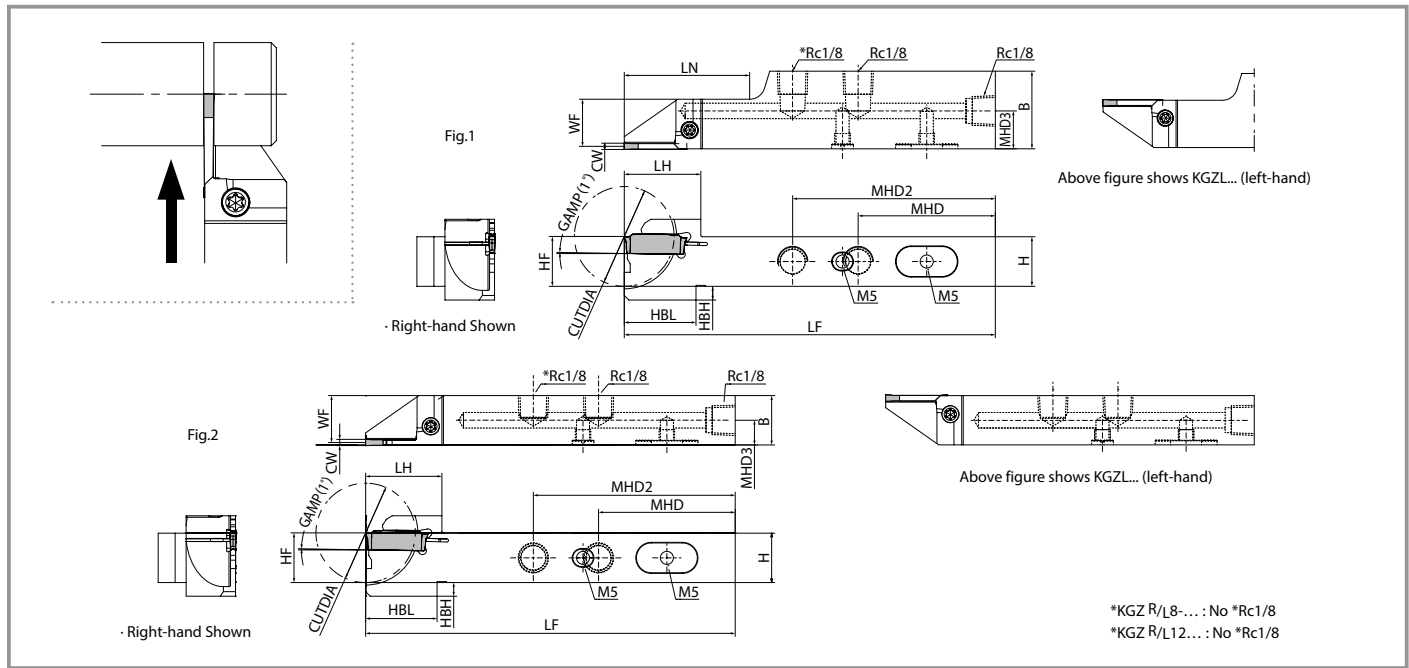
(Workpiece Material : 1049)



## Insert Identification System



## KGZ-JCTM (Coolant-Through)



### Inch Toolholder Dimensions

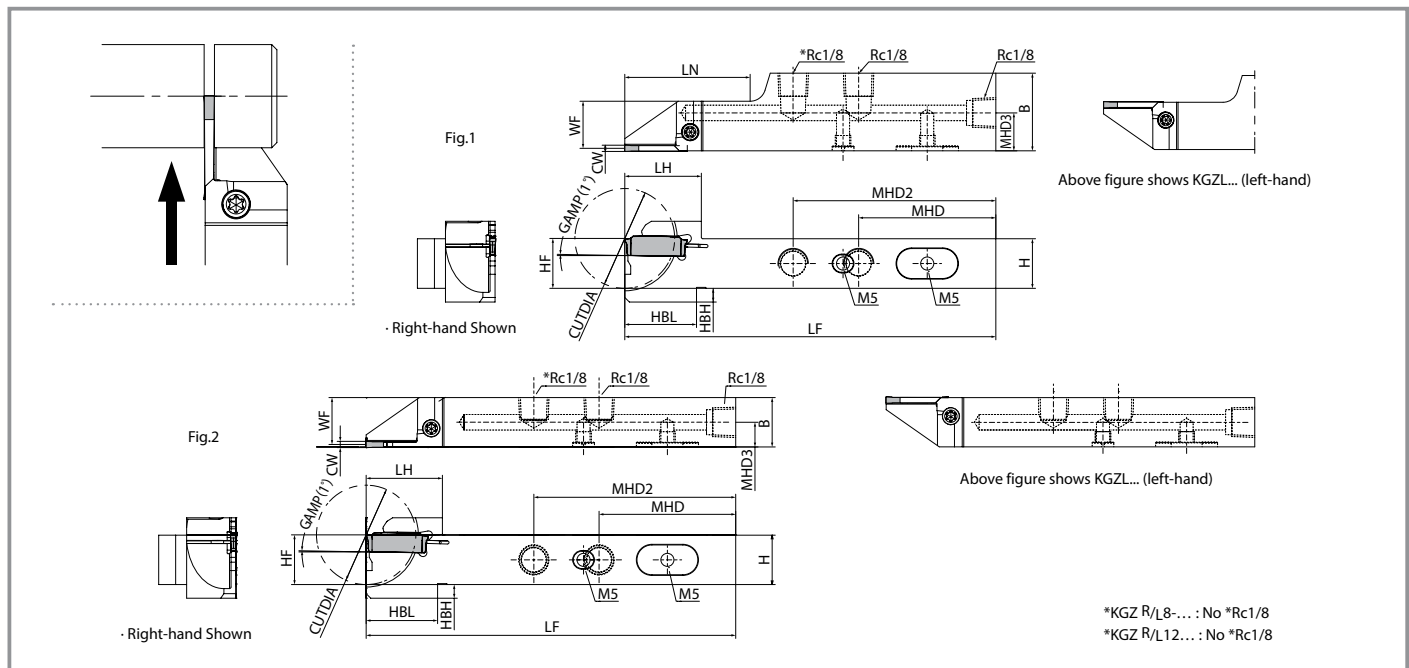
| Unit               | Part Number       | Std. Item |       | Dimensions (in) |       |       |       |       |       |       |       |       |       |       |       |                 |                   | Edge Width CW   |                                                                                      | Drawing | 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                                                                               |                                                                              |                    |
|                    |                   |           |       |                 |       |       |       |       |       |       |       |       |       |       |       |                 |                   |                 |  |         |  |  |  |                                                                              |                    |
| Inch               | KGZR 5.72-2JCTM   | ●         |       | 0.945           | 0.500 | 0.709 | 0.780 | 2.126 | -     | 0.331 | 0.500 | 0.335 | 0.778 | 4.750 | 1.717 | 0.469           | 0.079"<br>(2mm)   | 0.118"<br>(3mm) | Fig.1                                                                                | GP-1    | H55X4LP                                                                              | SB-40120TR                                                                           | LTW-15S                                                                              | GZ...2020...<br>GZ...2220...<br>GZ...2420...<br>GZ...2520...<br>GZ...3020... |                    |
|                    | KGZL 5.72-2JCTM   |           | ●     |                 |       |       |       |       |       | 0.303 |       |       |       |       |       |                 |                   |                 |                                                                                      |         |                                                                                      |                                                                                      |                                                                                      |                                                                              |                    |
|                    | KGZR 82.5-2JCTM   | ●         |       | 1.260           | 0.625 | 1.000 | 0.976 | 1.732 | 2.559 | 0.480 | 0.625 | 0.177 | 0.913 | 1.575 | 0.594 |                 |                   |                 |                                                                                      |         |                                                                                      |                                                                                      |                                                                                      |                                                                              |                    |
|                    | KGZL 82.5-2JCTM   |           | ●     |                 |       |       |       |       |       | 0.303 |       |       |       |       |       |                 |                   |                 |                                                                                      |         |                                                                                      |                                                                                      |                                                                                      |                                                                              |                    |
|                    | KGZR 5.72-2.4JCTM | ●         |       | 0.945           | 0.500 | 0.709 | 0.780 | 2.126 | -     | 0.331 | 0.500 | 0.335 | 0.778 | 4.750 | 1.717 | 0.461           | 0.095"<br>(2.4mm) | 0.118"<br>(3mm) | Fig.1                                                                                | GP-1    | H55X4LP                                                                              | SB-40120TR                                                                           | LTW-15S                                                                              | GZ...2420...<br>GZ...2520...<br>GZ...3020...                                 |                    |
|                    | KGZL 5.72-2.4JCTM |           | ●     |                 |       |       |       |       |       | 0.303 |       |       |       |       |       |                 |                   |                 |                                                                                      |         |                                                                                      |                                                                                      |                                                                                      |                                                                              |                    |
|                    | KGZR 82.5-2.4JCTM | ●         |       | 1.260           | 0.625 | 1.000 | 0.976 | 1.732 | 2.559 | 0.480 | 0.625 | 0.177 | 0.913 | 1.575 | 0.586 |                 |                   |                 |                                                                                      |         |                                                                                      |                                                                                      |                                                                                      |                                                                              |                    |
|                    | KGZL 82.5-2.4JCTM |           | ●     |                 |       |       |       |       |       | 0.303 |       |       |       |       |       |                 |                   |                 |                                                                                      |         |                                                                                      |                                                                                      |                                                                                      |                                                                              |                    |
|                    | KGZR 5.72-3JCTM   | ●         |       | 0.945           | 0.500 | 0.709 | 0.780 | 2.126 | -     | 0.339 | 0.500 | 0.335 | 0.778 | 4.750 | 1.717 | 0.453           | 0.118"<br>(3mm)   | 0.118"<br>(3mm) | Fig.1                                                                                | GP-1    | H55X4LP                                                                              | SB-40120TR                                                                           | LTW-15S                                                                              | GZ...3020...                                                                 |                    |
|                    | KGZL 5.72-3JCTM   |           | ●     |                 |       |       |       |       |       | 0.303 |       |       |       |       |       |                 |                   |                 |                                                                                      |         |                                                                                      |                                                                                      |                                                                                      |                                                                              |                    |
|                    | KGZR 82.5-3JCTM   | ●         |       | 1.260           | 0.625 | 1.000 | 0.976 | 1.732 | 2.559 | 0.480 | 0.625 | 0.177 | 0.913 | 1.575 | 0.578 |                 |                   |                 |                                                                                      |         |                                                                                      |                                                                                      |                                                                                      |                                                                              |                    |
|                    | KGZL 82.5-3JCTM   |           | ●     |                 |       |       |       |       |       | 0.303 |       |       |       |       |       |                 |                   |                 |                                                                                      |         |                                                                                      |                                                                                      |                                                                                      |                                                                              |                    |
|                    | KGZ% 8-2JCTM      | ●         | ●     | 0.945           | 0.500 | 0.500 | 0.780 | 2.323 | -     | 0.236 | 0.500 | 0.236 | 0.780 | 4.750 |       | 0.469           | 0.079"<br>(2mm)   | 0.118"<br>(3mm) | Fig.2                                                                                | GP-1    | H55X4LP                                                                              | SB-40120TR                                                                           | LTW-15S                                                                              | GZ...2020...<br>GZ...2220...<br>GZ...2420...<br>GZ...2520...<br>GZ...3020... |                    |
|                    | KGZ% 10-2D26JCTM  | ●         | ●     |                 |       |       |       |       |       |       |       |       |       |       |       |                 |                   |                 |                                                                                      |         |                                                                                      |                                                                                      |                                                                                      |                                                                              | 1.024              |
|                    | KGZ% 10-2JCTM     | ●         | ●     | 1.260           | 0.625 | 0.625 | 0.976 | 1.732 | 2.559 | 0.315 | 0.625 | 0.039 | 0.913 |       |       |                 |                   |                 |                                                                                      |         |                                                                                      |                                                                                      |                                                                                      |                                                                              |                    |
|                    | KGZ% 8-2.4JCTM    | ●         | ●     | 0.945           | 0.500 | 0.500 | 0.780 | 2.323 | -     | 0.236 | 0.500 | 0.236 | 0.780 | 4.750 |       | 0.461           | 0.095"<br>(2.4mm) | 0.118"<br>(3mm) | Fig.2                                                                                | GP-1    | H55X4LP                                                                              | SB-40120TR                                                                           | LTW-15S                                                                              | GZ...2420...<br>GZ...2520...<br>GZ...3020...                                 |                    |
| KGZ% 10-2.4D26JCTM | ●                 | ●         | 1.024 |                 |       |       |       |       |       |       |       |       |       |       |       |                 |                   |                 |                                                                                      |         |                                                                                      |                                                                                      |                                                                                      |                                                                              |                    |
| KGZ% 10-2.4JCTM    | ●                 | ●         | 1.260 | 0.625           | 0.625 | 0.976 | 1.732 | 2.559 | 0.315 | 0.625 | 0.039 | 0.913 |       |       |       |                 |                   |                 |                                                                                      |         |                                                                                      |                                                                                      |                                                                                      |                                                                              |                    |
| KGZ% 8-3JCTM       | ●                 | ●         | 0.945 | 0.500           | 0.500 | 0.780 | 2.323 | -     | 0.236 | 0.500 | 0.236 | 0.780 | 4.750 |       | 0.453 | 0.118"<br>(3mm) | 0.118"<br>(3mm)   | Fig.2           | GP-1                                                                                 | H55X4LP | SB-40120TR                                                                           | LTW-15S                                                                              | GZ...3020...                                                                         |                                                                              |                    |
| KGZ% 10-3D26JCTM   | ●                 | ●         |       |                 |       |       |       |       |       |       |       |       |       |       |       |                 |                   |                 |                                                                                      |         |                                                                                      |                                                                                      |                                                                                      | 1.024                                                                        |                    |
| KGZ% 10-3JCTM      | ●                 | ●         | 1.260 | 0.625           | 0.625 | 0.976 | 1.732 | 2.559 | 0.315 | 0.625 | 0.039 | 0.913 |       |       |       |                 |                   |                 |                                                                                      |         |                                                                                      |                                                                                      |                                                                                      |                                                                              |                    |

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 Item

## KGZ-JCTM (Coolant-Through)



## Metric Toolholder Dimensions

| Unit | Part Number                       | Std. Item |     | Dimensions (mm) |    |    |      |     |      |      |    |     |      |      |      |                   | Edge Width CW     |                 | Drawing | 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                                       |                                                                              |                                                                              |
|      |                                   |           |     |                 |    |    |      |     |      |      |    |     |      |      |      |                   |                   |                 |         |             |            |             |                                              |                                                                              |                                                                              |
| mm   | KGZR 1218JX-2JCTM                 | ●         |     | 24              | 12 | 18 | 19.8 | 54  | -    | 8.4  | 12 | 8.5 | 19.8 | 120  | 43.7 | 11.2              | 0.079"<br>(2mm)   | 0.118"<br>(3mm) | Fig.1   | GP-1        | HSSX4LP    | SB-40120TR  | LTW-15S                                      | GZ...2020...<br>GZ...2220...<br>GZ...2420...<br>GZ...2520...<br>GZ...3020... |                                                                              |
|      |                                   | ●         | 7.7 |                 |    |    |      |     |      |      |    |     |      |      |      |                   |                   |                 |         |             |            |             |                                              |                                                                              |                                                                              |
|      | KGZR 1625JX-2JCTM                 | ●         |     | 32              | 16 | 25 | 24.8 | 44  | 65   | 12.2 | 16 | 4.5 | 23.2 | 40.0 | 15.2 | 0.095"<br>(2.4mm) | 0.118"<br>(3mm)   | Fig.1           | GP-1    | HSSX4LP     | SB-40120TR | LTW-15S     | GZ...2420...<br>GZ...2520...<br>GZ...3020... |                                                                              |                                                                              |
|      |                                   | ●         | 7.7 |                 |    |    |      |     |      |      |    |     |      |      |      |                   |                   |                 |         |             |            |             |                                              |                                                                              |                                                                              |
|      | KGZR 1218JX-2.4JCTM               | ●         |     | 24              | 12 | 18 | 19.8 | 54  | -    | 8.4  | 12 | 8.5 | 19.8 | 120  | 43.7 | 11.0              | 0.095"<br>(2.4mm) | 0.118"<br>(3mm) | Fig.1   | GP-1        | HSSX4LP    | SB-40120TR  |                                              | LTW-15S                                                                      | GZ...2420...<br>GZ...2520...<br>GZ...3020...                                 |
|      |                                   | ●         | 7.7 |                 |    |    |      |     |      |      |    |     |      |      |      |                   |                   |                 |         |             |            |             |                                              |                                                                              |                                                                              |
|      | KGZR 1625JX-2.4JCTM               | ●         |     | 32              | 16 | 25 | 24.8 | 44  | 65   | 12.2 | 16 | 4.5 | 23.2 | 40.0 | 15.0 | 0.118"<br>(3mm)   | 0.118"<br>(3mm)   | Fig.1           | GP-1    | HSSX4LP     | SB-40120TR | LTW-15S     | GZ...3020...                                 |                                                                              |                                                                              |
|      |                                   | ●         | 7.7 |                 |    |    |      |     |      |      |    |     |      |      |      |                   |                   |                 |         |             |            |             |                                              |                                                                              |                                                                              |
|      | KGZR 1218JX-3JCTM                 | ●         |     | 24              | 12 | 18 | 19.8 | 54  | -    | 8.6  | 12 | 8.5 | 19.8 | 120  | 43.7 | 10.8              | 0.118"<br>(3mm)   | 0.118"<br>(3mm) | Fig.1   | GP-1        | HSSX4LP    | SB-40120TR  |                                              | LTW-15S                                                                      | GZ...2020...<br>GZ...2220...<br>GZ...2420...<br>GZ...2520...<br>GZ...3020... |
|      |                                   | ●         | 7.7 |                 |    |    |      |     |      |      |    |     |      |      |      |                   |                   |                 |         |             |            |             |                                              |                                                                              |                                                                              |
|      | KGZR 1625JX-3JCTM                 | ●         |     | 32              | 16 | 25 | 24.8 | 44  | 65   | 12.2 | 16 | 4.5 | 23.2 | 40.0 | 14.8 | 0.079"<br>(2mm)   | 0.118"<br>(3mm)   | Fig.2           | GP-1    | HSSX4LP     | SB-40120TR | LTW-15S     | GZ...2420...<br>GZ...2520...<br>GZ...3020... |                                                                              |                                                                              |
|      |                                   | ●         | 7.7 |                 |    |    |      |     |      |      |    |     |      |      |      |                   |                   |                 |         |             |            |             |                                              |                                                                              |                                                                              |
|      | KGZ <sup>®</sup> 1212JX-2JCTM     | ●         | ●   | 24              | 12 | 12 | 19.8 | 59  | -    | 6    | 12 | 5   | 19.8 | 120  | 11.2 | 15.2              | 0.079"<br>(2mm)   | 0.118"<br>(3mm) | Fig.2   | GP-1        | HSSX4LP    | SB-40120TR  |                                              | LTW-15S                                                                      | GZ...2020...<br>GZ...2220...<br>GZ...2420...<br>GZ...2520...<br>GZ...3020... |
|      | KGZ <sup>®</sup> 1616JX2D26JCTM   | ●         | ●   |                 |    |    |      |     |      |      |    |     |      |      |      |                   |                   |                 |         |             |            |             |                                              |                                                                              |                                                                              |
|      | KGZ <sup>®</sup> 1616JX-2JCTM     | ●         | ●   | 32              |    |    |      |     |      |      |    | 4.5 |      |      |      |                   |                   |                 |         |             |            |             |                                              |                                                                              |                                                                              |
|      | KGZ <sup>®</sup> 1212JX-2.4JCTM   | ●         | ●   | 24              | 12 | 12 | 19.8 | 59  | -    | 6    | 12 | 5   | 19.8 | 120  | 11.0 | 15.0              | 0.095"<br>(2.4mm) | 0.118"<br>(3mm) | Fig.2   | GP-1        | HSSX4LP    | SB-40120TR  | LTW-15S                                      | GZ...2420...<br>GZ...2520...<br>GZ...3020...                                 |                                                                              |
|      | KGZ <sup>®</sup> 1616JX2.4D26JCTM | ●         | ●   |                 |    |    |      |     |      |      |    |     |      |      |      |                   |                   |                 |         |             |            |             |                                              |                                                                              | 26                                                                           |
|      | KGZ <sup>®</sup> 1616JX-2.4JCTM   | ●         | ●   | 32              |    |    |      |     |      |      |    | 4.5 |      |      |      |                   |                   |                 |         |             |            |             |                                              |                                                                              |                                                                              |
|      | KGZ <sup>®</sup> 1212JX-3JCTM     | ●         | ●   | 24              | 12 | 12 | 19.8 | 59  | -    | 6    | 12 | 5   | 19.8 | 120  | 10.8 | 14.8              | 0.118"<br>(3mm)   | 0.118"<br>(3mm) | Fig.2   | GP-1        | HSSX4LP    | SB-40120TR  | LTW-15S                                      |                                                                              | GZ...3020...                                                                 |
|      | KGZ <sup>®</sup> 1616JX3D26JCTM   | ●         | ●   |                 |    |    |      |     |      |      |    |     |      |      |      |                   |                   |                 |         |             |            |             |                                              | 26                                                                           |                                                                              |
|      | KGZ <sup>®</sup> 1616JX-3JCTM     | ●         | ●   | 32              |    |    |      |     |      |      |    | 4.5 |      |      |      |                   |                   |                 |         |             |            |             |                                              |                                                                              |                                                                              |

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

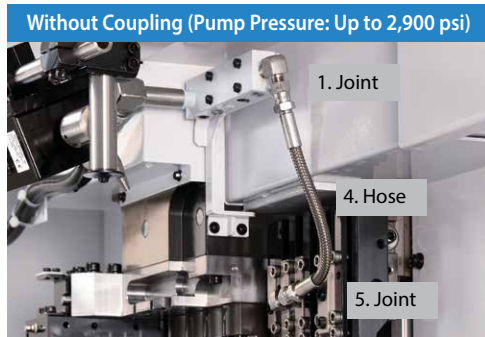
GM\* and GD\* inserts cannot be installed in the KGZ holder (GMM, GMG, GMN, GMR/L, GDM, GDG, GDGS, GDMS).

● : Standard Item

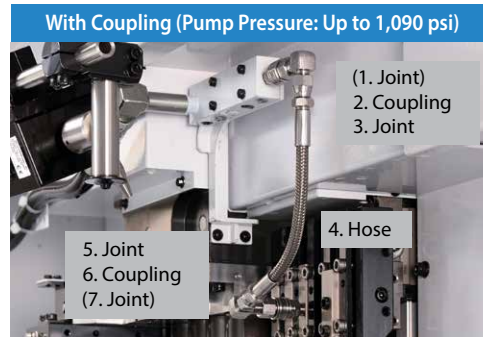
## Piping Parts

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

Pump Pressure : Up to 2,900 psi. Pump Pressure: Up to 1,090 psi if coupling is used.



Without Coupling (Pump Pressure: Up to 2,900 psi)



With Coupling (Pump Pressure: Up to 1,090 psi)

| Spare Parts | Part Number      |
|-------------|------------------|
| 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 | Part Number            |
|-------------|------------------------|
| (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 : ~2,900 psi

(Unit:mm)

| Shape | Part Number       | Std. Item | 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-ST-R1/8-G1/8-L  | ●         | 4.0 | 4.0 | 40 | 20 | 14 | R1/8   | G1/8  |
|       | J-AN-R1/8-G1/8    | ●         | 4.0 | 4.0 | 27 | 14 | 13 | R1/8   | G1/8  |
|       | J-AN-R1/8-G1/8-L  | ●         | 4.0 | 4.0 | 34 | 20 | 14 | 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 Item

Coupling (2/6) Pressure : ~1,090 psi

(Unit:mm)

| Shape | Part Number | Std. Item |
|-------|-------------|-----------|
|       | CP-ST-R1/8  | ●         |
|       | P-ST-RC1/8  | ●         |

● : Standard Item

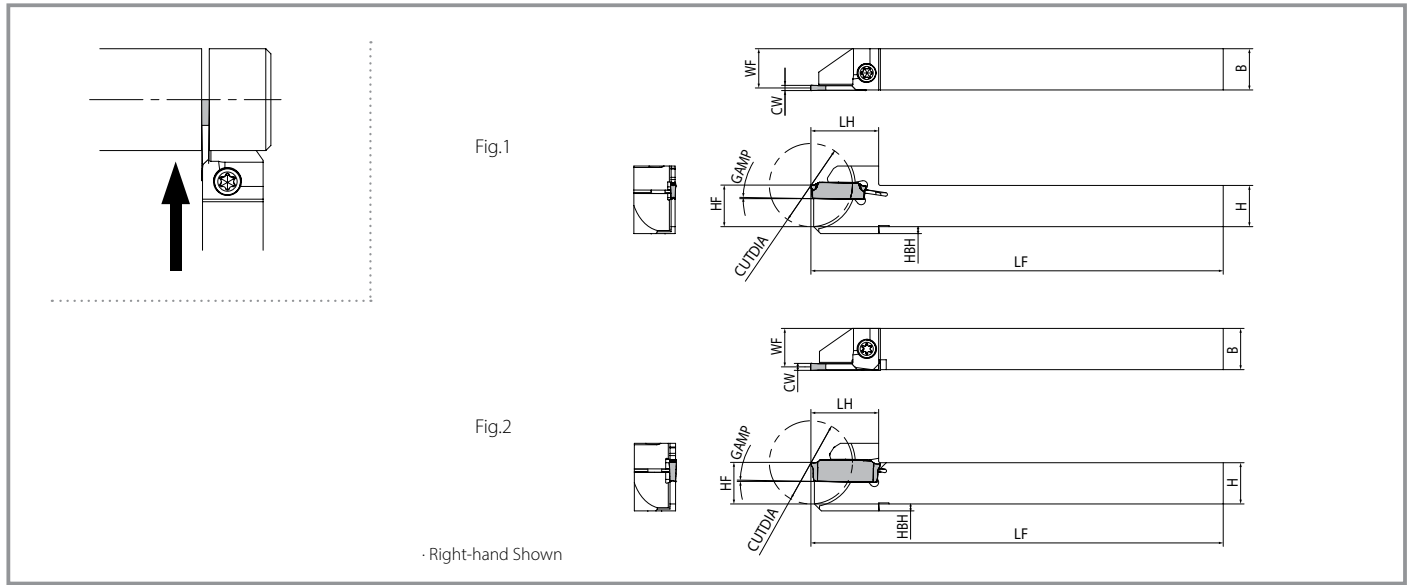
Hose (4) Pressure : ~2,900 psi

(Unit:mm)

| Shape | Part Number      | Std. Item | 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 Item

## KGZ (Standard Toolholders)



### Inch Toolholder Dimensions

| Unit | Part Number  | Std. Item |   | Dimensions (in) |       |       |       |       |       |       |       | Edge Width<br>CW  |                   | GAMP (°) | Drawing | Spare Parts                                                                         |                                                                                     | Applicable<br>Inserts                                                        |
|------|--------------|-----------|---|-----------------|-------|-------|-------|-------|-------|-------|-------|-------------------|-------------------|----------|---------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
|      |              | R         | L | CUTDIA          | H     | B     | LH    | HF    | HBH   | LF    | WF    | MIN               | MAX               |          |         |  |  |                                                                              |
|      |              |           |   |                 |       |       |       |       |       |       |       |                   |                   |          |         |                                                                                     |                                                                                     |                                                                              |
| Inch | KGZ% 6-1.3JX | ●         | ● | 0.787           | 0.375 | 0.375 | 0.736 | 0.375 | 0.101 | 4.750 | 0.356 | 0.051"<br>(1.3mm) | 0.051"<br>(1.3mm) | 1°       | Fig.1   | SB-40120TR                                                                          | LTW-15S                                                                             | GZ...1316...                                                                 |
|      | 8-1.3JX      | ●         | ● | 0.945           | 0.500 | 0.500 | 0.780 | 0.500 | 0.055 |       | 0.481 |                   |                   |          |         |                                                                                     |                                                                                     |                                                                              |
|      | KGZ% 6-1.5JX | ●         | ● | 0.787           | 0.375 | 0.375 | 0.736 | 0.375 | 0.101 | 4.750 | 0.352 | 0.059"<br>(1.5mm) | 0.059"<br>(1.5mm) | 1°       | Fig.1   | SB-40120TR                                                                          | LTW-15S                                                                             | GZ...1516...                                                                 |
|      | 8-1.5JX      | ●         | ● | 0.945           | 0.500 | 0.500 | 0.780 | 0.500 | 0.055 |       | 0.477 |                   |                   |          |         |                                                                                     |                                                                                     |                                                                              |
|      | KGZ% 6-2JX   | ●         | ● | 0.787           | 0.375 | 0.375 | 0.736 | 0.375 | 0.101 | 4.750 | 0.344 | 0.079"<br>(2mm)   | 0.118"<br>(3mm)   | 2°       | Fig.2   | SB-40120TR                                                                          | LTW-15S                                                                             | GZ...2020...<br>GZ...2220...<br>GZ...2420...<br>GZ...2520...<br>GZ...3020... |
|      | 8-2JX        | ●         | ● | 0.945           | 0.500 | 0.500 | 0.780 | 0.500 | 0.055 |       | 0.469 |                   |                   |          |         |                                                                                     |                                                                                     |                                                                              |
|      | 10-2JX       | ●         | ● | 1.260           | 0.625 | 0.625 | 0.976 | 0.625 | -     |       | 0.594 |                   |                   |          |         |                                                                                     |                                                                                     |                                                                              |
|      | KGZ% 6-2.4JX | ●         | ● | 0.787           | 0.375 | 0.375 | 0.736 | 0.375 | 0.101 | 4.750 | 0.336 | 0.095"<br>(2.4mm) | 0.118"<br>(3mm)   | 2°       | Fig.2   | SB-40120TR                                                                          | LTW-15S                                                                             | GZ...2420...<br>GZ...2520...<br>GZ...3020...                                 |
|      | 8-2.4JX      | ●         | ● | 0.945           | 0.500 | 0.500 | 0.780 | 0.500 | 0.055 |       | 0.461 |                   |                   |          |         |                                                                                     |                                                                                     |                                                                              |
|      | 10-2.4JX     | ●         | ● | 1.260           | 0.625 | 0.625 | 0.976 | 0.625 | -     |       | 0.586 |                   |                   |          |         |                                                                                     |                                                                                     |                                                                              |
|      | KGZ% 8-3JX   | ●         | ● | 0.945           | 0.500 | 0.500 | 0.780 | 0.500 | 0.055 | 4.750 | 0.453 | 0.118"<br>(3mm)   | 0.118"<br>(3mm)   | 1°       | Fig.2   | SB-40120TR                                                                          | LTW-15S                                                                             | GZ...3020...                                                                 |
|      | 10-3JX       | ●         | ● | 1.260           | 0.625 | 0.625 | 0.976 | 0.625 | -     |       | 0.578 |                   |                   |          |         |                                                                                     |                                                                                     |                                                                              |
|      | 10-3D38JX    | ●         | ● | 1.496           | 0.625 | 0.625 | 1.134 | 0.625 |       |       | 0.578 |                   |                   |          |         |                                                                                     |                                                                                     |                                                                              |
|      | 12-3D42JX    | ●         | ● | 1.654           | 0.750 | 0.750 | 1.217 | 0.750 |       |       | 0.703 |                   |                   |          |         |                                                                                     |                                                                                     |                                                                              |
|      | 43-3D42JX    | ●         | ● | 1.654           | 0.750 | 0.750 | 1.217 | 0.750 |       |       | 0.453 |                   |                   |          |         |                                                                                     |                                                                                     |                                                                              |

Recommended tightening torque : 2.0N · m (SB-40120TR), 2.5N · m (SE-50125TR)

When machining large cutting dia. (over 1.417" (36mm)) with KGZ R/L...-3D38 or KGZ R/L...-3D42, please follow the instructions below

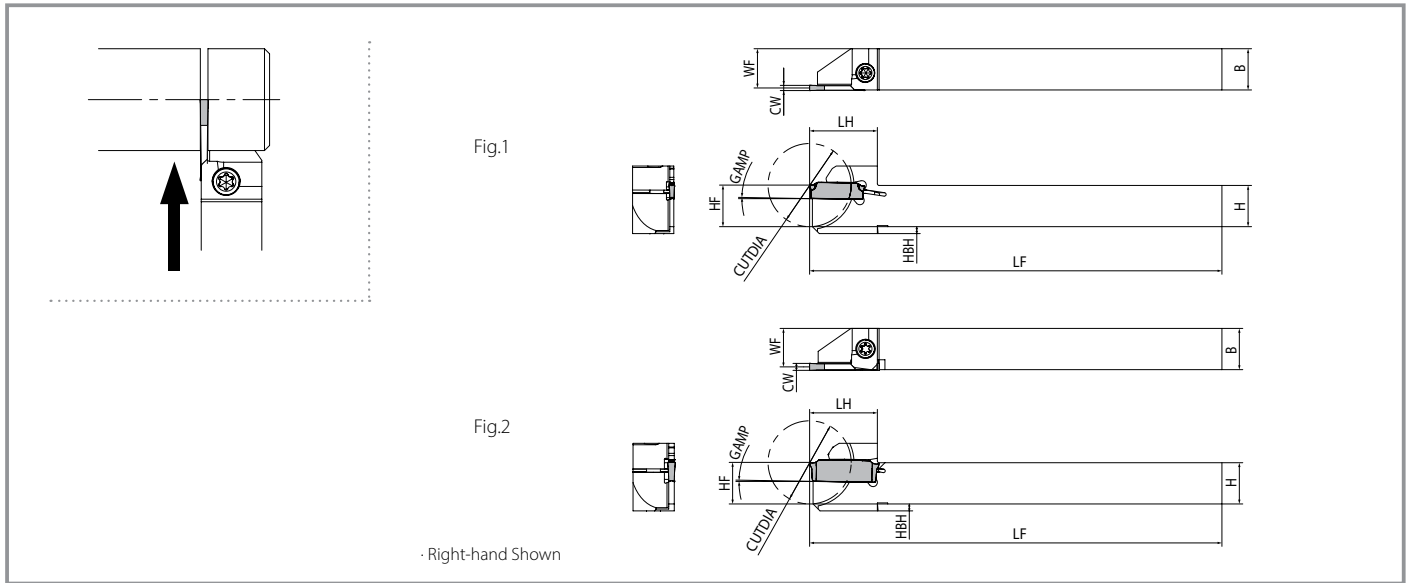
· Use 1-edge inserts

· Maximum workpiece diameter for 2-edge inserts is ø1.417" (36mm)

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

● : Standard Item

## KGZ (Standard Toolholders)



### Metric Toolholder Dimensions

| Unit | Part Number   | Std. Item     |   | Dimensions (mm) |      |      |      |      |     |      |      | Edge Width<br>CW |                   | GAMP (°)          | Drawing         | Spare Parts                                                                         |                                                                                     | Applicable<br>Inserts |              |                                                                                     |         |                                                                              |            |        |
|------|---------------|---------------|---|-----------------|------|------|------|------|-----|------|------|------------------|-------------------|-------------------|-----------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------|--------------|-------------------------------------------------------------------------------------|---------|------------------------------------------------------------------------------|------------|--------|
|      |               | R             | L | CUTDIA          | H    | B    | LH   | HF   | HBH | LF   | WF   | MIN              | MAX               |                   |                 | Clamp Screw                                                                         |                                                                                     |                       | Wrench       |                                                                                     |         |                                                                              |            |        |
|      |               |               |   |                 |      |      |      |      |     |      |      |                  |                   |                   |                 |  |  |                       |              |  |         |                                                                              |            |        |
| mm   | KGZ%          | 1010JX-1.3D16 | ● | ●               | 16   | 10   | 10   | 17.8 | 10  | 2.1  | 120  | 9.5              | 0.051"<br>(1.3mm) | 0.051"<br>(1.3mm) | 1°              | Fig.1                                                                               | SB-40120TR                                                                          | LTW-15S               | GZ...1316... |                                                                                     |         |                                                                              |            |        |
|      | 1010JX-1.3    | ●             | ● | 20              | 18.7 |      |      |      |     |      |      |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 1212F-1.3D16  | ●             | ● | 16              | 12   | 12   | 17.8 | 12   | 85  |      | 11.5 |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 1212JX-1.3D16 | ●             | ● |                 |      |      | 19.8 |      | 120 |      |      |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 1212F-1.3     | ●             | ● | 24              |      |      | 85   |      |     |      |      |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 1212JX-1.3    | ●             | ● |                 |      |      | 120  |      |     |      |      |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | KGZ%          | 1010JX-1.5D16 | ● | ●               | 16   | 10   | 10   | 17.8 | 10  | 2.1  | 120  | 9.4              | 0.059"<br>(1.5mm) | 0.059"<br>(1.5mm) | 1°              |                                                                                     |                                                                                     |                       | Fig.1        | SB-40120TR                                                                          | LTW-15S | GZ...1516...                                                                 |            |        |
|      | 1010JX-1.5    | ●             | ● | 20              | 18.7 |      |      |      |     |      |      |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 1212F-1.5D16  | ●             | ● | 16              | 12   | 12   | 17.8 | 12   | 85  |      | 11.4 |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 1212JX-1.5D16 | ●             | ● |                 |      |      | 19.8 |      | 120 |      |      |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 1212F-1.5     | ●             | ● | 24              |      |      | 85   |      |     |      |      |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 1212JX-1.5    | ●             | ● |                 |      |      | 120  |      |     |      |      |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | KGZ%          | 1010JX-2      | ● | ●               | 20   | 10   | 10   | 18.7 | 10  | 2.1  | 120  | 9.2              | 0.079"<br>(2mm)   | 0.118"<br>(3mm)   | 2°              | Fig.2                                                                               | SB-40120TR                                                                          | LTW-15S               |              |                                                                                     |         | GZ...2020...<br>GZ...2220...<br>GZ...2420...<br>GZ...2520...<br>GZ...3020... |            |        |
|      | 1212F-2       | ●             | ● | 24              | 12   | 12   | 19.8 | 12   | 85  |      | 11.2 |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 1212JX-2      | ●             | ● |                 |      |      |      |      | 120 |      |      | 15.2             |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 1616JX-2      | ●             | ● | 32              | 16   | 16   | 24.8 | 16   | -   | 125  | 19.2 | 24.2             |                   |                   | 2.4             |                                                                                     | 0.118"<br>(3mm)                                                                     | 1°                    |              |                                                                                     |         |                                                                              | SE-50125TR | LTW-20 |
|      | 2012K-2D34    | ●             | ● | 34              | 20   | 12   | 26.8 | 20   |     |      | 11.2 |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 2020K-2D34    | ●             | ● |                 | 20   | 19.2 |      |      |     |      |      |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 2525K-2D34    | ●             | ● | 25              | 25   | 32.7 | 25   | 2.1  | 120 | 9    | 2.4  | 0.118"<br>(3mm)  |                   |                   |                 |                                                                                     |                                                                                     | 1°                    | HH5X16       | LW-4                                                                                |         |                                                                              |            |        |
|      | KGZ%          | 1010JX-2.4    | ● | ●               | 20   | 10   | 10   |      |     | 18.7 |      |                  | 10                | 85                |                 |                                                                                     |                                                                                     |                       |              |                                                                                     | 11      |                                                                              |            |        |
|      | 1212F-2.4     | ●             | ● | 24              | 12   | 12   | 19.8 |      | 12  | 120  |      |                  | 15                |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 1212JX-2.4    | ●             | ● |                 |      |      |      |      |     | 34   |      |                  | 20                | 12                |                 |                                                                                     |                                                                                     | 26.6                  | 20           | 11                                                                                  |         |                                                                              |            |        |
|      | 1616JX-2.4    | ●             | ● | 20              | 19   |      |      |      |     |      |      |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 2012K-2.4D34  | ●             | ● | 25              | 25   | 32.7 | 25   |      | 125 |      |      |                  | 24                |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 2020K-2.4D34  | ●             | ● | 25              | 25   | 32.7 | 25   |      | 2.1 |      |      |                  | 120               | 10.8              | 0.118"<br>(3mm) | 0.118"<br>(3mm)                                                                     | 1°                                                                                  | SB-40120TR            | LTW-15S      | GZ...3020...                                                                        |         |                                                                              |            |        |
|      | 2525K-2.4D34  | ●             | ● | 24              | 12   | 12   | 19.8 | 12   |     | 120  | 14.8 |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | KGZS          | 1212JX-3      | ● | ●               | 32   | 16   | 16   | 24.6 |     | 16   | 125  | 11.8             |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 1616JX-3      | ●             | ● | 38              | 19   |      |      | 13   |     |      | 28.6 | 19               |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 1616JX-3D38   | ●             | ● | 38              | 20   | 12   | 30.7 | 20   |     | 120  | 10.8 |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 1913K-3D38    | ●             | ● |                 |      |      | 35.2 |      |     |      |      |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 2012JX-3D42   | ●             | ● | 42              |      | 20   | 20   |      |     | 30.7 | 18.8 |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 2012JX-3D51   | ●             | ● | 42              |      |      |      |      |     | 35.2 |      |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 2020JX-3D42   | ●             | ● | 51              | 25   | 25   | 41.7 | 25   |     | 125  | 23.8 | HH5X16           | LW-4              |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 2020JX-3D51   | ●             | ● |                 |      |      |      |      | 51  |      |      |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |
|      | 2525K-3D51    | ●             | ● | 51              |      |      |      |      |     |      |      |                  |                   |                   |                 |                                                                                     |                                                                                     |                       |              |                                                                                     |         |                                                                              |            |        |

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

When machining large cutting dia. (over 36 mm) with KGZ R/L...-3D38 or KGZ R/L...-3D42, please follow the instructions below

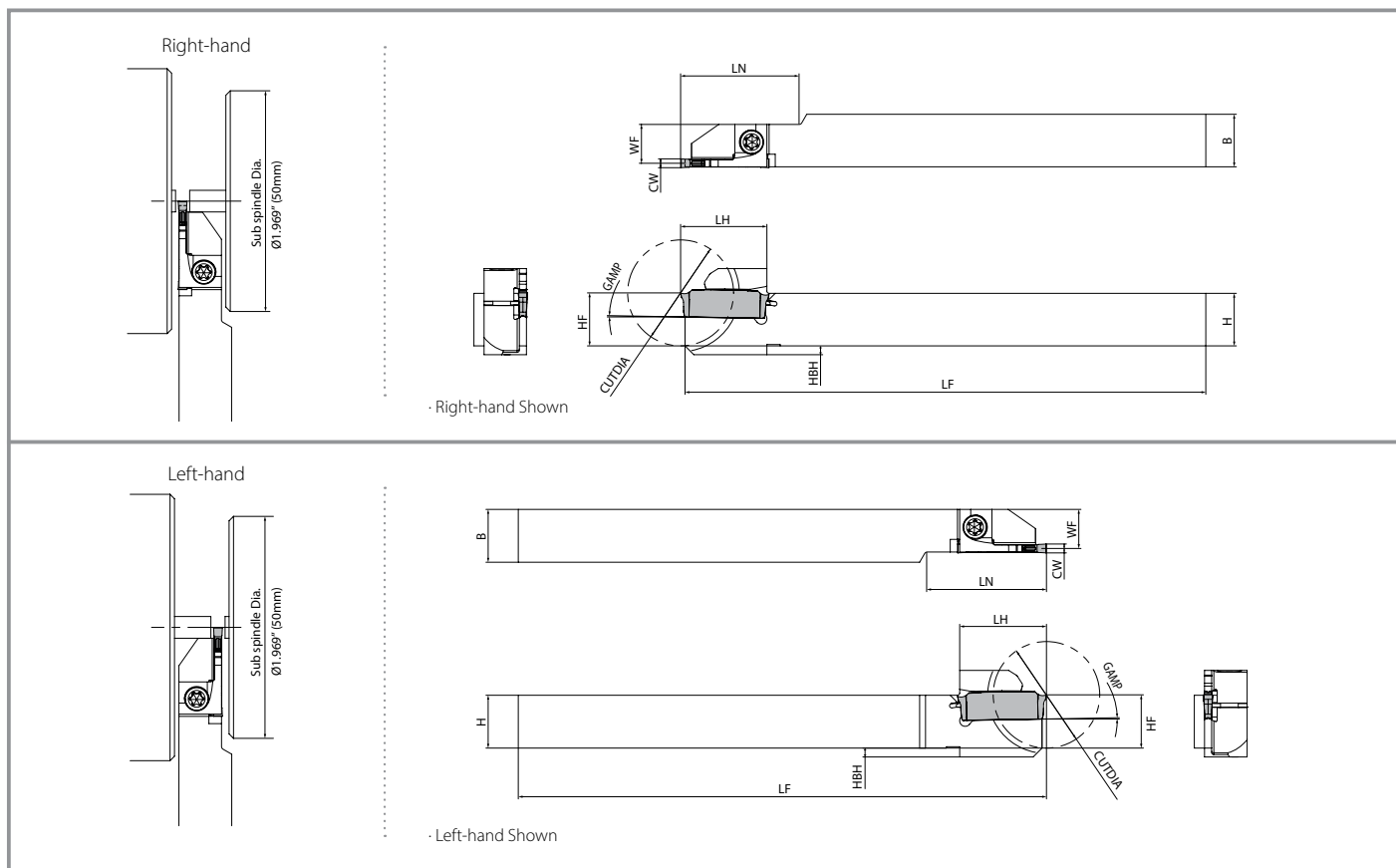
· Use 1-edge inserts

· Maximum workpiece diameter for 2-edge inserts is ø36mm

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

● : Standard Item

## KGZS (Sub-Spindle Cut-Off Toolholders)

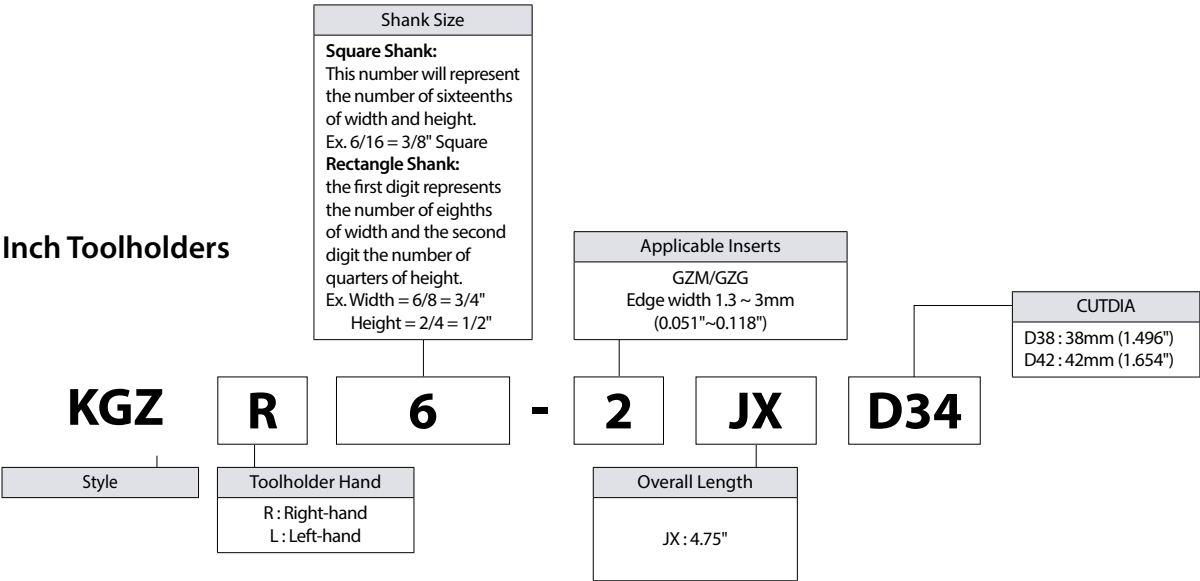


### Metric Toolholder Dimensions

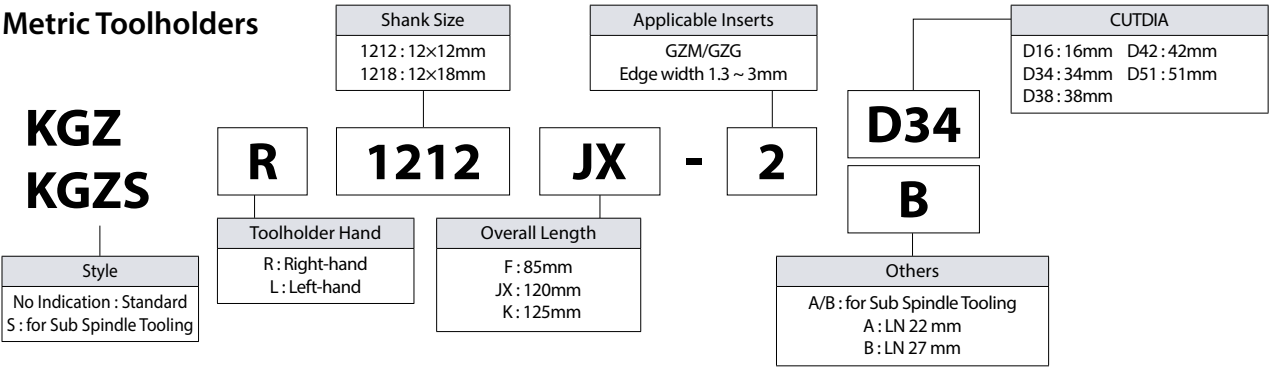
| Unit | Part Number | Std. Item   |   | Dimensions (mm) |    |    |    |      |     |     |     |    | Edge Width CW |                   | GAMP (°)          | Spare Parts                                                                           |                                                                                       | Applicable Inserts |              |
|------|-------------|-------------|---|-----------------|----|----|----|------|-----|-----|-----|----|---------------|-------------------|-------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------|--------------|
|      |             | R           | L | CUTDIA          | H  | B  | LH | HF   | HBH | LF  | LN  | WF | MIN           | MAX               |                   | Clamp Screw                                                                           | Wrench                                                                                |                    |              |
|      |             |             |   |                 |    |    |    |      |     |     |     |    |               |                   |                   |  |  |                    |              |
| mm   | KGZS%       | 1212F-1.3A  | ● | ●               | 24 | 12 | 12 | 19.8 | 12  | 2.1 | 85  | 22 | 8.4           | 0.051"<br>(1.3mm) | 0.051"<br>(1.3mm) | 1°                                                                                    | SB-40120TR                                                                            | LTW-15S            | GZ...1316... |
|      |             | 1212JX-1.3B | ● | ●               |    | 16 | 16 |      | 16  | -   | 120 | 27 |               |                   |                   |                                                                                       |                                                                                       |                    |              |
|      |             | 1616JX-1.3B | ● | ●               |    | 12 | 12 |      | 12  | 2.1 | 85  | 22 | 8.4           | 0.059"<br>(1.5mm) | 0.059"<br>(1.5mm) |                                                                                       |                                                                                       |                    |              |
|      |             | 1212JX-1.5B | ● | ●               |    | 16 | 16 |      | 16  | -   | 120 | 27 |               |                   |                   |                                                                                       |                                                                                       |                    |              |
|      |             | 1616JX-1.5B | ● | ●               |    | 12 | 12 |      | 12  | 2.1 | 85  | 22 | 8.7           | 0.079"<br>(2mm)   | 0.118"<br>(3mm)   |                                                                                       |                                                                                       |                    |              |
|      |             | 1212F-2A    | ● | ●               |    | 16 | 16 |      | 16  | -   | 120 | 27 |               |                   |                   |                                                                                       |                                                                                       |                    |              |
|      |             | 1212JX-2B   | ● | ●               |    |    |    |      |     |     |     |    |               |                   |                   |                                                                                       |                                                                                       |                    |              |
|      |             | 1616JX-2B   | ● | ●               |    |    |    |      |     |     |     |    |               |                   |                   |                                                                                       |                                                                                       |                    |              |

● : Standard Item

Inch Toolholders



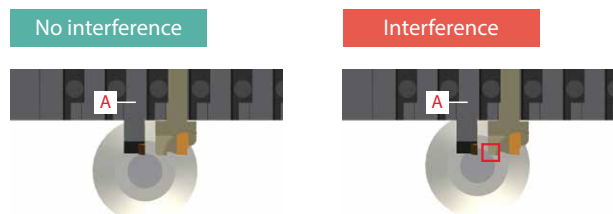
Metric Toolholders



## Precautions

### Maximum D.O.C. of the next tool (indicated as tool A) and holder interference

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



Estimated maximum D.O.C. of tool A (mm)

| Workpiece Dia.<br>JCTM Part Number | ø12mm | ø16mm | ø20mm |
|------------------------------------|-------|-------|-------|
| KGZ R/L 1218JX-*JCTM               | 2.4   | 2.0   | 1.7   |
| KGZ R/L 1212JX-*JCTM               | -     | -     | 3.8   |

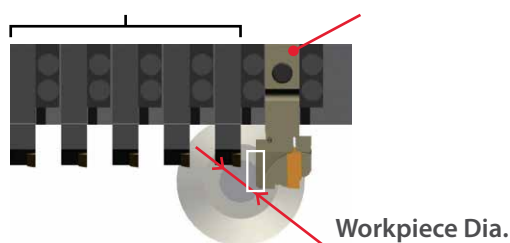
When using the JCTM holder 1218/1625/1616 for T01 on the following models, please check the workpiece diameter in advance to avoid interference.

#### <Target Models>

**T01: Machines where both □16mm (or Spacer plate + □12mm) holders can be mounted**

**Non-T01: Machines where only □12mm holders can be mounted**

**Non-T01: □12mm      T01 : □16mm (or Spacer plate + □12mm)**



#### KGZ Compatibility

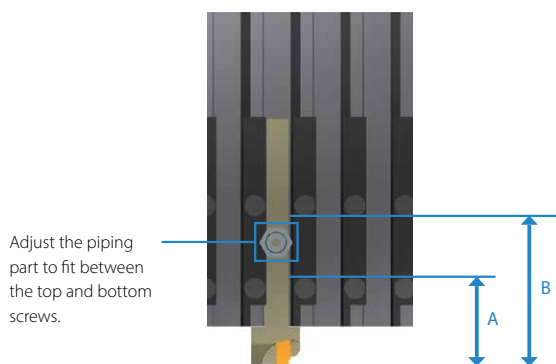
| Workpiece Dia.<br>JCTM Part Number | ø14mm or smaller | ø14mm or larger                                                 |
|------------------------------------|------------------|-----------------------------------------------------------------|
| KGZ R/L 1218JX-*JCTM               | Compatible       | Please use<br>KGZ R/L 1212JX-*JCTM or<br>KGZ R/L 1616JX*D26JCTM |
| KGZ R/L 1625JX-*JCTM               |                  |                                                                 |
| KGZ R/L 1616JX-*JCTM               |                  |                                                                 |

### Piping part interference avoidance

Rectangular shank are recommended for use with piping parts connected to JCTM holders.

When connecting the J-\*\*-R1/8-G1/8-L piping parts to the rectangular shank, please check for any potential interference with the machine in advance.

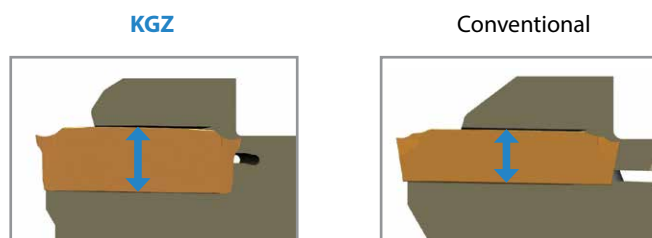
When connecting piping parts to the JCTM square shank, check the lengths of A and B below to avoid interference with the screws of the tool plate.



| Shank Size       | Square Shank Use                                                                                                                                             |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| □0.500"<br>□12mm | "A" shorter than 51.5mm and<br>"B" longer than 68.5mm<br>→ Available<br><br>Other than the above conditions<br>→ Use J-**-R1/8-G1/8-L or a rectangular shank |
| □0.625"<br>□16mm | Available                                                                                                                                                    |

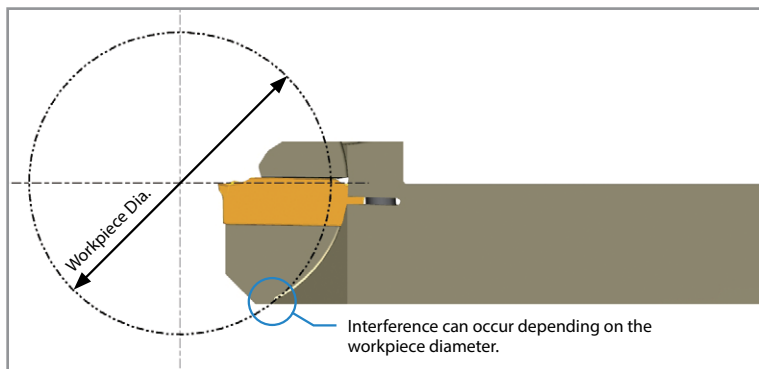
### Compatibility with Conventional Tools

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



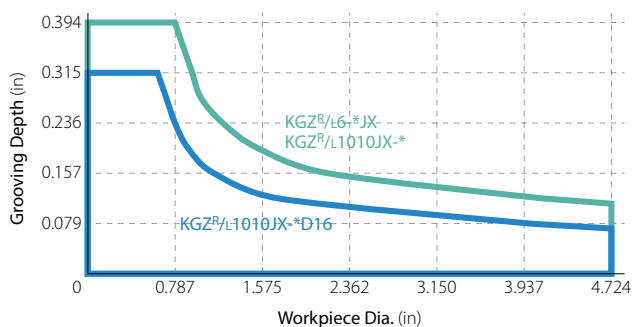
## Maximum Grooving Depth Limitations

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

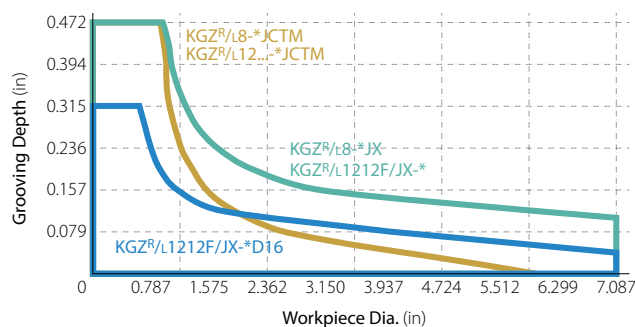


### Guideline for Grooving Depth

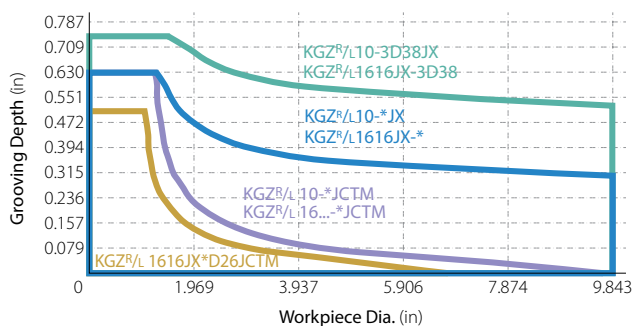
#### 0.375" / 10mm Toolholders



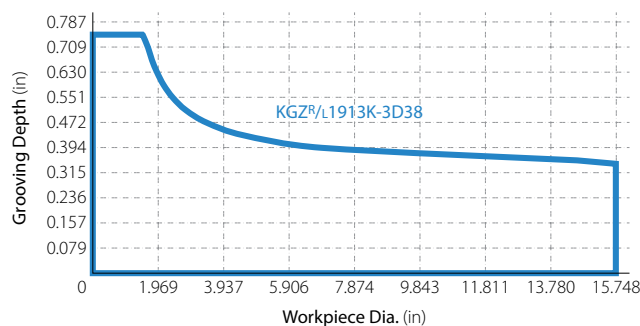
#### 0.500" / 12mm Toolholders



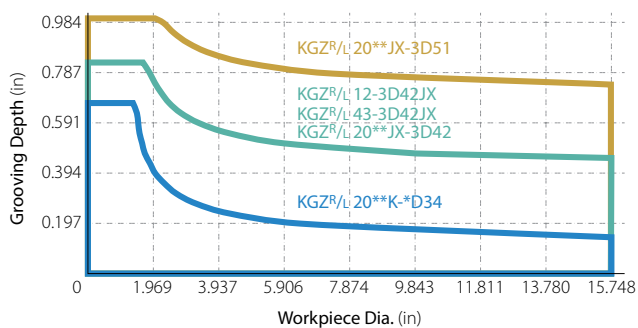
#### 0.625" / 16mm Toolholders



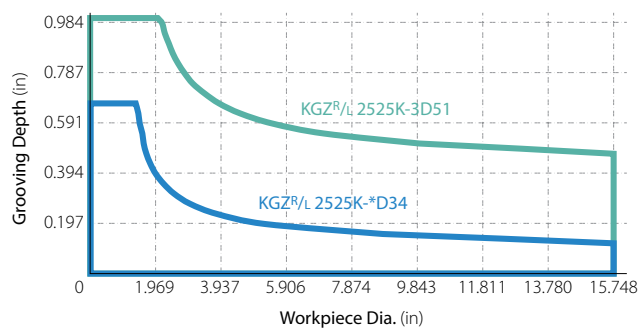
#### 19mm Toolholders



#### 0.750" / 20mm Toolholders



#### 25mm Toolholders



### Traversing after Grooving

1. Grooving Depth over 0.5mm : Roughing - refer to fig. 1  
Before traversing, pull the tool back about 0.1mm after grooving.  
(To apply the lead on the cutting edge in only one direction)
2. Grooving Depth under 0.5mm : Finishing - refer to fig. 2  
Traversing subsequent to grooving is possible because shallow groove depths result in a small load on the cutting edge.  
Retention time is not necessary.

### Widening the Groove

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

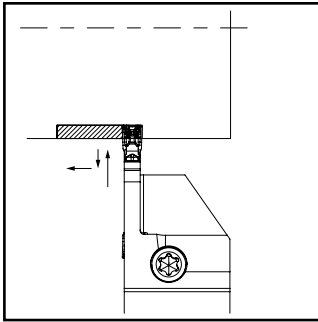


Fig.1  
Before traversing, pull the tool back about 0.1 mm after grooving.  
Grooving depth over 0.5 mm :  
when roughing

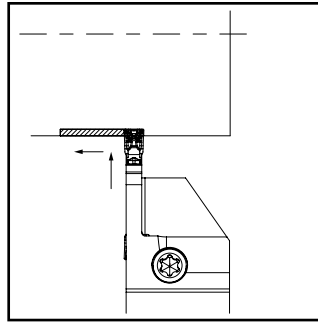


Fig.2  
Traversing subsequent to grooving.  
Grooving depth under 0.5 mm :  
when finishing

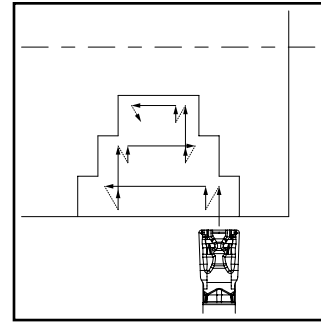
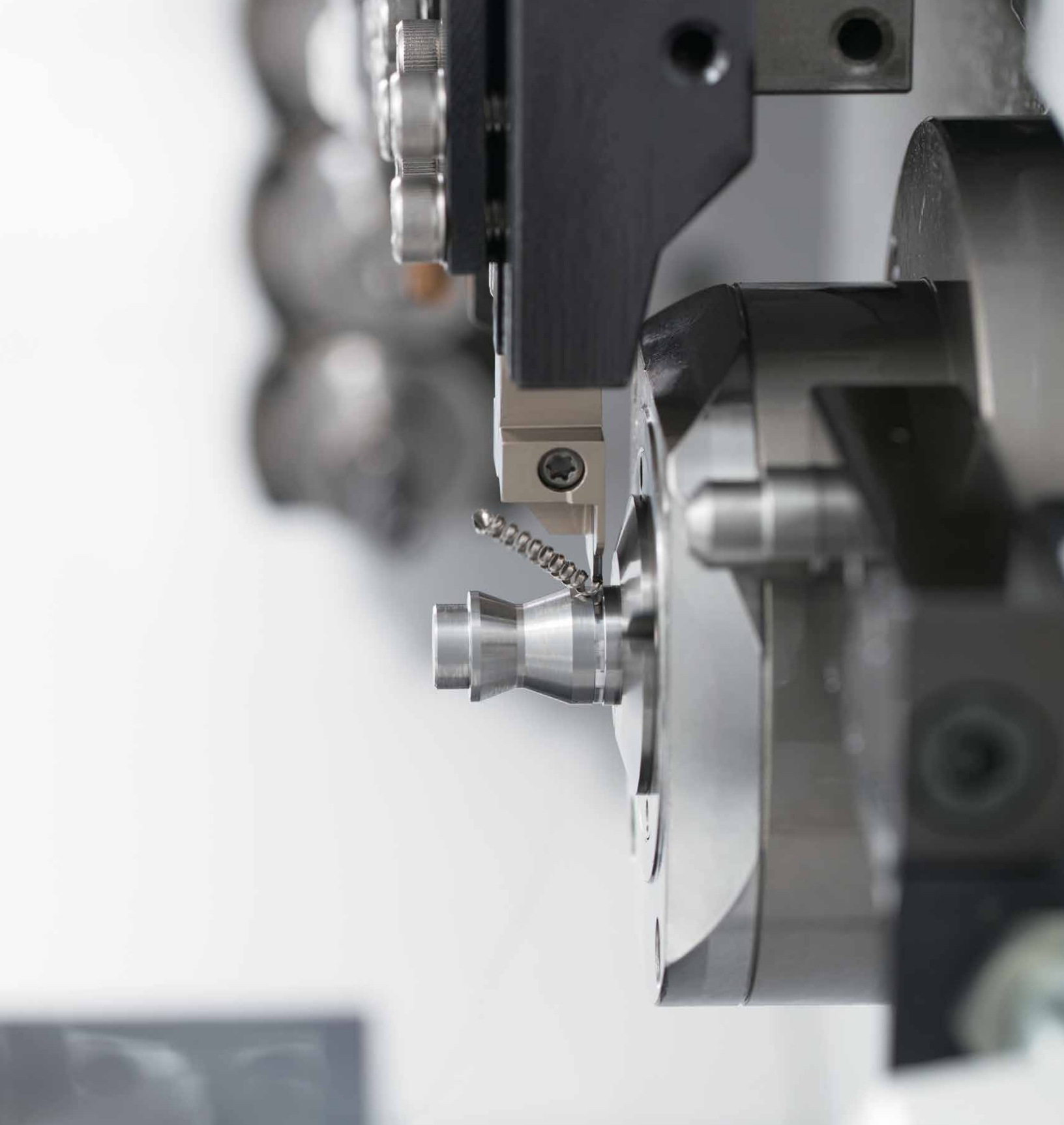


Fig.3



**KYOCERA Precision Tools**

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