



Member IMC Group  
**Tungaloy**

# Notes to Users of this Catalog

- This catalog is an introduction to Tungaloy Cutting Tools of miniature parts.
- Specifications and stock status described in this catalog are subject to change without prior notice.
- All unit sizes are metric - in millimeter (mm).
- Units used in the catalog conform to ISO standards in principle.

## ■ Stock status symbols

● : Stocked in Japan.  
 ▲ : Will be replaced by new products / discontinued items  
 No symbol: Not stocked

Note: The products described in this catalog are as of Feb. 2016.

## ■ Ordering information

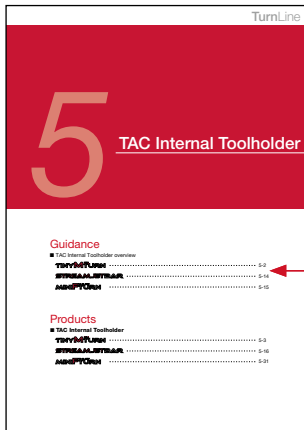
- When ordering, specify the Cat. No., grade and quantity.  
 (Example for TAC inserts)  
**CCGT09T304FN-JS SH730** 10 pcs.
- TAC toolholders and TAC mills are shipped without inserts. Inserts must be ordered separately.
- For the special grades or special products, please contact your nearest Tungaloy sales office.

## ■ Constitution of Catalog: Tool for miniature parts

In this catalog, products are described by machining types such as TAC turning inserts, TAC turning toolholders, threading tools and drilling tools. Users can select optimum tools by using the following searching methods.

### ● Searching from the classification of tools

When searching the product from the tool type, open the title page of the chapter of the tool type.  
 For example, when searching the TAC boring tool:

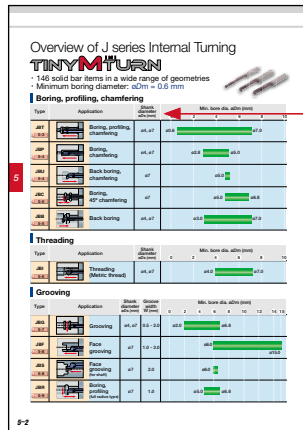


Select the chapter of TAC boring tools.

Select the page of the product being searched.

### ● Searching from the tool list in each chapter

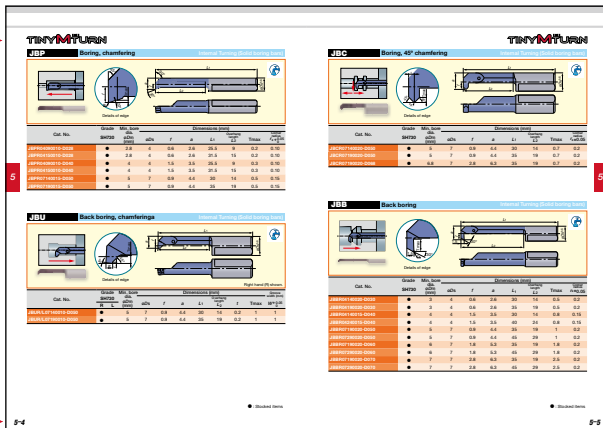
Search from the tool list.



Can search from machining type, tool diameter etc.

### ● Basic constitution of this tool catalog

Series name, features, tool diameters and applications are indicated.



Chapter No.

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# TotalLine



# Digest of Products

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# SH725

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Exclusive PVD coated grade for precise parts machining

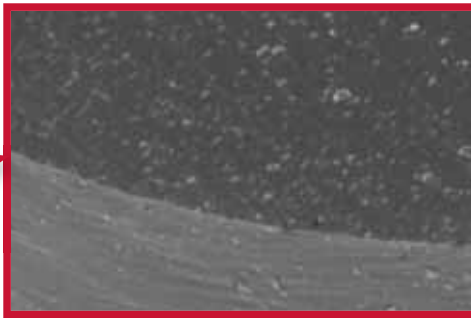
“High adhesion strength” & “Sharp cutting edge”

➔ Amazing tool life with Excellent sharpness!

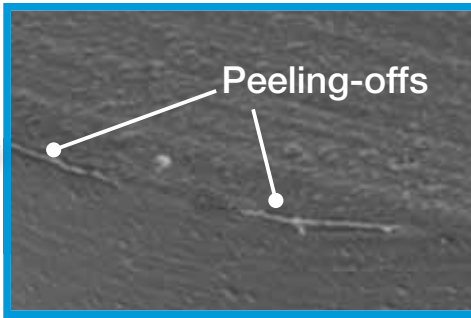
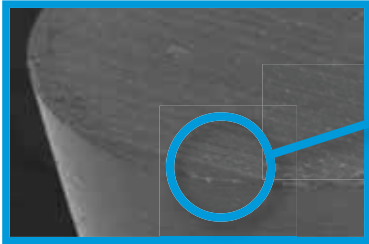
## Newly developed coating layer

No peeling-off even on sharp edges

### SH725



### Competitor



0.1 mm

1 μm

## Improved adhesion strength

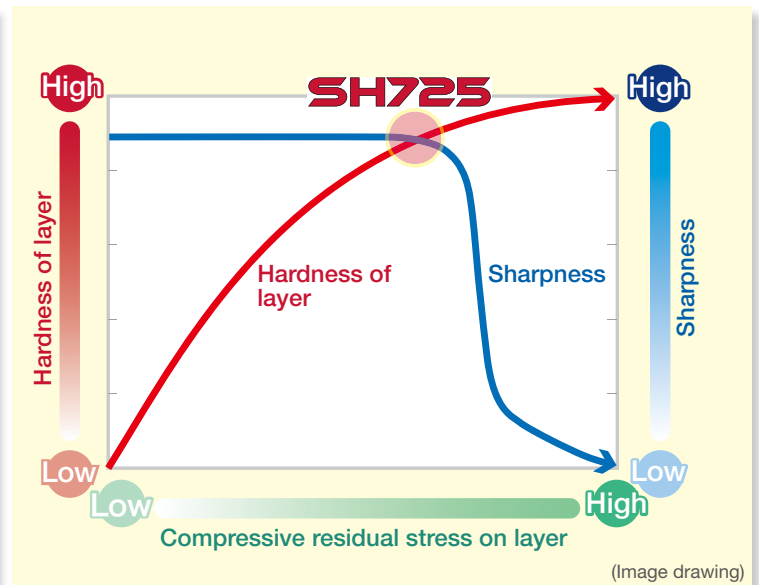
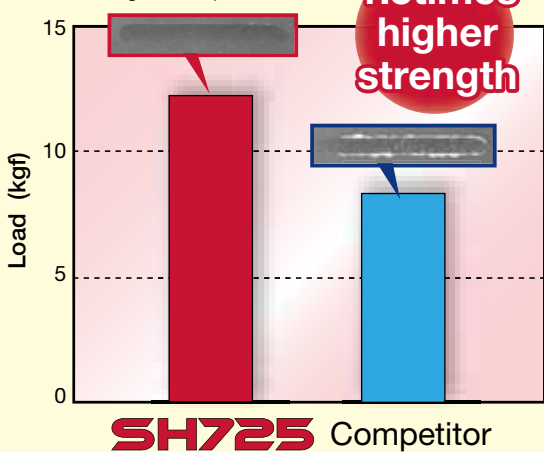
Latest coating technology is effectively applied.

## Hard layer is coated on the sharp cutting edge

Optimized condition provides the high hardness and sharpness

### Comparison in scratch-test

(Picture show the peeling-off at the highest load)



(Image drawing)

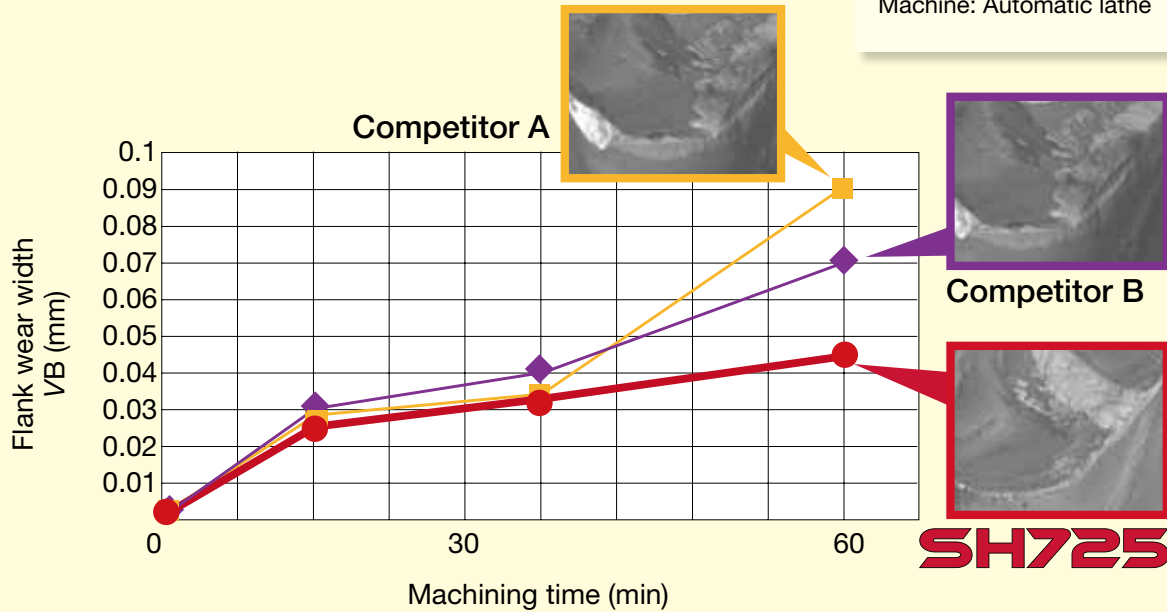
## ● Cutting performance

### ■ External continuous cutting

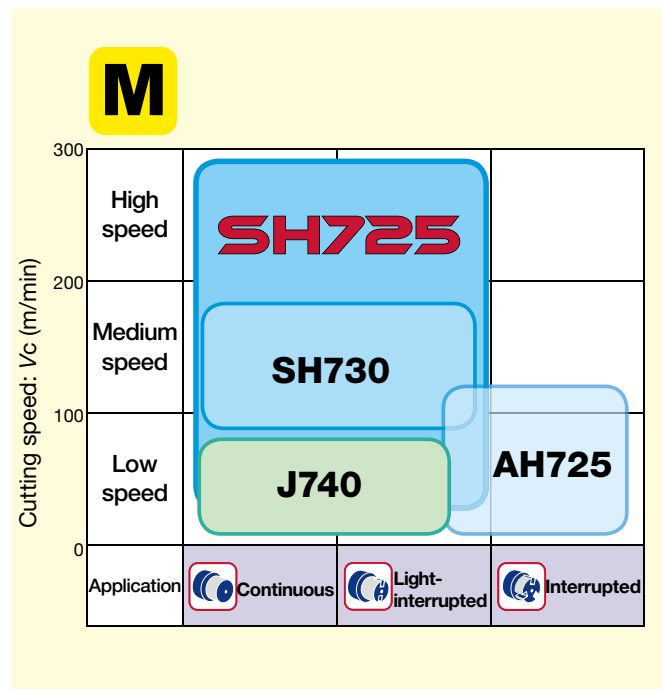
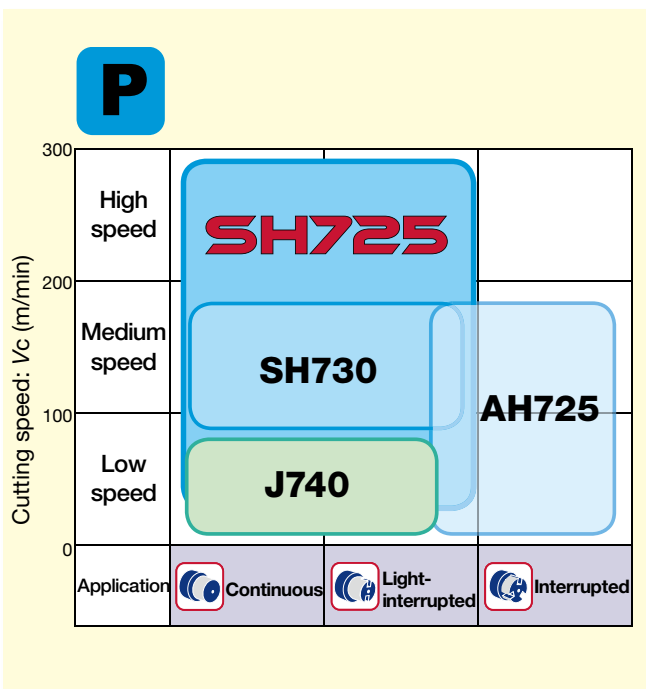
**P** Carbon steel  
(S45C / C45)

High adhesion strength provides  
excellent wear resistance

Workpiece material: S45C / C45  
(180HB)  
Cutting speed:  $V_c = 150$  m/min  
Depth of Cut:  $a_p = 0.5$  mm  
Feed:  $f = 0.05$  mm/rev  
Coolant: Oil  
Machine: Automatic lathe



## ● Application range



# MINIFORCE

TUNGALOY



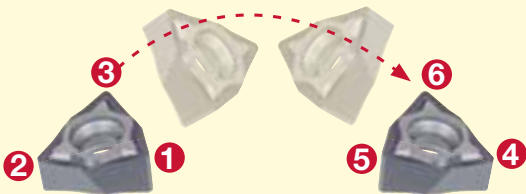
## Economical double sided inserts with positive cutting edge

Innovative multi-cornered insert clamped into a unique pocket ensures insert stability resulting in superior machining performance.

### ● Inserts

### ● High rake angle

**WXGU0403**.. Inserts with 6 positive cutting edges



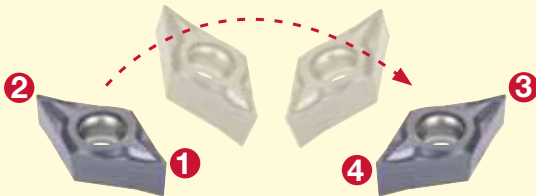
External turning



Internal turning



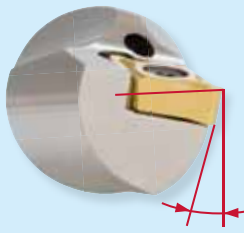
**DXGU0703**.. Inserts with 4 positive cutting edges



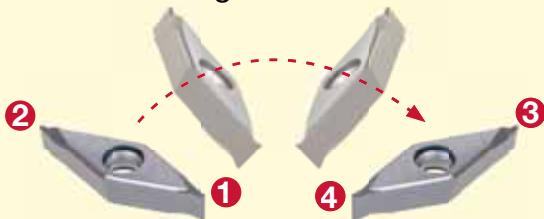
External turning



Internal turning



**VXGU09T2**.. Inserts with 4 positive cutting edges

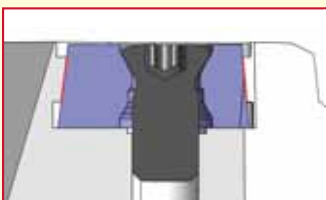


External turning



### ● Toolholders

Dovetail structure ensures secure insert clamping.



External turning

**JP-type screw accessible from both sides**



Internal turning

**Unique design for optimal chip evacuation**

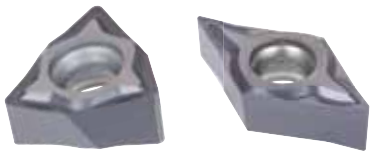




## Uniquely designed chipbreakers

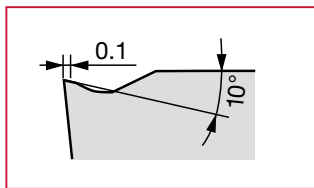
### TS / JTS / TSW chipbreaker

**P M K**



WXGU0403..

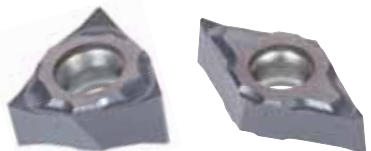
DXGU0703..



Excellent chip control, recommended for steel and stainless steel machining.

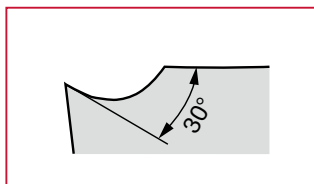
### SS / JSS chipbreaker

**M P**



WXGU0403..

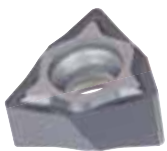
DXGU0703..



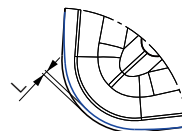
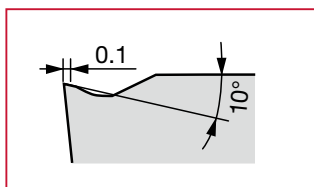
Generates low cutting forces, recommended for steel and stainless steel machining.

### TSW chipbreaker (Wiper)

**P M K**



WXGU0403..



Off set:  $L = -0.05 \text{ mm}$

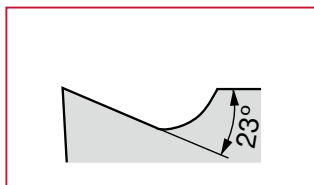
Excellent surface finishing and high efficiency for high feed machining.

### JRP chipbreaker



VXGU09T2..

DXGU0703..



Sharp cutting edge and ground chipbreaker with excellent chip control.

## Chipbreakers for general purposes

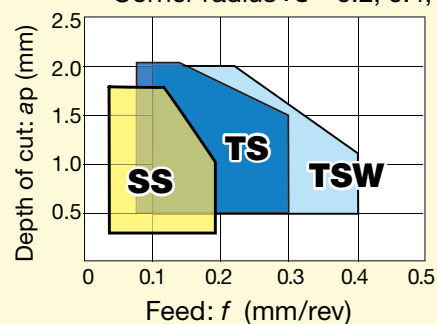
WXGU0403.. - **TS / SS / TSW**

DXGU0703.. - **TS / SS**

Reinforced cutting edge used at medium to low feeds in semi-finishing and finishing operations.

### Application area

Corner radius  $r_{\epsilon} = 0.2, 0.4, 0.8$



## Chipbreakers for small parts machining

WXGU0403.. - **JTS / JSS**

DXGU0703.. - **JTS / JSS**

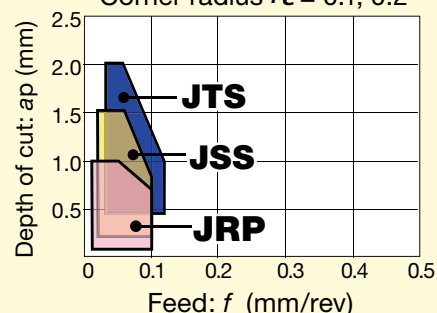
VXGU09T2.. - **JRP**

Extra sharp cutting edge used at low feeds for finishing operations.

An excellent solution to reduce vibration.

### Application area

Corner radius  $r_{\epsilon} = 0.1, 0.2$



# TUNG<sup>TURN</sup>TJET

TUNGALOY

● **High pressure coolant provides excellent chip control for difficult-to-cut materials**

Short chips formed in machining of Inconel, titanium and other heat-resistant alloys



**TUNG<sup>TURN</sup>TJET 7 MPa**

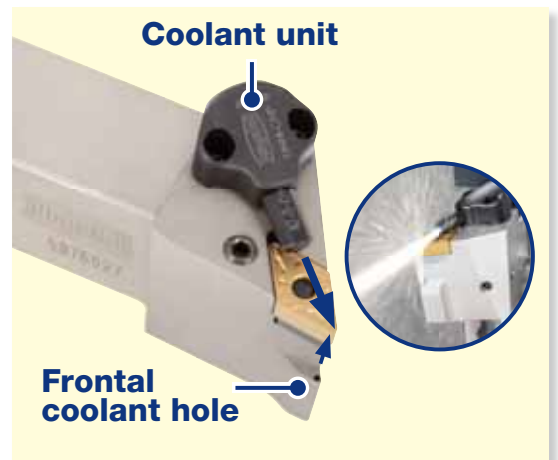


Normal pressure coolant  
(External supply)



● **Coolant from two directions maximizes productivity and drastically reduces tooling cost**



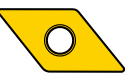

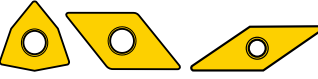


- Up to 200% increase in cutting speed when machining titanium and heat-resistant alloys
- Up to 100% increased in tool life when machining alloy steel or stainless steel
- Nozzle tube delivers coolant directly to the cutting edge



**High pressure coolant disperses the cutting heat during machining, which prevents damage on cutting edges**

## ● Stable machining with nozzle tubes designed for various insert geometries

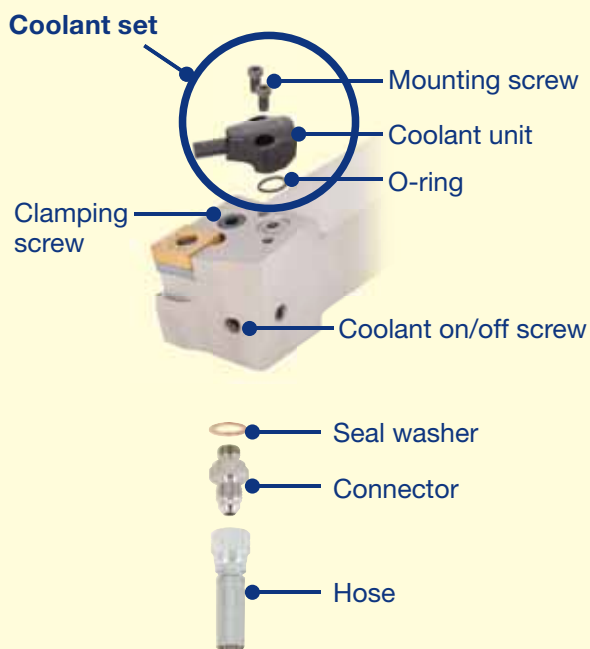
### ■ Coolant flow rates

Insert type	Coolant hole	Coolant unit	Flow rate l/min.		
			7 MPa	10 MPa	14 MPa
		CU-CW-CHP	17	20	24
		CU-D-CHP	16	19	22
 Tools for small lathes		S-CU-CHP	4	4.8	5.7
Frontal coolant hole		-	1.8 - 2.6	2.1 - 3.4	2.5 - 3.6

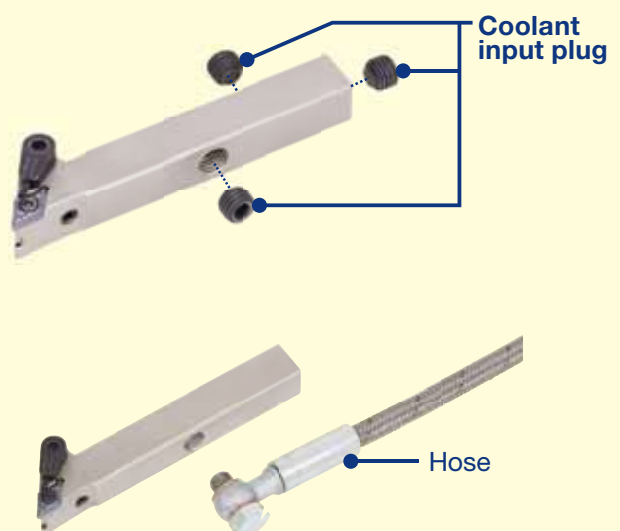
## ● Easy connection with coolant hose for various machine

Easy set-up for high pressure internal coolant

### For general lathes



### For small lathes



# Multi-purpose grooving line with economical insert containing 4 cutting edges

## High-precision ground insert in unique shape

- Same insert applicable for right- and left-hand toolholders (TC\*27 type)
- Handed insert for small-part machining (TCP18 type)



TC\*27 type

**TETRA<sup>ORCE</sup>FCUT**



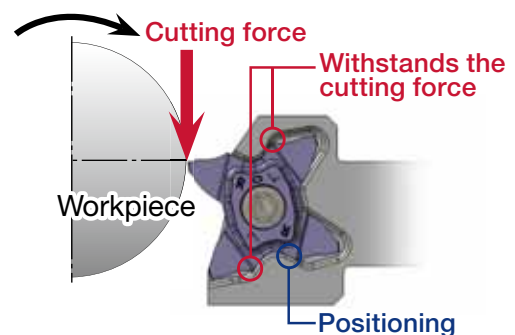
TCP18 type

**TETRAM<sup>ORCE</sup>CUT**

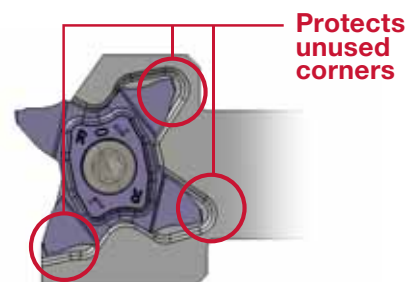
## Unique 3-point clamping system provides high rigidity and repeatability

Highly rigid cutting edge allows:

- High accuracy in groove width
- Excellent surface finish
- Stable tool life without sudden chipping



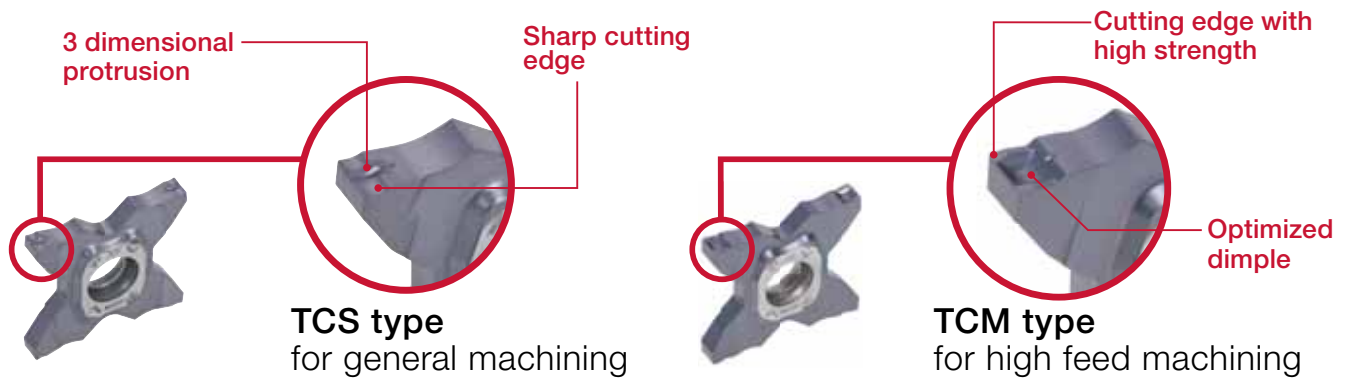
## The insert pocket protects all unused cutting edges



## Innovative inserts

### TETRA<sup>FORCE</sup>CUT

- Suitable for precise grooving and parting-off in general or small lathes
- 2 types of chipbreakers available for TC\*27 inserts



### TETRA<sup>M</sup>CUT

- Suitable for grooving application for small parts on swiss lathe

- Sharp cutting edge in SH725 grade provides stable machining in small-part machining.
- AH725 grade insert has honed edge with high toughness
- TCT type insert is suitable for various threading with 60° thread angle.

**Low cutting force with large rake angle**



**Low cutting force with sharp cutting edge**



- Toolholder with optimum design for machining next to the shoulder without interference



## CHP type toolholders for high-pressure coolant

The coolant directly supplied to the cutting edge provides good chip control and long tool life.



# Great cutting performance in **various parting-off operations**

**3 types of inserts** that are available for different parting-off diameters can be mounted **on the same pocket of the toolholder**.

- Optimized overhang length for **stable machining**

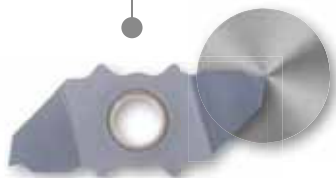
Regular-type toolholder



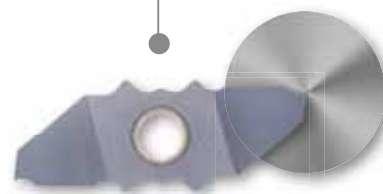
Toolholder for sub-spindle



**JXPG06**  
Max. parting-off dia.  
ø6 mm



**JXPG12**  
Max. parting-off dia.  
ø12 mm



**JXPG16**  
Max. parting-off dia.  
ø16 mm

## Toolholder for sub-spindle

- Works between main and sub-spindles

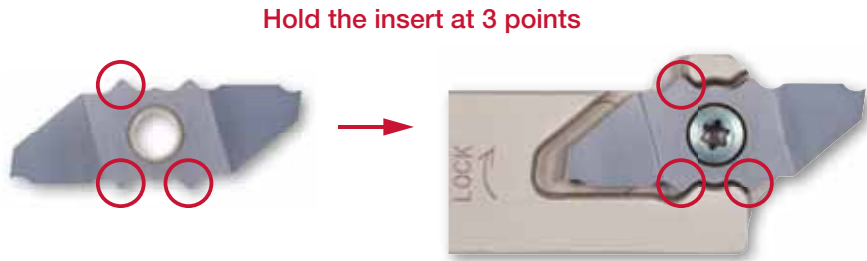
Right hand



Left hand



## Unique clamping system for highly rigid clamping

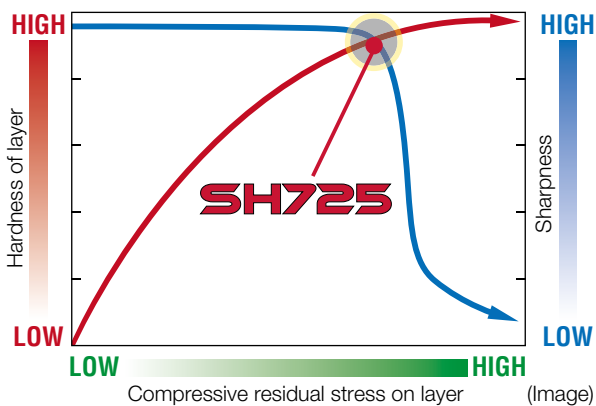


- Unique clamping pocket protects unused cutting edge.

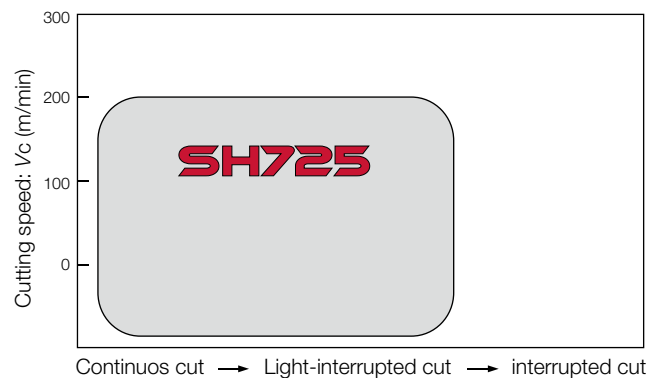
- Even if the first cutting edge is chipped, the other unused cutting edge can be used because the insert is clamped in the center.

## SH725, new PVD grade for small lathes

- PVD grade designed for precision part machining
- Good balance between hardness and sharpness
- High adhesion strength



### Application Range



Deliver stable machining on small lathes

**Stable machining and excellent surface finish for small-diameter internal turning!**

● Well-designed edge provides highly accurate machining

## 1 Super fine cutting edges

Comparison of tool surface and cutting edge

**TINY<sup>INI</sup>MTURN**

Fine edge and smooth coating

Improvement

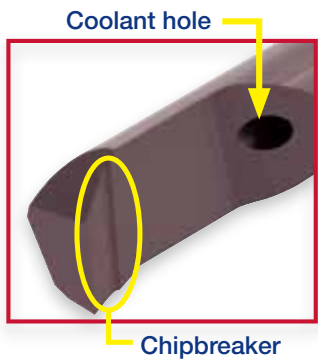
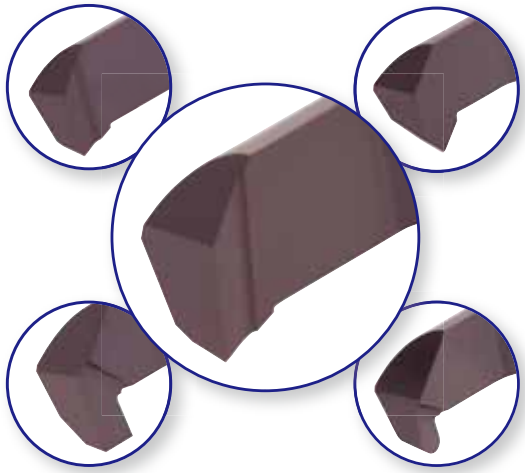
Competitor A    Competitor B

Foreign particles on surface, small chippings

Rough surface finish  
Decreased tool life due to welding

Cutting edge is extremely fine compared to competitors!!

- Generates fine surface finishes and prevents edge chipping.
- Smooth cutting edge leads to high precision products.



## 2 Coolant hole

- Supplies coolant directly to the cutting edge.
- Offers remarkable chip evacuation.



## ● Ideal sleeve with easy operation

### 1 Excellent repeatability of solid bars

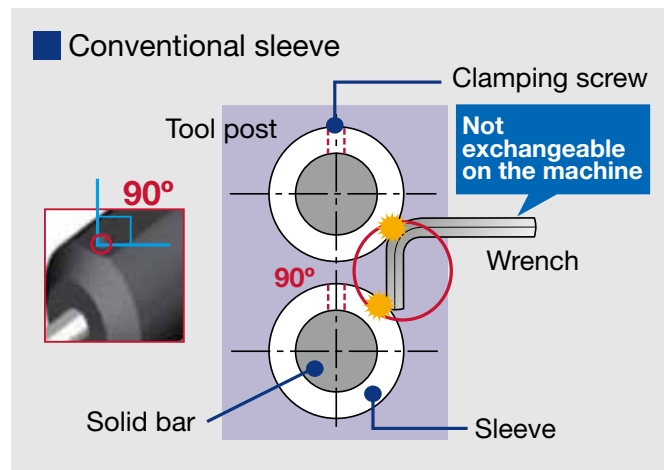
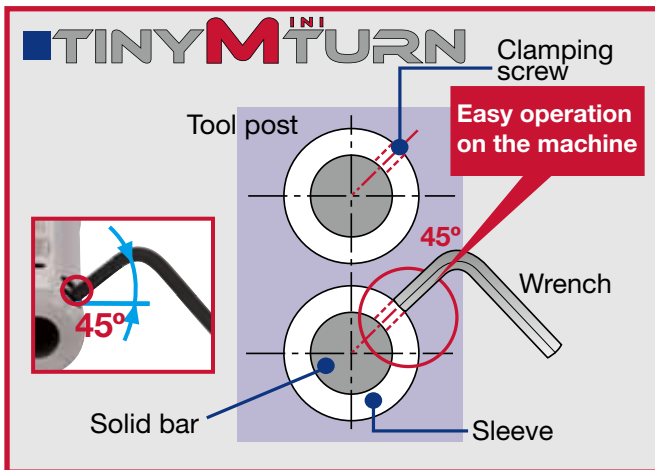
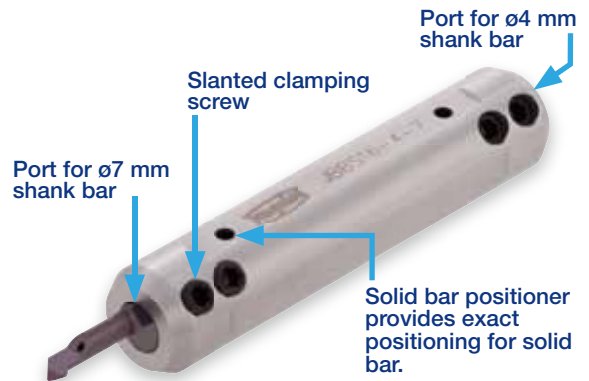
Exact positioning provides exceptional stability and reliability in tool changeovers.

### 2 Double ported

ø4 mm and ø7 mm shank can be set on ONE sleeve.

### 3 Easy tool changeovers

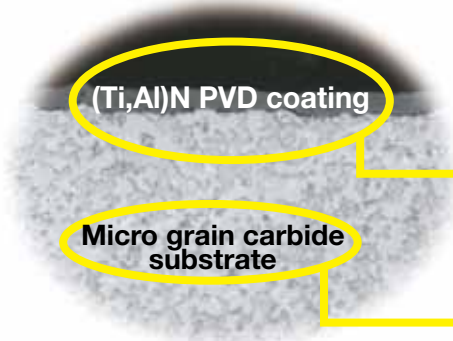
Solid bar can be changed to suit any type of tool head on the machine credit to the clamping screw tilted with 45°.



**Highly functional sleeve creates extremely stable machining!**

## Grade

### SH730 PVD coated grade



Delivers a stable performance with the combination of exclusive (Ti,Al)N coating and extremely tough substrate.

#### Excellent chipping & welding resistance

Thin (Ti,Al)N coated layers are tightly adhered to create a sharp cutting edge.

#### Improved plastic deformation resistance and toughness

Application	Application code	Grade	Substrate			Coating layer		Features
			Specific gravity	Hardness (HRA)	T.R.S. (GPa)	Main Composition	Thickness (µm)	
<b>P</b> Steel	P20 - P30	SH730	14.4	91.5	3.0	(Ti,Al)N	1.0	Versatile PVD coated grade for wide range of materials and applications.
<b>M</b> Stainless	M20 - M30							
<b>K</b> Cast iron	K20 - K30							
<b>N</b> Non-ferrous	N20 - N30							
<b>S</b> Superalloys	S20 - S30							

## JS type New 3 dimensional chipbreaker



### ● Excellent cutting performance for Superalloys

**Dynamic inclination**

- Excellent chip control
- Lowers cutting force

**Steep protrusion**

- Breaks chips in small depth of cut
- Makes chips coiling in large depth of cut

**M** Work material : Stainless steels SUS316L / X2CrNiMo17-12-2  
 Insert : DCGT11T301-\*\*  
 Cutting speed :  $V_c = 50$  m/min  
 Feed :  $f = 0.02$  mm/rev

**Excellent chip control**

	JS type	Competitor
Depth of cut $a_p = 0.5$ mm	Good	Uncontrolled
Depth of cut $a_p = 1.5$ mm	Good	Unstable
Depth of cut $a_p = 2.0$ mm	Good	Chip packing

### ● Super fine cutting edge

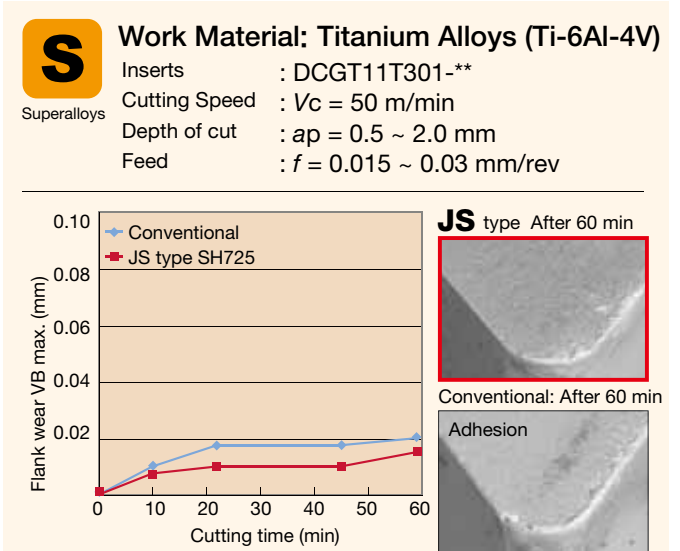
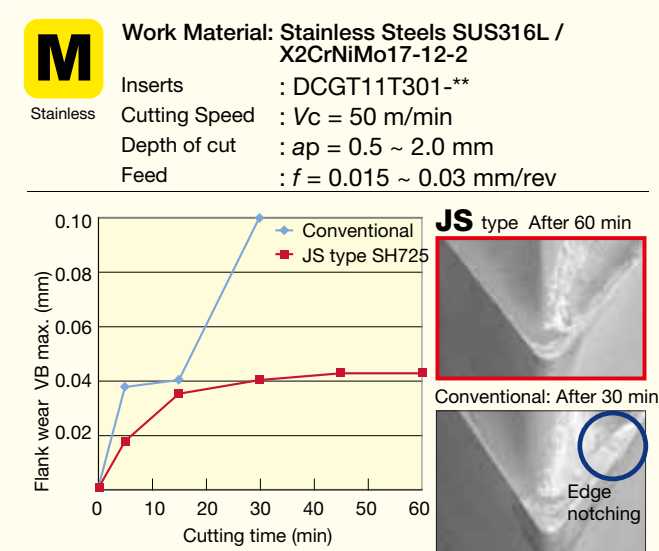
**JS type**

**Fine edge, no chipping**

**Competitor A**

With micro chipping

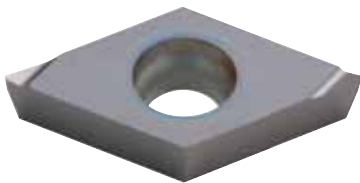
### ● Long tool life and excellent stability



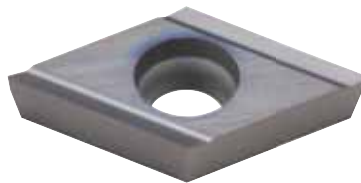
**JRP / JPP / JSP** type High Tolerance Inserts **P M S**  
 Steels Stainless Superalloys

● **3 types of ground chipbreakers**

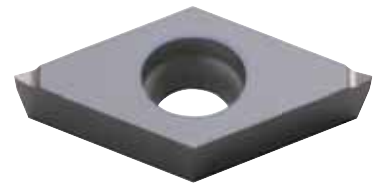
**JRP** type  
 Lead (Ramp) type  
 chipbreaker  
 For excellent chip control



**JPP** type  
 Parallel type  
 chipbreaker  
 Best for profiling

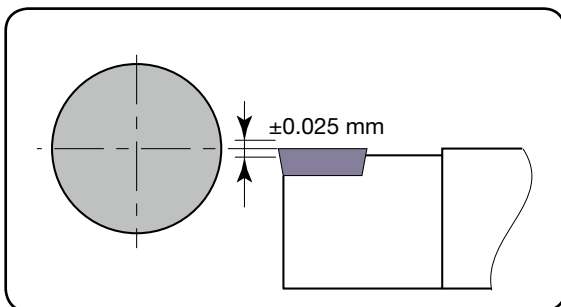


**JSP** type  
 Neutral (symmetric) type  
 chipbreaker

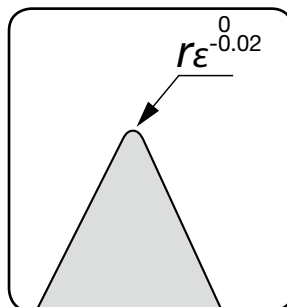


● **Tolerance of inserts**

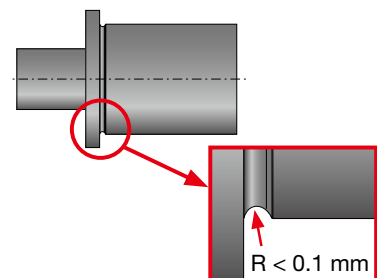
Height of cutting edge:  
 $\pm 0.025$  mm



Tolerance of  
 corner radius:  
 Minus tolerance



e.g:  
 Parts of electric equipment  
 Effective performance for the  
 specified corner radius (see below)



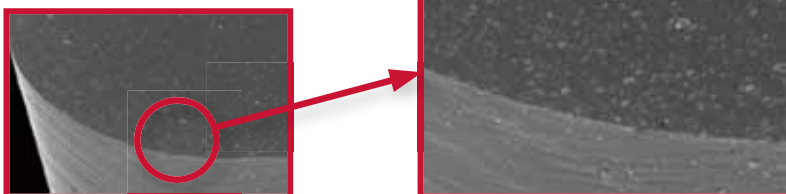
● **New PVD coated grade SH725**

**Exclusive PVD coated grade for precise parts machining**

“High adhesion strength” & “Sharp cutting edge”  
 → Amazing tool life with Excellent sharpness!

● Newly developed coating layer  
 No peeling-off even on sharp edges

**SH725**



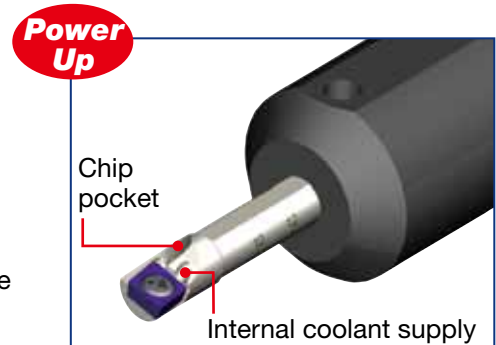
Extensive simulation analysis has enabled Tungaloy to develop a highly-rigid Stream Jet Bar with the ideal tool geometry for excellent chip evacuation.

New MINI

## Stream Jet Bar MINI for small diameter machining applications!

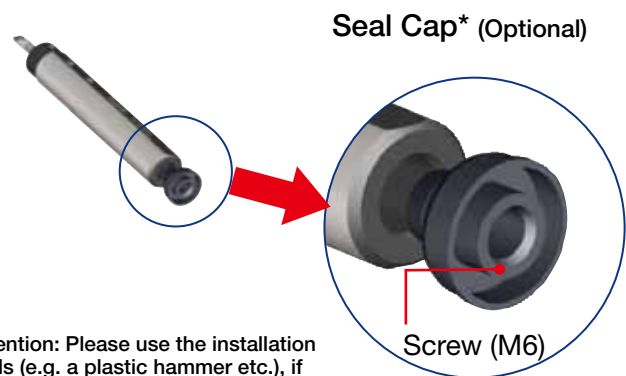
### ● Excellent performance for small diameter machining operations

- Minimum bore diameter from  $\varnothing 4.5$  mm
- Steel ( $L/D \leq 3$ ) and carbide ( $L/D \leq 5$ ) shank available  
(Note) L: Overhang length D: Shank diameter
- Straight shank type available
- Can be used with internal coolant supply
- Well designed chip pocket for excellent chip evacuation
- Easy to adjust overhang due to marked scale on shank
- Improved rigidity for minimizing bar deflection & chatter by FEM (Finite Element Method)
- Added Z cutting edge style for back boring



### ● Applicable for a wide variety of machines

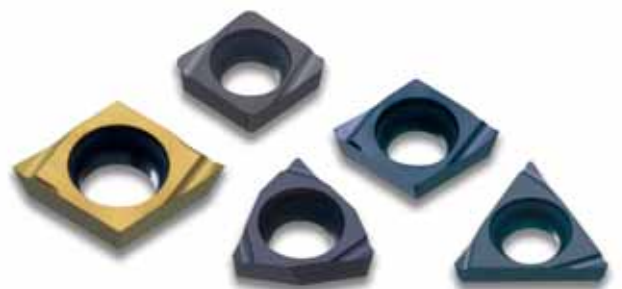
- Applicable sleeve for a variety of small lathes
- Supplied with Seal cap\* (optional)
- Suitably designed sleeve for directed external coolant flow (see picture below)



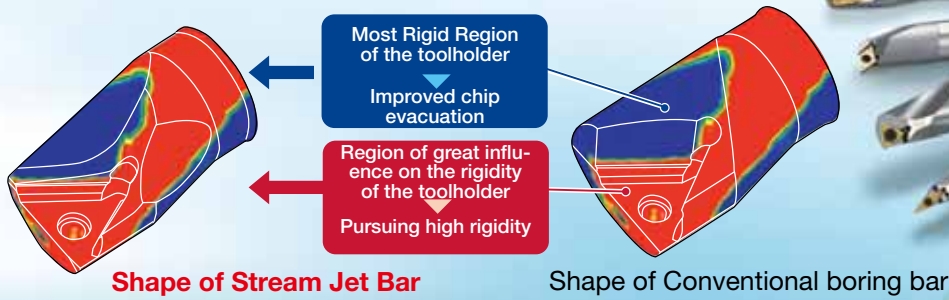
Attention: Please use the installation tools (e.g. a plastic hammer etc.), if difficult to ensure proper alignment

### ● Stable tool life & excellent chip control

- DS type 3-dimension chipbreaker and W08 type chipbreaker.
- Superior cutting edge due to fine grain carbide grade
- Two grades of inserts: **SH730** (for general purpose), **TH10** (for non-ferrous)
- Expansion of corner R0.1 spec on “EPGT04” & “WBG03” insert types



- Finite Analysis of the load transition

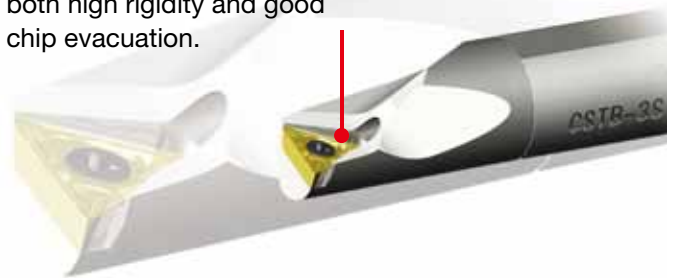


## Increased rigidity for minimizing bar deflection and chatter

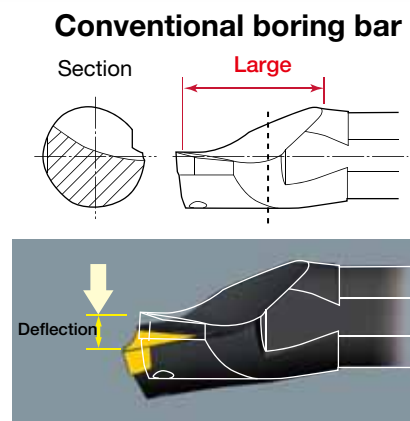
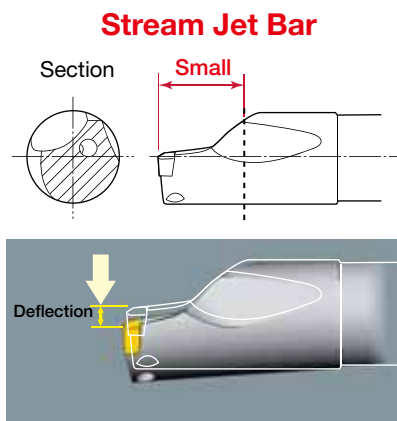
- Rigidity comparison with a conventional boring bar (Illustrations)

The rigidity of the bar in the direction of the principal force is maximized because the thickest portion of the head is located as close as possible to the cutting edge.  
 Note: Load 1000N ( $V_c = 150$  m/min,  $a_p = 1.5$  mm,  $f = 0.2$  mm/rev are assumed) A16Q-STUPR13-D180

Large head design provides both high rigidity and good chip evacuation.



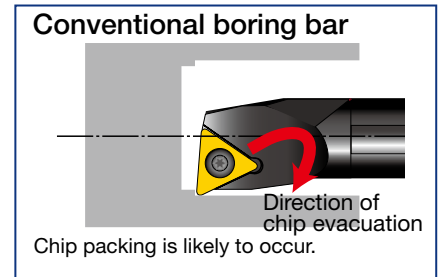
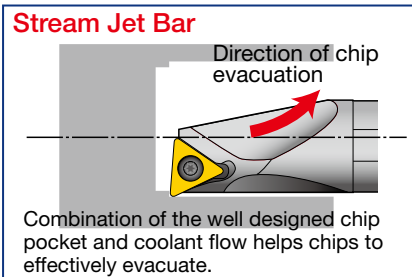
About 20% reduction in deflection compared with conventional bar



## New pocket design for excellent chip evacuation

- Cutting performance

The excellent chip evacuation minimizes tool failure caused by re-cutting chips and poor chip control. Damage to the work surface from chips is also eliminated.



*The oil hole is positioned as close as possible to the cutting edge to ensure fluid is fed directly to the cutting point.*

- Oil hole design

Distance between the cutting edge and the oil hole is minimized. (Distance is reduced by 50% compared to existing boring bars.)

- Screw for oil hole\*

In the case of not using the oil hole, a special screw can be inserted to prevent chip coiling (optional).

\* Negative type only



# MINI T-CBN

## The World's smallest diameter tool for boring on hardened steels with its \* $\varnothing 4.5$ mm

\* with indexable tools

● The smallest indexable CBN inserts in the world

### When comparing to conventional brazed tool

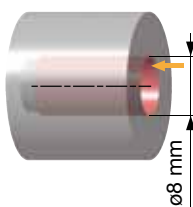
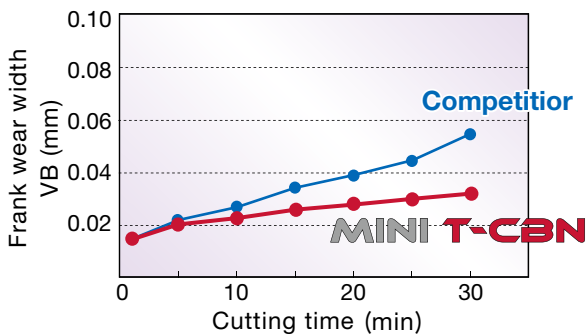
- Higher cutting edge repeatability
- Reduced tool change time
- Longer tool life even at low cutting speeds

### Applications

- Fuel injector components
- Boring of rocker arms

### ● High wear resistance

Offers long tool life even when boring small diameters



Insert : 1QP-CCGW04T102 BX310  
 Toolholder : E06H-SCLCR04-D070  
 Work material : Alloy steel  
 SCM415H (60 HRC)  
 Cutting speed :  $V_c = 100$  m/min  
 Depth of cut :  $a_p = 0.1$  mm  
 Feed :  $f = 0.05$  mm/rev  
 Machining mode: Internal turning  
 Machine : Swiss type lathe

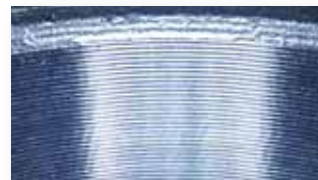


### ● Excellent surface finish

Sharp cutting edge reduces the cutting forces  
 → Prevents chattering and provides the finest machined surface.

### MINI T-CBN

### Competitor A



Outstanding surface quality

Chattering

Insert : 1QP-CCGW04T104 BX310  
 Toolholder : E06H-SCLCR04-D070  
 Work material : Alloy steel  
 SCM415H (60 HRC)  
 Cutting speed :  $V_c = 100$  m/min  
 Depth of cut :  $a_p = 0.1$  mm  
 Feed :  $f = 0.05$  mm/rev  
 Boring dia. :  $\varnothing 8$  mm

## Standard cutting conditions

Application	Grades	Machining mode	Cutting Speed $V_c$ (m/min)	Depth of cut $a_p$ (mm)	Feed $f$ (mm/rev)
<b>H</b> Hard Materials	<b>BX310</b>	Continuous cutting	30 - 150	0.03 - 0.20	0.03 - 0.10

# 1

## Grades

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### Products

Coated grades / CVD	.....	1-2
Coated grades / PVD	.....	1-4
Cermet	.....	1-6
PCBN (T-CBN)	.....	1-8
PCD (T-DIA)	.....	1-10
Uncoated Cemented Carbides	.....	1-11

# Coated grades / CVD

## Chemical Vapour Deposition

### For Turning

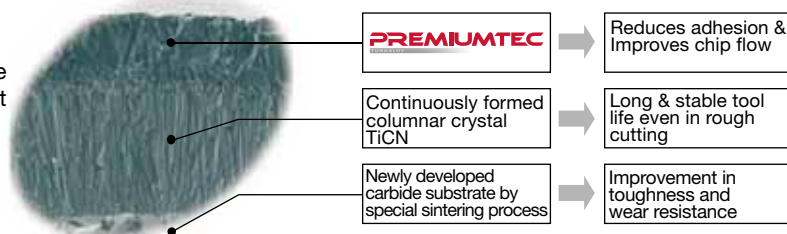
	P Steel	M Stainless	K Cast iron
05	T9105		T5105
10	T9115	T6120	T5115
15			
20	T9125	T6130	T5125
25			
30	T9135		
35			
40			

CVD coated carbide grades consist of a cemented carbide substrate such as TiCN, TiN, Al<sub>2</sub>O<sub>3</sub> or additional alternatives. These are deposited to 3 to 16 µm thick by means of a chemical vapour deposition method. The coating layer is hard and improves heat and oxidation resistance to make it chemically stable. With these advantages the coated grades prolong tool life and increase machining efficiency. The newly developed Tungaloy technology - "PremiumTec" is a specialized surface smoothing technology that reduces the friction coefficient and prevents the concentration of micro stresses. This improves adhesion performance and increases chip and wear resistance.

### PREMIUMTEC

### T9100 series for steels CVD coated grades for turning steels

The T9115 & T9125 are CVD coated grades for general purpose steel turning. The grades guarantee high reliability and quality by applying the new Tungaloy triple technologies. With the effect of "Adhesion reinforcement technology" and "Columnar stabilization technology", the grades ensure excellent chipping resistance and stable tool life. The special "PremiumTec" surface smoothing technology further stabilizes tool life.

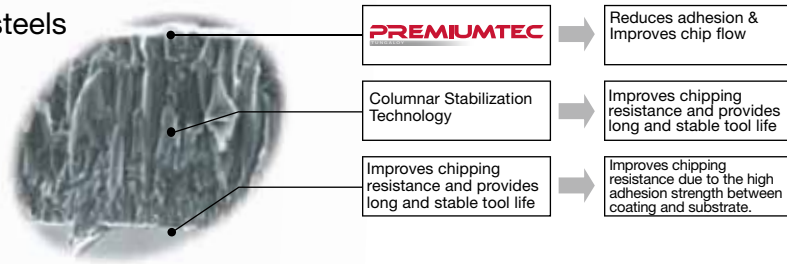


### PREMIUMTEC

### T6100 series for stainless steels

#### CVD coated grades for turning stainless steels

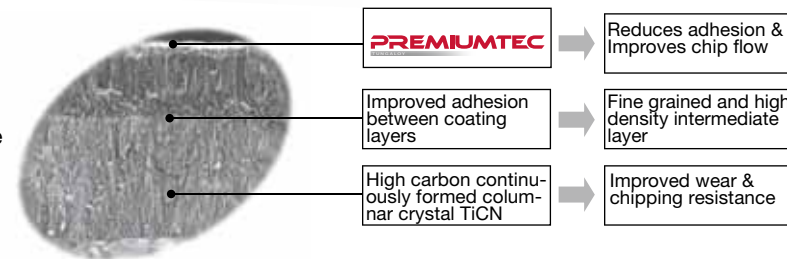
Ideal combination of exclusive substrate and newly developed coating layer provides stable and long tool life when machining stainless steels due to the high adhesion strength, wear and plastic deformation resistance. New SF and SH chipbreakers expands the application area for stainless steel machining.



### PREMIUMTEC

### T5100 series for cast irons CVD coated grades for turning grey and ductile cast irons

This series features high carbon and fine grained coating structure that has improved wear and impact resistance. Three grades together with three chipbreaker types ensure excellent cutting performance when turning grey and ductile cast irons.



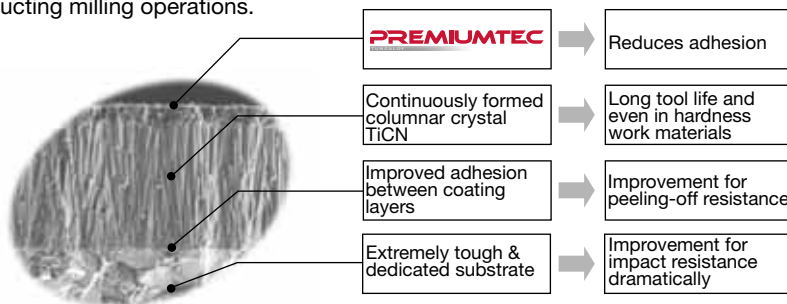
### PREMIUMTEC

### T3130 for steels CVD coated grades for milling steels

### For Milling

	P Steel	M Stainless	K Cast iron
05			
10			
15			
20	T3130	T3130	T1115
25			
30			
35			
40			

The T3130 provides dramatic improvements in chipping and impact resistance due to its "Adhesion reinforcement technology" and "Columnar stabilization technology". The "PremiumTec" surface smoothing technology also contributes to the insert stabilization when conducting milling operations.





**For Turning**

Application	Grades		Substrate			Coating layer		Features
	Application code	Specific gravity	Hardness (HRA)	Transverse rupture strength (GPa)	Main composition	Thickness (µm)		
<b>P</b> Steel	<b>PREMIUMTEC</b> T9105 P01 - P10	14.2	91.5	2.4	Continuously formed columnar crystal TiCN + Al <sub>2</sub> O <sub>3</sub>	16	<b>For steels</b> The "PremiumTec" surface smoothing technology enhances the performance of tools. The new coating layer consists of continuously formed columnar crystals that are integrated into crystal size and direction. This new coating layer creates the adhesion for each coating layer and dramatically prevents the micro cracking and chipping effect.  T9105: T9105 shows excellent performance during high speed cutting. T9115: Well-balanced grade enhances chipping and wear resistance. T9125: The versatile grade that dramatically improves chipping resistance. T9115: Well-balanced grade enhances chipping and wear resistance. T9135: T9135 shows excellent impact resistance during heavy interrupted cutting.	
	<b>PREMIUMTEC</b> T9115 P10 - P20							13.9
	<b>PREMIUMTEC</b> T9125 P20 - P30	13.7	90.0	2.6				
	<b>PREMIUMTEC</b> T9135 P30 - P40					13.5		89.0
	<b>PREMIUMTEC</b> T6120 M10 - M20	13.9	91.0	2.5				
	<b>PREMIUMTEC</b> T6130 M15 - M30					14.6		89.0
<b>PREMIUMTEC</b> T5105 K05 - K15	15.0	92.5	2.4	High carbon and fine columnar crystal TiCN + Al <sub>2</sub> O <sub>3</sub>	16		<b>For grey and ductile cast irons</b> The "PremiumTec" surface smoothing technology delivers high performance with stability. The coating layer of the T5100 series features fine grained and hard columnar crystals of TiCN and this drastically improves wear resistance. When combined with the dedicated cemented carbide substrate that has a fine structure and high-strength, the three grades of the T5100 series promotes excellent cutting performance in a wide range of cast iron turning applications. T5105: Excels in wear and deformation resistance in high-speed, continuous turning. T5115: General purpose grade that achieves stable machining in a wide range of machining conditions from continuous to interrupted cutting. T5125: This grade excels when conducting heavy interrupted cutting. The very tough grade has a high resistance to unpredicted tool breakages.	
<b>PREMIUMTEC</b> T5115 K10 - K20						14.8		91.5
<b>PREMIUMTEC</b> T5125 K15 - K30	14.0	90.5	2.8					
<b>Threading</b> T313V -				14.5	90.5	2.3	Special Titanium compound (columnar) + Al <sub>2</sub> O <sub>3</sub>	3

**For Milling**

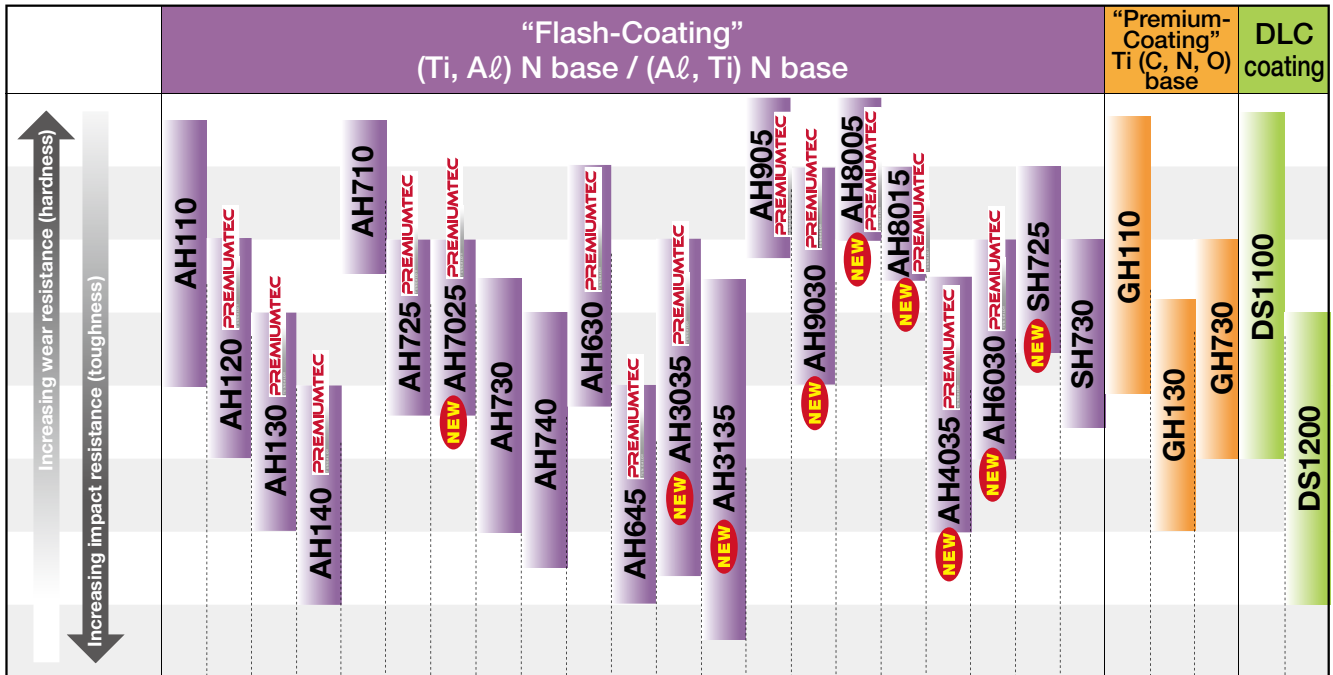
Application	Grades		Substrate			Coating layer		Features
	Application code	Specific gravity	Hardness (HRA)	Transverse rupture strength (GPa)	Main composition	Thickness (µm)		
<b>P</b> Steel	<b>PREMIUMTEC</b> T3130 P20 - P40	14.0	89.5	2.8	Continuously formed columnar crystal TiCN + Al <sub>2</sub> O <sub>3</sub>	6	<b>For steels, stainless steels</b> The "PremiumTec" surface smoothing technology improves performance with stability. "Adhesion reinforcement technology" and "Columnar stabilization technology" create stable long tool life. This enhances performance with increased wear and chipping resistance when conducting milling operations.	
	<b>PREMIUMTEC</b> T3130 M20 - M40							
<b>M</b> Stainless	<b>PREMIUMTEC</b> T1115 K10 - K25	14.9	91.5	2.7	Continuously formed columnar crystal TiCN + Al <sub>2</sub> O <sub>3</sub>	11	<b>For grey and ductile cast irons</b> The "PremiumTec" surface smoothing technology improves performance with stability. "Adhesion reinforcement technology" and "Columnar stabilization technology" create stable and long tool life. This improves the performance for impact and chipping resistance. It combines with a thick aluminium layer that improves wear resistance.	
	<b>PREMIUMTEC</b> T3130 K10 - K25							

# Coated grades / PVD

1

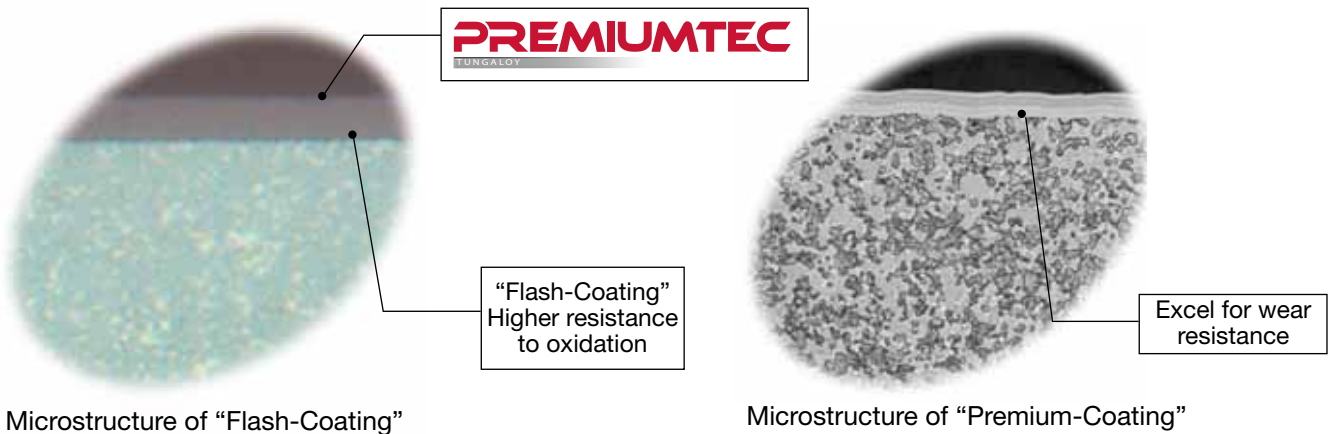
## Physical Vapour Deposition

Grades



PVD coated carbides consist of a cemented carbide substrate that contains a Titanium compound such as (Ti, Al)N that is coated to about 1 to 3 µm thick by means of the physical deposition (PVD) method. The lower coating temperature ensures the substrate does not form any brittle harmful layer and can maintain the original shape and dimensions. The Ti(C, N, O) base coating is superior to TiN coatings in regard to wear resistance. Whereas a (Ti, Al)N base coat

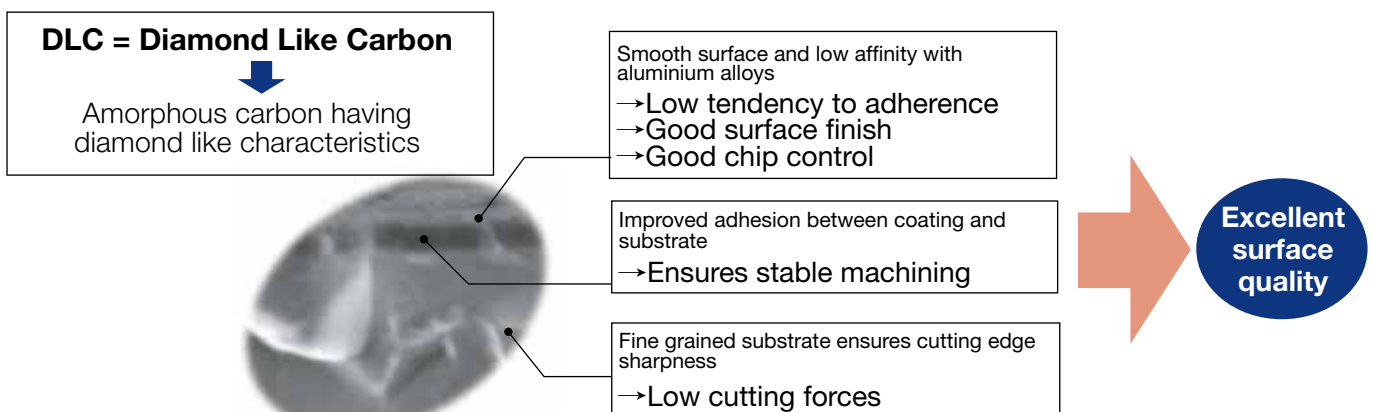
has a higher resistance to oxidation. The excellent toughness of both the coating and substrate make these grades suitable for interrupted cutting. Their sharp cutting edge allows the grades to be used for cutting difficult-to-cut materials that tend to be work hardened. "PremiumTec" is treated with a CVD coating and also a PVD coated layer that reduces adhesion and enhances chip flow.



Microstructure of "Flash-Coating"

Microstructure of "Premium-Coating"

## DS1100, DS1200 DLC coating grades for milling aluminium alloys



Application	Grades		Substrate		Coating layer		Features
	Application code	Specific gravity	Hardness (HRA)	Transverse rupture strength (GPa)	Main composition	Thickness (µm)	
<b>P</b> Steel	PREMIUMTEC AH120	14.5	90.8	2.8	"Flash-Coating" (Ti, Al)N base	3	<b>General grade</b> Both wear resistance and impact resistance are well-balanced in all general grades.
	P20 - P35						
	PREMIUMTEC AH130	14.1	90.5	3.0		3	<b>For steels &amp; stainless steels / very tough grade</b> Excellent performance and reliability for tough machining applications.
	P25 - P40						
	NEW AH3135	14.0	89.5	3.2		5	<b>For steels</b> Excellent fracture resistance. Assures long tool life in milling steel.
	P30 - P40						
	AH710	15.0	93.0	2.9		3	<b>For grooving</b> Excellent wear resistance and toughness.
	P10 - P20						
	PREMIUMTEC AH725	14.4	91.5	3.0		2	<b>General grade</b> PVD coated "Flash-Coating" fine grain cemented carbides.
	P20 - P35						
	PREMIUMTEC AH7025	14.4	91.3	3.0		3.5	<b>General purpose grade for grooving</b> First choice for grooving various materials. Excellent wear resistance and high rigidity.
	P25 - P35						
	AH730	14.4	91.5	3.0		3	<b>For steels</b> Combined with fine grained carbide substrate, this grade provides both wear resistance and toughness.
	P25 - P40						
	PREMIUMTEC AH9030	14.5	90.8	2.8		5	<b>For steels</b> With excellent wear and chipping resistance.
P15 - P35							
NEW SH725	14.4	91.5	3.0	1	<b>For steel and stainless steel</b> PVD Coated grade with thin layer.		
P20 - P30							
SH730	14.4	91.5	3.0	1	<b>For steels, stainless steels and superalloys (thin PVD)</b> The extremely wear resistant cutting edge maintains exceptional sharpness.		
P20 - P35							
<b>M</b> Stainless	PREMIUMTEC AH120	14.5	90.8	2.8	"Flash-Coating" (Ti, Al)N base	3	<b>General grade</b> For continuous to medium interrupted cutting of stainless steels.
	M20 - M35						
	PREMIUMTEC AH130	14.1	90.5	3.0		3	<b>For steels &amp; stainless steels</b> Excellent performance and reliability when applied to tough machining applications.
	M25 - M40						
	NEW AH6030	14.4	91.5	3.0		5	<b>For stainless steel drilling</b> New PVD coating with high adhesion strength prevents fracture caused by chip welding and provides long tool life.
	M25 - M35						
	AH630	14.4	91.5	3.0		5	<b>For stainless steels (AH600 series)</b> Versatile grade for stainless steels. With excellent wear and chipping resistance, AH630 grade is suitable for stainless steel machining at low to medium cutting speed.
	M15 - M30						
	PREMIUMTEC AH645	14.0	89.5	3.2		5	<b>For stainless steels (AH600 series)</b> AH645 demonstrates incredible toughness in cutting of stainless steels.
	M30 - M40						
	PREMIUMTEC AH725	14.4	91.5	3.0		2	<b>General grade</b> General grade that is "Flash-Coating" with a fine grain cemented carbide.
	M20 - M35						
	NEW SH725	14.4	91.5	3.0		1	<b>For steel and stainless steel</b> PVD Coated grade with thin layer.
	M20 - M30						
	SH730	14.4	91.5	3.0		1	<b>For steels, stainless steels and superalloys (thin PVD)</b> Cutting edge with sharpness is maintained with excellent wear resistance characteristics that are ideal for stainless steel machining.
M20 - M35							
<b>K</b> Cast Iron	AH110	14.7	92.0	2.4	"Flash-Coating" (Ti, Al)N base	3	<b>For cast irons and heat resisting alloys</b> For continuous to medium interrupted cutting of cast irons at high speeds.
	K10 - K25						
	PREMIUMTEC AH120	14.5	90.8	2.8		3	<b>General grade</b> General grade for cast irons. For various cutting conditions.
	K15 - K30						
	GH110	14.7	92.0	2.4		3	<b>For cast irons and non-ferrous metals</b> Excels in wear resistance.
K10 - K25							
<b>N</b> Non-ferrous	DS1100	15.0	93.0	2.9	DLC coating	Thin layer	<b>For aluminium alloys</b> Can suppress chips welding to cutting edges, producing consistently high quality surface and realizing long tool life.
	N05 - N20						
	DS1200	14.7	92.0	2.4		Thin layer	<b>For aluminium alloys</b> Can prevent chips welding to cutting edges, producing a consistently high quality surface finish and extending tool life.
N10 - N25							
<b>S</b> Superalloys	AH110	14.7	92.0	2.4	"Flash-Coating" (Ti, Al)N base	3	<b>For cast irons and heat resisting alloys</b> Excellent plastic deformation resistance.
	S05 - S15						
	PREMIUMTEC AH120	14.5	90.8	2.8		3	<b>General grade</b> Excels in both plastic deformation and chipping resistance.
	S10 - S25						
	PREMIUMTEC AH905	15.0	93.0	2.9		1.5	<b>For superalloys</b> Excels in both cutting edge sharpness and wear resistance.
	S01 - S10						
	PREMIUMTEC AH8005	15.0	93.0	2.2	3.5	<b>For heat resistance alloys</b> Excellent wear resistance in high speed, continuous machining.	
	S01 - S10						
	PREMIUMTEC AH8015	14.9	91.8	3.1	3.5	<b>First choice for heat resistant superalloys</b> Suitable for various applications from semi-finishing to finishing. Excellent wear and fracture resistances	
	S10 - S20						
PREMIUMTEC AH725	14.4	91.5	3.0	"Flash-Coating" (Ti, Al)N base	2	<b>For grooving</b> Tough grade that is ideal for super alloys.	
S20 - S30							
SH730	14.4	91.5	3.0	1	<b>For steels, stainless steels and superalloys (thin PVD)</b> Excels in both cutting edge sharpness and wear resistance.		
S05 - S15							
<b>For swiss lathes</b>	J740	13.9	91.5	3.5	"J-Coating" TiN base	1	<b>For swiss type lathes</b> Ultra fine grain cemented carbides coated with TiN based compounds.

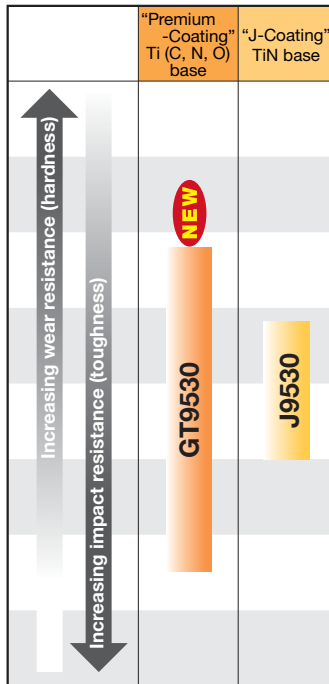
# Cermet

1

## Cermet

### Coated Cermet

Grades



Cermet consists of a hard phase and a binding phase, which is the case with cemented carbides. The hard phase consists mainly of Titanium carbide TiC and Titanium nitride TiN. These carbides and nitrides have superior strength and oxidation resistance when working at high temperatures when compared with Tungsten carbide WC.

Furthermore, there is little tendency to react with the work material and this ensures high crater resistance. Finally, Cermet grades are applicable to high and low speed cutting ranges whilst delivering excellent surface roughness.

### For Turning "Super fine Cermet" NS9530, GT9530

- Tough and smooth top layer  
Creates the ideal balance of hardness and toughness due to the controlled crystal composition.
  - ➔ Consists of incredible fracture and wear resistance.
  - Allows exceptionally stable machining!**
- Drastically improved microscopic roughness  
Effectively reduces chip welding on edges, improving surface finish. Enhances wear resistance.

#### NS9530

- Versatile cermet grade with incredible fracture and wear resistance.
- Provides long tool life and excellent surface appearance in finishing to medium cutting of steels.

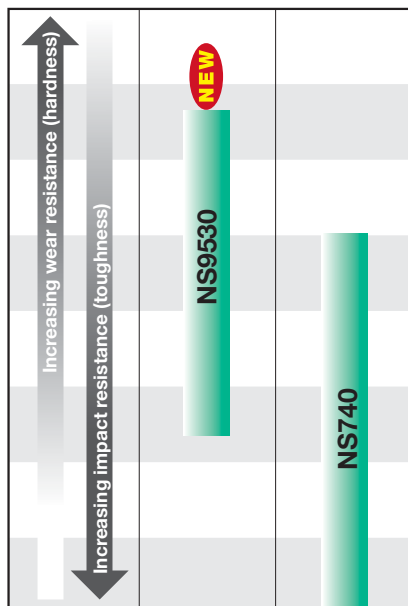
#### GT9530

- Coated cermet grade with premium coating demonstrates exceptional wear resistance.
- Provides remarkable performance in finishing of steels during high speed machining.



Microstructure of NS9530

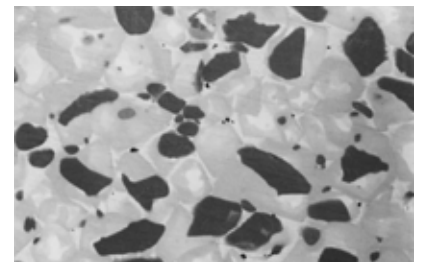
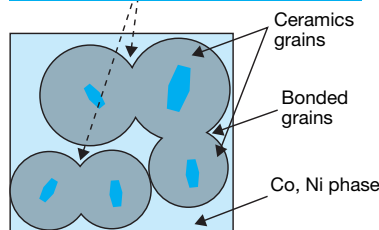
### Uncoated



### For Milling "Skeleton Reinforced Cermet" NS740


- "Skeleton reinforced technology"  
"Skeleton reinforced technology" enhances toughness whilst keeping hardness by means of improvement of bonding strength among ceramic compound grain.

Improved bonding between grains → Improved toughness




Microstructure of NS740

## Coated Cermet

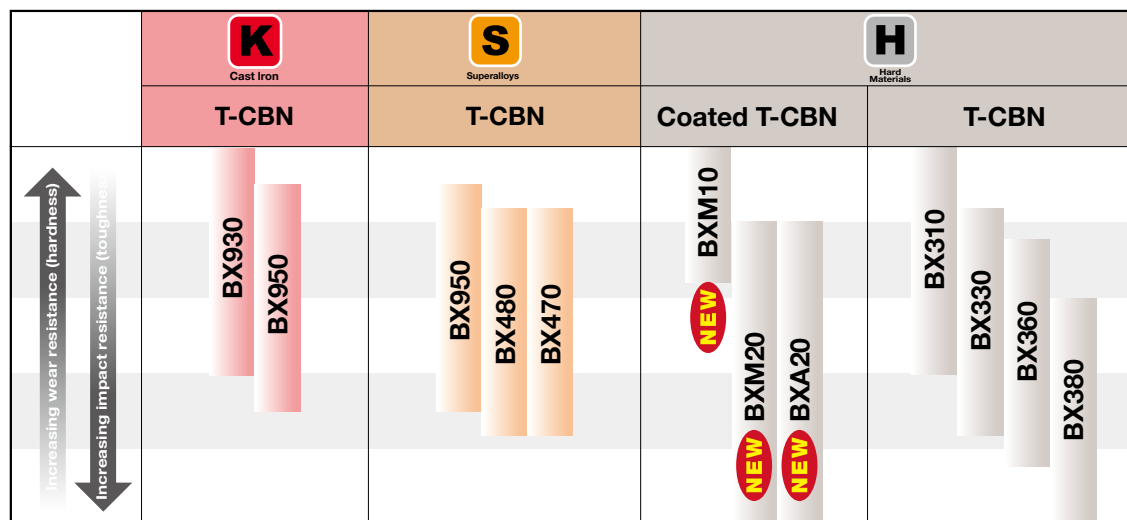
Application	Grades	Substrate			Coating layer		Features
		Specific gravity	Hardness (HRA)	Transverse rupture strength (GPa)	Main composition	Thickness (μm)	
 Steel	<b>NEW</b> GT9530	6.8	91.7	2.3	"Premium -Coating" Ti(C, N, O) base	3	<b>First choice</b> General turning of steels at high cutting speed.
	For small lathes J9530	6.8	91.7	2.3	"J-Coating" TiN base	1	<b>For small lathes</b> Cermet coated PVD-TiN based compounds.

## Uncoated

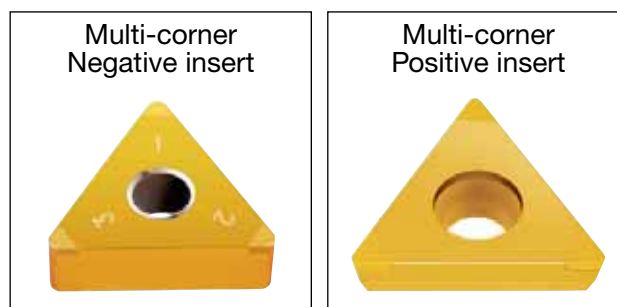
Application	Grades	Substrate			Features
		Specific gravity	Hardness (HRA)	Transverse rupture strength (GPa)	
 Steel	<b>NEW</b> NS9530	6.8	91.7	2.3	<b>For steels</b> General machining of steels and stainless steels with good surface finish.
	NS740	6.8	91.7	2.2	<b>For steels</b> Very tough grade for milling. Excellent thermal crack resistance. This grade also provides good wear and impact resistance.

# PCBN (T-CBN)



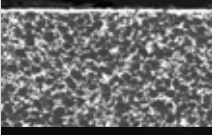
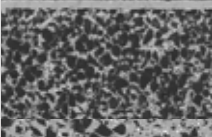
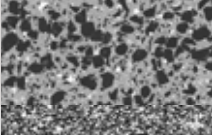

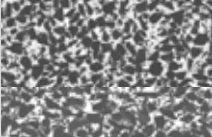

## Polycrystalline Cubic Boron Nitride Compacts (PCBN), T-CBN



The PCBN material is sintered under ultra high-pressure and temperature with cubic boron nitride particles and a special binder. The hardness is more than twice that of cemented carbide, with the hardness at high temperature exceeding that of cemented carbide. CBN has no tendency to react with ferrous materials (different to diamonds). This makes it suitable for high speed cutting of cast iron, the finishing of hardened steel, ferrous sintered metals (valve seats) etc. This material is also suited to finish machining of super heat resistant alloys. The use of CBN sintered materials improve the surface finish and accuracy, making finishes comparable to grinding.

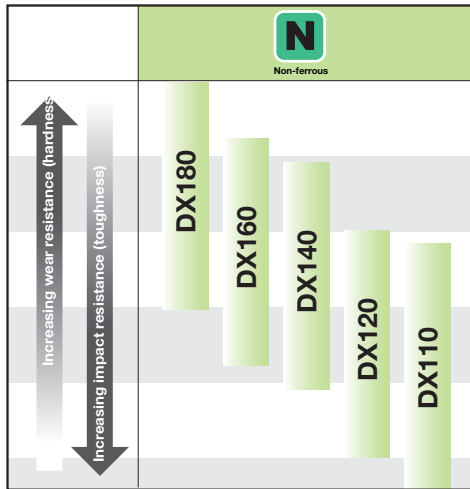


Application	Grades	Microstructure	Hardness (Hv)	Transverse rupture strength (GPa)	Features
<b>K</b> Cast Iron	BX930		3000 ~ 3200	0.95 ~ 1.20	<b>PCBN grade for machining grey and ductile cast irons</b> Features closely calculated CBN content and medium sized CBN particles bound with special binder. Excels in impact resistance.
	BX950		3900 ~ 4100	1.80 ~ 1.90	<b>High CBN content grade for high speed machining</b> PCBN grade featuring a high CBN content with cobalt alloy binder.
<b>S</b> Superalloys	BX950		3900 ~ 4100	1.80 ~ 1.90	<b>High CBN content grade for high speed machining</b> PCBN grade featuring high CBN content and use of cobalt alloy binder.
	BX480		4100 ~ 4300	1.90 ~ 2.10	<b>PCBN grade for machining ferrous sintered metals and hard rolls</b> The highest hardness level of all the T-CBN grades.
	BX470		4100 ~ 4300	1.90 ~ 2.10	<b>Super fine grain PCBN grade for machining ferrous sintered metals</b> The highest content of CBN.

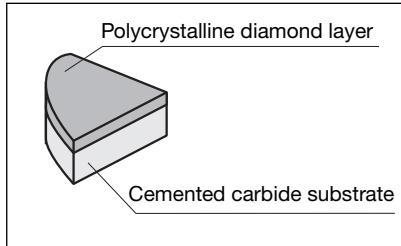
Application	Grades	Microstructure	Hardness (Hv)	Transverse rupture strength (GPa)	Features
	<b>NEW</b> <b>BXM10</b> Coated T-CBN		2700 ~ 2900	0.80 ~ 0.90	<b>Coated grade for high-speed continuous and light interrupted machining</b> High crater resistance CBN substrate. The surface is coated with a dedicated coating material.
	<b>NEW</b> <b>BXM20</b> Coated T-CBN		3300 ~ 3500	1.35 ~ 1.50	<b>First choice hard-turning: coated grade for continuous and interrupted machining and scale removal</b> High chipping resistance CBN substrate. The surface is coated with a dedicated coating material.
	<b>NEW</b> <b>BXA20</b> Coated T-CBN		3200 ~ 3400	1.35 ~ 1.50	<b>Medium cutting speed, turning hardened steel</b> Multi-layer coated CBN grade with dedicated carbide substrate. Improved wear and fracture resistances. Applicable from continuous to heavy interrupted cuttings at low to medium speeds.
	<b>BX310</b>		2700 ~ 2900	0.80 ~ 0.90	<b>High speed, continuous machining grade</b> The binding force between particles is improved by using relatively coarse CBN grains. Excellent wear resistance.
	<b>BX330</b>		2800 ~ 3000	0.85 ~ 0.95	<b>Super fine grained grade for superior surface finish</b> Super fine grain CBN particles are bound with a special binder. Maintains its very sharp cutting edges.
	<b>BX360</b>		3200 ~ 3400	1.00 ~ 1.10	<b>General purpose grade for continuous to ordinarily interrupted machining</b> Composed with fine grained and coarse grained CBN particles. General purpose grade featuring excellent impact resistance.
	<b>BX380</b>		3500 ~ 3700	1.15 ~ 1.30	<b>Tough grade for heavily interrupted machining</b> Composed of relatively high content of coarse CBN particles. It contributes to the excellent impact resistance.

# PCD (T-DIA)




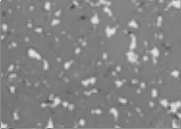
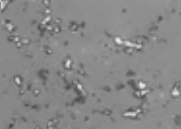

## Polycrystalline Diamond Compacts (PCD), T-DIA



Diamond is the hardest known material on the earth. This is an advanced diamond based tool material where tiny diamond crystals are tightly sintered on the cemented carbide alloy base by means of a super high pressure and temperature process. When compared to the single crystal diamond, the hardness is slightly reduced but PCD is uniform in its structure. Additionally the heat resistant performance of a single crystal diamond can differ according to the crystal quality and orientation. PCD is therefore the optimum choice for cutting non-ferrous and non-metal materials.



Structure of T-DIA

Applica-tion	Grades	Microstructure	Grain size (µm)	Hardness (Hv)	Strength (GPa)	Features
	DX110		< 1	8500	1.8	Super fine grain T-DIA grade for superior surface finish. Excels in cutting edge sharpness and produces consistently high quality surface finish, resulting from gradual wear resistance.
	DX120		4.5	9000	1.8	For precision machining of non-ferrous metals and nonmetals where high quality surface finish is required. Features the finest grain structure in T-DIA series and excels in grindability and cutting edge sharpness.
	DX140		12.5	10000	1.7	Used for machining of non-ferrous metals and nonmetals. Composed of medium and fine grain diamond, provides moderate wear resistance and grindability.
	DX160		28	11000	1.6	Can be used for machining half sintered ceramics and cemented carbides, stones and non-ferrous metals. Mixed sintered compact composed of large and fine grain diamond. Grindability is superior to that of DX180.
	DX180		45	12000	1.5	Suitable for turning half sintered ceramics and cemented carbides. Features the highest purity levels with large grain PCD for excellent wear resistance.

### Regrinding method

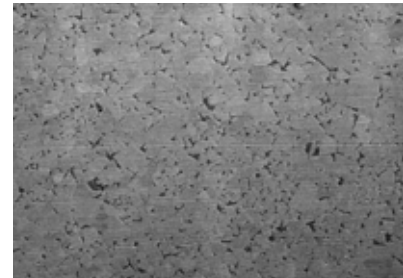
Wheel	Diamond wheel
Bond	Vitrified bond
Grain size	Roughing: #400 ~ 600 Finishing: Finer than #1000
Concentration	100 ~ 125
Grinding speed	900 ~ 1200 m/min



# Uncoated Cemented Carbides

## Uncoated Cemented Carbides (Tungaloy Cutting Tool Grades)

Tungaloy's cemented carbides are sintered with Tungsten carbide WC, Titanium carbide TiC and Co binder phase. Tungaloy matches the original unique grades with the application to ensure stable performance and complete quality control. Tungaloy offers superior mechanical and thermal wear resistance when compared with high speed tool steel.



Microstructure of **KS05F**

Application	ISO Application code	Grades	Specific gravity	Hardness (HRA)	Transverse rupture strength (GPa)	Compression strength (GPa)	Modulus of elasticity (GPa)	Thermal expansion coefficient (X10 <sup>-6</sup> /K)	Thermal conductivity (W/(m·K))
<b>P</b> Steel	P30	<b>UX30</b>	12.6	91.1	2.3	4.9	490	5.8	38
<b>M</b> Stainless	M30	<b>UX30</b>	12.6	91.1	2.3	4.9	490	5.8	38
<b>K</b> Cast Iron	K10	<b>TH10</b>	14.7	92.0	2.4	6.1	620	5.4	97
	K20	<b>KS20</b>	14.5	90.8	2.8	6.1	620	5.4	96
<b>N</b> Non-ferrous	N05	<b>KS05F</b>	15.0	93.0	2.9	5.9	640	5.4	90
	N10	<b>TH10</b>	14.7	92.0	2.4	6.1	620	5.4	97
	N15	<b>KS15F</b>	14.4	91.5	3.0	4.4	580	5.6	79
<b>S</b> Superalloys	S10	<b>TH10</b>	14.7	92.0	2.4	6.1	620	5.4	97
	S20	<b>KS20</b>	14.5	90.8	2.8	6.1	620	5.4	96
<b>H</b> Hard Materials	H10	<b>TH10</b>	14.7	92.0	2.4	6.1	620	5.4	97

# Chapter Composition of TAC Inserts

- ◆ Each page of this chapter is composed so that you can select an appropriate insert for your machining operation.
- ◆ TAC inserts for turning are arranged by shape as follows:
  - C (80°), D (55°), E (75°), T (60°), W (80°), V (35°) and other shapes
- ◆ In the same shape, inserts are arranged in order of positive to negative.
- ◆ Chipbreaker types are arranged in order of precision finishing, medium finishing, medium cutting, and heavy cutting or according to the degree of the feed or depth of cut to be applied.

Insert shape  
Title name of the chapter  
Indicates negative or positive.  
Indicates insert and mounting hole sizes.

**TAC Inserts, positive**

**Rhombic, with hole**  
80° Positive 7°  
CC

**CCGT 06 02 02 -**  
Cutting edge length (L) Thickness (s) Corner radius (r) Chipbreaker symbol  
CC: TW 03X1 04T1 0602 08T3  
edt item 1.9 2.3 2.8 4.4

Main application  
Chipbreaker symbol

Insert grades  
Coloured columns indicate applicable material group according to ISO.  
P M K N S H  
Steel Stainless Cast Iron Non-ferrous Superalloy Hard materials

Cat. No. of TAC insert

Applicable TAC toolholders

Symbols of stock status

Note: Chipbreaker cross-sections are of \* marked inserts.

2-18

Guideline for applicable range of feed and depth of cut

## Ordering information

- When ordering, please specify Cat. No., grade, and quantity.  
Example: **CCMT060204-PSF T9115** 10 pieces.
- Standard packing quantity is 10 pieces.



# TAC Inserts

## Guidance

■ Designation system for TAC Inserts .....	2-2
■ Chipbreaker overview / Positive .....	2-4
■ Chipbreaker overview / Negative .....	2-12

## Products

### ■ TAC inserts, Positive

Coated, cermet and uncoated inserts

● CC□□ 80° Rhombic with hole .....	2-15
● CP□□ 80° Rhombic with hole .....	2-22
● DC□□ 55° Rhombic with hole .....	2-25
● EP□□ 75° Rhombic with hole .....	2-31
● TC□□ 60° Triangular with hole .....	2-33
● TP□□ 60° Triangular with hole .....	2-38
● WB□□ 80° Trigon with hole .....	2-39
● VB□□ 35° Rhombic with hole .....	2-40
● VC□□ 35° Rhombic with hole .....	2-42
● VP□□ 35° Rhombic with hole .....	2-43
● YWMT 25° Rhombic with hole .....	2-45

### ■ TAC inserts, Positive, Double-sided

Coated, cermet and uncoated inserts

● DXGU 55° Rhombic with hole .....	2-46
● WXGU 80° Trigon with hole .....	2-48
● VXGU 35° Rhombic with hole .....	2-50

### ■ TAC inserts, Other shapes

Coated, cermet and uncoated inserts

● JXB□ for back turning .....	2-51
● JTB□ for back turning .....	2-52
● J10E□ for back turning .....	2-53
● JXF□ for front turning .....	2-54
● JXR□ for reverse turning .....	2-54

### ■ TAC inserts, Negative

Coated, cermet and uncoated inserts

● CN□□ 80° Rhombic with hole .....	2-55
● DN□□ 55° Rhombic with hole .....	2-59
● TN□□ 60° Triangular with hole .....	2-63

# Designation System for TAC Inserts

● Conforms to "Indexable Inserts for Cutting Tools - Designation" (JIS B4120-1998, and ISO 1832 / AM1-1998)

2

TAC Inserts

Symbol	Shape	Nose angle (degree)	Figure
H	Hexagonal	120°	
O	Octagonal	135°	
P	Pentagonal	108°	
S	Square	90°	
T	Triangular	60°	
C	Rhombic	80°	
D		55°	
E		75°	
F		50°	
M		86°	
V		35°	
Y	Y-shape (Tungaloy's symbol)	25°	
W	Trigon	80°	
L	Rectangular	90°	
A	Parallelogram	85°	
B		82°	
K		55°	
R	Round	-	

### ① Shape

Notes : With respect to the nose angles of rhombic and parallelogram shaped inserts, use the smaller angle respectively.

Symbol	Relief angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Others
X	Others

### ② Relief angle

Symbol (class)	Tolerance (mm)		
	Corner height (m)	Thickness (s)	I. C. dia. (ød)
A	±0.005	±0.025	±0.025
F	±0.005	±0.025	±0.013
C	±0.013	±0.025	±0.025
H	±0.013	±0.025	±0.013
E	±0.025	±0.025	±0.025
G	±0.025	±0.13	±0.025
J	±0.005	±0.025	±0.005 ~ ±0.13
K	±0.013	±0.025	±0.05 ~ ±0.13
L	±0.025	±0.025	±0.05 ~ ±0.13
M	±0.08 ~ ±0.18	±0.13	±0.05 ~ ±0.13
N	±0.08 ~ ±0.18	±0.025	±0.05 ~ ±0.13
U	±0.13 ~ ±0.38	±0.13	±0.08 ~ ±0.25

### ③ Accuracy

[Example] **T N M G 16**

[Example] **C C G T 09**

④ Groove and hole					
Symbol	Hole	Shape of hole	Chip-breaker	Shape	
N	Without	-	Without		
R			Single-sided		
F			Double-sided		
A	With	Cylindrical hole	Without		
M			Single-sided		
G			Double-sided		
W			Partly cylindrical hole, single-side 40° ~ 60° Counter sink	Without	
T			Single-sided		
Q			Partly cylindrical hole, double-side 40° ~ 60° Counter sink	Without	
U	With	Partly cylindrical hole, single-side 70° ~ 90° Counter sink	Double-sided		
B			Without		
H			Single-sided		
C			Without		
J	With	Partly cylindrical hole, double-side 70° ~ 90° Counter sink	Double-sided		
X			-	-	-

⑤ Cutting edge length																
* (R)	(S)	(C)	(W)	(T)	(D)	(V)	(K)	I. C. dia. (mm)								
Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	
		03	3.97	03	4.0			06	6.9	04	4.8					3.97
		04	4.76	04	4.8			08	8.2	05	5.8	08	8.3			4.76
*05	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
		05	5.56	05	5.6	03	3.8	09	9.6	06	6.8					5.56
*06	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
		06	6.35	06	6.5	04	4.3	11	11	07	7.8	11	11.2			6.35
		07	7.94	08	8.1	05	5.4	13	13.8	09	9.7					7.94
*08	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
09	9.525	09	9.525	09	9.7	06	6.5	16	16.5	11	11.6	16	16.6	16	19.7	9.525
*10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
*12	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
12	12.7	12	12.7	12	12.9	08	8.7	22	22	15	15.5	22	22.1			12.7
15	15.875	15	15.875	16	16.1	10	10.9	27	27.5	19	19.4					15.875
*16	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16
19	19.05	19	19.05	19	19.3	13	13	33	33	23	23.3					19.05
*20	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20
		22	22.225	22	22.6			38	38.5	27	27.1					22.225
*25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25
25	25.4	25	25.4	25	25.8			44	44	31	31					25.4
31	31.75	31	31.75	32	32.2			55	55	38	38.8					31.75
*32	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32

\* When M0 is included in the Cat. No., the inscribed-circle diameter is metric size.

● Detailed accuracy for J,K,L,M,N and U classes

For inserts those corner angles are larger than 55°

Unit: mm

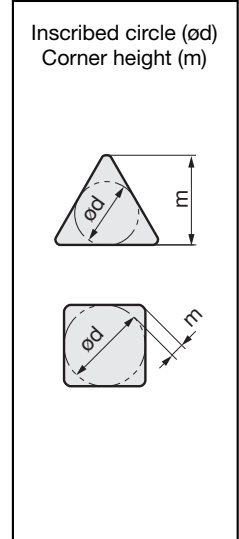
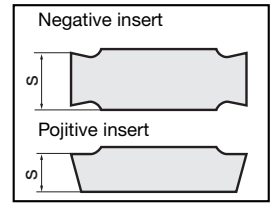
Inscribed circle	Tolerance on inscribed circle dia. (ød)		Tolerance on corner height (m)		Insert shapes applied
	J,K,L,M,N (class)	U (class)	J,K,L,M,N (class)	U (class)	
6.35	±0.05	±0.08	±0.08	±0.13	H  W
9.525					
12.7	±0.08	±0.13	±0.13	±0.2	O  R
15.875	±0.1	±0.18	±0.15	±0.27	P
19.05					
25.4	±0.13	±0.25	±0.18	±0.38	S
31.75	±0.15	±0.25	±0.2	±0.38	T C,E,M
32					

For M-type inserts those corner angles are 55°(Shape:D), 35°(Shape:V), 25°(Shape:Y)

Unit: mm

Inscribed circle	Tolerance on inscribed circle dia. (ød)		Tolerance on corner height (m)	Insert shapes applied
	J,K,L,M,N (class)	U (class)		
6.35	±0.05	±0.08	±0.11	D
9.525				
12.7	±0.08	±0.15	±0.18	
15.875	±0.1	±0.18		
19.05				
6.35	±0.05	±0.16	±0.16	V Y
9.525				

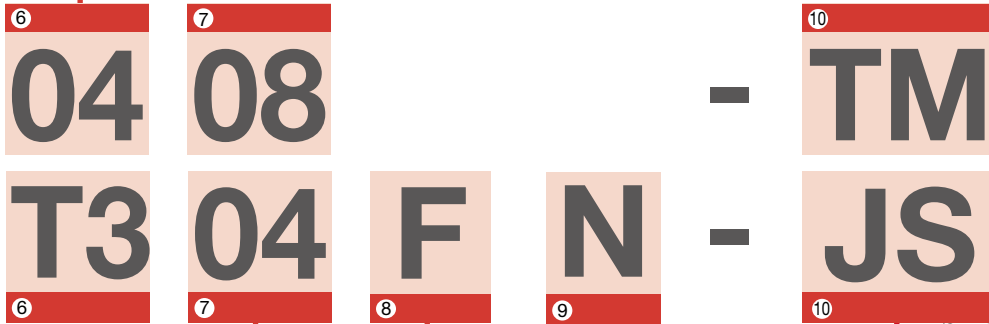
Note on insert thickness  
With regard to the insert thickness for chipbreaker inserts, the thickness (s) drawn in the outlined insert shapes on pages XX to XX is defined as "s" (height from the bottom face to the cutting edge) shown in the figure at right.



Symbol	Thickness (mm)
X1	1.39
01	1.59
T1	1.79
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35
07	7.94
09	9.52

Thickness

[Example]



**7 Corner radius**

Symbol	Corner radius r <sub>ε</sub> (mm)
00	0.03
02	0.2
04	0.4
08	0.8

**8 Symbols of major cutting edge**

Symbol	Condition of cutting edge	Shape
F	Sharp edge	
E	Honed rounded edge	
W.T	Honed chamfered edge	
S	Combination honed edge	

**9 Hand of insert**

Symbol	Hand
R	Right
L	Left
N	Neutral

**10 Chipbreakers**

Symbol	Applications
01(TF)	Precision finishing (Basic selection)
CM	Medium cutting of cast irons
PS	Finishing to light cutting (Positive type basic selection)
PSS	Finishing to medium cutting (Positive insert)
AL	Finishing to medium cutting of aluminium alloys
W□□	Finishing (Angular type)
J08,J10	For small lathes
W	Finishing (Angular type)
PSF	Finishing (Positive type)
JS	For small lathes
JRP	For small lathes
JPP	For small lathes
JSP	For small lathes


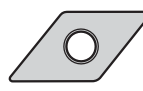

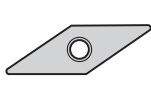
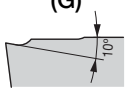



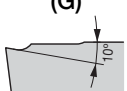



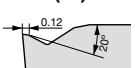


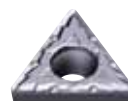

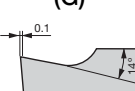
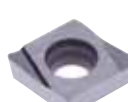

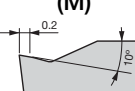


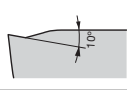

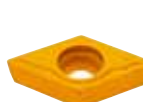


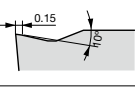

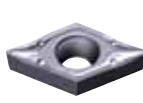
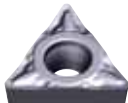



# Chipbreaker Overview


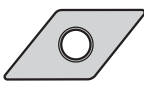






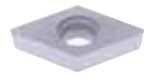







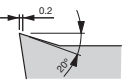




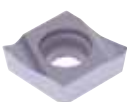
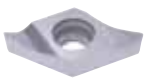
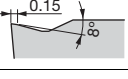



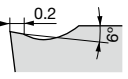



TAC Positive Inserts for General Turning

with hole

2

TAC Inserts

Application	Chipbreaker	C	D	T	V
	<b>Positive 7°</b>				
		80° Positive 7°	55° Positive 7°	90° Positive 7°	35° Positive 11°
Precision finishing sharp edge	<b>01</b> (G) 				-
		2-15	2-25	2-33	
Precision finishing	<b>01</b> (G) 				-
		2-15	2-25	2-33	
Finishing	<b>PSF</b> (M) 				
	2-15	2-25	2-33	2-42	
	<b>W</b> (G) 			-	-
		2-15	2-25		
	<b>PF</b> (M) 	-		-	
			2-25		2-42
Finishing to medium cutting	<b>PS</b> (M) 				
	2-17	2-26	2-34	2-42	
	<b>PSS</b> (M) 				
	2-17	2-26	2-34	2-42	
	<b>SS</b> (G) 	-	-		-
				2-34	

Application	Chipbreaker	C	D	T
	<b>Positive 7°</b>			
		80° Positive 7°	55° Positive 7°	60° Positive 7°
Finishing to medium cutting	- (M) 	 2-20	 2-30	-
	- (G) 	 2-20	 2-30	-
	<b>23</b> (M) 	 2-21	 2-27	 2-37
	<b>All-round</b> (G) 	 2-20	 2-27	-
	<b>AL</b> (G) 	 2-17	 2-26	 2-35
	<b>Angular</b> (G) 	 2-20	 2-27	-
Medium cutting	<b>PM</b> (M) 	 2-21	 2-29	 2-37
	<b>24</b> (M) 	 2-21	 2-29	 2-37

# Chipbreaker Overview

TAC Positive Inserts  
for General Turning






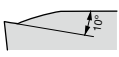

with hole


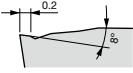



2

TAC Inserts

Application	Chipbreaker	C	D	T
	<b>Positive 7°</b>			
		80° Positive 7°	55° Positive 7°	60° Positive 7°
For external turning on small lathes (Sharp edges)	<b>JRP</b> (E) 	-	 2-27	-
	<b>JPP</b> (E) 	-	 2-28	-
	<b>JSP</b> (E) 	-	 2-28	-
	<b>JS</b> (G) 	 2-18	 2-28	 2-35
	<b>J</b> (G) 	 2-19	 2-29	 2-35



Applic- cation	Chipbreaker	C	D	T
	<b>Positive 7°</b>			
		80° Positive 7°	55° Positive 7°	60° Positive 7°
For internal turning on small lathes	<b>W08</b> 	 <b>2-16</b>	-	-
	<b>JS</b> (G) 	 <b>2-18</b>	-	-


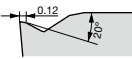
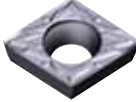
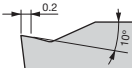
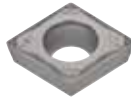
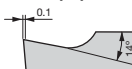
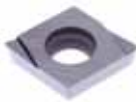
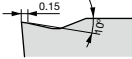
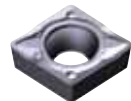
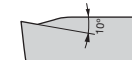

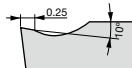

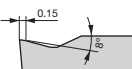



Applic- cation	Chipbreaker	Y
	<b>Positive 7°</b>	 25° Positive 7°
Finishing to medium cutting	<b>ZF</b> (M) 	 <b>2-45</b>
	<b>ZM</b> (G) 	 <b>2-45</b>

# Chipbreaker Overview

TAC Positive Inserts for General Turning

with hole

2  
TAC Inserts

Application	Chipbreaker	C
	<b>Positive 11°</b>	
		<b>80° Positive 11°</b>
Finishing	<b>PSF (M)</b> 	 <b>2-22</b>
	<b>PF (M)</b> 	 <b>2-22</b>
	<b>W (G)</b> 	 <b>2-22</b>
Finishing to light cutting	<b>PSS (M)</b> 	 <b>2-22</b>
Finishing to medium cutting	<b>PS (M)</b> 	 <b>2-23</b>
	<b>CM (M)</b> 	 <b>2-23</b>
Medium cutting	<b>PM (M)</b> 	 <b>2-23</b>
	<b>I (M)</b> 	 <b>2-24</b>

Application	Chipbreaker	T	E	V
	<b>Positive 11°</b>			
		60° Positive 11°	75° Positive 11°	35° Positive 11°
For external turning on small lathes (Sharp edges)	<b>JRP</b> (E) 	-	-	 <b>2-43</b>
	<b>JPP</b> (E) 	-	-	 <b>2-43</b>
	<b>JSP</b> (E) 	-	-	 <b>2-44</b>
For internal turning on small lathes	<b>J08</b> (G) 	-	 <b>2-32</b>	-
	<b>W</b> (G) 	 <b>2-38</b>	 <b>2-31</b>	-
	<b>JS</b> (G) 	 <b>2-38</b>	 <b>2-32</b>	-
Finishing	- (with hand) (G) 	 Former Tungaloy-standard hole Not ISO <b>2-38</b>	-	-

# Chipbreaker Overview

TAC Positive Inserts for General Turning

with hole

2

TAC Inserts

Application	Chipbreaker	W	V
	<b>Positive 5°</b>		
		80° Positive 5°	35° Positive 5°
Finishing	<b>PSF (M)</b> 	-	 2-40
	<b>PF (M)</b> 	-	 2-40
Finishing to medium cutting	<b>PS (M)</b> 	-	 2-40
	<b>PSS (M)</b> 	-	 2-40
	<b>JS (G)</b> 	-	 2-41
For external turning on small lathes (Sharp edges)	<b>J10 (G)</b> 	-	 2-41
	<b>W08 (G)</b> 	 2-39	-
For internal turning on small lathes	<b>JS (G)</b> 	 2-39	-

Application	Chipbreaker	V
	<b>Positive 5°</b>	
		35° Positive 5°
Turning on small lathes (Honed edges)	<b>J10 (G)</b> 	 2-41

Application	Chipbreaker	JXF□
	<b>Positive</b>	
		Positive
Front-turning inserts	-	 2-54

Application	Chipbreaker	JXR□
	<b>Positive</b>	
		Positive
Reverse-turning inserts	-	 2-54

Application	Chipbreaker	JXB□
	<b>Positive</b>	
		Positive
Back-turning inserts	-	 2-51

Application	Chipbreaker	JTB□
	<b>Positive</b>	
		Positive
Back-turning inserts	-	 2-52

Application	Chipbreaker	J10E□
	<b>Positive</b>	
		Positive
Back-turning inserts	-	 2-53

# Chipbreaker Overview

TAC Positive Inserts,  
Double-sided

with hole

Application	Chipbreaker	D	W	V
	<b>Positive</b>			
		<b>55° Positive</b>	<b>80° Positive</b>	<b>35° Positive</b>
Finishing (For swiss type automatic lathes, sharp edge)	<b>JRP</b> (G) 	 <b>2-46</b>	-	 <b>2-50</b>
Finishing (Low cutting force) (For swiss type automatic lathes, sharp edge)	<b>JSS</b> (G) 	 <b>2-46</b>	 <b>2-48</b>	-
Finishing (Low cutting force) (For swiss type automatic lathes)	<b>JSS</b> (G) 	 <b>2-46</b>	 <b>2-48</b>	-
Finishing (Low cutting force) (For small CNC lathes)	<b>SS</b> (G) 	 <b>2-47</b>	 <b>2-49</b>	-
Finishing to medium cutting (For swiss type automatic lathes, sharp edge)	<b>JTS</b> (G) 	 <b>2-46</b>	 <b>2-48</b>	-
Finishing to medium cutting (For swiss type automatic lathes)	<b>JTS</b> (G) 	 <b>2-46</b>	 <b>2-48</b>	-
Finishing to medium cutting (For small CNC lathes)	<b>TS</b> (G) 	 <b>2-47</b>	 <b>2-49</b>	-
Finishing (Wiper)	<b>TSW</b> (G) 	-	 <b>2-49</b>	-


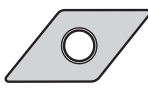

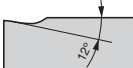
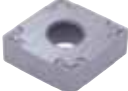
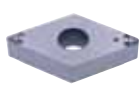

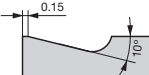



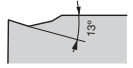

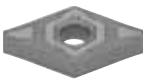

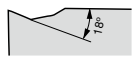



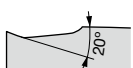



# Chipbreaker Overview


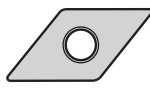

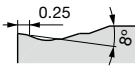







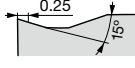



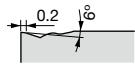



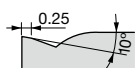



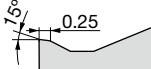







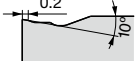



TAC Negative Inserts  
for General Turning

with hole

2

TAC Inserts

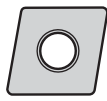
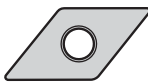

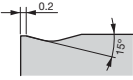





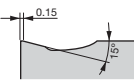

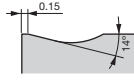

Application	Chipbreaker	C	D	T
	<b>Negative</b>			
		80° Negative	55° Negative	60° Negative
Precision finishing	<b>01</b> (G) 			
		2-55	2-59	2-63
	<b>C</b> (G) 	-	-	
				2-63
	<b>W</b> (G) 	-	-	
				2-64
Finishing	<b>TSF</b> (M) 			
		2-55	2-59	2-65
	<b>SF</b> (M) 			
		2-55	2-59	2-65
	<b>HRF</b> 			
		2-58	2-62	2-69

Application	Chipbreaker	C	D	T
	<b>Negative</b>			
		80° Negative	55° Negative	60° Negative
Finishing to medium cutting	<b>AM</b> (M) 	 2-55	 2-59	 2-65
	<b>-</b> (M) 	-	-	 2-68
	<b>-</b> (G) 	-	-	 2-68
	<b>HRM</b> 	 2-58	 2-62	 2-69
Medium cutting	<b>TM</b> (M) 	 2-56	 2-60	 2-66
	<b>SM</b> (M) 	 2-56	 2-60	 2-66
	<b>HMM</b> 	 2-58	 2-62	 2-69
Finishing (Wiper)	<b>FW</b> (M) 	 2-57	 2-61	 2-68
Finishing to medium cutting (Wiper)	<b>SW</b> (M) 	 2-57	 2-61	 2-68

# Chipbreaker Overview

TAC Negative Inserts for General Turning with hole

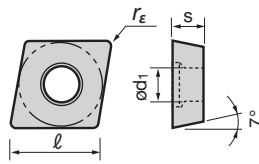
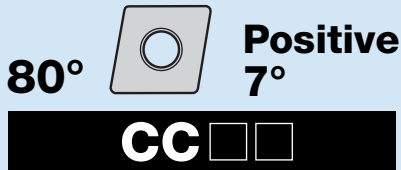
2  
TAC Inserts

Application	Chipbreaker	C	D	T
	<b>Negative</b>			
		80° Negative	55° Negative	60° Negative
<b>Medium cutting</b>	<b>All-round</b> (M) 			
		2-57	2-60	2-66
	<b>P</b> (G) 	-	-	
				2-67
<b>S</b> (M) 	-	-		
			2-67	
<b>Parallel</b> (G) 	-		-	
		2-61		



# TAC Inserts, positive

**Rhombic, with hole**



**CCGT 06 02 02 -**

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_e$ ) Chipbreaker symbol

CC□T(W)	03X1□□	04T1□□	0602□□	09T3□□
∅d1 (mm)	1.9	2.3	2.8	4.4

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_e$	Stocked grades													Tool-holder				
					Coated										Coated cermet	Cermet	Un-coated					
					T9105	T9115	T9125	T9135	T6120	T6130	AH725	GH110	J740	SH725	SH730	AH8005	AH8015		GT9530	J9530	NS9530	TH10
Precision finishing (Sharp edges)	<b>01 (G)</b> 		CCGT060202F-01	0.2																TAC External Toolholder (4-15)		
			*CCGT060204F-01	0.4																		
			CCGT09T302F-01	0.2																		
Precision finishing	<b>01 (G)</b> 		CCGT060202-01	0.2																TAC Internal Toolholder (5-16)		
			*CCGT09T302-01	0.2																		
Finishing	<b>PSF (M)</b> 		CCMT060202-PSF	0.2																TAC External Toolholder (4-15)		
			CCMT060204-PSF	0.4																		
			CCMT09T302-PSF	0.2																		
			CCMT09T304-PSF	0.4																		
			*CCMT09T308-PSF	0.8																		
Finishing	<b>W15 (G)</b> 		CCGT060200R-W15	0.03																TAC Internal Toolholder (5-16)		
			CCGT060200L-W15	0.03																		
			CCGT060202R-W15	0.2																		
			CCGT060202L-W15	0.2																		
			*CCGT060204R-W15	0.4																		
Finishing	<b>W15 (G)</b> 		CCGT060204L-W15	0.4																TAC Internal Toolholder (5-16)		
			CCGT060208L-W15	0.8																		

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, positive

2

TAC Inserts

C

D

E

T

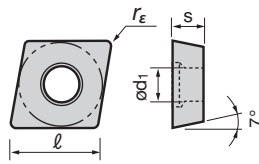
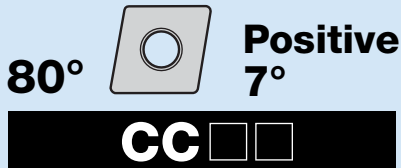
W

V

Y

Other

**Rhombic, with hole**



**CCGT 06 02 02 -**

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_e$ ) Chipbreaker symbol

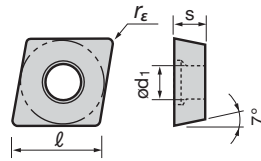
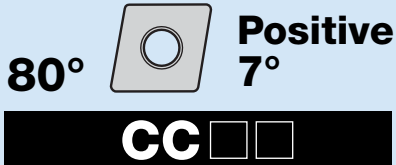
CC□T(W)	03X1□□	04T1□□	0602□□	09T3□□
ød1 (mm)	1.9	2.3	2.8	4.4

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_e$	Stocked grades										Tool-holder									
					Coated											Coated cermet	Cermet	Un-coated						
					T9105	T9115	T9125	T9135	T6120	T6130	AH725	GH110	GH330	J740					SH725	SH730	GT9530	J9530	NS9530	TH10
For internal turning on small lathes (Sharp edges)	<b>W08 (G)</b> 		CCGT03X100FR-W08	0.03																	TAC Internal Toolholder (5-16)			
			CCGT03X100FL-W08	0.03																				
			CCGT03X101FR-W08	0.1																				
			CCGT03X101FL-W08	0.1																				
			CCGT03X102FR-W08	0.2																				
			CCGT03X102FL-W08	0.2																				
			CCGT03X104FR-W08	0.4																				
			CCGT03X104FL-W08	0.4																				
			CCGT04T100FR-W08	0.03																				
			CCGT04T100FL-W08	0.03																				
			CCGT04T101FR-W08	0.1																				
			CCGT04T101FL-W08	0.1																				
			*CCGT04T102FR-W08	0.2																				
			CCGT04T102FL-W08	0.2																				
CCGT04T104FR-W08	0.4																							
CCGT04T104FL-W08	0.4																							
For internal turning on small lathes (Sharp edges)	<b>W08 (G)</b> 		CCGT03X100R-W08	0.03																	TAC Internal Toolholder (5-16)			
			CCGT03X100L-W08	0.03																				
			CCGT03X101R-W08	0.1																				
			CCGT03X101L-W08	0.1																				
			CCGT03X102R-W08	0.2																				
			CCGT03X102L-W08	0.2																				
			CCGT03X104R-W08	0.4																				
			CCGT03X104L-W08	0.4																				
			CCGT04T100R-W08	0.03																				
			CCGT04T100L-W08	0.03																				
			CCGT04T101R-W08	0.1																				
			CCGT04T101L-W08	0.1																				
			*CCGT04T102R-W08	0.2																				
			CCGT04T102L-W08	0.2																				
CCGT04T104R-W08	0.4																							
CCGT04T104L-W08	0.4																							

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

### Rhombic, with hole



## CCGT 06 02 02 -

Cutting edge length (l) Thickness (s) Corner radius (r<sub>E</sub>) Chipbreaker symbol

CC□T(W)	03X1□□	04T1□□	0602□□	09T3□□
ød1 (mm)	1.9	2.3	2.8	4.4

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades													Tool-holder			
					Coated										Coated cermet	Cermet	Un-coated				
					T9115	T9125	T6120	T6130	AH725	AH630	AH645	AH120	AH110	GH330	GH730	AH8005	AH8015		GT9530	NS9530	KS05F
Finishing to medium cutting	<b>W20 (G)</b> 		CCGT09T302R-W20	0.2															TAC External Toolholder (4-15)		
			CCGT09T302L-W20	0.2																	
			*CCGT09T304R-W20	0.4																	
			CCGT09T304L-W20	0.4																	
			CCGT09T308R-W20	0.8																	
			CCGT09T308L-W20	0.8																	
	<b>PS (M)</b> 		CCMT060202-PS	0.2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	TAC External Toolholder (4-15)	
			CCMT060204-PS	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
			*CCMT060208-PS	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
			CCMT09T302-PS	0.2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
			CCMT09T304-PS	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
			CCMT09T308-PS	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
	<b>PSS (M)</b> 		CCMT060204-PSS	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	TAC Internal Toolholder (5-16)	
			CCMT060208-PSS	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
			*CCMT09T304-PSS	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
			CCMT09T308-PSS	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
	<b>AL (G)</b> 		CCGT060202-AL	0.2															●	TAC External Toolholder (4-15)	
			CCGT060204-AL	0.4																	●
			*CCGT09T302-AL	0.2																	●
			CCGT09T304-AL	0.4																	●
CCGT09T308-AL			0.8																●		

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, positive

2

TAC Inserts

C

D

E

T

W

V

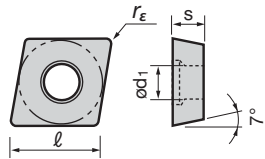
Y

Other

**Rhombic, with hole**

**80°**  **Positive 7°**


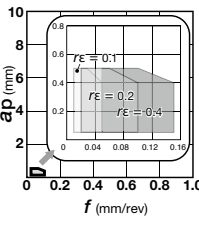

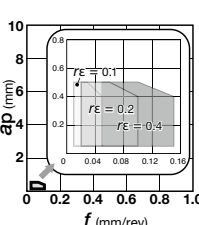
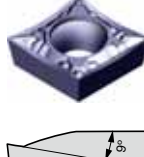
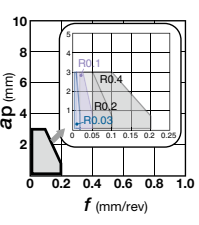
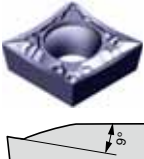
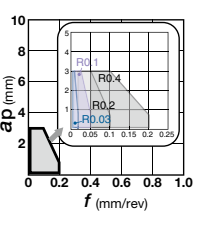
**CC** 



**CCGT 06 02 02 -** 

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

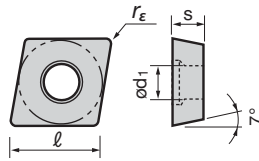
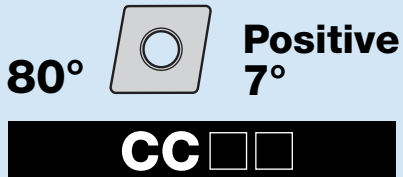
CC□T(W)	03X1□□	04T1□□	0602□□	09T3□□
ød1 (mm)	1.9	2.3	2.8	4.4

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades												Tool-holder									
					Coated						Coated cermet	Cermet	Un-coated													
					T9115	T9125	T9135	T6120	T6130	T5115	AH725	GH110	GH330	GH730	J740	SH725		SH730	GT9530	J9530	NS9530	KS05F	TH10			
For internal turning on small lathes (Sharp edges)	<b>JS (G)</b> 		CCGT03X101F-JS	0.1																	TAC Internal Toolholder (5-16)					
			CCGT03X102F-JS	0.2																						
			CCGT03X104F-JS	0.4																						
			*CCGT04T101F-JS	0.1																						
			CCGT04T102F-JS	0.2																						
			CCGT04T104F-JS	0.4																						
For internal turning on small lathes	<b>JS (G)</b> 		CCGT03X101-JS	0.1																	TAC External Toolholder (4-15)					
			CCGT03X102-JS	0.2																						
			CCGT03X104-JS	0.4																						
			*CCGT04T101-JS	0.1																						
			CCGT04T102-JS	0.2																						
			CCGT04T104-JS	0.4																						
On small lathes (Sharp edges)	<b>JS (G)</b> 		CCGT060200FN-JS	0.03																		TAC Internal Toolholder (5-16)				
			CCGT060201FN-JS	0.1																						
			CCGT060202FN-JS	0.2																						
			CCGT060204FN-JS	0.4																						
			*CCGT09T300FN-JS	0.03																						
			CCGT09T301FN-JS	0.1																						
On small lathes	<b>JS (G)</b> 		CCGT060201N-JS	0.1																			TAC External Toolholder (4-15)			
			CCGT060202N-JS	0.2																						
			CCGT060204N-JS	0.4																						
			*CCGT09T301N-JS	0.1																						
			CCGT09T302N-JS	0.2																						
			CCGT09T304N-JS	0.4																						

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

### Rhombic, with hole



## CCGT 06 02 02 -

Cutting edge length (l) Thickness (s) Corner radius (r<sub>ε</sub>) Chipbreaker symbol

CC□T(W)	03X1□□	04T1□□	0602□□	09T3□□
ød1 (mm)	1.9	2.3	2.8	4.4

Application	Chipbreaker Appearance (Cross section)	f - a <sub>p</sub>	Insert Cat. No.	Corner radius r <sub>ε</sub>	Stocked grades												Toolholder					
					Coated								Coated cermet	Cermet	Uncoated							
					T9115	T9125	T6120	T6130	T5115	AH725	AH630	AH645	AH120	J740	SH725	GT9530		J9530	NS9530	KS05F	TH10	
On small lathes (Sharp edges)	<b>J10 (G)</b> 		CCGT060200FR-J10	0.03															TAC External Toolholder (4-15)			
			CCGT060200FL-J10	0.03																		
			CCGT060201FR-J10	0.1																		
			CCGT060201FL-J10	0.1																		
			CCGT060202FR-J10	0.2																		
			CCGT060202FL-J10	0.2																		
			CCGT09T300FR-J10	0.03																	TAC Internal Toolholder (5-16)	
			CCGT09T300FL-J10	0.03																		
			CCGT09T301FR-J10	0.1																		
			CCGT09T301FL-J10	0.1																		
			*CCGT09T302FR-J10	0.2																		
			CCGT09T302FL-J10	0.2																		
			CCGT09T304FR-J10	0.4																		

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, positive

2

TAC Inserts

C

D

E

T


W


V

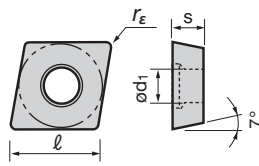
Y

Other

**Rhombic, with hole**

80°  **Positive**  
7°


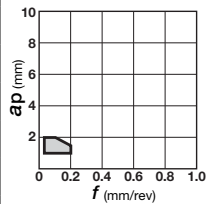
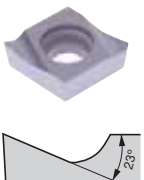
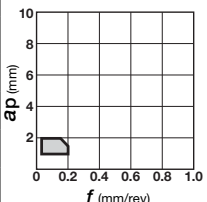
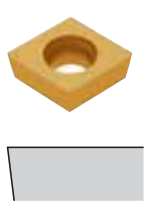
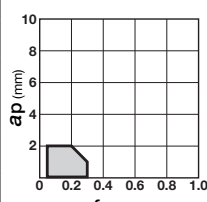

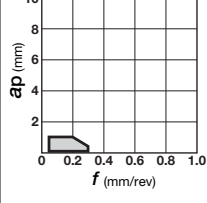
**CC** 



**CCGT 06 02 02 -** 

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_e$ ) Chipbreaker symbol

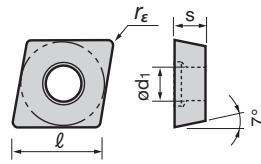
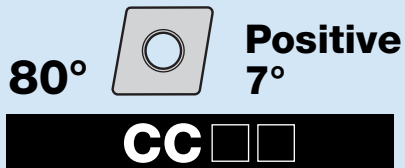
CC□T(W)	03X1□□	04T1□□	0602□□	09T3□□
∅d1 (mm)	1.9	2.3	2.8	4.4

Application	Chipbreaker	$f - a_p$	Insert Cat. No.	Corner radius $r_e$	Stocked grades											Tool-holder						
					Coated										Coated cermet		Cermet	Uncoated				
					T9115	T9125	T6120	T6130	T5115	AH725	AH630	AH645	GH110	GH330	GH730		J740	SH730	AH120	GT9530	J9530	NS9530
Finishing to medium cutting	<b>All-round (G)</b> 		CCGT060202	0.2																TAC External Toolholder (4-15)  TAC Internal Toolholder (5-16)		
			CCGT060204	0.4																		
			CCGT09T302	0.2																		
			*CCGT09T304	0.4																		
			CCGT09T308	0.8																		
	<b>Angular (G)</b> 		CCGT060200R	0.03																		
			CCGT060202R	0.2																		
			CCGT060202L	0.2																		
			CCGT060204L	0.4																		
			CCGT09T302R	0.2																		
			CCGT09T302L	0.2																		
			*CCGT09T304R	0.4																		
	CCGT09T304L	0.4																				
	<b>- (M)</b> 		CCMW060204	0.4																		
			CCMW060208	0.8																		
			*CCMW09T304	0.4																		
CCMW09T308			0.8																			
<b>- (G)</b> 		CCGW060202	0.2																			
		*CCGW060204	0.4																			
		CCGW09T304	0.4																			

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

### Rhombic, with hole



### CCGT 06 02 02 -

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_e$ ) Chipbreaker symbol

CC□T(W)	03X1□□	04T1□□	0602□□	09T3□□
ød1 (mm)	1.9	2.3	2.8	4.4

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_e$	Stocked grades												Tool-holder			
					Coated										Coated cermet	Cermet		Uncoated		
					T9115	T9125	T6120	T6130	T5115	AH725	AH630	AH645	AH120	J740	SH725	GH730		GT9530	J9530	NS9530
Finishing to medium cutting	<b>23</b> (M) 		CCMT060202-23	0.2															TAC External Toolholder (4-15)	
			CCMT060204-23	0.4	●												●			
			CCMT060208-23	0.8	●															
			* CCMT09T304-23	0.4	●												●			
			CCMT09T308-23	0.8	●												●			
Medium cutting	<b>PM</b> (M) 		CCMT060204-PM	0.4	●	●	●	●	●	●	●	●	●	●	●	●			TAC Internal Toolholder (5-16)	
			CCMT060208-PM	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●			
			CCMT09T304-PM	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●			
			* CCMT09T308-PM	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●			
			CCMT09T312-PM	1.2	●	●	●	●	●	●							●			
	<b>24</b> (M) 		CCMT060202-24	0.2		●														
			CCMT060204-24	0.4	●	●					●						●			
			CCMT060208-24	0.8	●	●	●										●			
			CCMT09T302-24	0.2	●	●											●			
			* CCMT09T304-24	0.4	●	●											●			
			CCMT09T308-24	0.8	●	●	●							●						

2

TAC Inserts

C

D

E

T

W

V

Y

Other

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, positive

2

TAC Inserts

C

D

E

T


W

V

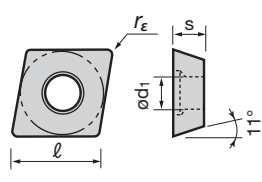
Y

Other

## Rhombic, with hole

80°  Positive 11°

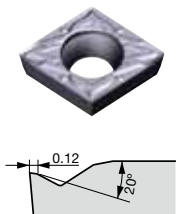
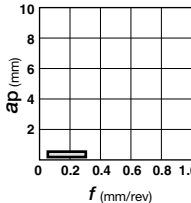
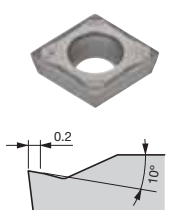
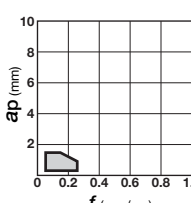
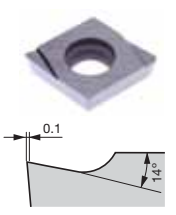
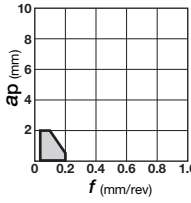
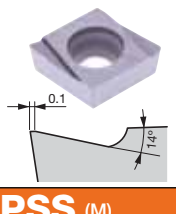
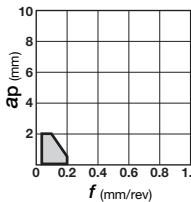
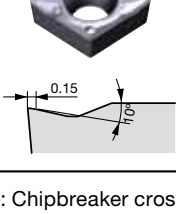
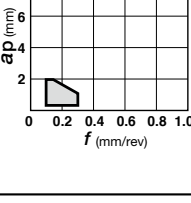
**CP** 



## CPGT 05 02 02 -

Cutting edge length ( $l$ )    Thickness ( $s$ )    Corner radius ( $r_e$ )    Chipbreaker symbol

CP□T(W)	0502□□	0602□□	0802□□	0903□□
ød1 (mm)	2.5	2.8	3.4	4.4

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_e$	Stocked grades										Tool-holder				
					Coated							Coated cermet	Cermet	Un-coated					
					T9115	T9125	T6120	T6130	T5115	AH725	AH630	AH645	GH730	GT9530		NS9530	TH10		
Finishing	<b>PSF (M)</b> 		CPMT060202-PSF	0.2															
			CPMT060204-PSF	0.4	●	●				●									
			CPMT080202-PSF	0.2							●								
			CPMT080204-PSF	0.4	●	●				●									
			CPMT090302-PSF	0.2						●			●						
			*CPMT090304-PSF	0.4	●	●				●			●	●					
			CPMT09T302-PSF	0.2						●									
			CPMT09T304-PSF	0.4	●	●				●									
Finishing	<b>PF (M)</b> 		CPMT090302-PF	0.2							●	●							
			*CPMT090304-PF	0.4								●	●						
Finishing to light cutting	<b>W15 (G)</b> 		CPGT050202R-W15	0.2															
			CPGT050202L-W15	0.2									●						
			CPGT050204R-W15	0.4										●					
			CPGT050204L-W15	0.4											●				
			CPGT080202R-W15	0.2													●		
			CPGT080202L-W15	0.2													●	●	
			*CPGT080204R-W15	0.4													●	●	
			CPGT080204L-W15	0.4													●	●	
Finishing to light cutting	<b>W20 (G)</b> 		CPGT090302R-W20	0.2															
			CPGT090302L-W20	0.2															
			*CPGT090304R-W20	0.4															
			CPGT090304L-W20	0.4															
Finishing to light cutting	<b>PSS (M)</b> 		CPMT060204-PSS	0.4	●	●						●	●						
			CPMT080204-PSS	0.4	●	●	●	●				●	●						
			CPMT080208-PSS	0.8	●	●	●	●					●	●					
			*CPMT090304-PSS	0.4	●	●	●	●					●	●					
			CPMT090308-PSS	0.8	●	●	●	●					●	●					
			CPMT09T304-PSS	0.4	●	●													
			CPMT09T308-PSS	0.8	●	●													

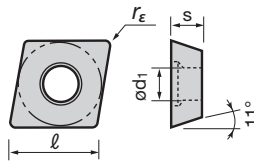
TAC  
Internal  
Toolholder  
(5-17)

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items



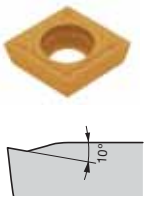
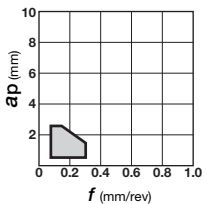
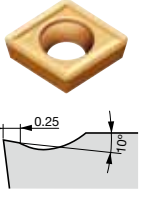
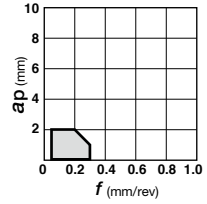
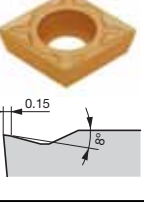
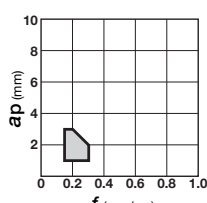
### Rhombic, with hole



### CPMT 06 02 04 -

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

CP□T(W)	0502□□	0602□□	0802□□	0903□□
ød1 (mm)	2.5	2.8	3.4	4.4

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades										Tool-holder					
					Coated						Coated cermet	Cermet	Uncoated							
					T9115	T9125	T6120	T6130	T515	T5115	AH120	AH725	AH630	AH645		GH730	GT9530	NS9530	TH10	
Finishing to medium cutting	<b>PS (M)</b> 		CPMT060202-PS	0.2	●	●	●	●	●	●	●	●	●	●	●	●	●	TAC Internal Toolholder (5-17)		
			CPMT060204-PS	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●		●	
			CPMT080202-PS	0.2	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			CPMT080204-PS	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			CPMT080208-PS	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			*CPMT090304-PS	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			CPMT090308-PS	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			CPMT09T302-PS	0.2	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			CPMT09T304-PS	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			CPMT09T308-PS	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
Finishing to medium cutting	<b>CM (M)</b> 		CPMT060204-CM	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	TAC Internal Toolholder (5-17)		
			CPMT060208-CM	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●		●	
			CPMT080204-CM	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			CPMT080208-CM	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			*CPMT090304-CM	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			*CPMT090308-CM	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			CPMT09T304-CM	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			CPMT09T308-CM	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
CPMT09T312-CM	1.2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
Medium cutting	<b>PM (M)</b> 		CPMT060204-PM	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	TAC Internal Toolholder (5-17)		
			CPMT060208-PM	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●		●	
			*CPMT090304-PM	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●		●	
			CPMT090308-PM	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●		●	

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, positive

2

TAC Inserts

C

D

E

T

W

V

Y

Other

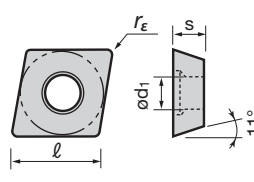
**Rhombic, with hole**



**80°**

**Positive  
11°**

**CP** □ □



**CPMW 08 02 02 -** □ □

Cutting edge length (l) Thickness (s) Corner radius (r<sub>ε</sub>) Chipbreaker symbol

CP□T(W)	0502□□	0602□□	0802□□	0903□□
ød1 (mm)	2.5	2.8	3.4	4.4

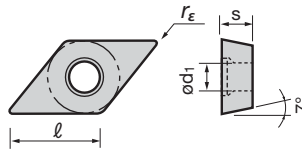
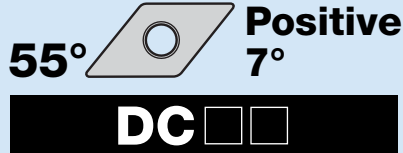
Application	Chipbreaker Appearance (Cross section)	f - a <sub>p</sub>	Insert Cat. No.	Corner radius r <sub>ε</sub>	Stocked grades										Tool-holder					
					Coated								Cermets			Uncoated				
					T9105	T9115	T9125	T6120	T6130	T5115	AH120	AH725	AH630	AH645		AH905				
Medium cutting			CPMW080204	0.4																
			CPMW080208	0.8																
			*CPMW090304	0.4	●															
			CPMW090308	0.8																

**TAC  
Internal  
Toolholder  
(5-17)**

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# Rhombic, with hole



# DCGT 07 02 02 -

Cutting edge length (l) Thickness (s) Corner radius (r<sub>ε</sub>) Chipbreaker symbol

DC□T(W)	0702□□	11T3□□
ød1 (mm)	2.8	4.4

2

TAC Inserts

- C
- D
- E
- T
- W
- V
- Y
- Other

Application	Chipbreaker Appearance (Cross section)	f - a <sub>p</sub>	Insert Cat. No.	Corner radius r <sub>ε</sub>	Stocked grades												Tool-holder					
					Coated										Coated cermet	Cermet		Un-coated				
					T9105	T9115	T9125	T9135	T6120	T6130	AH725	AH905	GH330	GH730	J740	SH725		AH8005	AH8015	GT9530	J9530	NS9530
Precision finishing (Sharp edges)	<b>01 (G)</b> 		DCGT070202F-01	0.2																TAC External Tool-holder		
			*DCGT11T302F-01	0.2																		
Precision finishing	<b>01 (G)</b> 		DCGT070202-01	0.2																TAC External Tool-holder		
			*DCGT11T302-01	0.2																		
Finishing	<b>PSF (M)</b> 		DCMT070202-PSF	0.2																TAC Internal Tool-holder (4-18)		
			DCMT070204-PSF	0.4																		
			DCMT11T302-PSF	0.2																		
			*DCMT11T304-PSF	0.4																		
	<b>PF (M)</b> 		DCMT070202-PF	0.2																	TAC Internal Tool-holder (5-18)	
			DCMT070204-PF	0.4																		
<b>W10 (G)</b> 		DCGT070200R-W10	0.03																	TAC Internal Tool-holder (5-18)		
		DCGT070200L-W10	0.03																			
		DCGT070202R-W10	0.2																			
		DCGT070202L-W10	0.2																			
		*DCGT070204R-W10	0.4																			
		DCGT070204L-W10	0.4																			

Note: Chipbreaker cross-sections are of \* marked inserts.

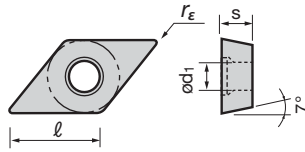
● : Stocked items

# TAC Inserts, positive

**Rhombic, with hole**

**55° Positive 7°**

**DC**    



**DCGT 07 02 02 -**    

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

DC <span style="border: 1px solid black; padding: 2px;"> </span> T(W)	0702 <span style="border: 1px solid black; padding: 2px;"> </span> <span style="border: 1px solid black; padding: 2px;"> </span>	11T3 <span style="border: 1px solid black; padding: 2px;"> </span> <span style="border: 1px solid black; padding: 2px;"> </span>
$\phi d_1$ (mm)	2.8	4.4

2

TAC Inserts

C

D

E

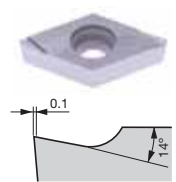
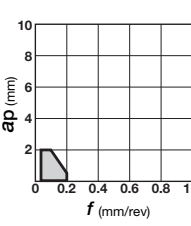
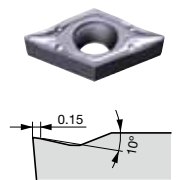
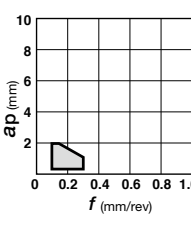
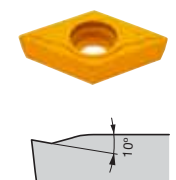
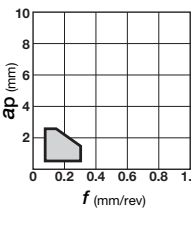
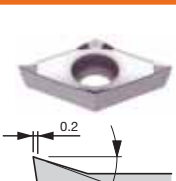
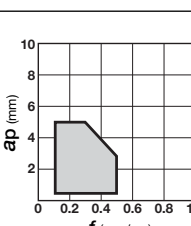
T

W

V

Y

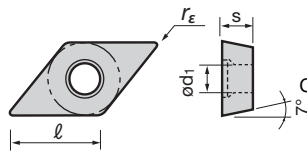
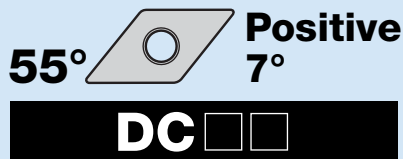
Other

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades													Tool-holder				
					Coated										Coated cermet	Cermet	Un- coated					
					T9115	T9125	T6120	T6130	T5115	AH725	AH630	AH645	AH905	AH120	GH330	GH730	AH8005		AH8015	GT9530	NS9530	KS05F
Finishing	<b>W15 (G)</b> 		DCGT11T302R-W15	0.2																TAC External Tool- holder (4-18)		
			DCGT11T302L-W15	0.2																		
			*DCGT11T304R-W15	0.4																		
			DCGT11T304L-W15	0.4																		
			DCGT11T308R-W15	0.8																		
			DCGT11T308L-W15	0.8																		
Finishing to light cutting	<b>PSS (M)</b> 		DCMT070204-PSS	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	TAC Internal Tool- holder (5-18)		
			DCMT070208-PSS	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	
			*DCMT11T304-PSS	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			DCMT11T308-PSS	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			DCMT11T312-PSS	1.2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
Finishing to medium cutting	<b>PS (M)</b> 		DCMT070202-PS	0.2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	TAC Internal Tool- holder (5-18)		
			*DCMT070204-PS	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			DCMT070208-PS	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			DCMT11T302-PS	0.2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			*DCMT11T304-PS	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			DCMT11T308-PS	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			DCMT11T312-PS	1.2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
Finishing to heavy cutting	<b>AL (G)</b> 		DCGT070202-AL	0.2															●	TAC Internal Tool- holder (5-18)		
			DCGT070204-AL	0.4																	●	
			*DCGT11T302-AL	0.2																	●	
			DCGT11T304-AL	0.4																	●	
			DCGT11T308-AL	0.8																	●	

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# Rhombic, with hole



# DCGT 07 02 02 -

Cutting edge length (l) Thickness (s) Corner radius (r<sub>e</sub>) Chipbreaker symbol

DC□T(W)	0702□□	11T3□□
ød1 (mm)	2.8	4.4

2

Application	Chipbreaker Appearance (Cross section)	f - ap	Insert Cat. No.	Corner radius r <sub>e</sub>	Stocked grades								Tool-holder							
					Coated				Cermet		Uncoated									
					T6120	T6130	GH110	SH725	SH730	NS9530	KS05F	TH10								
Finishing to medium cutting	<b>23 (M)</b>		DCMT070204-23	0.4							●									
			*DCMT11T304-23	0.4							●									
			DCMT11T308-23	0.8							●									
	<b>All-round (G)</b>		DCGT070202	0.2							●									
			*DCGT070204	0.4							●									
			DCGT11T302	0.2							●									
			DCGT11T304	0.4							●									
			*DCGT11T308	0.8							●									
Angular (G)			DCGT070202R	0.2																
			DCGT070202L	0.2																
			*DCGT070204R	0.4																
			DCGT070204L	0.4																
			DCGT11T302R	0.2																
			DCGT11T302L	0.2																
			DCGT11T304R	0.4																
			DCGT11T304L	0.4																
For external turning on small lathes (Sharp edges)	<b>JRP (E)</b>		DCET0702008MFR-JRP	< 0.08							●	●								
			DCET0702008MFL-JRP	< 0.08							●	●								
			DCET070201 MFR-JRP	< 0.1							●	●								
			DCET070201 MFL-JRP	< 0.1							●	●								
			DCET0702018MFR-JRP	< 0.18							●	●								
			DCET0702018MFL-JRP	< 0.18							●	●								
			DCET070202 MFR-JRP	< 0.2							●	●								
			DCET070202 MFL-JRP	< 0.2							●	●								
			DCET11T3008MFR-JRP	< 0.08							●	●								
			DCET11T3008MFL-JRP	< 0.08							●	●								
			DCET11T301 MFR-JRP	< 0.1							●	●								
			DCET11T301 MFL-JRP	< 0.1							●	●								
			DCET11T3018MFR-JRP	< 0.18							●	●								
			DCET11T3018MFL-JRP	< 0.18							●	●								
			*DCET11T302 MFR-JRP	< 0.2							●	●								
		DCET11T302 MFL-JRP	< 0.2							●	●									

TAC Inserts  
C  
D  
E  
T  
W  
V  
Y  
Other

Note: Chipbreaker cross-sections are of \* marked inserts.

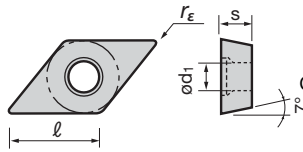
● : Stocked items

# TAC Inserts, positive

Rhombic, with hole

55° Positive 7°

DC



DCGT 07 02 02 -

Cutting edge length (l) Thickness (s) Corner radius (rE) Chipbreaker symbol

DC□T(W)	0702□□	11T3□□
ød1 (mm)	2.8	4.4

2

TAC Inserts

C

D

E

T

W

V

Y

Other

Application	Chipbreaker Appearance (Cross section)	f - ap	Insert Cat. No.	Corner radius rE	Stocked grades										Tool-holder									
					Coated											Cermet								
					T9105	T9115	T9125	T9135	T6120	T6130	AH725	GH110	GH730	J740			SH725	SH730	NS9530					
For external turning on small lathes (Sharp edges)	<b>JPP (E)</b>   		DCET0702008MFR-JPP	< 0.08																	TAC External Tool-holder (4-18)			
			DCET0702008MFL-JPP	< 0.08																				
			DCET070201MFR-JPP	< 0.1																				
			DCET070201MFL-JPP	< 0.1																				
			DCET0702018MFR-JPP	< 0.18																				
			DCET0702018MFL-JPP	< 0.18																				
			DCET070202MFR-JPP	< 0.2																				
			DCET070202MFL-JPP	< 0.2																				
			DCET11T3008MFR-JPP	< 0.08																				
			DCET11T3008MFL-JPP	< 0.08																				
			DCET11T301MFR-JPP	< 0.1																				
			DCET11T301MFL-JPP	< 0.1																				
			DCET11T3018MFR-JPP	< 0.18																				
			DCET11T3018MFL-JPP	< 0.18																				
DCET11T302MFR-JPP	< 0.2																							
DCET11T302MFL-JPP	< 0.2																							
For external turning on small lathes (Sharp edges)	<b>JSP (E)</b>   		DCET0702008MFN-JSP	< 0.08																	TAC Internal Tool-holder (5-18)			
			DCET070201MFN-JSP	< 0.1																				
			*DCET0702018MFN-JSP	< 0.18																				
			DCET070202MFN-JSP	< 0.2																				
			DCET11T3008MFN-JSP	< 0.08																				
			DCET11T301MFN-JSP	< 0.1																				
			DCET11T3018MFN-JSP	< 0.18																				
			DCET11T302MFN-JSP	< 0.2																				
On small lathes	<b>JS (G)</b>   		DCGT070200FN-JS	0.03																				
			DCGT070201FN-JS	0.1																				
			DCGT070202FN-JS	0.2																				
			DCGT11T300FN-JS	0.03																				
			*DCGT11T301FN-JS	0.1																				
			DCGT11T302FN-JS	0.2																				
			DCGT11T304FN-JS	0.4																				
			DCGT11T304FN-JS	0.4																				
On small lathes	<b>JS (G)</b>   		DCGT070201N-JS	0.1																				
			DCGT070202N-JS	0.2																				
			*DCGT11T301N-JS	0.1																				
			DCGT11T302N-JS	0.2																				
			DCGT11T304N-JS	0.4																				

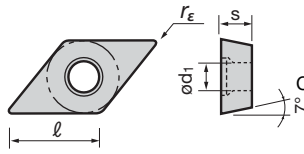
Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

**Rhombic, with hole**

**55° Positive 7°**

**DC**    



**DCGT 07 02 02 -**    

Cutting edge length ( $\ell$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

DC <span style="border: 1px solid black; padding: 2px;"> </span> T(W)	0702 <span style="border: 1px solid black; padding: 2px;"> </span> <span style="border: 1px solid black; padding: 2px;"> </span>	11T3 <span style="border: 1px solid black; padding: 2px;"> </span> <span style="border: 1px solid black; padding: 2px;"> </span>
ød1 (mm)	2.8	4.4

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades												Tool-holder	
					Coated								Coated cermet	Cermet	Un-coated			
					T9115	T9125	T6120	T6130	AH120	AH725	AH630	AH645	GH730	J740	SH725	GT9530		J9530
For external turning on small lathes (Sharp edges)	<b>J10 (G)</b> 		<b>*DCGT070200FR-J10</b>	0.03														TAC External Tool-holder (4-18)
			<b>DCGT070200FL-J10</b>	0.03														
			<b>DCGT070201FR-J10</b>	0.1														
			<b>DCGT070201FL-J10</b>	0.1														
			<b>DCGT070202FR-J10</b>	0.2														
			<b>DCGT070202FL-J10</b>	0.2														
			<b>DCGT070204FR-J10</b>	0.4														
			<b>DCGT070204FL-J10</b>	0.4														
			<b>DCGT11T300FR-J10</b>	0.03														
			<b>DCGT11T300FL-J10</b>	0.03														
			<b>DCGT11T301FR-J10</b>	0.1														
			<b>DCGT11T301FL-J10</b>	0.1														
		<b>DCGT11T302FR-J10</b>	0.2															
		<b>DCGT11T302FL-J10</b>	0.2															
On small lathes (Honed edges)	<b>J10 (G)</b> 		<b>*DCGT070201R-J10</b>	0.1													TAC Internal Tool-holder (5-18)	
			<b>DCGT070201L-J10</b>	0.1														
			<b>DCGT070202R-J10</b>	0.2														
			<b>DCGT070202L-J10</b>	0.2														
			<b>DCGT11T301R-J10</b>	0.1														
			<b>DCGT11T301L-J10</b>	0.1														
			<b>*DCGT11T302R-J10</b>	0.2														
			<b>DCGT11T302L-J10</b>	0.2														
Medium cutting	<b>PM (M)</b> 		<b>DCMT070204-PM</b>	0.4													TAC External Tool-holder (4-18)	
			<b>DCMT070208-PM</b>	0.8														
			<b>DCMT11T304-PM</b>	0.4														
			<b>*DCMT11T308-PM</b>	0.8														
			<b>DCMT11T312-PM</b>	1.2														
			<b>DCMT070202-24</b>	0.2														
			<b>DCMT070204-24</b>	0.4														
			<b>DCMT070208-24</b>	0.8														
			<b>DCMT11T302-24</b>	0.2														
			<b>*DCMT11T304-24</b>	0.4														
		<b>DCMT11T308-24</b>	0.8															

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

C

D

E

T

W

V

Y

Other

# TAC Inserts, positive

2

TAC Inserts

C

D

E

T

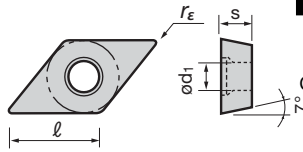
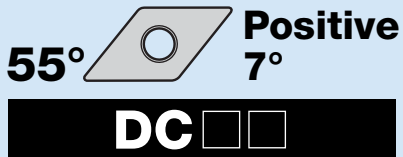
W

V

Y

Other

**Rhombic, with hole**



**DCGW 07 02 02 -**

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

DC□T(W)	0702□□	11T3□□
ød1 (mm)	2.8	4.4

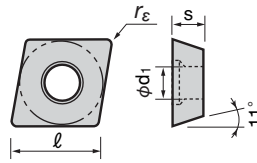
Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades										Tool-holder		
					Coated					Coated cermet	Cermet		Uncoated				
					T9105	T6120	T6130	T5115	AH725	GH110	GH730	GT9530	NS9530	TH10			
Medium cutting	- (M)		DCMW070204	0.4	●												TAC External Tool-holder (4-18)
			DCMW070208	0.8													
			*DCMW11T304	0.4	●												
			DCMW11T308	0.8													
	- (G)		DCGW070202	0.2											●	TAC Internal Tool-holder (5-18)	
			DCGW070204	0.4				●							●		
			*DCGW11T304	0.4											●		
			DCGW11T308	0.8											●		

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items



### Rhombic, with hole



## EPGT 04 01 00 -

Cutting edge length (l) Thickness (s) Corner radius (r<sub>ε</sub>) Chipbreaker symbol

EPGT	03X1	0401
φd1 (mm)	1.9	2.3

2

Application	Chipbreaker Appearance (Cross section)	f - a <sub>p</sub>	Insert Cat. No.	Corner radius r <sub>ε</sub>	Stocked grades										Toolholder						
					Coated							Coated cermet	Cermet	Un-coated							
					T9105	T9115	T9125	T9135	T6120	T6130	GH110	J740	SH725	SH730		GT9530	NS9530	TH10	UX30		
For internal turning on small lathes (Sharp edges)	<b>W08 (G)</b> 		EPGT03X100FR-W08	0.03														TAC Internal Toolholder (5-25)			
			EPGT03X100FL-W08	0.03																	
			EPGT03X101FR-W08	0.1																	
			EPGT03X101FL-W08	0.1																	
			*EPGT03X102FR-W08	0.2																	
			EPGT03X102FL-W08	0.2																	
			EPGT03X104FR-W08	0.4																	
			EPGT03X104FL-W08	0.4																	
			EPGT040100FR-W08	0.03																	
			EPGT040100FL-W08	0.03																	
			EPGT040101FR-W08	0.1																	
			EPGT040101FL-W08	0.1																	
			EPGT040102FR-W08	0.2																	
			EPGT040102FL-W08	0.2																	
For internal turning on small lathes (Sharp edges)	<b>W08 (G)</b> 		EPGT03X100R-W08	0.03														TAC Internal Toolholder (5-25)			
			EPGT03X100L-W08	0.03																	
			EPGT03X101R-W08	0.1																	
			EPGT03X101L-W08	0.1																	
			*EPGT03X102R-W08	0.2																	
			EPGT03X102L-W08	0.2																	
			EPGT03X104R-W08	0.4																	
			EPGT03X104L-W08	0.4																	
			EPGT040100R-W08	0.03																	
			EPGT040100L-W08	0.03																	
			EPGT040101R-W08	0.1																	
			EPGT040101L-W08	0.1																	
			EPGT040102R-W08	0.2																	
			EPGT040102L-W08	0.2																	
EPGT040104R-W08	0.4																				
EPGT040104L-W08	0.4																				

TAC Inserts  
C  
D  
E  
T  
W  
V  
Y  
Other

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, positive

2

TAC Inserts

C

D

E

T

W

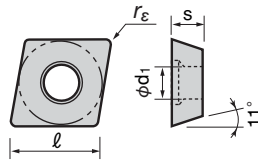
V

Y

Other

**Rhombic, with hole**

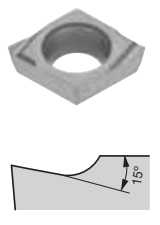
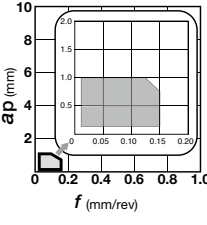
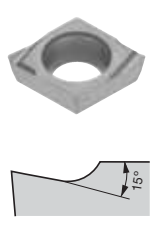
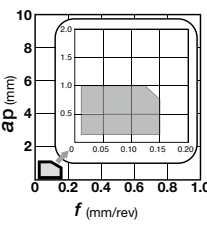
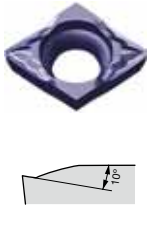
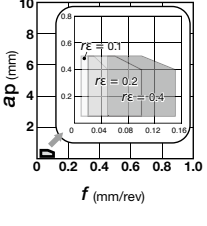
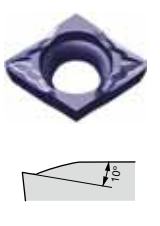
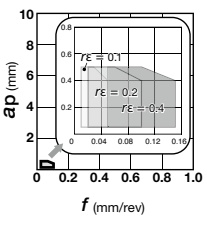
**75°**  **Positive 11°**  
**EPGT**



**EPGT 04 01 00 -** 

Cutting edge length (l) Thickness (s) Corner radius (r<sub>ε</sub>) Chipbreaker symbol

EPGT	03X1	0401
φd1 (mm)	1.9	2.3

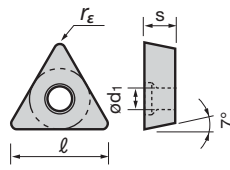
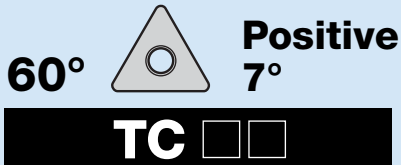
Application	Chipbreaker Appearance (Cross section)	f - ap	Insert Cat. No.	Corner radius r <sub>ε</sub>	Stocked grades										Toolholder								
					Coated					Coated cermet	Cermet	Un-coated											
					T9105	T9115	T9125	T9135	T6120	T6130	GH110	J740	SH725	SH730	GT9530	NS9530							
For internal turning on small lathes (Sharp edges)	<b>J08 (G)</b> 		EPGT040100FL-J08	0.03									●										
			EPGT040102FL-J08	0.2										●									
			EPGT040104FL-J08	0.4											●								
For internal turning on small lathes (Sharp edges)	<b>J08 (G)</b> 		EPGT040100L-J08	0.03								●	●										
			*EPGT040102L-J08	0.2									●	●									
			EPGT040104L-J08	0.4										●	●								
For internal turning on small lathes (Sharp edges)	<b>JS (G)</b> 		EPGT03X101F-JS	0.1									●										
			EPGT03X102F-JS	0.2										●									
			EPGT03X104F-JS	0.4											●								
			EPGT040101F-JS	0.1											●								
			EPGT040102F-JS	0.2											●								
			EPGT040104F-JS	0.4												●							
For internal turning on small lathes (Sharp edges)	<b>JS (G)</b> 		EPGT03X101-JS	0.1									●										
			EPGT03X102-JS	0.2										●									
			EPGT03X104-JS	0.4											●								
			EPGT040101-JS	0.1											●								
			EPGT040102-JS	0.2											●								
			EPGT040104-JS	0.4												●							

TAC Internal Toolholder (5-25)

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

### Triangular, with hole



## TCGT 11 02 02 -

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

TC□T	0802□□-J08	1102□□
ød1 (mm)	2.3	2.8

2

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades											Toolholder					
					Coated								Coated cermet	Cermet	Un-coated						
					T9105	T9115	T9125	T9135	T6120	T6130	T5115	AH725	GH730	J740	SH725		GT9530	J9530	NS520	NS9530	KS05F
Precision finishing (Sharp edges)	<b>01 (G)</b> 		<b>*TCGT110202F-01</b>	0.2																	TAC External Toolholder (4-23)
	<b>01 (G)</b> 		TCGT110202-01 TCGT110204-01 TCGT110208-01	0.2 0.4 0.8																	
Finishing	<b>PSF (M)</b> 		TCMT110202-PSF *TCMT110204-PSF	0.2 0.4																	TAC Internal Toolholder (5-20)

TAC Inserts  
C  
D  
E  
T  
W  
V  
Y  
Other

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, positive

2

TAC Inserts

C

D

E

T

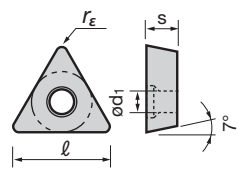
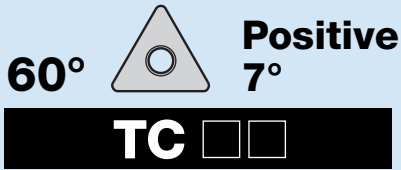
W

V

Y

Other

Triangular, with hole



**TCMT 11 02 02 -**

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

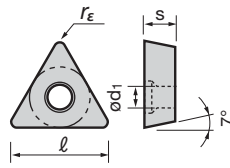
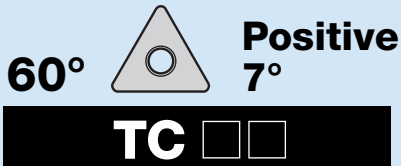
TC□T	0802□□-J08	1102□□
ød1 (mm)	2.3	2.8

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades											Tool- holder							
					Coated										Coated cermet		Cermet	Un- coated					
					T9105	T9115	T9125	T9135	T6120	T6130	T5115	AH630	AH645	AH725	GH730		J740	SH725	GT9530	J9530	NS9530		
Finishing to medium cutting	<b>PS (M)</b> 		TCMT110202-PS	0.2	●	●	●	●	●	●	●	●	●	●	●	●	●						
			*TCMT110204-PS	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
			TCMT110208-PS	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	<b>PSS (M)</b> 		*TCMT110204-PSS	0.4	●	●					●												
			TCMT110208-PSS	0.8	●	●					●												
			<b>SS (G)</b> 	TCGT110202-SS	0.2															●			
		TCGT110204-SS	0.4															●					
		*TCGT110208-SS	0.8															●					

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

### Triangular, with hole



## TCGT 11 02 02 -

Cutting edge length (l) Thickness (s) Corner radius (r<sub>E</sub>) Chipbreaker symbol

TC□T	0802□□-J08	1102□□
ød1 (mm)	2.3	2.8

2

TAC Inserts

Application	Chipbreaker Appearance (Cross section)	f - a <sub>p</sub>	Insert Cat. No.	Corner radius r <sub>E</sub>	Stocked grades											Tool-holder				
					Coated							Coated cermet	Cermet	Un-coated						
					T9105	T9115	T9125	T9135	T6120	T6130	AH725	GH730	J740	SH725	SH730		J9530	NS9530	KS05F	TH10
Finishing to medium cutting	<b>AL</b> (G) 		TCGT110202-AL	0.2														TAC External Toolholder (4-23)		
			TCGT110204-AL	0.4																
On small lathes (Sharp edges)	<b>JS</b> (G) 		TCGT110200FN-JS	0.03														TAC External Toolholder (4-23)		
			*TCGT110201FN-JS	0.1																
			TCGT110202FN-JS	0.2																
			TCGT110204FN-JS	0.4																
On small lathes (Honed edges)	<b>JS</b> (G) 		*TCGT110201N-JS	0.1														TAC Internal Toolholder (5-20)		
			TCGT110202N-JS	0.2																
			TCGT110204N-JS	0.4																
On small lathes (Sharp edges)	<b>J08</b> (G) 		TCGT080200FR-J08	0.03														TAC External Toolholder (4-23)		
			TCGT080200FL-J08	0.03																
			TCGT080201FR-J08	0.1																
			TCGT080201FL-J08	0.1																
			*TCGT080202FR-J08	0.2																
			TCGT080202FL-J08	0.2																
			TCGT080204FR-J08	0.4																

C

D

E

T

W

V

Y

Other

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, positive

2

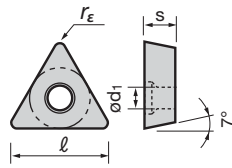
TAC Inserts

C  
D  
E  
T  
W  
V  
Y  
Other

Triangular, with hole

60°  Positive 7°

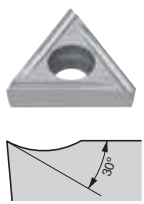
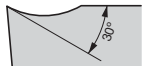
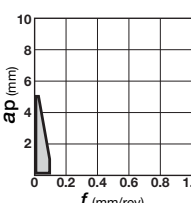
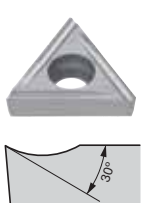
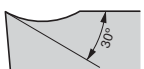
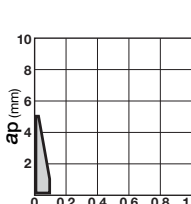
TC 



**TCGT 11 02 02 -** 

Cutting edge length (l) Thickness (s) Corner radius (r<sub>E</sub>) Chipbreaker symbol

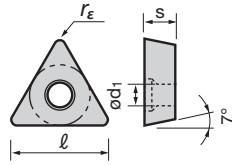
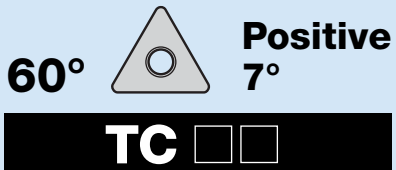
TC□T	0802□□-J08	1102□□
ød1 (mm)	2.3	2.8

Application	Chipbreaker Appearance (Cross section)	f - a <sub>p</sub>	Insert Cat. No.	Corner radius r <sub>E</sub>	Stocked grades												Tool- holder					
					Coated								Coated cermet	Cermet	Un- coated							
					T9105	T9115	T9125	T9135	T6120	T6130	AH725	GH730	J740	SH725	GT9530	J9530		NS9530	TH10			
On small lathes (Sharp edges)	<b>J10 (G)</b>  		TCGT110200FR-J10	0.03																TAC External Toolholder (4-23)		
			TCGT110200FL-J10	0.03																		
			TCGT110201FR-J10	0.1																		
			TCGT110201FL-J10	0.1																		
			TCGT110202FR-J10	0.2																		
			TCGT110202FL-J10	0.2																		
			TCGT110204FR-J10	0.03																		
			TCGT110300FR-J10	0.03																		
			TCGT110300FL-J10	0.1																		
			TCGT110301FR-J10	0.1																		
			TCGT110301FL-J10	0.2																		
			TCGT110302FR-J10	0.2																		
TCGT110302FL-J10	0.2																					
On small lathes (Honed edges)	<b>J10 (G)</b>  		TCGT110201R-J10	0.1																TAC Internal Toolholder (5-20)		
			TCGT110201L-J10	0.1																		
			TCGT110202R-J10	0.2																		
			TCGT110202L-J10	0.2																		
			*TCGT110301R-J10	0.1																		
			TCGT110301L-J10	0.1																		
			TCGT110302R-J10	0.2																		
			TCGT110302L-J10	0.2																		

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

### Triangular, with hole



## TCMT 11 02 02 -

Cutting edge length (l) Thickness (s) Corner radius (r<sub>E</sub>) Chipbreaker symbol

TC□T	0802□□-J08	1102□□
ød1 (mm)	2.3	2.8

Application	Chipbreaker Appearance (Cross section)	f - a <sub>p</sub>	Insert Cat. No.	Corner radius r <sub>E</sub>	Stocked grades												Tool-holder				
					Coated								Coated cermet	Cermet	Un-coated						
					T9105	T9115	T9125	T9135	T6120	T6130	AH725	AH630	AH645	GT9530	NS9530						
Finishing to medium cutting	<b>23</b> (M) 		TCMT110202-23	0.2															TAC External Toolholder (4-23)		
			*TCMT110204-23	0.4																	
			TCMT110208-23	0.8																	
Medium cutting	<b>PM</b> (M) 		TCMT110202-PM	0.2															TAC Internal Toolholder (5-20)		
			TCMT110204-PM	0.4																	
			TCMT110208-PM	0.8																	
			TCMT110302-PM	0.2																	
			TCMT110304-PM	0.4																	
			TCMT110308-PM	0.8																	
	<b>24</b> (M) 		*TCMT110202-24	0.2															TAC Internal Toolholder (5-20)		
			TCMT110204-24	0.4																	
			TCMT110208-24	0.8																	

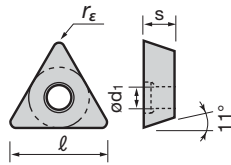
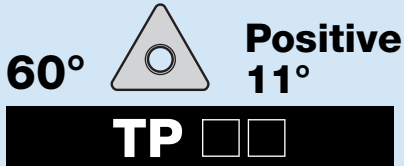
- 2
- TAC Inserts
- C
  - D
  - E
  - T
  - W
  - V
  - Y
  - Other

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, positive

Triangular, with hole



**TPGT 07 01 01N** -

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

TP	0701
$\varnothing d1$ (mm)	-

2

TAC Inserts

C

D

E

T

W

V

Y

Other

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades											Toolholder							
					Coated						Coated cermet	Cermet	Un-coated										
					T9105	T9115	T9125	T9135	T6120	T6130	AH725	GH730	J740	SH725	SH730	GT9530	J530	NS9530		TH10			
For internal turning on small lathes (Sharp edges)	<b>JS (G)</b> 		*TPGT070101F-JS TPGT070102F-JS TPGT070104F-JS	0.1 0.2 0.4										●									
	For internal turning on small lathes	<b>JS (G)</b> 		TPGT070101-JS TPGT070102-JS TPGT070104-JS	0.1 0.2 0.4										●								
		For internal turning on small lathes (Sharp edges)	<b>W08 (G)</b> 		*TPGT070100FR-W08 TPGT070100FL-W08 TPGT070101FR-W08 TPGT070101FL-W08 TPGT070102FR-W08 TPGT070102FL-W08 TPGT070104FR-W08 TPGT070104FL-W08	0.03 0.03 0.1 0.1 0.2 0.2 0.4 0.4									●								
For internal turning on small lathes (Sharp edges)			<b>W08 (G)</b> 		TPGT070100R-W08 TPGT070100L-W08 TPGT070101R-W08 TPGT070101L-W08 TPGT070102R-W08 TPGT070102L-W08 TPGT070104R-W08 TPGT070104L-W08	0.03 0.03 0.1 0.1 0.2 0.2 0.4 0.4									●							●	
	For internal turning on small lathes		<b>- (with hand) (G)</b> Tungaloy-standard hole Not ISO 		*TPGM070102R TPGM070102L TPGM070104R TPGM070104L	0.2 0.2 0.4 0.4														●		●	


TAC Internal Toolholder (5-21)


Note: Chipbreaker cross-sections are of \* marked inserts.

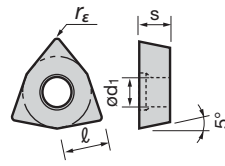
● : Stocked items



**Trigon, with hole**


**80°**  **Positive 5°**

**WB** 

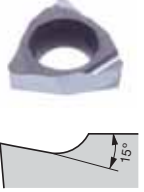
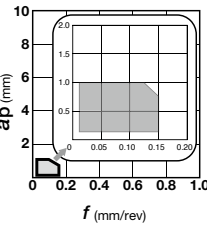

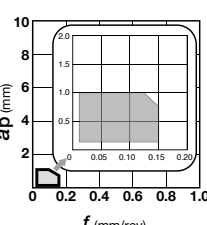

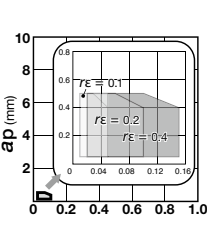

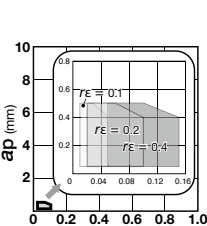


**WBGT 03 01 02 -** 

Cutting edge length (l) Thickness (s) Corner radius (rE) Chipbreaker symbol

WBGT	0301	
ød1 (mm)	2.3	

**2**

Application	Chipbreaker Appearance (Cross section)	f - ap	Insert Cat. No.	Corner radius rE	Stocked grades										Tool-holder					
					Coated						Cermet		Uncoated							
					T9105	T9115	T9125	T9135	GH110	SH725	SH730	NS9530	TH10	UX30						
For internal turning on small lathes (Sharp edges)	<b>W08 (G)</b> 		WBGT030100FR-W08	0.03																
			WBGT030100FL-W08	0.03																
			WBGT030101FR-W08	0.1																
			WBGT030101FL-W08	0.1																
			*WBGT030102FR-W08	0.2																
			WBGT030102FL-W08	0.2																
			WBGT030104FR-W08	0.4																
WBGT030104FL-W08	0.4																			
For internal turning on small lathes (Sharp edges)	<b>W08 (G)</b> 		WBGT030100R-W08	0.03																
			WBGT030100L-W08	0.03																
			WBGT030101R-W08	0.1																
			WBGT030101L-W08	0.1																
			*WBGT030102R-W08	0.2																
			WBGT030102L-W08	0.2																
			WBGT030104R-W08	0.4																
WBGT030104L-W08	0.4																			
For internal turning on small lathes (Sharp edges)	<b>JS (G)</b> 		*WBGT030101FR-JS	0.1																
			WBGT030101FL-JS	0.1																
			WBGT030102FR-JS	0.2																
			WBGT030102FL-JS	0.2																
			WBGT030104FR-JS	0.4																
			WBGT030104FL-JS	0.4																
For internal turning on small lathes	<b>JS (G)</b> 		WBGT030101R-JS	0.1																
			WBGT030101L-JS	0.1																
			WBGT030102R-JS	0.2																
			WBGT030102L-JS	0.2																
			WBGT030104R-JS	0.4																
			WBGT030104L-JS	0.4																

TAC Inserts

C

D

E

T

W

V

Y

Other

TAC Internal Toolholder (5-25)

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, positive

2

TAC Inserts

C

D

E

T

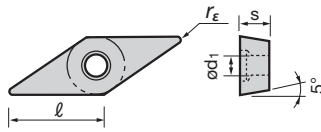
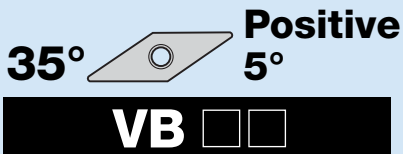
W

V

Y

Other

**Rhombic, with hole**



**VBMT 11 03 02 -**

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_\epsilon$ ) Chipbreaker symbol

VB□T	1103□□
ød1 (mm)	2.8

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_\epsilon$	Stocked grades										Tool- holder				
					Coated								Coated cermet	Cermet		Uncoated			
					T9105	T9115	T9125	T6120	T6130	T5115	AH725	AH630	AH645	AH120		GT9530	NS9530		
Finishing	<b>PSF (M)</b> 		VBMT110302-PSF	0.2														TAC External Toolholder  (4-24)	
			VBMT110304-PSF	0.4	●	●				●			●	●					
Finishing to medium cutting	<b>PF (M)</b> 		VBMT110302-PF	0.2								●	●				TAC Internal Toolholder  (5-23)		
			VBMT110304-PF	0.4								●	●						
			* VBMT110308-PF	0.8								●	●						
Finishing to medium cutting	<b>PSS (M)</b> 		VBMT110304-PSS	0.4	●	●	●	●	●	●	●	●	●					TAC Internal Toolholder  (5-23)	
			VBMT110308-PSS	0.8	●	●	●	●	●	●	●	●	●	●					
			* VBMT110302-PS	0.2	●	●	●	●	●	●	●	●	●	●	●				
			VBMT110304-PS	0.4	●	●	●	●	●	●	●	●	●	●	●				
Finishing to medium cutting	<b>PS (M)</b> 		VBMT110308-PS	0.8	●	●	●	●	●	●	●	●	●				TAC Internal Toolholder  (5-23)		
			VBMT110302-PS	0.2	●	●	●	●	●	●	●	●	●	●	●				

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

**Rhombic, with hole**

**35° Positive 5°**

**VB**

**VBGT 11 03 02 -**

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_e$ ) Chipbreaker symbol

VB	1103	02
$\phi d_1$ (mm)	2.8	

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_e$	Stocked grades										Tool-holder					
					Coated						Coated cermet	Cermet	Uncoated							
					T9105	T9115	T9125	T9135	T6120	T6130	T5115	AH725	J740	SH725		SH730	GT9530	J9530	NS9530	TH10
On small lathes (Sharp edges)	<b>JS (G)</b> 		VBGT110300FN-JS	0.03														TAC External Toolholder (4-24)		
			VBGT110301FN-JS	0.1							●	●								
			VBGT110302FN-JS	0.2							●	●								
			*VBGT110304FN-JS	0.4							●	●								
On small lathes (Honed edges)	<b>JS (G)</b> 		VBGT110301N-JS	0.1						●								TAC External Toolholder (4-24)		
			VBGT110302N-JS	0.2							●									
			*VBGT110304N-JS	0.4							●									
On small lathes (Sharp edges)	<b>J10 (G)</b> 		*VBGT110300FR-J10	0.03						●	●						●	TAC Internal Toolholder (5-23)		
			VBGT110300FL-J10	0.03							●	●							●	
			VBGT110301FR-J10	0.1								●	●			●			●	
			VBGT110301FL-J10	0.1								●	●			●			●	
			VBGT110302FR-J10	0.2								●	●			●			●	
			VBGT110302FL-J10	0.2								●	●			●			●	
			VBGT110304FR-J10	0.4								●	●			●			●	
VBGT110304FL-J10	0.4								●	●			●		●					
On small lathes (Honed edges)	<b>J10 (G)</b> 		VBGT110301R-J10	0.1														TAC Internal Toolholder (5-23)		
			VBGT110301L-J10	0.1																
			*VBGT110302R-J10	0.2											●					
			VBGT110302L-J10	0.2											●					
			VBGT110304R-J10	0.4											●					
			VBGT110304L-J10	0.4											●					

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

**2**

TAC Inserts

C

D

E

T

W

V

Y

Other

# TAC Inserts, positive

2

TAC Inserts

C

D

E

T

W

V

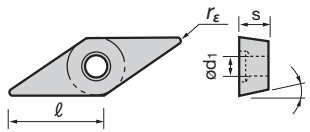
Y

Other

**Rhombic, with hole**

**35° Positive 7°**

**VC**      



**VCMT 11 03 02 -**      

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_\epsilon$ ) Chipbreaker symbol

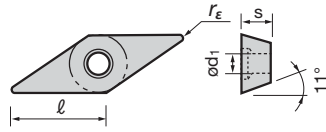
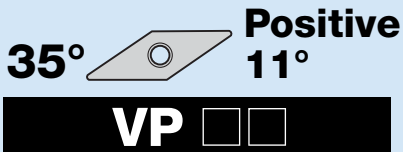
VC□T	0802□□	1103□□
ød1 (mm)	2.3	2.8

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_\epsilon$	Stocked grades											Tool- holder				
					Coated								Coated cermet	Cermet	Uncoated					
					T9115	T9125	T6120	T6130	T5115	AH725	AH630	AH645	AH905	AH120	GT9530		NS9530	KS05F		
Finishing	<b>PSF (M)</b>  $a_p$ (mm) vs $f$ (mm/rev) graph		VCMT080202-PSF	0.2															TAC Internal Toolholder (5-23)	
			VCMT080204-PSF	0.4	●	●							●	●						
			VCMT110302-PSF	0.2																
			VCMT110304-PSF	0.4	●	●														
Finishing	<b>PF (M)</b>  $a_p$ (mm) vs $f$ (mm/rev) graph		VCMT080202-PF	0.2									●	●						
			VCMT080204-PF	0.4									●	●						
Finishing to light cutting	<b>PSS (M)</b>  $a_p$ (mm) vs $f$ (mm/rev) graph		VCMT110304-PSS	0.4	●	●	●	●	●	●			●	●						
			VCMT110308-PSS	0.8	●	●	●	●	●	●			●	●						
Finishing to medium cutting	<b>PS (M)</b>  $a_p$ (mm) vs $f$ (mm/rev) graph		VCMT110302-PS	0.2	●	●	●	●	●	●			●	●						
			VCMT110304-PS	0.4	●	●	●	●	●	●			●	●						
			*VCMT110308-PS	0.8	●	●	●	●	●	●			●	●						

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

### Rhombic, with hole



## VPET 11 03 02 -

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_e$ ) Chipbreaker symbol

VPET	0802□□	1103□□
ød1 (mm)	2.3	2.8

2

TAC Inserts

C

D

E

T

W

V

Y

Other

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_e$	Stocked grades							Toolholder		
					Coated			Cermet		Uncoated				
					T6120	T6130	T5115	SH725	SH730	NS9530	KS05F			
On small lathes (Sharp edges)	<b>JRP</b> (E)		VPET0802008MFR-JRP	< 0.08			●	●					TAC External Toolholder (4-27)	
			VPET0802008MFL-JRP	< 0.08			●	●						
			VPET080201 MFR-JRP	< 0.1			●	●						
			VPET080201 MFL-JRP	< 0.1			●	●						
			VPET0802018MFR-JRP	< 0.18			●	●						
			VPET0802018MFL-JRP	< 0.18			●	●						
			VPET080202 MFR-JRP	< 0.2			●	●						
			VPET080202 MFL-JRP	< 0.2			●	●						
			VPET1103008MFR-JRP	< 0.08			●	●						
			VPET1103008MFL-JRP	< 0.08			●	●						
			VPET110301 MFR-JRP	< 0.1			●	●						
			VPET110301 MFL-JRP	< 0.1			●	●						
			VPET1103018MFR-JRP	< 0.18			●	●						
			VPET1103018MFL-JRP	< 0.18			●	●						
	*VPET110302 MFR-JRP	< 0.2			●	●								
	VPET110302 MFL-JRP	< 0.2			●	●								
	<b>JPP</b> (E)		VPET0802008MFR-JPP	< 0.08			●	●						
			VPET0802008MFL-JPP	< 0.08			●	●						
			VPET080201 MFR-JPP	< 0.1			●	●						
			VPET080201 MFL-JPP	< 0.1			●	●						
			VPET0802018MFR-JPP	< 0.18			●	●						
			VPET0802018MFL-JPP	< 0.18			●	●						
			VPET080202 MFR-JPP	< 0.2			●	●						
			VPET080202 MFL-JPP	< 0.2			●	●						
VPET1103008MFR-JPP			< 0.08			●	●							
VPET1103008MFL-JPP			< 0.08			●	●							
VPET110301 MFR-JPP	< 0.1			●	●									
VPET110301 MFL-JPP	< 0.1			●	●									
VPET1103018MFR-JPP	< 0.18			●	●									
VPET1103018MFL-JPP	< 0.18			●	●									
*VPET110302 MFR-JPP	< 0.2			●	●									
VPET110302 MFL-JPP	< 0.2			●	●									

\* Corner radius has minus tolerance.

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, positive

2

TAC Inserts

C

D

E

T

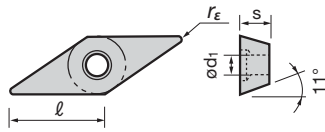
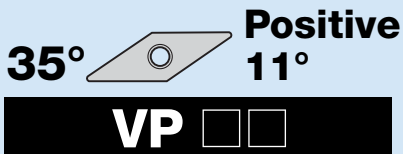
W

V

Y

Other

**Rhombic, with hole**



**VPET 11 03 02 -**

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_\epsilon$ ) Chipbreaker symbol

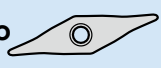
VPET	0802□□	1103□□
$\phi d_1$ (mm)	2.3	2.8

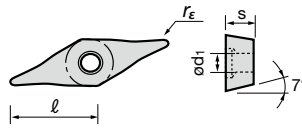
Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_\epsilon$	Stocked grades						Toolholder
					Coated		Cermet		Uncoated		
					SH725	SH730	NS9530	KS05F			
For small lathes (Sharp edges)			VPET0802008MFN-JSP	< 0.08	●	●					<b>TAC External Toolholder (4-27)</b>
			VPET080201 MFN-JSP	< 0.1	●	●					
			VPET0802018MFN-JSP	< 0.18	●	●					
			VPET080202 MFN-JSP	< 0.2	●	●					
			VPET1103008MFN-JSP	< 0.08	●	●					
			VPET110301 MFN-JSP	< 0.1	●	●					
			VPET1103018MFN-JSP	< 0.18	●	●					
			*VPET110302 MFN-JSP	< 0.2	●	●					

\* Corner radius has minus tolerance.

● : Stocked items


## Rhombic, with hole

**25°**  **Positive 7°**  
**YWMT**



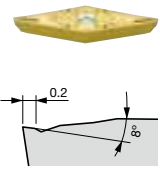
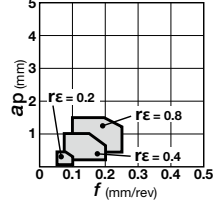
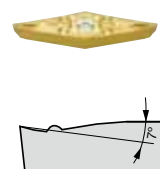
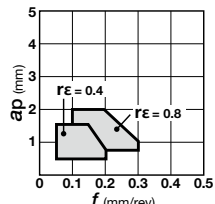
## YWMT 11 T2 02 -

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

YWMT	11T2	
ød1 (mm)	2.3	

2

TAC Inserts

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades										Toolholder				
					Coated					Coated cermet	Cermet	Uncoated							
					T9105	T9115	T9125	T9135	T6120	T6130	AH725	GT9530	NS9530	KS05F					
Finishing to medium cutting	<b>ZF (M)</b> 		<b>YWMT11T202-ZF</b> <b>YWMT11T204-ZF</b>	0.2 0.4		●													TAC Internal Toolholder (5-28)
	<b>ZM (M)</b> 		<b>YWMT11T204-ZM</b>	0.4		●													

C

D

E

T

W

V

Y

Other

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, positive, double-sided

2

TAC Inserts

C

D

E

T

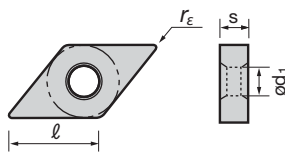
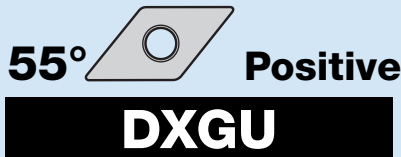
W

V

Y

Other

**Rhombic, with hole**



**DXGU 07 03 01 -**

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

DXGU	0703	
ød1 (mm)	2.7	

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades				Tool- holder
					Coated	Coated cermet	Cermet		
Finishing (For swiss type automatic lathes, sharp edge)	<b>JRP (G)</b>  $23^\circ$		DXGU070301MFRE-JRP	< 0.1	AH725	SH725	GT9530	NS9530	TAC External Toolholder  (4-10)
			DXGU070301MFLE-JRP	< 0.1					
			DXGU070302MFRE-JRP	< 0.2					
			DXGU070302MFLE-JRP	< 0.2					
Finishing to medium cutting (For swiss type automatic lathes, sharp edge)	<b>JTS (G)</b>  0.1 $10^\circ$		DXGU070301MFR-JTS	< 0.1				TAC External Toolholder  (4-10, 14)	
			DXGU070301MFL-JTS	< 0.1					
			DXGU070302MFR-JTS	< 0.2					
			DXGU070302MFL-JTS	< 0.2					
Finishing to medium cutting (For swiss type automatic lathes)	<b>JTS (G)</b>  0.1 $10^\circ$		DXGU070301MR-JTS	< 0.1				TAC External Toolholder  (4-10, 14)	
			DXGU070301ML-JTS	< 0.1					
			DXGU070302MR-JTS	< 0.2					
			DXGU070302ML-JTS	< 0.2					
Finishing (Low cutting force) (For swiss type automatic lathes, sharp edge)	<b>JSS (G)</b>  $30^\circ$		DXGU070301MFR-JSS	< 0.1				TAC Internal Toolholder  (5-31)	
			DXGU070301MFL-JSS	< 0.1					
			DXGU070302MFR-JSS	< 0.2					
			DXGU070302MFL-JSS	< 0.2					
Finishing (Low cutting force) (For swiss type automatic lathes)	<b>JSS (G)</b>  $30^\circ$		DXGU070301MR-JSS	< 0.1				TAC Internal Toolholder  (5-31)	
			DXGU070301ML-JSS	< 0.1					
			DXGU070302MR-JSS	< 0.2					
			DXGU070302ML-JSS	< 0.2					

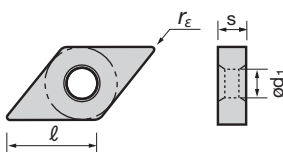
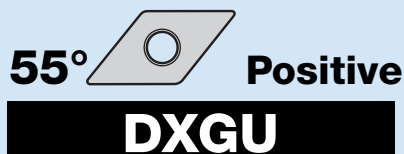
\* Corner radius has minus tolerance.

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items



### Rhombic, with hole



## DXGU 07 03 02 -

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

DXGU	0703	□□
ød1 (mm)	2.7	

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades								Toolholder
					Coated		Coated cermet	Cermet	Uncoated				
					AH725	SH725	GT9530	NS9530	KS05F				
Finishing to medium cutting	<b>TS (G)</b> 		DXGU070302R-TS	0.2	●				●				<b>TAC External Toolholder</b> (4-10, 14)
			DXGU070302L-TS	0.2	●				●				
			DXGU070304R-TS	0.4	●				●				
			*DXGU070304L-TS	0.4	●				●				
			DXGU070308R-TS	0.8	●				●				
			DXGU070308L-TS	0.8	●				●				
Finishing (Low cutting force)	<b>SS (G)</b> 		DXGU070302R-SS	0.2	●				●			<b>TAC Internal Toolholder</b> (5-31)	
			DXGU070302L-SS	0.2	●				●				
			DXGU070304R-SS	0.4	●				●				
			*DXGU070304L-SS	0.4	●				●				

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

- C
- D
- E
- T
- W
- V
- Y
- Other

# TAC Inserts, positive, double-sided

2

TAC Inserts

C

D

E

T

W

V

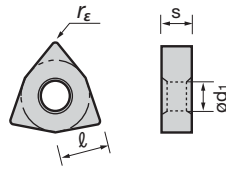
Y

Other

## Trigon, with hole


80°  Positive

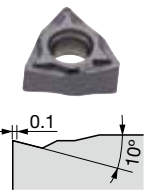
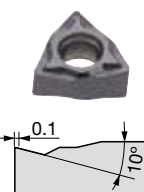
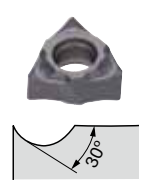
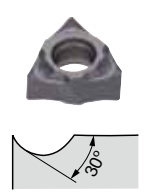
**WXGU**



**WXGU 04 03 01** - 

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

WXGU	0403	
ød1 (mm)	2.7	

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades								Tool-holder
					Coated		Coated cermet	Cermet		Uncoated			
					AH725	SH725	GT9530	NS9530	KS05F				
Finishing to medium cutting (For swiss type automatic lathes, sharp edge)	<b>JTS</b> (G) 	 $a_p$ (mm) vs $f$ (mm/rev)	WXGU040301MFR-JTS < 0.1	< 0.1	●								
			WXGU040301MFL-JTS < 0.1	< 0.1	●								
			WXGU040302MFR-JTS < 0.2	< 0.2	●								
			WXGU040302MFL-JTS < 0.2	< 0.2	●								
Finishing to medium cutting (For swiss type automatic lathes)	<b>JTS</b> (G) 	 $a_p$ (mm) vs $f$ (mm/rev)	WXGU040301MR-JTS < 0.1	< 0.1	●								
			WXGU040301ML-JTS < 0.1	< 0.1	●								
			WXGU040302MR-JTS < 0.2	< 0.2	●								
			WXGU040302ML-JTS < 0.2	< 0.2	●								
Finishing (Low cutting force) (For swiss type automatic lathes, sharp edge)	<b>JSS</b> (G) 	 $a_p$ (mm) vs $f$ (mm/rev)	WXGU040301MFR-JSS < 0.1	< 0.1	●								
			WXGU040301MFL-JSS < 0.1	< 0.1	●								
			WXGU040302MFR-JSS < 0.2	< 0.2	●								
			WXGU040302MFL-JSS < 0.2	< 0.2	●								
Finishing (Low cutting force) (For swiss type automatic lathes)	<b>JSS</b> (G) 	 $a_p$ (mm) vs $f$ (mm/rev)	WXGU040301MR-JSS < 0.1	< 0.1	●								
			WXGU040301ML-JSS < 0.1	< 0.1	●								
			WXGU040302MR-JSS < 0.2	< 0.2	●								
			WXGU040302ML-JSS < 0.2	< 0.2	●								


TAC External Toolholder (4-8)

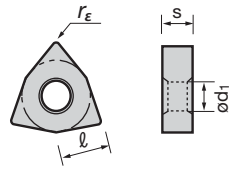
TAC Internal Toolholder (5-31)

\* Corner radius has minus tolerance.

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

**Trigon, with hole**  
**80°**  **Positive**  
**WXGU**



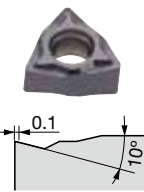
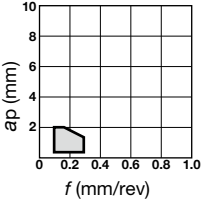
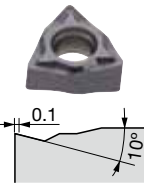
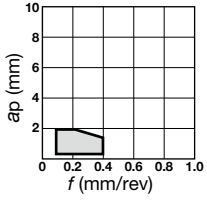
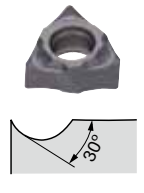
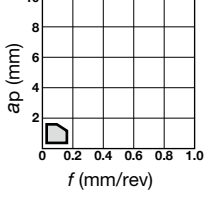
**WXGU 04 03 01** - 

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

WXGU	0403	<input type="checkbox"/>	<input type="checkbox"/>
$\phi d_1$ (mm)	2.7		

2

TAC Inserts

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades												Tool-holder
					Coated				Coated cermet		Cermet		Uncoated				
					AH725	SH725			GT9530		NS9530			KS05F			
Finishing to medium cutting	<b>TS</b> (G) 		WXGU040302R-TS	0.2	●					●		●		●		TAC External Toolholder (4-8)	
			WXGU040302L-TS	0.2	●					●		●		●			
			WXGU040304R-TS	0.4	●					●		●		●			
			WXGU040304L-TS	0.4	●					●		●		●			
			WXGU040308R-TS	0.8	●					●		●		●			
			WXGU040308L-TS	0.8	●					●		●		●			
Finishing (Wiper)	<b>TSW</b> (G) 		WXGU040304R-TSW	0.4	●					●		●		●	TAC Internal Toolholder (5-31)		
			WXGU040304L-TSW	0.4	●					●		●		●			
			WXGU040308R-TSW	0.8	●					●		●		●			
			WXGU040304L-TSW	0.8	●					●		●		●			
Finishing (Low cutting force)	<b>SS</b> (G) 		WXGU040302R-SS	0.2	●					●		●		●	TAC Internal Toolholder (5-31)		
			WXGU040302L-SS	0.2	●					●		●		●			
			WXGU040304R-SS	0.4	●					●		●		●			
			WXGU040304L-SS	0.4	●					●		●		●			

C

D

E

T

W

V

Y

Other

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, positive, double-sided

2

TAC Inserts

C

D

E

T

W

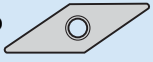
V

Y

Other

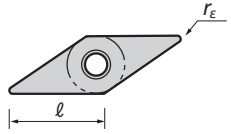
**Rhombic, with hole**

**35°**



**Positive**


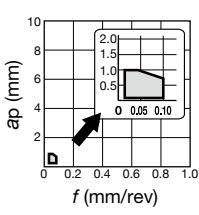
**VXGU**



**VXGU 09 T2 01 -**

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

VXGU	09T2	□□
ød1 (mm)	2.5	

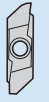
Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades				Tool- holder	
					Coated	Coated cermet	Cermet	Uncoated		
Finishing (sharp edge)	<b>JRP (G)</b> 		VXGU09T201MFRE-JRP	< 0.1	AH725	SH725	GT9530	NS9530	KS05F	TAC External Toolholder (4-12)
			VXGU09T201MFLE-JRP	< 0.1						
			VXGU09T202MFRE-JRP	< 0.2						
			VXGU09T202MFLE-JRP	< 0.2						

\* Corner radius has minus tolerance.

● : Stocked items

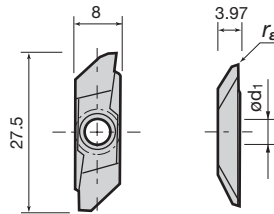
# TAC Inserts, positive

**Back turning Inserts**



**Positive**

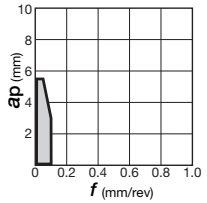
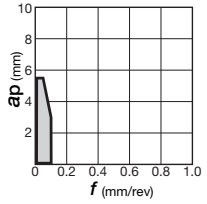
**JXB** □



## JXBR 8000 F

Hand      Corner radius ( $r_\epsilon$ )      F : Sharp edge  
 □ : Honed edge

$r_\epsilon / \phi d_1$	JXB □	8000	8005	8010	8015
$r_\epsilon$		0.03	0.05	0.10	0.15
$\phi d_1$		4.4	4.4	4.4	4.4

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Stocked grades			Toolholder
				Coated	Cermet	Uncoated	
Back turning	-		JXBR8005	●			TAC External Toolholder (4-33)
			JXBL8005	●			
			JXBR8010	●			
			JXBL8010	●			
			JXBR8015	●			
			JXBL8015	●			
Back turning (Sharp edges)	-		JXBR8000F	●		●	TAC External Toolholder (4-33)
			JXBL8000F	●		●	
			JXBR8005F	●		●	
			JXBL8005F	●		●	
			JXBR8010F	●		●	
			JXBL8010F	●		●	
			JXBR8015F	●		●	
			JXBL8015F	●		●	

TAC Inserts

2

C

D

E

T

W

V

Y

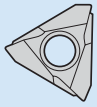
Other

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

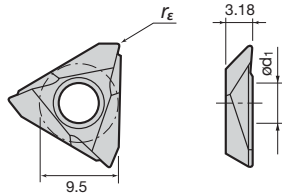
# TAC Inserts, positive

## Backturning Inserts



Positive

JTB □



## JTBR 3000 F

Hand      Corner radius ( $r_\epsilon$ )      F : Sharp edge  
□ : Honed edge

$r_\epsilon / \phi d_1$	JXB □	3000	3005	3010	3015
$r_\epsilon$		0.03	0.05	0.10	0.15
$\phi d_1$		4.4	4.4	4.4	4.4

2

TAC Inserts

C

D

E

T

W

V

Y

Other


Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Stocked grades										Toolholder
				Coated		Coated cermet	Cermet		Uncoated					
				J740	SH725			J9530		NS9530		TH10		
Back turning	-		JTBR3005	●				●						
			JTBL3005	●										
			JTBR3010	●				●						
			JTBL3010	●										
Back turning (Sharp edges)	-		JTBR3000F	●	●								●	
			JTBL3000F	●	●								●	
			JTBR3005F	●	●								●	
			JTBL3005F	●	●								●	
			JTBR3010F	●	●							●	●	
			JTBL3010F	●	●							●	●	
			JTBR3015F	●	●							●		
			JTBL3015F	●	●									

TAC  
External  
Toolholder  
(4-34)

Note: Chipbreaker cross-sections are of \* marked inserts.

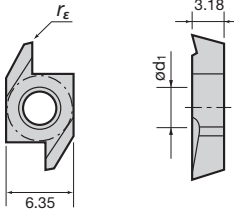
● : Stocked items

**Back turning Inserts**



**Positive**


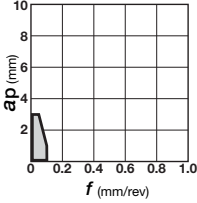

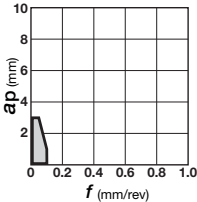
**J10E** □




**J10ER 005B F**

Hand      Corner radius ( $r_\epsilon$ )      F : Sharp edge  
□ : Honed edge

$r_\epsilon / \phi d_1$	J10E <span style="border: 1px solid black; padding: 2px;">□</span>	005	010
$r_\epsilon$		0.05	0.10
$\phi d_1$		3.0	3.0

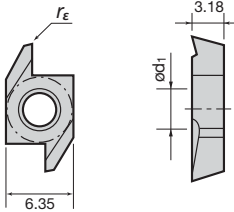
Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Stocked grades								Toolholder	
				Coated		Coated cermet	Cermet		Uncoated				
				J740	SH725			J9530	NS9530		TH10		
Back turning			J10ER005B	●				●					
			J10EL005B	●									
			J10ER010B	●				●					
			J10EL010B	●									
Back turning (Sharp edges)			J10ER005BF	●	●				●		●		
			J10EL005BF	●	●						●		
			J10ER010BF	●	●				●		●		
			J10EL010BF	●	●						●		
			J10ER015BF	●	●							●	
			J10EL015BF	●	●								●

**Back turning Inserts**



**Positive**


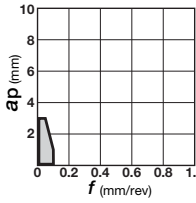
**10E** □



**10ER 100B**

Hand

$r_\epsilon / \phi d_1$	10E <span style="border: 1px solid black; padding: 2px;">□</span>	100	150	300
$r_\epsilon$		0.03	0.03	-
$\phi d_1$		3.0	3.0	-

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Stocked grades		Toolholder	
				Cermet	Uncoated		
				NS9530	TH10		
Back turning			10ER100B			●	
			10EL100B			●	
			10ER150B			●	
			10EL150B			●	
			10ER300			●	
			10EL300			●	

\*10ER / L300 : Insert blank

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, positive

2

TAC Inserts

C

D

E

T

W

V

Y

Other

### Front turning Inserts

**Positive**

**JXF**

## JXFR 8000 F

Hand      Corner radius ( $r_\epsilon$ )      Sharp edge

$r_\epsilon / \text{ød1}$	JXFR	8000	8010
	$r_\epsilon$	0.03	0.1
	$\text{ød1}$	4.4	4.4

Application	Chipbreaker	$f - a_p$	Insert Cat. No.	Stocked grades			Toolholder
				Coated	Cermet	Uncoated	
Front turning	-		JXFR8000F	●	●	●	TAC External Toolholder (4-32)
	JXFR8010F		●	●	●		
				J740	NS9530	TH10	

### Reverse turning Inserts

**Positive**

**JXR**

## JXRR 8000 F

Hand      Corner radius ( $r_\epsilon$ )      Sharp edge

$r_\epsilon / \text{ød1}$	JXFR	8000	8010
	$r_\epsilon$	0.03	0.1
	$\text{ød1}$	4.4	4.4

Application	Chipbreaker	$f - a_p$	Insert Cat. No.	Stocked grades			Toolholder
				Coated	Cermet	Uncoated	
Revers turning	-		JXRR8000F	●	●	●	TAC External Toolholder (4-32)
	JXRR8010F		●	●	●		
				J740	NS9530	TH10	

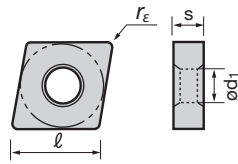
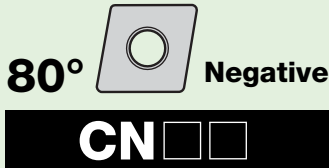
Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items



# TAC Inserts, negative

**Rhombic, with hole**



**CNMG 09 04 04 -** □ □

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_e$ ) Chipbreaker symbol

CN□□	0903□□	0904□□	1204□□
ød1 (mm)	3.81	3.81	5.16

2

TAC Inserts

C

D

T

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_e$	Stocked grades											Toolholder					
					Coated								Coated cermet	Cermet			Un- coated				
					T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	AH120	GT9530	NS9530		NS520	TH10			
Precision finishing	<b>01 (G)</b> 		CNGG090302-01	0.2															TAC External Toolholder (4-28)		
			CNGG090304-01	0.4																	
			CNGG090308-01	0.8																	
			CNGG120402-01	0.2																	
			CNGG120404-01	0.4																	
			* CNGG120408-01	0.8																	
Finishing	<b>TSF (M)</b> 		CNMG090404E-TSF	0.4		●	●							●	●						
			CNMG090408E-TSF	0.8		●	●								●	●					
			CNMG120404-TSF	0.4	●	●	●	●							●	●					
			* CNMG120408-TSF	0.8	●	●	●	●							●	●					
			CNMG120412-TSF	1.2	●	●															
Finishing to medium cutting	<b>AM (M)</b> 		* CNMG120408-AM	0.8	●	●															
			CNMG120412-AM	1.2	●	●															
			CNMG120416-AM	1.6	●	●															

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, negative

2

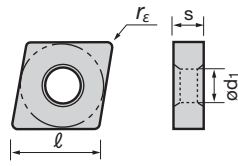
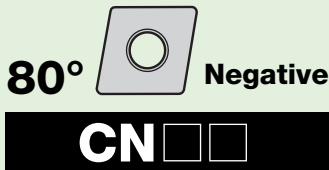
TAC Inserts

C

D

T

Rhombic, with hole



**CNMG 09 04 04 -** □ □

Cutting edge length (l) Thickness (s) Corner radius (r<sub>ε</sub>) Chipbreaker symbol

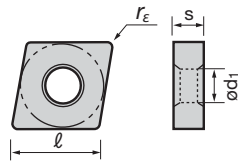
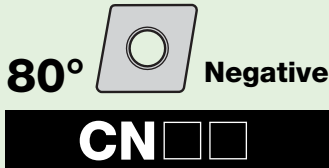
CN □ □	0903 □ □	0904 □ □	1204 □ □
ød1 (mm)	3.81	3.81	5.16

Application	Chipbreaker Appearance (Cross section)	f - a <sub>p</sub>	Insert Cat. No.	Corner radius r <sub>ε</sub>	Stocked grades												Toolholder				
					Coated										Coated cermet	Cermet		Un- coated			
					T9105	T9115	T9125	T9135	AH725	T6120	T6130	AH630	AH645	AH120	AH905	AH8015		AH110	T515	GT9530	NS9530
Medium cutting	<b>TM</b> (M) 		CNMG090304-TM	0.4	●	●															
			CNMG090308-TM	0.8	●	●	●														
			CNMG090404E-TM	0.4	●	●		●	●	●	●	●	●	●	●	●					
			*CNMG090408E-TM	0.8	●	●		●	●	●	●	●	●	●	●	●					
			CNMG090412E-TM	1.2	●	●		●	●	●	●	●	●	●	●	●					
			CNMG120404-TM	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●				
			CNMG120408-TM	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●				
			CNMG120412-TM	1.2	●	●	●	●	●	●	●	●	●	●	●	●	●				
	CNMG120416-TM	1.6	●	●	●										●						
	<b>SM</b> (M) 		CNMG090404E-SM	0.4				●	●	●											
			*CNMG090408E-SM	0.8				●	●	●											
			CNMG090412E-SM	1.2				●	●	●											
			CNMG120404-SM	0.4				●	●	●	●	●									
			CNMG120408-SM	0.8				●	●	●	●	●	●								
CNMG120412-SM			1.2				●	●	●	●	●	●									

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

### Rhombic, with hole



## CNMG 09 04 04 -

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_e$ ) Chipbreaker symbol

CN	0904	1204
$\phi d_1$ (mm)	3.81	5.16

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_e$	Stocked grades											Toolholder				
					Coated								Coated cermet	Cermets			Un-coated			
					T9105	T9115	T9125	T9135	T6120	T6130	AH120	AH110	T515	T5105	T5115		T5125	GT9530	GT720	NS9530
Medium cutting	<b>All-round (M)</b> 		CNMG090304	0.4	●	●														
			CNMG090308	0.8	●	●	●									●		●		
			CNMG120404	0.4	●	●	●			●	●	●	●	●	●	●		●		●
			*CNMG120408	0.8	●	●	●			●	●	●	●	●	●	●		●	●	●
			CNMG120412	1.2	●	●	●			●	●	●	●	●	●	●		●		●
			CNMG120416	1.6	●	●	●					●	●	●	●	●				
Finishing (Wiper)	<b>FW (M)</b> 		CNMG090404E-FW	0.4	●	●								●		●				
			CNMG090408E-FW	0.8	●	●									●		●			
			CNMG120404-FW	0.4	●	●										●		●		
			*CNMG120408-FW	0.8	●	●										●		●		
Finishing to medium cutting (Wiper)	<b>SW (M)</b> 		CNMG090408E-SW	0.8	●	●														
			CNMG090412E-SW	1.2	●	●														
			*CNMG120408-SW	0.8	●	●						●	●							
			CNMG120412-SW	1.2	●	●						●	●							

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, negative

2

TAC Inserts

C

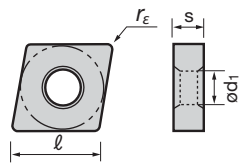
D

T

Rhombic, with hole



**CN** □ □



**CNMG 09 04 04 -** □ □

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_e$ ) Chipbreaker symbol

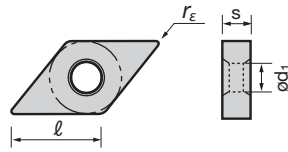
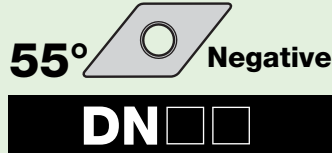
CN □ □	0904 □ □	1204 □ □
ød1 (mm)	3.81	5.16

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_e$	Stocked grades												Toolholder		
					Coated									Coated cermet		Cermet			
					T9105	T9115	T9125	T9135	T5115	T6120	T6130	AH8005	AH8015	AH905	GT9530	NS9530			
Finishing	<b>HRF</b> 		CNMG120404-HRF	0.4															TAC External Toolholder (4-28)
			CNMG120408-HRF	0.8															
			CNMG120412-HRF	1.2															
Finishing to medium cutting	<b>HRM</b> 		CNMG120404-HRM	0.4														TAC External Toolholder (4-28)	
			CNMG120408-HRM	0.8															
			CNMG120412-HRM	1.2															
Medium cutting	<b>HMM</b> 		CNMG120404-HMM	0.4														TAC External Toolholder (4-28)	
			*CNMG120408-HMM	0.8															
			CNMG120412-HMM	1.2															

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

**Rhombic, with hole**



**DNMG 11 04 04 -** [ ] [ ]

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

DN [ ] [ ]	1104 [ ] [ ]	1504 [ ] [ ]	1506 [ ] [ ]
$\phi d_1$ (mm)	3.81	5.16	5.16

2

TAC Inserts

C

D

T

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades												Toolholder				
					Coated								Coated cermet		Cermet			Un-coated			
					T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	AH120	GH110	GT9530	GT720		NS9530	NS520	TH10	
Precision finishing	<b>01 (G)</b>  		DNGG110402-01	0.2															TAC External Toolholder (4-29)		
			DNGG110404-01	0.4																	
			DNGG110408-01	0.8																	
			DNGG150402-01	0.2																	
			DNGG150404-01	0.4																	
			DNGG150408-01	0.8																	
Finishing	<b>TSF (M)</b>  		DNMG110404E-TSF	0.4		●	●							●		●					
			DNMG110408E-TSF	0.8		●	●							●		●					
			DNMG110412E-TSF	1.2		●	●								●		●				
			DNMG150404-TSF	0.4	●	●	●	●							●		●		●		
			*DNMG150408-TSF	0.8	●	●	●	●							●		●		●		
			DNMG150412-TSF	1.2	●	●	●	●							●		●		●		
			DNMG150604-TSF	0.4		●	●								●		●				
			DNMG150608-TSF	0.8		●	●								●		●				
Finishing to medium cutting	<b>SF (M)</b>  		DNMG150404-SF	0.4				●	●	●											
			*DNMG150408-SF	0.8				●	●	●											
			DNMG150604-SF	0.4					●	●	●										
			DNMG150608-SF	0.8					●	●	●										
			Finishing to medium cutting	<b>AM (M)</b>  		*DNMG150408-AM	0.8	●	●												
DNMG150412-AM	1.2	●				●															
DNMG150416-AM	1.6	●				●															
DNMG150608-AM	0.8	●				●															
DNMG150612-AM	1.2	●				●															
DNMG150616-AM	1.6	●				●															

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, negative

2

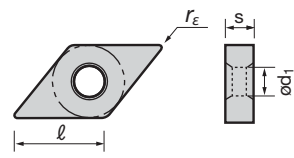
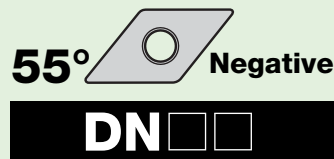
TAC Inserts

C

D

T

Rhombic, with hole



**DNMG 11 04 04 -**

Cutting edge length (l) Thickness (s) Corner radius (r<sub>E</sub>) Chipbreaker symbol

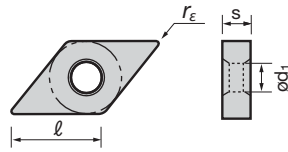
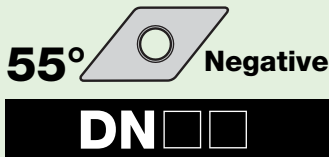
DN	1104	1504	1506
ød1 (mm)	3.81	5.16	5.16

Application	Chipbreaker Appearance (Cross section)	f - a <sub>p</sub>	Insert Cat. No.	Corner radius r <sub>E</sub>	Stocked grades													Toolholder										
					Coated											Coated cermet	Cermet		Un- coated									
					T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	AH120	AH110	T515					T5105	T5115	T5125						
Medium cutting	<b>TM (M)</b>  		DNMG110404-TM	0.4	●	●																			TAC External Toolholder (4-29)			
			DNMG110408-TM	0.8	●	●																						
			DNMG110404E-TM	0.4	●	●																						
			*DNMG110408E-TM	0.8	●	●																						
			DNMG110412E-TM	1.2	●	●																						
			DNMG150404-TM	0.4	●	●	●					●																
			DNMG150408-TM	0.8	●	●	●					●																
			DNMG150412-TM	1.2	●	●	●					●	●															
			DNMG150416-TM	1.6	●	●																						
			DNMG150604-TM	0.4	●	●	●					●																
			DNMG150608-TM	0.8	●	●	●					●																
			DNMG150612-TM	1.2	●	●	●					●																
	DNMG150616-TM	1.6	●	●	●																							
		<b>SM (M)</b>  		DNMG110404E-SM	0.4				●	●																		
				*DNMG110408E-SM	0.8				●	●																		
				DNMG150404-SM	0.4				●	●	●																	
				DNMG150408-SM	0.8				●	●	●																	
				DNMG150412-SM	1.2				●	●	●																	
				DNMG150604-SM	0.4				●	●	●																	
				DNMG150608-SM	0.8				●	●	●																	
				DNMG150612-SM	1.2				●	●	●																	
		<b>All-round (M)</b>  		DNMG110404	0.4	●	●																●					
				DNMG110408	0.8	●	●	●																●				
				DNMG150404	0.4	●	●	●					●												●	●		
				*DNMG150408	0.8	●	●	●					●	●	●	●	●	●	●	●	●	●	●	●	●	●		
				DNMG150412	1.2	●	●	●					●	●	●	●	●	●	●	●	●	●	●	●	●	●		
				DNMG150416	1.6	●	●																					
				DNMG150604	0.4	●	●	●					●													●		
DNMG150608				0.8	●	●	●					●													●			
DNMG150612				1.2	●	●	●					●													●			
DNMG150616				1.6	●	●																						

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

### Rhombic, with hole



## DNMG 11 04 04 -

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

DN	1104	1504	1506
ød1 (mm)	3.81	5.16	5.16

2

TAC Inserts

C  
D  
T

Application	Chipbreaker Appearance (Cross section)	f - ap	Insert Cat. No.	Corner radius r <sub>E</sub>	Stocked grades												Toolholder					
					Coated										Coated cermet			Cermet				
					T9105	T9115	T9125	T9135	T5115	T6120	T6130	AH120				GT9530		NS9530				
Medium cutting	<b>Parallel (G)</b> 		DNGG150404R	0.4																TAC External Toolholder (4-29)		
			DNGG150404L	0.4																		
			*DNGG150408R	0.8																		
			DNGG150408L	0.8																		
Finishing (Wiper)	<b>FW (M)</b> 		DNMG110404E-FW	0.4	●															TAC External Toolholder (4-29)		
			DNMG110408E-FW	0.8	●																	
			DNMG150404-FW	0.4	●																	
			*DNMG150408-FW	0.8	●																	
			DNMG150604-FW	0.4	●																	
			DNMG150608-FW	0.8	●																	
Finishing to medium cutting (Wiper)	<b>SW (M)</b> 		DNMG110408E-SW	0.8	●															TAC External Toolholder (4-29)		
			DNMG110412E-SW	1.2	●																	
			*DNMG150408-SW	0.8	●																	
			DNMG150412-SW	1.2	●																	
			DNMG150608-SW	0.8	●																	
			DNMG150612-SW	1.2	●																	

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, negative

2

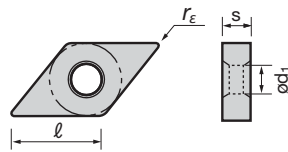
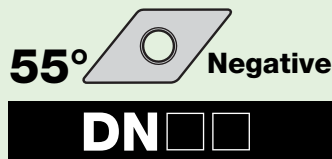
TAC Inserts

C

D

T

Rhombic, with hole



**DNMG 11 04 04 -**

Cutting edge length (l) Thickness (s) Corner radius (r<sub>E</sub>) Chipbreaker symbol

DN□□	1104□□	1504□□	1506□□
ød1 (mm)	3.81	5.16	5.16

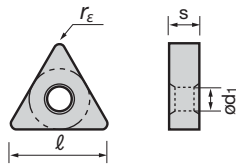
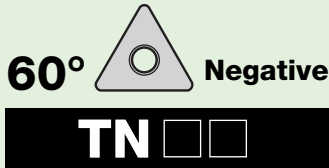
Application	Chipbreaker Appearance (Cross section)	f - a <sub>p</sub>	Insert Cat. No.	Corner radius r <sub>E</sub>	Stocked grades												Toolholder			
					Coated									Coated cermet		Cermet				
					T9105	T9115	T9125	T9135	T5115	T6120	T6130	AH8005	AH8015	AH905	GT9530	NS9530				
Finishing	<b>HRF</b> 		DNMG150404-HRF	0.4															TAC External Toolholder (4-29)	
			DNMG150408-HRF	0.8																
			DNMG150604-HRF	0.4																
			DNMG150608-HRF	0.8																
Finishing to medium cutting	<b>HRM</b> 		DNMG150404-HRM	0.4																
			DNMG150408-HRM	0.8																
			DNMG150412-HRM	1.2																
			DNMG150604-HRM	0.4																
			DNMG150608-HRM	0.8																
			DNMG150612-HRM	1.2																
Medium cutting	<b>HMM</b> 		DNMG150404-HMM	0.4																
			*DNMG150408-HMM	0.8																
			DNMG150412-HMM	1.2																

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items



**Triangular, with hole**



**TNGG 16 04 04 -**

Cutting edge length (  $l$  ) Thickness (  $s$  ) Corner radius (  $r_E$  ) Chipbreaker symbol

TN	1603	1604
ød1 (mm)	3.81	3.81

2

TAC Inserts

C  
D  
T

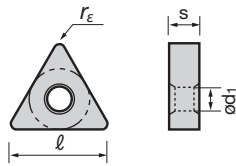
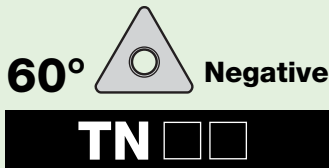
Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades											Toolholder						
					Coated						Coated cermet		Cermet		Un-coated							
					T9105	T9115	T9125	T9135	GH330	SH725	GH110	GT720	GT9530	NS520	NS9530		X407	TH10				
Precision finishing	<b>01</b> (G)		TNGG160402-01	0.2																		
			TNGG160404-01	0.4																		
			*TNGG160408-01	0.8																		
			TNGG160412-01	1.2																		
Precision finishing (Sharp edges)	<b>01</b> (G)		TNGG160402F-01	0.2																	TAC External Toolholder (4-30)	
			TNGG160404F-01	0.4																		
			*TNGG160408F-01	0.8																		
Precision finishing	<b>C</b> (G)		TNGG160304R-C	0.4																		
			TNGG160304L-C	0.4																		
			TNGG160308R-C	0.8																		
			TNGG160308L-C	0.8																		
			TNGG160400R-C	0.03																		
			TNGG160400L-C	0.03																		
			TNGG160402R-C	0.2																		
			TNGG160402L-C	0.2																		
			TNGG160404R-C	0.4																		
			TNGG160404L-C	0.4																		
			*TNGG160408R-C	0.8																		
			TNGG160408L-C	0.8																		

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, negative

## Triangular, with hole



## TNGG 16 04 04 -

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

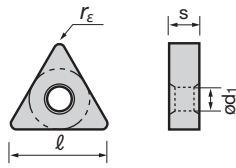
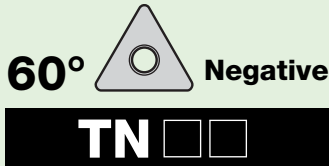
TN	1604
ød1 (mm)	3.81

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades										Toolholder						
					Coated							Coated cermet	Cermet	Un-coated							
					T9105	T9115	T9125	T9135	T6120	T6130	AH120	SH725	GT9530	NS9530		TH10					
Precision finishing (G)			TNGG160404R-W	0.4															●	TAC External Toolholder (4-30)	
			TNGG160404L-W	0.4																	●
			*TNGG160408R-W	0.8																	●
			TNGG160408L-W	0.8																	●
Precision finishing (Sharp edges)			TNGG160402FR-W	0.2														●			
			TNGG160402FL-W	0.2															●		
			TNGG160404FR-W	0.4															●		
			*TNGG160404FL-W	0.4															●		
			TNGG160408FR-W	0.8															●		
			TNGG160408FL-W	0.8															●		

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

**Triangular, with hole**



**TNMG 16 04 04 -**

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

TN	1104	1604
ød1 (mm)	2.26	3.81

2

TAC Inserts

C

D

T

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades												Toolholder	
					Coated								Coated cermet	Cermet				
					T9105	T9115	T9125	T9135	T6120	T6130	AH630	AH645	AH120	GT9530	NS9530			
Finishing	<b>TSF (M)</b> 		TNMG110404E-TSF	0.4	●	●								●	●			
			TNMG110408E-TSF	0.8	●	●									●	●		
			TNMG160402-TSF	0.2							●				●	●		
			TNMG160404-TSF	0.4	●	●	●				●				●	●		
			*TNMG160408-TSF	0.8	●	●	●				●				●	●		
			TNMG160412-TSF	1.2	●	●	●								●			
Finishing to medium cutting	<b>SF (M)</b> 		TNMG160404-SF	0.4				●	●	●								
			*TNMG160408-SF	0.8				●	●	●								
			TNMG160412-SF	1.2				●	●	●								
Finishing to medium cutting	<b>AM (M)</b> 		*TNMG160408-AM	0.8	●	●												
			TNMG160412-AM	1.2	●	●												

TAC External Toolholder (4-30)

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# TAC Inserts, negative

2

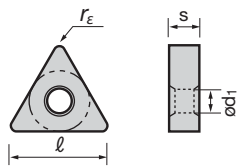
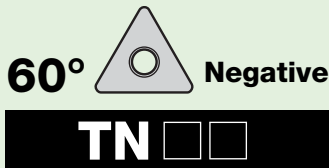
TAC Inserts

C

D

T

## Triangular, with hole



## TNMG 16 04 04 -

Cutting edge length (l) Thickness (s) Corner radius (r<sub>E</sub>) Chipbreaker symbol

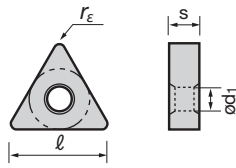
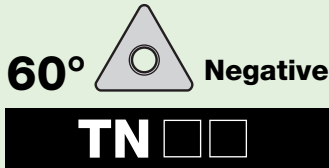
TN	1103	1104	1603	1604
ød1 (mm)	2.26	2.26	3.81	3.81

Application	Chipbreaker Appearance (Cross section)	f - a <sub>p</sub>	Insert Cat. No.	Corner radius r <sub>E</sub>	Stocked grades													Toolholder							
					Coated										Coated cermet	Cermet	Uncoated								
					T9105	T9115	T9125	T9135	AH725	T6120	T6130	AH630	AH645	AH120	AH110	T515	T5105		T5115	T5125	GT720	GT9530	NS520	NS9530	TH10
Medium cutting	<b>TM (M)</b>  f (mm/rev) graph	ap (mm) graph	TNMG110304-TM	0.4	●	●	●																TAC External Toolholder (4-30)		
			TNMG110308-TM	0.8	●	●	●																		
			TNMG110404E-TM	0.4	●	●																			
			*TNMG110408E-TM	0.8	●	●																			
			TNMG110412E-TM	1.2	●	●																			
			TNMG160404-TM	0.4	●	●	●	●	▲		●														
			TNMG160408-TM	0.8	●	●	●	●	▲		●														
			TNMG160412-TM	1.2	●	●	●		▲																
	<b>SM (M)</b>  f (mm/rev) graph	ap (mm) graph	TNMG110404E-SM	0.4				●	●	●															
			*TNMG110408E-SM	0.8				●	●	●															
			TNMG160404-SM	0.4				●	●	●	●														
			TNMG160408-SM	0.8				●	●	●	●														
			TNMG160412-SM	1.2				●	●	●	●														
	<b>All-round (M)</b>  f (mm/rev) graph	ap (mm) graph	TNMG160304	0.4																		●			
			TNMG160308	0.8																				●	
TNMG160404			0.4	●	●	●				●	●	●	●	●	●	●	●			●	●	●	●		
*TNMG160408			0.8	●	●	●				●	●	●	●	●	●	●	●	●			●	●	●		
TNMG160412			1.2	●	●	●				●	●	●	●	●	●	●	●						●		
TNMG160416			1.6	●	●	●							●	●	●	●							●		
TNMG160420			2.0	●	●	●																	●		

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items  
▲ : Discontinued items

**Triangular, with hole**



**TNMG 16 04 04 -**

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_\epsilon$ ) Chipbreaker symbol

TN	1604
ød1 (mm)	3.81

2

TAC Inserts

C  
D  
T

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_\epsilon$	Stocked grades											Toolholder								
					Coated								Coated cermet	Cermet	Un- coated									
					T9105	T9115	T9125	T9135	AH725	T6120	T6130	AH630					AH645	AH120	SH725	GH110	GH330	GT9530	NS9530	UX25
Medium cutting	<b>S</b> (M) 		TNMG160404R-S	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	TAC External Toolholder (4-30)		
			TNMG160404L-S	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	
			*TNMG160408R-S	0.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
			TNMG160408L-S	0.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
Medium cutting	<b>P</b> (G) 		TNGG160402R-P	0.2																	●	TAC External Toolholder (4-30)		
			TNGG160402L-P	0.2																				●
			TNGG160404R-P	0.4																				●
			TNGG160404L-P	0.4																				●
			*TNGG160408R-P	0.8																				●
Medium cutting (Sharp edges)	<b>P</b> (G) 		TNGG160402FR-P	0.2																	●	TAC External Toolholder (4-30)		
			TNGG160402FL-P	0.2																				●
			TNGG160404FR-P	0.4																				●
			TNGG160404FL-P	0.4																				●
			TNGG160408FR-P	0.8																				●
			*TNGG160408FL-P	0.8																	●			

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items  
▲ : Discontinued items

# TAC Inserts, negative

2

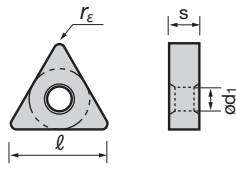
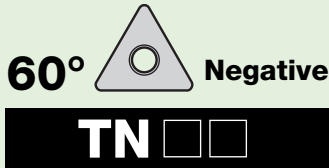
TAC Inserts

C

D

T

## Triangular, with hole



## TNMG 16 04 04 -

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_E$ ) Chipbreaker symbol

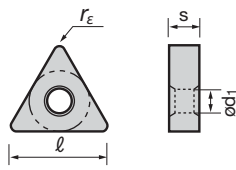
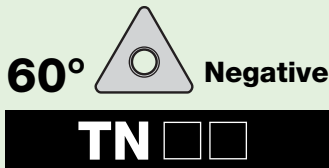
TN	1104	1603	1604
ød1 (mm)	2.26	3.81	3.81

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_E$	Stocked grades														Toolholder				
					Coated										Coated cermet		Cermet			Un-coated			
					T9105	T9115	T9125	T9135	T5115	T515	T5105	T5115	T5125	GH110	GT9530	GT720	NS9530	NS520		TH03	TH10		
Finishing to medium cutting	- (M)		TNMA160404	0.4																		TAC External Toolholder (4-30)	
			TNMA160408	0.8																			
			TNMA160412	1.2																			
			TNMA160416	1.6																			
			TNMA160420	2.0																			
Finishing to medium cutting	- (G)		TNGA160304	0.4																			
			TNGA160308	0.8																			
			TNGA160404	0.4																			
			TNGA160408	0.8																			
			TNGA160412	1.2																			
			TNGA160416	1.6																			
Finishing (Wiper)	FW (M)		TNMG110404E-FW	0.4																			
			TNMG110408E-FW	0.8																			
			TNMG160404-FW	0.4																			
			* TNMG160408-FW	0.8																			
Finishing to medium cutting (Wiper)	SW (M)		TNMG110408E-SW	0.8																			
			TNMG110412E-SW	1.2																			
			* TNMG160408-SW	0.8																			
			TNMG160412-SW	1.2																			

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

**Triangular, with hole**



**TNMG 16 04 04 -**

Cutting edge length ( $l$ ) Thickness ( $s$ ) Corner radius ( $r_\epsilon$ ) Chipbreaker symbol

TN	1604
ød1 (mm)	3.81

2

TAC Inserts

C  
D  
T

Application	Chipbreaker Appearance (Cross section)	$f - a_p$	Insert Cat. No.	Corner radius $r_\epsilon$	Stocked grades											Toolholder								
					Coated									Coated cermet	Cermet		Un- coated							
					T9105	T9115	T9125	T9135	T5115	T6120	T6130	AH8005	AH8015	AH905	GT9530		NS9530	TH10						
Finishing	<b>HRF</b> 		TNMG160404-HRF TNMG160408-HRF	0.4 0.8																				TAC External Toolholder (4-30)
	<b>HRM</b> 		TNMG160404-HRM TNMG160408-HRM TNMG160412-HRM	0.4 0.8 1.2																				
Medium cutting	<b>HMM</b> 		TNMG160404-HMM *TNMG160408-HMM TNMG160412-HMM	0.4 0.8 1.2																				

Note: Chipbreaker cross-sections are of \* marked inserts.

● : Stocked items

# Chapter Composition of T-CBN (PCBN) and T-DIA (PCD) Tools

- ◆ T-CBN and T-DIA TAC inserts are arranged by shape as follows:  
C(80°), D(55°), T(60°), V(35°), E(75°)
- ◆ In the same shape, inserts are arranged as follows:  
Negative inserts (Multi-corner, Single-corner)  
Positive inserts (Multi-corner, Single-corner)

Indicates stocked grades  
Shown in coloured columns  
according to ISO application code

**H** Hard Materials  
**S** Superalloys  
**K** Cast Iron

Cat. No. of T-CBN TAC inserts

Chapter title

Indicates negative or positive

Appearance of inserts

Indicates application area and specifications

Number of tipped corners

Indicates insert dimensions

Applicable TAC toolholders

Symbols of stock status

Specifications of edge preparation

3-6

Specification	Shape	Cat. No.	Stocked grades						Dimensions (mm)				Applicable Toolholders		
			BX100	BX200	BX300	BX400	BX500	BX600	Inner radius	Thickness	Hole diameter	Corner radius		CBN layer	
Sharp edge	General purpose	2QP-CNGA120402F							2	12.7	4.76	5.16	0.2	2.3	TAC External Toolholder (+28)
		2QP-CNGA120408F							2	12.7	4.76	5.16	0.8	2.2	
		2QP-CNGA120412F							2	12.7	4.76	5.16	1.2	2.4	
Light honing	General purpose	2QP-CNGA120402							2	12.7	4.76	5.16	0.2	2.3	TAC External Toolholder (+28)
		2QP-CNGA120408							2	12.7	4.76	5.16	0.8	2.2	
		2QP-CNGA120412							2	12.7	4.76	5.16	1.2	2.4	
Heavy honing	General purpose	2QP-CNGA120404-L							2	12.7	4.76	5.16	0.4	2.3	TAC External Toolholder (+28)
		2QP-CNGA120408-L							2	12.7	4.76	5.16	0.8	2.2	
		2QP-CNGA120412-L							2	12.7	4.76	5.16	1.2	2.4	
Wiper edge	General purpose	2QP-CNGA120404-H							2	12.7	4.76	5.16	0.4	2.3	TAC External Toolholder (+28)
		2QP-CNGA120408-H							2	12.7	4.76	5.16	0.8	2.2	
		2QP-CNGA120412-H							2	12.7	4.76	5.16	1.2	2.4	
Wiper edge	General purpose	2QP-CNGA120404WL							2	12.7	4.76	5.16	0.4	2.3	TAC External Toolholder (+28)
		2QP-CNGA120408WL							2	12.7	4.76	5.16	0.8	2.2	
		2QP-CNGA120412WL							2	12.7	4.76	5.16	1.2	2.4	
Wiper edge	General purpose	2QP-CNMA120404W							2	12.7	4.76	5.16	0.4	2.3	TAC External Toolholder (+28)
		2QP-CNMA120408W							2	12.7	4.76	5.16	0.8	2.2	
		2QP-CNMA120412W							2	12.7	4.76	5.16	1.2	2.4	
General purpose	Heavy honing	12QP-CNGA120404							2	12.7	4.76	5.16	0.4	2.3	TAC External Toolholder (+28)
		12QP-CNGA120408							2	12.7	4.76	5.16	0.8	2.2	
		12QP-CNGA120412							2	12.7	4.76	5.16	1.2	2.4	
Wiper edge	General purpose	4QP-CNGA120404							4	12.7	4.76	5.16	0.4	2.3	TAC External Toolholder (+28)
		4QP-CNGA120408							4	12.7	4.76	5.16	0.8	2.2	
		4QP-CNGA120412							4	12.7	4.76	5.16	1.2	2.4	
Wiper edge	General purpose	4QP-CNGA120404-H							4	12.7	4.76	5.16	0.4	2.3	TAC External Toolholder (+28)
		4QP-CNGA120408-H							4	12.7	4.76	5.16	0.8	2.2	
		4QP-CNGA120412-H							4	12.7	4.76	5.16	1.2	2.4	
Wiper edge	General purpose	4QP-CNMA120404W							4	12.7	4.76	5.16	0.4	2.3	TAC External Toolholder (+28)
		4QP-CNMA120408W							4	12.7	4.76	5.16	0.8	2.2	
		4QP-CNMA120412W							4	12.7	4.76	5.16	1.2	2.4	

Note:  
Letter "T" in the first position of Cat. No. shows that the standard packing quantity is 10 pieces.  
Please refer to wiper type inserts, W WL, W3.

Standard honing specifications

Negative insert

## Ordering information

- When ordering, please specify Cat. No., grade, and quantity.  
Example: **2QP-CCGW060202 BXM10** 1 piece.
- Other packing quantity is written separately.



## 3

# TAC Inserts

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## T-CBN / T-DIA

### Guidance

■ Designation system for TAC T-CBN inserts	3-2
■ Selection system for TAC T-CBN inserts by work material	3-3
■ Honing specifications for TAC T-CBN inserts	3-5
■ Wiper insert in TAC T-CBN insert series	3-5
■ Outline of T-DIA series	3-12

### Products

#### ■ T-CBN

● TAC inserts Negative type multi-corner type inserts	3-6
● TAC inserts Negative type single corner type	3-9
● TAC inserts Positive type multi-corner type inserts	3-10

#### ■ T-DIA

● TAC inserts Negative type with rake angle	3-13
● TAC inserts Negative type	3-13
● TAC inserts Positive type with rake angle	3-14
● TAC inserts Positive type	3-14

# Designation System for TAC T-CBN (PCBN) Inserts

## T-CBN (PCBN)

### Multi-corner type



**1 No. of corners**

2	One side Multi-Corner type
3	
4	Both side Multi-Corner type
6	

**2 Type**

QP	T-CBN Inserts
----	------------------

**3 ISO symbol**

**4 Special feature & chipbreaker**

Without	Standard honing
-L	Light honing angle Wear resistance priority
-H	Heavy honing angle Impact resistance priority
W	Wiper type insert
W□	Round wiper type insert
F	Sharp edges
-HF	With chipbreaker
-HM	With chipbreaker

### For general turning



## T-DIA (PCD)

### Inserts for turning



3  
TAC Inserts T-CBN / T-DIA

# T-CBN (PCBN) Series



## T-CBN series for machining hardened steels and hard materials

### Application area

### Necessity of PCBN grades

The condition necessary to cut the work material is:  
 $\text{Hardness of tool} \geq \text{Hardness of work} \times 3$

- Hardened steel (60HRC) → 700 Hv
- PCBN (BX360) → 3300 Hv
- Cemented carbide → 1600 Hv

Effects of grain size of CBN on surface roughness and cutting speed

**[Fine-grained CBN]**

Fine grained PCBN provided with sharp cutting edge.  
Good surface roughness

**[Rough-grained CBN]**

Rough grained PCBN, CBN particles are hold firmly.  
Allows high speed machining

### Features of CBN grades for machining hardened steel and other hard materials

Fewer CBN content ⇨ Increasing wear resistance  
 Much CBN content ⇨ Increasing impact resistance

## Basic selection of T-CBN grades in machining of hardened steel and hard material

### Coated T-CBN grades

**BXM10** For high speeds cutting

**BXM20** For general purpose

**BXA20** For general purpose

### Uncoated T-CBN grades

**BX310** For high speeds / Priority on wear resistance in continuous cutting

**BX330** For medium speeds / Priority on surface quality

**BX360** For low to medium speeds / General purpose grade, excels in impact resistance

**BX380** For low to medium speeds / Priority on impact resistance in heavily interrupted cutting

### Application area of coated T-CBN grades

Continuous cutting

Interrupted cutting

**BXM10** For high speeds  
Longer life at high speed

**BXM20** For general purpose  
First choice

**BXA20** For general purpose  
At low to medium cutting speeds

## Effects of Coated T-CBN grades



Coated on hard CBN  
**Hardness:**  
**CBN > Coating layer**

### Protect CBN from oxidation wear

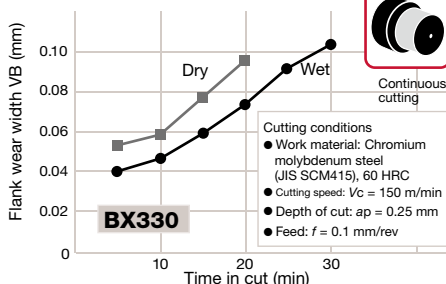
Since the coating layer intercepts air, oxidation wear of CBN can be prevented.

Peeling of coating layer can be protected  
 Hard and deformation resistant CBN is excellent substrate material.

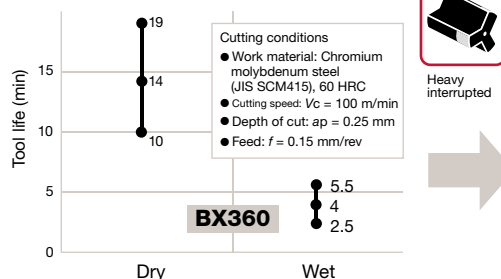
Improved resistance to flank wear

## Effects of coolant in machining of hardened steel

### Continuous cutting



### Interrupted cutting



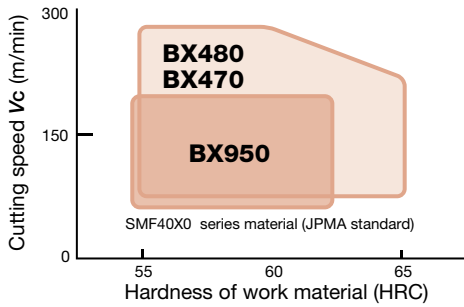
In continuous cutting, wet cutting is superior to dry cutting in tool life for wear.  
 In interrupted cutting, dry cutting is superior to wet cutting in tool life for fracture.

# T-CBN (PCBN) Series

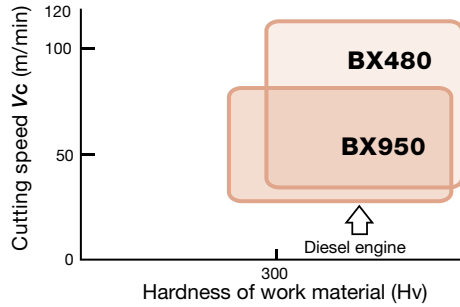
## S T-CBN series for machining sintered metals

### Application area

#### ● Ferrous sintered metal



#### ● Valve seat



#### **BX470**

Priority on burr prevention and surface finish

#### **BX480**

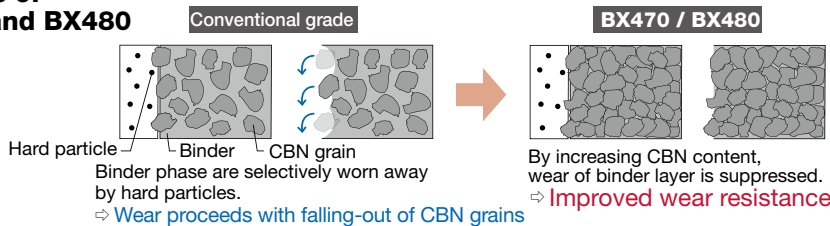
Priority on wear resistance and versatility

#### **BX950**

For general sintered metal parts

#### ● Machining of sintered metal including hard particles

### Features of BX470 and BX480



#### ● Features of BX470 and BX480

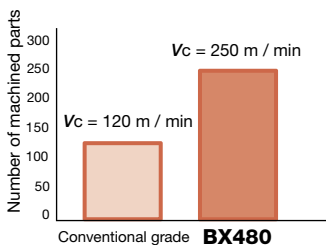
CBN content: 95 vol%

Hv = 4000 ~ 4300

The world highest CBN content as a commercially available material.

\*as of July 2010

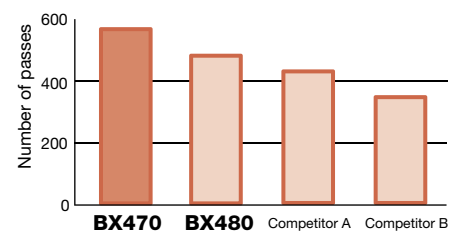
#### ■ BX480 (Facing of gears)



#### ■ BX470 / BX480 Tool failure after machining sintered metal



#### ■ BX470 (Tool life criterion: Burr occurrence)



#### Cutting conditions

- Work material: Sintered metal (> HRA60)
- Insert: DCMW11T308
- Depth of cut:  $a_p = 0.2 \sim 0.5$  mm
- Feed:  $f = 0.07$  mm/rev
- Coolant: Water soluble type
- Interrupted cutting

#### Cutting conditions

- Work material: Sintered metal (> HRA60), Nitriding, Hard particles included
- Cutting speed:  $V_c = 110$  m/min
- Depth of cut:  $a_p = 0.15$  mm
- Feed:  $f = 0.1$  mm/rev
- Coolant: Water soluble type
- Interrupted cutting

#### Cutting conditions

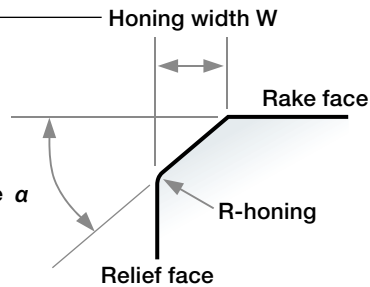
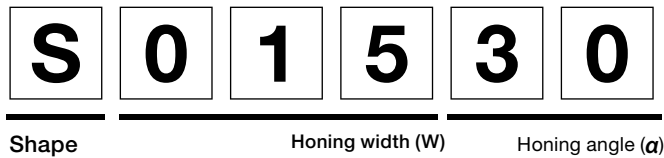
- Work material: Ferrous sintered metal
- Cutting speed:  $V_c = 100$  m/min
- Depth of cut:  $a_p = 0.15 \sim 0.3$  mm
- Feed:  $f = 0.07 \sim 0.25$  mm/rev
- Dry and interrupted cutting

# Honing specifications

● T-CBN inserts with special honing specifications are made to order. Refer to the following description.

## Designation system for honing

Example:  
 Honing width: 0.15 mm  
 Honing angle: -30°  
 With R-honing



T ... Chamfered honing

S ... Chamfered + R-honing

E ... R-honing alone

F ... Sharp edges

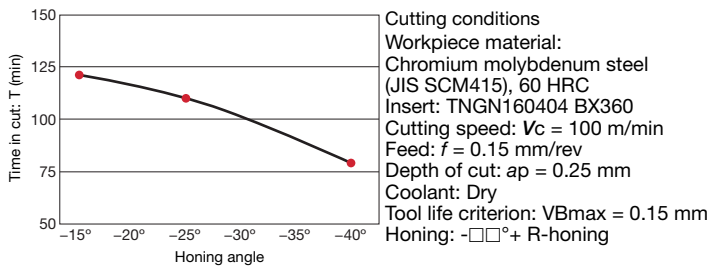
### Symbol

W	Amount of honing (mm)	$\alpha$	Honing angle
005	0.05	10°	-10°
010	0.10	15°	-15°
013	0.13	20°	-20°
015	0.15	25°	-25°
020	0.20	30°	-30°
		35°	-35°
		40°	-40°

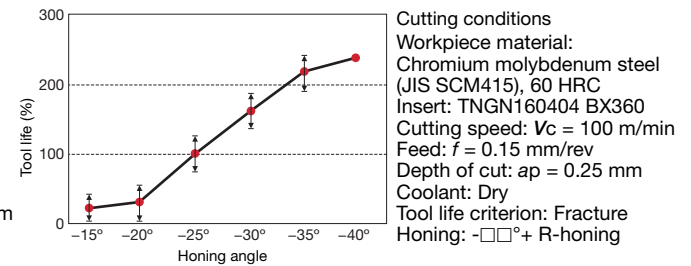
- Honing specification can be selected in combination of items described here.
  - Inserts with "R" honing alone are available.
- Note: There are unavailable combinations.  
 For details, ask your nearest Tungaloy sales office.

Honing specifications for machining hardened steels and other hard materials  
 Standard honing: -25° + R-honing  
 "-L" honing : -15° + R-honing  
 "-H" honing : -35° + R-honing

### ● Relationship between honing angle and tool life in continuous turning



### ● Relationship between honing angle and tool life in interrupted turning



### ● General rule

- For **continuous cutting**, small honing angle is favorable to **minimize wear** in general.
- For **interrupted cutting**, large honing angle is favorable to **minimize fracture** in general.

# Wiper insert

● A finishing edge (wiper edge) is formed at the point of intersection between corner radius and straight cutting edge.

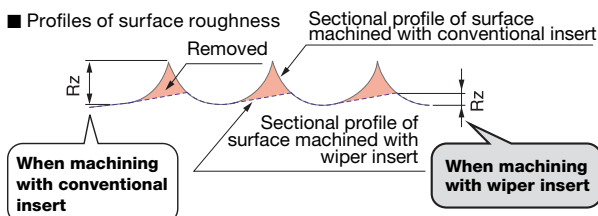
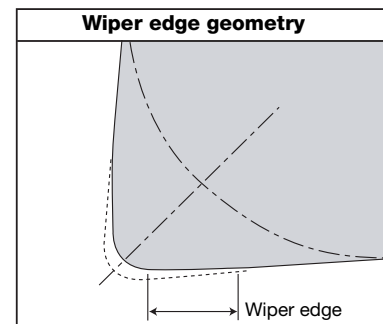
### ■ Effect of wiper edge

● **Doubles the productivity → Reduced machining time**

The wiper edge can double the feed rate and moreover does not deteriorate the surface roughness. (Note: Feed rate:  $*f < 0.3$  mm/rev)

● **Superior surface roughness → By integrating roughing and finishing into one process, productivity can be increased.**

Compared with conventional inserts only with corner radius, surface roughness can be improved with the wiper edge.





### ■ Recommended toolholders for wiper-edged inserts

	2QP-CNGA1204**WL	3QP-WNGA080408WL	2QP-DNGA1504**WJ	3QP-TNGA1604**WG
End cutting angle	95°			
External toolholder	ACLNR/L****12-A	AWLNR/L****08-A	ADJNR/L****15-A	ATGNR/L****16-A
	DCLNR/L****12	DWLNR/L****08	DDJNR/L****15	DTGNR/L****16
Internal toolholder	A***-ACLNR/L12-D***	A***-AWLNR/L08-D***	A***-ADUNR/L15-D***	A***-ATFNR/L16-D***

# TAC T-CBN (PCBN) Inserts

## Negative type · Multi-corner

TAC Inserts T-CBN / T-DIA

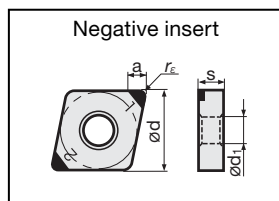
Specification	Shape	Cat. No.	Stocked grades											No. of corner	Dimensions (mm)					Applicable Toolholders
			BXM10	BXM20	BXA20	BXC50	BX310	BX330	BX360	BX380	BX470	BX480	BX930		BX950	Inner circle $\phi d$	Thickness $s$	Hole dia. $\phi d_1$	Corner radius $r_e$	
Sharp edge		2QP-CNGA120402F												2	12.7	4.76	5.16	0.2	2.3	TAC External Toolholder (4-28)
		2QP-CNGA120404F												2	12.7	4.76	5.16	0.4	2.3	
		2QP-CNGA120408F												2	12.7	4.76	5.16	0.8	2.2	
		2QP-CNGA120412F												2	12.7	4.76	5.16	1.2	2.4	
General purpose		2QP-CNGA120402												2	12.7	4.76	5.16	0.2	2.3	
		2QP-CNGA120404	●	●	●		●	●	●	●	●	●	●	2	12.7	4.76	5.16	0.4	2.3	
		2QP-CNGA120408	●	●	●		●	●	●	●	●	●	●	2	12.7	4.76	5.16	0.8	2.2	
Light honing		2QP-CNGA120412			●		●	●	●	●	●	●	●	2	12.7	4.76	5.16	1.2	2.4	
		2QP-CNGA120404-L	●	●			●							2	12.7	4.76	5.16	0.4	2.3	
		2QP-CNGA120408-L	●	●			●							2	12.7	4.76	5.16	0.8	2.2	
Heavy honing		2QP-CNGA120412-L	●	●			●							2	12.7	4.76	5.16	1.2	2.4	
		2QP-CNGA120404-H		●				●	●					2	12.7	4.76	5.16	0.4	2.3	
	2QP-CNGA120408-H		●	●			●	●					2	12.7	4.76	5.16	0.8	2.2		
Wiper edge	2QP-CNGA120412-H		●				●	●					2	12.7	4.76	5.16	1.2	2.4		
	2QP-CNGA120404WL	●	●										2	12.7	4.76	5.16	0.4	2.3		
	2QP-CNGA120408WL	●	●	●									2	12.7	4.76	5.16	0.8	2.2		
Wiper edge	2QP-CNGA120412WL	●	●										2	12.7	4.76	5.16	1.2	2.4		
	2QP-CNMA120404W						●						2	12.7	4.76	5.16	0.4	2.3		
	2QP-CNMA120408W						●						2	12.7	4.76	5.16	0.8	2.2		
General purpose	2QP-CNMA120412W						●						2	12.7	4.76	5.16	1.2	2.4		
	T2QP-CNGA120404							●					2	12.7	4.76	5.16	0.4	2.3		
	T2QP-CNGA120408							●					2	12.7	4.76	5.16	0.8	2.2		
General purpose		4QP-CNGA120404				●							4	12.7	4.76	5.16	0.4	2.3		
		4QP-CNGA120408				●								4	12.7	4.76	5.16	0.8	2.2	
		4QP-CNGA120412				●								4	12.7	4.76	5.16	1.2	2.4	
Heavy honing		4QP-CNGA120404-H												4	12.7	4.76	5.16	0.4	2.3	
		4QP-CNGA120408-H												4	12.7	4.76	5.16	0.8	2.2	
		4QP-CNGA120412-H												4	12.7	4.76	5.16	1.2	2.4	
Wiper edge		4QP-CNMA120404W					●							4	12.7	4.76	5.16	0.4	2.3	
		4QP-CNMA120408W					●							4	12.7	4.76	5.16	0.8	2.2	
		4QP-CNMA120412W					●							4	12.7	4.76	5.16	1.2	2.4	

Note:

Letter "T" in the first position of Cat. No. shows that the standard packing quantity is 10 pieces.

● : Stocked items

➤ 3-5 Please refer to wiper type inserts, W, WL, WJ.





Standard honing specifications ➤ 3-5

Grades	BXM10	BXM20	BXC50	BX310	BX330	BX360	BX380	BX470	BX480	BX910	BX930	BX950
Negative inserts	S01325	S01325	S01325	S01325	S01325	S01325	S01325	T01315	S01325	S01315	S01315	S01325

# TAC T-CBN (PCBN) Inserts

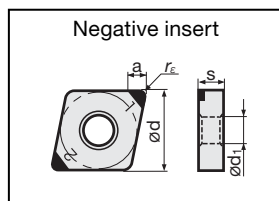
## Negative type · Multi-corner

Specification	Shape	Cat. No.	Stocked grades										No. of corner	Dimensions (mm)					Applicable Toolholders			
			BXM10	BXM20	BXA20	BXC50	BX310	BX330	BX360	BX380	BX470	BX480		BX930	BX950	Inner circle $\phi d$	Thickness $s$	Hole dia. $\phi d_1$		Corner radius $r_e$	CBN Length $a$	
Sharp edge		2QP-DNGA150402F													2	12.7	4.76	5.16	0.2	2.7	TAC External Toolholder (4-29)	
		2QP-DNGA150404F														2	12.7	4.76	5.16	0.4		2.5
		2QP-DNGA150408F														2	12.7	4.76	5.16	0.8		2.1
		2QP-DNGA150412F														2	12.7	4.76	5.16	1.2		2
General purpose		2QP-DNGA150404	●	●			●	●	●	●	●	●	●	●	2	12.7	4.76	5.16	0.4	2.5		
		2QP-DNGA150408	●	●	●		●	●	●	●	●	●	●	●	2	12.7	4.76	5.16	0.8	2.1		
		2QP-DNGA150412	●	●			●	●	●	●		●	●	●	2	12.7	4.76	5.16	1.2	2		
Light honing		2QP-DNGA150404-L	●	●			●								2	12.7	4.76	5.16	0.4	2.5		
		2QP-DNGA150408-L	●	●			●								2	12.7	4.76	5.16	0.8	2.1		
Heavy honing		2QP-DNGA150412-L		●			●								2	12.7	4.76	5.16	1.2	2		
		2QP-DNGA150404-H		●				●	●						2	12.7	4.76	5.16	0.4	2.5		
Wiper edge		2QP-DNGA150408-H		●	●			●	●						2	12.7	4.76	5.16	0.8	2.1		
	2QP-DNGA150412-H		●				●	●						2	12.7	4.76	5.16	1.2	2			
General purpose	2QP-DNGA150404WJ	●	●	●										2	12.7	4.76	5.16	0.4	2.3			
	2QP-DNGA150408WJ	●	●	●										2	12.7	4.76	5.16	0.8	2.1			
General purpose	2QP-DNGA150604	●	●											2	12.7	6.35	5.16	0.4	2.5			
	2QP-DNGA150608	●	●											2	12.7	6.35	5.16	0.8	2.1			
	2QP-DNGA150612	●	●											2	12.7	6.35	5.16	1.2	2			
General purpose		4QP-DNGA150404				●								4	12.7	4.76	5.16	0.4	2.5			
		4QP-DNGA150408				●									4	12.7	4.76	5.16	0.8	2.1		
		4QP-DNGA150412				●									4	12.7	4.76	5.16	1.2	2		

Note:

3-5 Please refer to wiper type inserts, W, WL, WJ.

● : Stocked items











Standard honing specifications

3-5



Grades	BXM10	BXM20	BXC50	BX310	BX330	BX360	BX380	BX470	BX480	BX910	BX930	BX950
Negative inserts	S01325	S01325	S01325	S01325	S01325	S01325	S01325	T01315	S01325	S01315	S01315	S01325

# TAC T-CBN (PCBN) Inserts

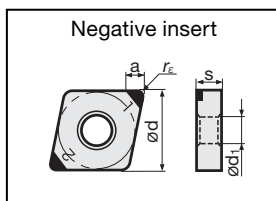
## Negative type · Multi-corner

Specification	Shape	Cat. No.	Stocked grades											No. of corner	Dimensions (mm)					Applicable TAC toolholders
			BXM10	BXM20	BXA20	BXC50	BX310	BX330	BX360	BX380	BX470	BX480	BX930		BX950	Inner circle $\phi d$	Thick-ness s	Hole dia. $\phi d_1$	Corner radius $r_\epsilon$	
Sharp edge		3QP-TNGA160404F								●				3	9.525	4.76	3.81	0.4	2.2	TAC External Toolholder (4-30)
		3QP-TNGA160408F								●				3	9.525	4.76	3.81	0.8	1.9	
General purpose		3QP-TNGA160404	●	●	●		●	●	●	●	●	●	●	3	9.525	4.76	3.81	0.4	2.2	
		3QP-TNGA160408	●	●	●		●	●	●	●	●	●	●	●	3	9.525	4.76	3.81	0.8	
Light honing		3QP-TNGA160412	●	●	●		●	●	●	●	●	●	●	3	9.525	4.76	3.81	1.2	2.4	
		3QP-TNGA160404-L	●	●				●						3	9.525	4.76	3.81	0.4	2.2	
Heavy honing		3QP-TNGA160408-L	●	●				●					3	9.525	4.76	3.81	0.8	1.9		
		3QP-TNGA160412-L	●	●				●						3	9.525	4.76	3.81	1.2	2.4	
Wiper edge		3QP-TNGA160404-H		●				●	●				3	9.525	4.76	3.81	0.4	2.2		
		3QP-TNGA160408-H		●	●				●	●				3	9.525	4.76	3.81	0.8	1.9	
General purpose		3QP-TNGA160412-H		●	●				●	●			3	9.525	4.76	3.81	1.2	2.4		
		3QP-TNGA160404WG	●	●	●									3	9.525	4.76	3.81	0.4	2.4	
General purpose		3QP-TNGA160408WG	●	●									3	9.525	4.76	3.81	0.8	2.2		
		6QP-TNGA160404				●								6	9.525	4.76	3.81	0.4	2.2	
General purpose		6QP-TNGA160408				●							6	9.525	4.76	3.81	0.8	1.9		

## Negative type · Multi-corner, Hard Breaker

Specification	Shape	Cat. No.	Stocked grades	No. of corner	Dimensions (mm)					Applicable TAC toolholders
			BXM20		Inner circle $\phi d$	Thick-ness s	Hole dia. $\phi d_1$	Corner radius $r_\epsilon$	CBN Length a	
With chip-breaker		3QP-TNGM160408-HF	●	3	9.525	4.76	3.81	0.8	1.9	TAC External Toolholder (4-30)
		3QP-TNGM160412-HF	●	3	9.525	4.76	3.81	1.2	2.4	
With chip-breaker		3QP-TNGM160408-HM	●	3	9.525	4.76	3.81	0.8	1.9	
		3QP-TNGM160412-HM	●	3	9.525	4.76	3.81	1.2	2.2	

● : Stocked items



Standard honing specifications

▶ 3-5

Grades	BXM10	BXM20	BXC50	BX310	BX330	BX360	BX380	BX470	BX480	BX910	BX930	BX950
Negative inserts	S01325	S01325	S01325	S01325	S01325	S01325	S01325	T01315	S01325	S01315	S01315	S01325



# TAC T-CBN (PCBN) Inserts

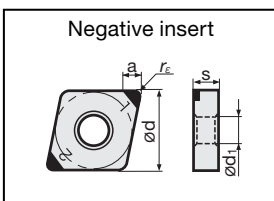
## ■ Negative type · Single corner

Application & features	Shape	Cat. No.	Stocked grades	No. of corner	Dimensions (mm)					Applicable TAC toolholders
			Coated T-CBN		Inner circle	Thick ness	Hole dia.	Corner radius	CBN length	
			BX360		$\varnothing d$	s	$\varnothing d_1$	$r_E$	a	
Finishing to medium cutting		CNGA120402-QBN	●	1	12.7	4.76	5.16	0.2	4.1	TAC External Toolholder (4-28)
		CNGA120404-QBN	●	1	12.7	4.76	5.16	0.4	4.0	
		CNGA120408-QBN	●	1	12.7	4.76	5.16	0.8	3.9	
		CNGA120412-QBN	●	1	12.7	4.76	5.16	1.2	3.9	
		DNGA150402-QBN	●	1	12.7	4.76	5.16	0.2	4.3	TAC External Toolholder (4-29)
		DNGA150404-QBN	●	1	12.7	4.76	5.16	0.4	4.1	
		DNGA150408-QBN	●	1	12.7	4.76	5.16	0.8	3.8	
		DNGA150412-QBN	●	1	12.7	4.76	5.16	1.2	3.4	
Finishing to medium cutting		TNGA160402-QBN	●	1	9.525	4.76	3.81	0.2	4.4	TAC External Toolholder (4-30)
		TNGA160404-QBN	●	1	9.525	4.76	3.81	0.4	4.2	
		TNGA160408-QBN	●	1	9.525	4.76	3.81	0.8	4.0	
		TNGA160412-QBN	●	1	9.525	4.76	3.81	1.2	3.7	

● : Stocked items

3

TAC Inserts T-CBN / T-DIA



Standard honing specifications

▶ 3-5

Grades	BXM10	BXM20	BXC50	BX310	BX330	BX360	BX380	BX470	BX480	BX910	BX930	BX950
Negative inserts	S01325	S01325	S01325	S01325	S01325	S01325	S01325	T01315	S01325	S01315	S01315	S01325

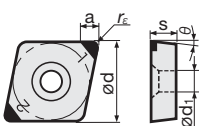
# TAC T-CBN (PCBN) Inserts

## Positive type · Multi-corner (G class)

Specification	Shape	Cat. No.	Stocked grades					Dimensions (mm)						Applicable TAC toolholders		
			BXM10	BXM20	BXA20	BX310	BX470	No. of corner	Clearance angle $\theta$	Inner circle $\phi d$	Thickness s	Hole dia. $\phi d_1$	Corner radius $r_\epsilon$		CBN Length a	
General purpose		1QP-CCGW03X102				●	●	1	7°	3.57	1.39	1.9	0.2	1.4	TAC Internal Toolholder (5-16)	
		1QP-CCGW03X104				●	●	1	7°	3.57	1.39	1.9	0.4	1.3		
		1QP-CCGW04T102				●	●	1	7°	4.37	1.79	2.3	0.2	1.9		
		1QP-CCGW04T104				●	●	1	7°	4.37	1.79	2.3	0.4	1.8		
General purpose		2QP-CCGW060202	●	●				2	7°	6.35	2.38	2.8	0.2	2.3	TAC External Toolholder (4-15)	
		2QP-CCGW060204	●	●	●		●	2	7°	6.35	2.38	2.8	0.4	2.3		
		2QP-CCGW09T302						2	7°	9.525	3.97	4.4	0.2	2.3	TAC Internal Toolholder (5-16)	
		2QP-CCGW09T304	●	●	●		●	2	7°	9.525	3.97	4.4	0.4	2.3		
		2QP-CCGW09T308	●	●	●		●	2	7°	9.525	3.97	4.4	0.8	2.2		
General purpose		2QP-DCGW070202	●	●	●			2	7°	6.35	2.38	2.8	0.2	2.7	TAC External Toolholder (4-18)	
		2QP-DCGW070204	●	●	●		●	2	7°	6.35	2.38	2.8	0.4	2.5		
Sharp edge		2QP-DCGW070208					●	2	7°	6.35	2.38	2.8	0.8	2.5	TAC Internal Toolholder (5-18)	
		2QP-DCGW11T302F					●	2	7°	9.525	3.97	4.4	0.2	2.7		
General purpose		2QP-DCGW11T304F					●	2	7°	9.525	3.97	4.4	0.4	2.5	TAC Internal Toolholder (5-18)	
		2QP-DCGW11T302	●	●				2	7°	9.525	3.97	4.4	0.2	2.7		
		2QP-DCGW11T304	●	●			●	2	7°	9.525	3.97	4.4	0.4	2.5		
General purpose		2QP-DCGW11T308	●	●	●		●	2	7°	9.525	3.97	4.4	0.8	2.1	TAC Internal Toolholder (5-18)	
		1QP-EPGW03X102					●	●	1	11°	3.57	1.39	1.9	0.2		1.4
		1QP-EPGW03X104					●	●	1	11°	3.57	1.39	1.9	0.4		1.3
		1QP-EPGW040102					●	●	1	11°	3.97	1.59	2.3	0.2		1.7
General purpose		1QP-EPGW040104					●	●	1	11°	3.97	1.59	2.3	0.4	1.6	TAC Internal Toolholder (5-25)
		2QP-VBGW110302						2	5°	6.35	3.18	2.8	0.2	3.5		
		2QP-VBGW110304	●	●	●			2	5°	6.35	3.18	2.8	0.4	3.1		
		2QP-VBGW110308	●	●	●			2	5°	6.35	3.18	2.8	0.8	2.2		

● : Stocked items

Positive insert







Standard honing specifications

▶ 3-5

Grades	BXM10	BXM20	BXC50	BX310	BX330	BX360	BX380	BX470	BX480	BX910	BX930	BX950
Positive inserts	S01325	S01325	-	S00515	S00515	S00515	-	T01315	-	S01315	S00515	S00515

# TAC T-CBN (PCBN) Inserts

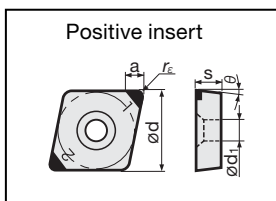
## Positive type · Multi-corner (M class)

Specification	Shape	Cat. No.	Stocked grades					No. of corner	Dimensions (mm)						Applicable TAC toolholders
			BX310	BX330	BX360	BX930	BX950		Clearance angle $\theta$	Inner circle $\phi d$	Thickness $s$	Hole dia. $\phi d_1$	Corner radius $r_E$	CBN Length $a$	
Finishing General purpose		2QP-CCMW060202	●	●	●			2	7°	6.35	2.38	2.8	0.2	2.3	TAC External Toolholder (4-15)
		2QP-CCMW060204	●	●	●	●	●	2	7°	6.35	2.38	2.8	0.4	2.3	
		2QP-CCMW09T304	●	●	●	●	●	2	7°	9.525	3.97	4.4	0.4	2.3	TAC Internal Toolholder (5-16)
		2QP-CCMW09T308	●	●	●			2	7°	9.525	3.97	4.4	0.8	2.2	
Finishing General purpose		2QP-DCMW070202	●	●	●			2	7°	6.35	2.38	2.8	0.2	2.7	TAC External Toolholder (4-18)
		2QP-DCMW070204	●	●	●	●	●	2	7°	6.35	2.38	2.8	0.4	2.5	
		2QP-DCMW11T302	●	●	●			2	7°	9.525	3.97	4.4	0.2	2.7	TAC Internal Toolholder (5-18)
		2QP-DCMW11T304	●	●	●	●	●	2	7°	9.525	3.97	4.4	0.4	2.5	
		2QP-DCMW11T308	●	●	●			2	7°	9.525	3.97	4.4	0.8	2.1	
Finishing General purpose		2QP-VBMW110304	●	●	●	●		2	5°	6.35	3.18	2.8	0.4	3.1	TAC External Toolholder (4-24)
		2QP-VBMW110308	●	●	●	●		2	5°	6.35	3.18	2.8	0.8	2.2	TAC Internal Toolholder (5-23)
Finishing General purpose		Q-CCMW060204		●				1	7°	6.35	2.38	2.8	0.4	2.5	TAC External Toolholder (4-15)
		Q-CCMW09T304		●				1	7°	9.525	3.97	4.4	0.4	2.5	TAC Internal Toolholder (5-16)

● : Stocked items

3

TAC Inserts T-CBN / T-DIA



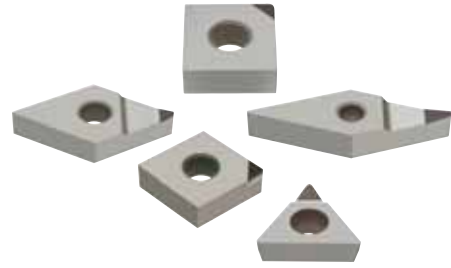
Standard honing specifications

▶ 3-5

Grades	BXM10	BXM20	BXC50	BX310	BX330	BX360	BX380	BX470	BX480	BX910	BX930	BX950
Positive inserts	S01325	S01325	-	S00515	S00515	S00515	-	T01315	-	S01315	S00515	S00515

# PCD grades

## T-DIA series



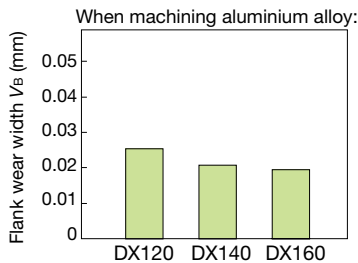
More expanded product line allows T-DIA tools to be applied to wider work materials and cutting conditions.

### Features and applications (Physical and mechanical properties)

	DX110	DX120	DX140	DX160	DX180
Grade					
Property	Super fine grained grade. Excels in surface finish.	Fine grained grade. Excels in surface finish.	General purpose grade	High purity grade for hard materials	Highly wear resistant grade for special applications
Approx. grain size of diamond (μm)	< 1	4.5	12.5	28	45
Hardness (Hv)	6000				12000 (Harder)
Wear resistance					Higher
Grindability (Cutting edge sharpness)	Better				

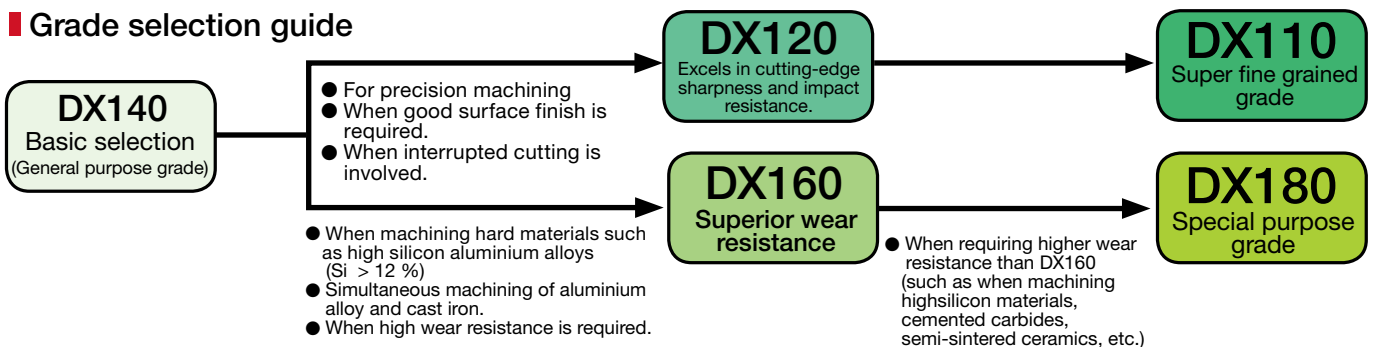
Note: T-DIA grades are not suitable for ferrous materials (such as hardened steel, child cast iron), and Ni- or Co-base super alloys.

### Cutting performance (Wear resistance)



- Continuous external turning**
- Work material: 10 % Si, aluminium alloy
  - Insert: SPGN120308-DIA
  - Toolholder: CSBPR2525M4
  - Cutting speed:  $v_c = 500$  m/min
  - Feed:  $f = 0.1$  mm/rev
  - Depth of cut:  $a_p = 0.5$  mm
  - Coolant: Dry cutting
  - Time in cut: 30 min

### Grade selection guide






### Standard cutting conditions for turning

Work material	Cutting speed $v_c$ (m/min)	Depth of cut $a_p$ (mm)	Feed $f$ (mm/rev)	Grade applicability				
				DX110	DX120	DX140	DX160	DX180
Aluminium alloys (Si < 12 %)	1500 (1000-2500)	0.5 (0.05-2.0)	0.1 (0.05-0.2)	○	○	◎		
Aluminium alloys (Si > 12 %)	600 (400-800)	0.5 (0.05-2.0)	0.1 (0.05-0.2)			○	◎	
Copper, brass	800 (500-1500)	0.5 (0.05-2.0)	0.1 (0.05-0.2)	○	○	◎		
Phosphor bronze	400 (300-500)	0.5 (0.05-2.0)	0.1 (0.05-0.2)	○	○	◎		
Carbon, graphite	400 (300-500)	0.5 (0.05-2.0)	0.1 (0.05-0.2)			◎		
FRP	700 (500-1000)	0.2 (0.05-0.5)	0.05 (0.03-0.1)	○	◎	○		
Plastics	700 (500-1000)	0.2 (0.05-0.5)	0.03 (0.01-0.05)	○	◎	○		
Cemented carbides (D40 ~ D60)	15 (10-20)	0.1 (0.05-0.2)	0.03 (0.01-0.05)				○	◎
Semi-sintered ceramics	130 (100-150)	0.5 (0.05-2.0)	0.05 (0.03-0.1)				○	◎




(Note) ◎ : First choice ○ : Second choice

# TAC T-DIA (PCD) Inserts

## ■ Negative type (with rake angle)

Application & features	Shape	Cat. No.	Stocked grades			Dimensions (mm)					Applicable toolholders
			Sharpenability Better		Wear resistance Higher	Inner circle $\phi d$	Thick-ness $s$	Hole dia. $\phi d_1$	Corner radius $r_\epsilon$	DIA length $a$	
			DX120	DX140	DX160						
Finishing Low resistance		CNMM120402-DIA	●			12.7	4.76	5.16	0.2	3.5	TAC External Toolholder (4-28)
		CNMM120404-DIA	●			12.7	4.76	5.16	0.4	3.5	
		DNMM150402-DIA	●			12.7	4.76	5.16	0.2	3.3	TAC External Toolholder (4-29)
		DNMM150404-DIA	●			12.7	4.76	5.16	0.4	3.1	
		TNMM160402-DIA	●			9.525	4.76	3.81	0.2	3.3	TAC External Toolholder (4-30)
		TNMM160404-DIA	●			9.525	4.76	3.81	0.4	3.3	




## ■ Negative type

Application & features	Shape	Cat. No.	Stocked grades			Dimensions (mm)					Applicable toolholders
			Sharpenability Better		Wear resistance Higher	Inner circle $\phi d$	Thick-ness $s$	Hole dia. $\phi d_1$	Corner radius $r_\epsilon$	DIA length $a$	
			DX120	DX140	DX160						
Finishing to medium cutting		CNGA120404-DIA		●		12.7	4.76	5.16	0.4	3.5	TAC External Toolholder (4-28)
		CNGA120408-DIA		●		12.7	4.76	5.16	0.8	3.4	
		DNGA150404-DIA		●	●	12.7	4.76	5.16	0.4	3.1	TAC External Toolholder (4-29)
		DNGA150408-DIA		●		12.7	4.76	5.16	0.8	2.8	
		TNGA160404-DIA		●	●	9.525	4.76	3.81	0.4	3.2	TAC External Toolholder (4-30)
		TNGA160408-DIA		●	●	9.525	4.76	3.81	0.8	2.9	



● : Stocked items

# TAC T-DIA (PCD) Inserts

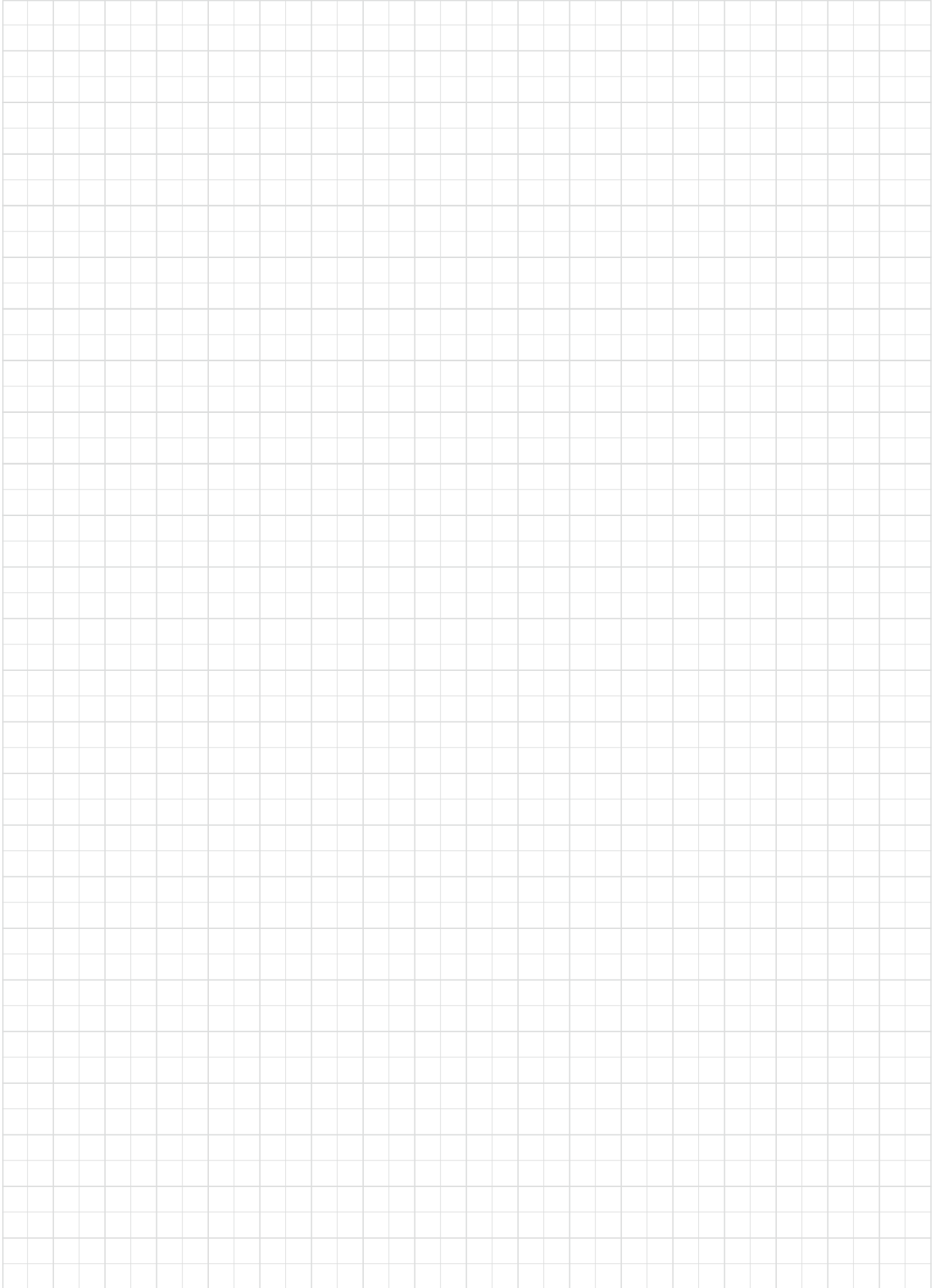
## Positive type (with rake angle)

Application & features	Shape	Cat. No.	Stocked grades			Dimensions (mm)						Applicable toolholders
			Sharpenability Better		Wear resistance Higher	Clearance angle $\theta$	Inner circle $\phi d$	Thickness $s$	Hole dia. $\phi d_1$	Corner radius $r_E$	DIA length $a$	
			DX120	DX140	DX160							
Finishing Low resistance		CCMT060202-DIA	●			7°	6.35	2.38	2.8	0.2	2.4	TAC External Toolholder (4-15) TAC Internal Toolholder (5-16)
		CCMT060204-DIA	●			7°	6.35	2.38	2.8	0.4	2.4	
		CCMT09T302-DIA	●			7°	9.525	3.97	4.4	0.2	2.4	
		CCMT09T304-DIA	●			7°	9.525	3.97	4.4	0.4	2.4	
		DCMT070202-DIA	●			7°	6.35	2.38	2.8	0.2	2.3	TAC External Toolholder (4-18) TAC Internal Toolholder (5-18)
		DCMT070204-DIA	●			7°	6.35	2.38	2.8	0.4	2.1	
		DCMT11T302-DIA	●			7°	9.525	3.97	4.4	0.2	3.2	
		DCMT11T304-DIA	●			7°	9.525	3.97	4.4	0.4	3.0	
		TCMT080202-DIA	●			7°	4.76	2.38	2.7	0.2	2.2	TAC External Toolholder (4-23)
		TCMT080204-DIA	●			7°	4.76	2.38	2.7	0.4	2.0	
		TCMT110202-DIA	●			7°	6.35	2.38	2.8	0.2	2.4	TAC Internal Toolholder (5-20)
		TCMT110204-DIA	●			7°	6.35	2.38	2.8	0.4	2.2	
		TCMT110302-DIA	●			7°	6.35	3.18	2.8	0.2	2.4	
		TCMT110304-DIA	●			7°	6.35	3.18	2.8	0.4	2.2	

## Positive type

Application & features	Shape	Cat. No.	Stocked grades			Dimensions (mm)						Applicable toolholders
			Sharpenability Better		Wear resistance Higher	Clearance angle $\theta$	Inner circle $\phi d$	Thickness $s$	Hole dia. $\phi d_1$	Corner radius $r_E$	DIA length $a$	
			DX120	DX140	DX160							
Finishing to medium cutting		EPGW040102-DIA		●		11°	3.97	1.59	2.3	0.2	2.0	TAC Internal Toolholder (5-25)
		EPGW040104-DIA		●		11°	3.97	1.59	2.3	0.4	1.9	
Finishing to medium cutting		DCGW070200-DIA		●		7°	6.35	2.38	2.8	0.05	2.4	TAC External Toolholder (4-18)
		DCGW070202-DIA	●	●		7°	6.35	2.38	2.8	0.2	2.3	
		DCGW070204-DIA		●		7°	6.35	2.38	2.8	0.4	2.1	TAC Internal Toolholder (5-18)
		DCGW11T302-DIA		●		7°	9.525	3.97	4.4	0.2	3.2	
		DCGW11T304-DIA		●		7°	9.525	3.97	4.4	0.4	3.0	
		DCGW11T308-DIA		●		7°	9.525	3.97	4.4	0.8	2.7	

● : Stocked items



# Chapter Composition of TAC External Toolholders

- ◆ New and main products are arranged by the insert shape to be used. In the same group, they are arranged by the cutting edge style.
- ◆ Other products are arranged by the series.

**Cat. No. of TAC toolholders**

**Indicates designation of tool type**

**Dimensions of toolholders**

**Cat. No. of applicable inserts**

**Indicates machining type**

**Features of the toolholder are shown**

**Indicates machining type**

**Features of the toolholder are shown**

**Cat. No. of applicable TAC inserts**

**Cat. No. of left and right hand inserts are mixed in one line.**

**Example: JXGR/L8150FA**

**Stocked Grades**

**MINIFURN**

**JSWL2XR/L External turning and facing JS type (Positive rake, screw-on system)**

Cat. No.	Stock Dimensions (mm)							Insert	Parts		Torque Clamping screw Wrench (N·m)		
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>		f	r			
JSWL2XR/L1010X04	●	●	10	10	120	11	10	10	0.2	WXGU0403**L/R	SR34-S14	T-7F	0.9
JSWL2XR/L1212F04	●	●	12	12	85	11	12	12	0.2	WXGU0403**L/R	SR34-S14	T-7F	0.9
JSWL2XR/L1212X04	●	●	12	12	120	11	12	12	0.2	WXGU0403**L/R	SR34-S14	T-7F	0.9
JSWL2XR/L1616X04	●	●	16	16	120	13	16	16	0.2	WXGU0403**L/R	SR34-S14	T-7F	0.9
JSWL2XR/L2020H04	●	●	20	20	100	13	20	20	0.2	WXGU0403**L/R	SR34-S14	T-7F	0.9

● Right-hand toolholders (R) are used with left-hand inserts (L)  
 ● Left-hand toolholders (L) are used with right-hand inserts (R)

**JPWL2XR/L External turning and facing JP type (Positive rake, slide-clamping system)**

Cat. No.	Stock Dimensions (mm)							Insert	Parts		Torque Clamping screw Wrench (N·m)	
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>		f	r		
JPWL2XR/L1010X04	●	●	10	10	120	11	10	10	0.2	WXGU0403**L/R	SLV-2 SL-PH-2 SR10400611 HW 2.0/5 RED	0.9
JPWL2XR/L1212F04	●	●	12	12	85	11	12	12	0.2	WXGU0403**L/R	SLV-2 SL-PH-2 SR10400611 HW 2.0/5 RED	0.9
JPWL2XR/L1212X04	●	●	12	12	120	11	12	12	0.2	WXGU0403**L/R	SLV-2 SL-PH-2 SR10400611 HW 2.0/5 RED	0.9
JPWL2XR/L1616X04	●	●	16	16	120	13	16	16	0.2	WXGU0403**L/R	SLV-2 SL-PH-2 SR10400611 HW 2.0/5 RED	0.9

● Right-hand toolholders (R) are used with left-hand inserts (L)  
 ● Left-hand toolholders (L) are used with right-hand inserts (R)

● Stocked items

**J-SERIES**

**JXBR/L Back turning J-type / External Turning (Screw-on system)**

Cat. No.	Stock Dimensions (mm)							Applicable Inserts	Clamping screw	Wrench		
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>				f	
JXBR/L1019K6-C	●	●	10	10	125	29	6.7	10	5.7	JXBR/L8***	CSTB-4SD	T-8F (T-8L)
JXBR/L1212K6-C	●	●	12	12	125	29	6.7	12	7.7	JXBR/L8***	CSTB-4SD	T-8F (T-8L)
JXBR/L1619K6	●	●	16	16	125	29	6.4	16	11.7	JXBR/L8***	CSTB-4SD	T-8F (T-8L)
JXBR/L2020K6	●	●	20	20	125	29	6.4	20	15.7	JXBR/L8***	CSTB-4SD	T-8F (T-8L)
JXBR/L2525K6	●	●	25	25	125	29	6.4	25	20.7	JXBR/L8***	CSTB-4SD	T-8F (T-8L)

● Right-hand (R) shown

**Applicable inserts**

**JXB-type inserts (with sharp edges)**

Cat. No.	Dimensions (mm)							Stock		
	d	T	fe	Max. depth of cut	Coated	Cermet	Uncoated	J740	NSS30	TH10
JXBR/L8000F	8	3.97	0.03	5.5	●	●	●	●	●	●
JXBR/L8005F	8	3.97	0.05	5.5	●	●	●	●	●	●
JXBR/L8010F	8	3.97	0.1	5.5	●	●	●	●	●	●
JXBR/L8015F	8	3.97	0.15	5.5	●	●	●	●	●	●

● Stocked items

**JXB-type inserts (with honed edges)**

Cat. No.	Dimensions (mm)							Stock		
	d	T	fe	Max. depth of cut	Coated	Cermet	Uncoated	J740	NSS30	TH10
JXBR/L8005	8	3.97	0.05	5.5	●	●	●	●	●	●
JXBR/L8010	8	3.97	0.1	5.5	●	●	●	●	●	●
JXBR/L8015	8	3.97	0.15	5.5	●	●	●	●	●	●

● Stocked items

## Ordering information

- When ordering a J series toolholder, please specify Cat. No. and quantity.  
 Example: **JSCLCR1212H09 1** piece
  - Standard packing quantity is 1 piece
  - Inserts must be ordered separately
- When ordering a J series TAC inserts, please specify Cat. No., grade and quantity.  
 Example: **JXGR8150FA J740 10** pieces
  - Standard packing quantity: 10 pieces



# 4

## TAC External Toolholders

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### Guidance

- Types and application of TAC External Toolholders ..... 4-2
- Structures and features of TAC External Toolholders ..... 4-7

### Products

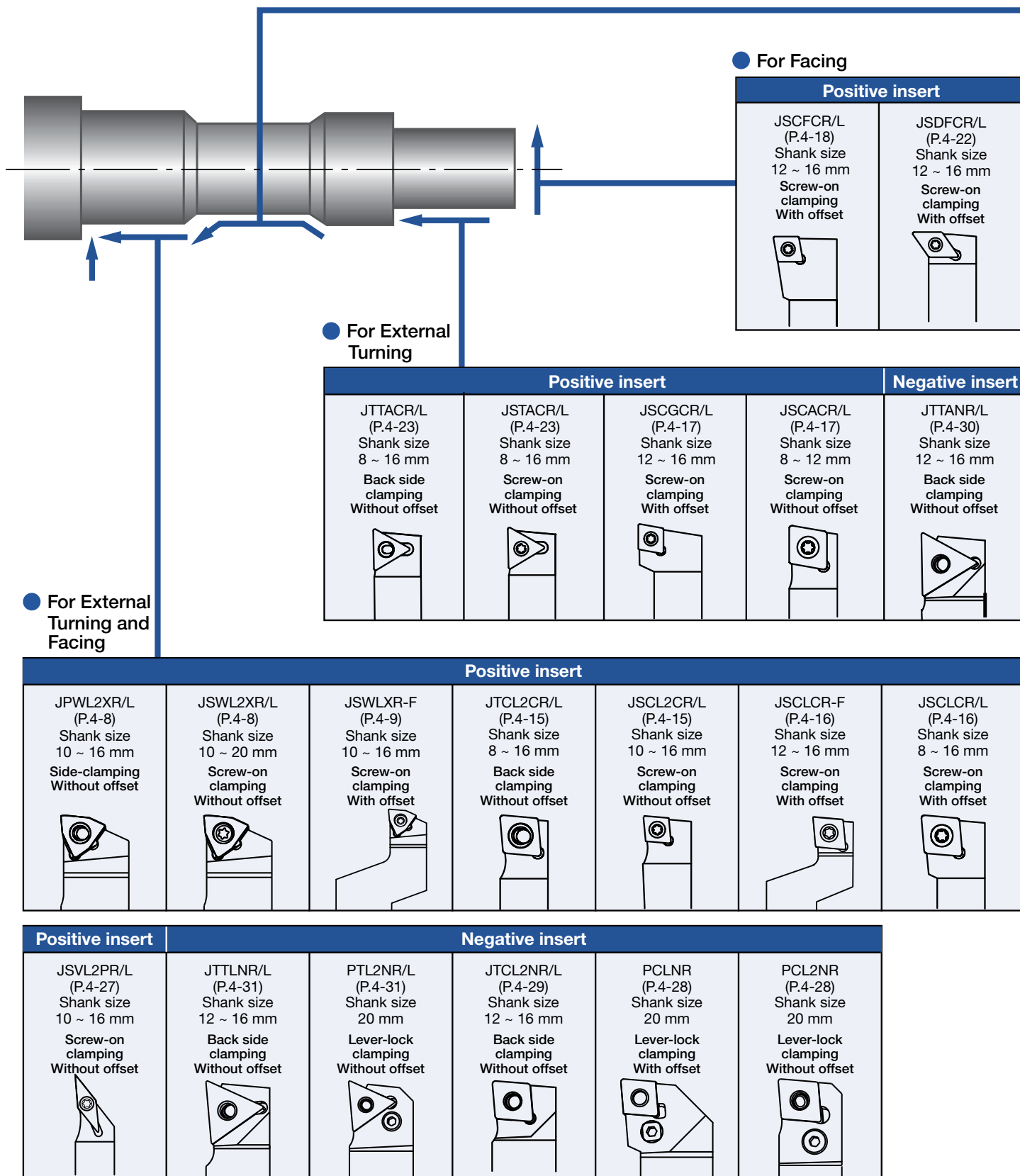
#### ■ TAC External Toolholder

- MINIFTURN** ..... 4-8
- J-SERIES** ..... 4-15

# Types and application of TAC External Toolholders

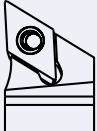



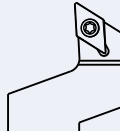

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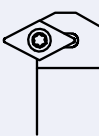


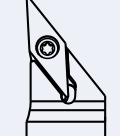
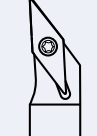
TAC External Toolholders

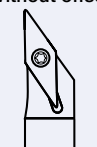



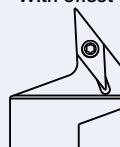



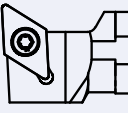
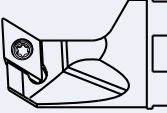
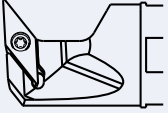

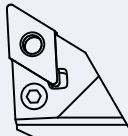
# Types and application of TAC External Toolholders

## ● For External Profiling

Positive insert					
<p>JPDJ2XR/L (P.4-10)</p> <p>Shank size 10 ~ 16 mm</p> <p>Back side clamping Without offset</p> 	<p>JSDJ2XR/L (P.4-10)</p> <p>Shank size 10 ~ 20 mm</p> <p>Screw-on clamping Without offset</p> 	<p>JTDJ2CR/L (P.4-19)</p> <p>Shank size 8 ~ 16 mm</p> <p>Back side clamping Without offset</p> 	<p>JSDJ2CR/L (P.4-18)</p> <p>Shank size 8 ~ 12 mm</p> <p>Screw-on clamping Without offset</p> 	<p>JSDJCR-F (P.4-19)</p> <p>Shank size 10 ~ 16 mm</p> <p>Screw-on clamping With offset</p> 	<p>JSDJCR/L (P.4-20)</p> <p>Shank size 8 ~ 16 mm</p> <p>Screw-on clamping With offset</p> 

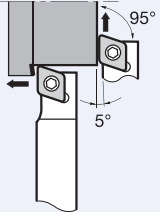
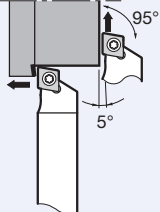
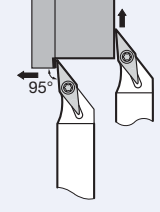
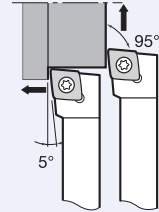
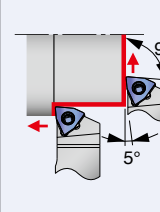
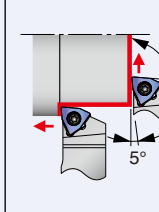
Positive insert					
<p>JSDNCN (P.4-21)</p> <p>Shank size 8 ~ 16 mm</p> <p>Screw-on clamping With offset</p> 	<p>JSDN3CR/L (P.4-21)</p> <p>Shank size 12 ~ 16 mm</p> <p>Screw-on clamping With offset</p> 	<p>JSDJXR-F (P.4-11)</p> <p>Shank size 10 ~ 16 mm</p> <p>Screw-on clamping With offset</p> 	<p>JPVJ2XR/L (P.4-12)</p> <p>Shank size 10 ~ 16 mm</p> <p>Back side clamping Without offset</p> 	<p>JSVJ2XR/L (P.4-12)</p> <p>Shank size 10 ~ 20 mm</p> <p>Screw-on clamping Without offset</p> 	<p>JSVJ2BR/L (P.4-24)</p> <p>Shank size 10 ~ 16 mm</p> <p>Screw-on clamping Without offset</p> 

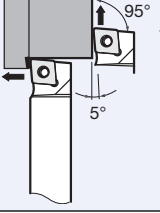
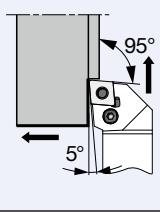
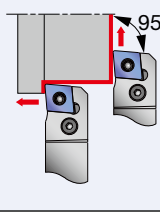
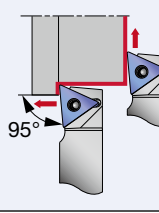
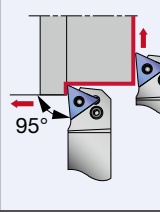
Positive insert					
<p>JSVABR/L (P.4-26)</p> <p>Shank size 10 ~ 16 mm</p> <p>Screw-on clamping Without offset</p> 	<p>JSVP2PR/L (P.4-27)</p> <p>Shank size 10 ~ 16 mm</p> <p>Screw-on clamping Without offset</p> 	<p>JSVNB (P.4-26)</p> <p>Shank size 10 ~ 16 mm</p> <p>Screw-on clamping With offset</p> 	<p>JSVJBR/L (P.4-24)</p> <p>Shank size 10 ~ 16 mm</p> <p>Screw-on clamping With offset</p> 	<p>JSVJBR-F (P.4-25)</p> <p>Shank size 12 ~ 16 mm</p> <p>Screw-on clamping With offset</p> 	<p>JSVJXR-F (P.4-13)</p> <p>Shank size 10 ~ 16 mm</p> <p>Screw-on clamping With offset</p> 

Positive insert			Negative insert	
<p>JS-SDUCL (P.4-22)</p> <p>Shank size ø19.05 ~ 25.4 mm</p> <p>Screw-on clamping With offset</p> 	<p>JS-SDUXL (P.4-14)</p> <p>Shank size 14 ~ 25.4 mm</p> <p>Screw-on clamping With offset</p> 	<p>JS-SVUXL (P.4-14)</p> <p>Shank size 15.9 ~ 25.4 mm</p> <p>Screw-on clamping With offset</p> 	<p>JTDJ2NR/L (P.4-30)</p> <p>Shank size 12 ~ 16 mm</p> <p>Back side clamping Without offset</p> 	<p>PDJNR (P.4-29)</p> <p>Shank size 20 mm</p> <p>Lever-lock clamping With offset</p> 

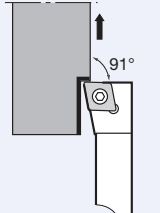
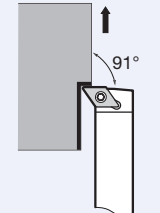
# Types and application of TAC External Toolholders

## ● For External Turning and Facing

Positive insert					
<p>JTCL2C (P.4-15) Cutting edge angle: 95° <b>Back side clamping</b> Without offset</p> 	<p>JSCL2C (P.4-15) Cutting edge angle: 95° <b>Screw-on clamping</b> Without offset</p> 	<p>JSVL2P (P.4-27) Cutting edge angle: 95° <b>Screw-on clamping</b> Without offset</p> 	<p>JSCLC (P.4-16) Cutting edge angle: 95° <b>Screw-on clamping</b> With offset</p> 	<p>JPWL2X (P.4-8) Cutting edge angle: 95° <b>Side-clamping</b> Without offset</p> 	<p>JSWL2X (P.4-8) Cutting edge angle: 95° <b>Screw-on clamping</b> Without offset</p> 

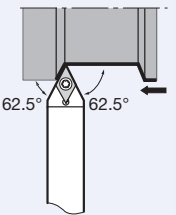
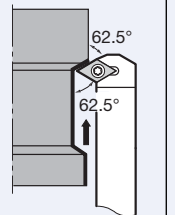
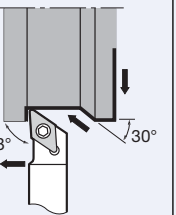
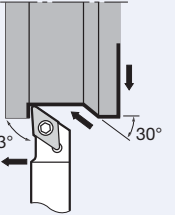
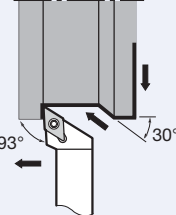
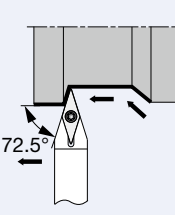
Negative insert				
<p>JTCL2N (P.4-29) Cutting edge angle: 95° <b>Back side clamping</b> Without offset</p> 	<p>PCLNR (P.4-28) Cutting edge angle: 95° <b>Lever-lock clamping</b> With offset</p> 	<p>PCL2NR (P.4-28) Cutting edge angle: 95° <b>Lever-lock clamping</b> Without offset</p> 	<p>JTTLN (P.4-31) Cutting edge angle: 95° <b>Back side clamping</b> Without offset</p> 	<p>PTL2N (P.4-31) Cutting edge angle: 95° <b>Lever-lock clamping</b> Without offset</p> 

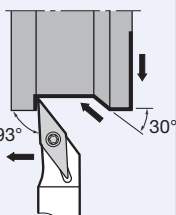
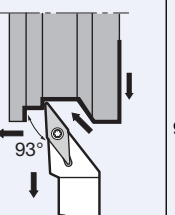
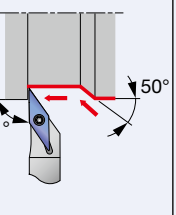
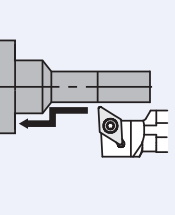
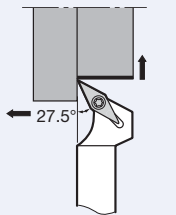
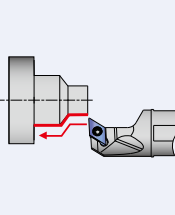
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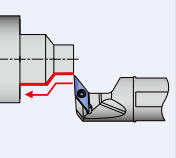
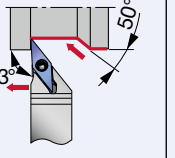
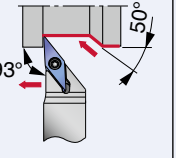
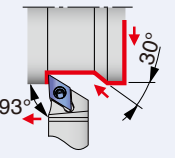
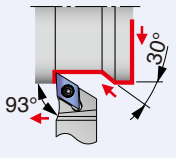
Positive insert	
<p>JSCFC (P.4-18) Cutting edge angle: 91° <b>Screw-on clamping</b> With offset</p> 	<p>JSDFC (P.4-22) Cutting edge angle: 91° <b>Screw-on clamping</b> With offset</p> 

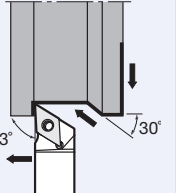
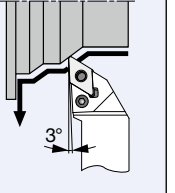
# Types and application of TAC External Toolholders

## ● For External Turning and Profiling

Positive insert					
<p>JSDNCN (P.4-21) Cutting edge angle: 62.5° Screw-on clamping With offset</p> 	<p>JSDN3C (P.4-21) Cutting edge angle: 62.5° Screw-on clamping With offset</p> 	<p>JTDJ2C (P.4-19) Cutting edge angle: 93° Back side clamping Without offset</p> 	<p>JSDJ2C (P.4-18) Cutting edge angle: 93° Screw-on clamping Without offset</p> 	<p>JSDJC (P.4-20) Cutting edge angle: 93° Screw-on clamping With offset</p> 	<p>JSVNB (P.4-26) Cutting edge angle: 72.5° Screw-on clamping With offset</p> 

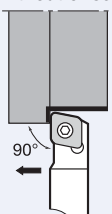
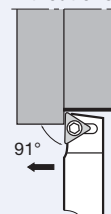
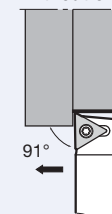
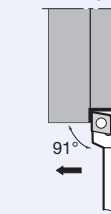
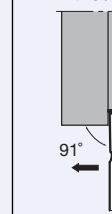
Positive insert					
<p>JSVJ2B (P.4-24) Cutting edge angle: 93° Screw-on clamping Without offset</p> 	<p>JSVJB (P.4-24) Cutting edge angle: 93° Screw-on clamping With offset</p> 	<p>JSVAB (P.4-26) Cutting edge angle: 91° Screw-on clamping Without offset</p> 	<p>JS-SDUCL (P.4-22) Cutting edge angle: 93° Screw-on clamping With offset</p> 	<p>JSVP2P (P.4-27) Cutting edge angle: 117.5° Screw-on clamping Without offset</p> 	<p>JS-SDUXL (P.4-14) Cutting edge angle: 93° Screw-on clamping With offset</p> 

Positive insert				
<p>JS-SVUXL (P.4-14) Cutting edge angle: 93° Screw-on clamping With offset</p> 	<p>JPVJ2XR/L (P.4-12) Cutting edge angle: 93° Back side clamping Without offset</p> 	<p>JSVJ2XR/L (P.4-12) Cutting edge angle: 93° Screw-on clamping Without offset</p> 	<p>JPDJ2XR/L (P.4-10) Cutting edge angle: 93° Back side clamping Without offset</p> 	<p>JSDJ2XR/L (P.4-10) Cutting edge angle: 93° Screw-on clamping Without offset</p> 

Negative insert	
<p>JTDJ2N (P.4-30) Cutting edge angle: 93° Back side clamping Without offset</p> 	<p>PDJNR (P.4-29) Cutting edge angle: 93° Lever-lock clamping With offset</p> 

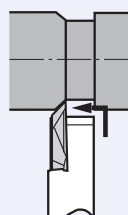
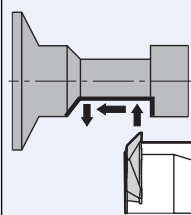
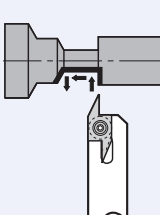
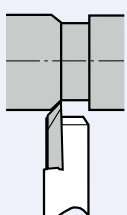
# Types and application of TAC External Toolholders

## ● For External Turning

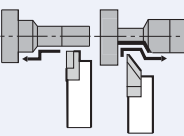
Positive insert				Negative insert
<p>JSCAC (P.4-17) Cutting edge angle: 90° Screw-on clamping Without offset</p> 	<p>JTTAC (P.4-23) Cutting edge angle: 91° Back side clamping Without offset</p> 	<p>JSTAC (P.4-23) Cutting edge angle: 91° Screw-on clamping Without offset</p> 	<p>JSCGC (P.4-17) Cutting edge angle: 91° Back side clamping With offset</p> 	<p>JTTAN (P.4-30) Cutting edge angle: 91° Back side clamping Without offset</p> 

4

## ● For Back turning

Positive insert			
<p>JSTB (P.4-34) Screw-on clamping Without offset</p> 	<p>JS-TBL3 (P.4-34) Screw-on clamping With offset</p> 	<p>JSEG (P.4-35) Screw-on clamping Without offset</p> 	<p>JSXB (P.4-33) Screw-on clamping Without offset</p> 

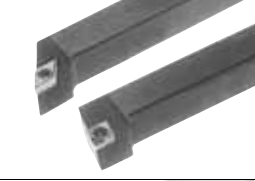
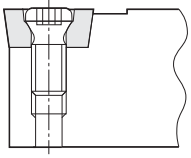

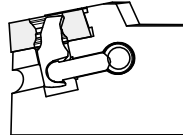

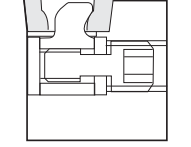

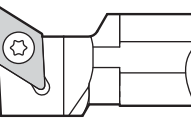
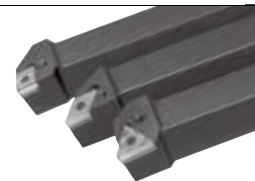
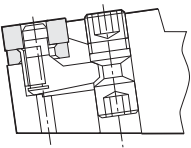

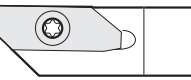
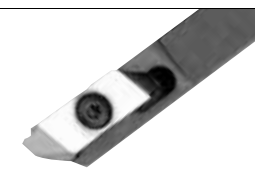
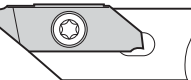

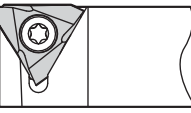

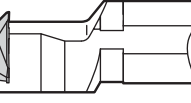

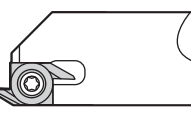
## ● For Front and reverse Turning

Positive insert
<p>JSXG (P.4-32) Screw-on clamping Without offset</p> 

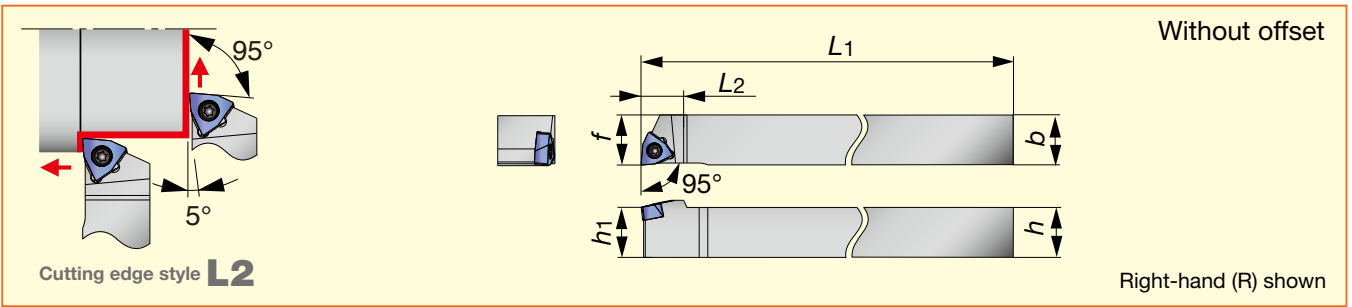
TAC External Toolholders

# Structures and features of TAC External Toolholders

## Clamping Mechanism and Features

Appli.	Type	Appearance	Clamping mechanism	Features
External turning	<b>JS</b>			<ul style="list-style-type: none"> <li>Available in small to medium shank sizes and abundant cutting edge styles</li> <li>The smaller shank size toolholders are best suitable for CNC automatics and other small lathes and larger sizes are usable for general purpose lathes.</li> <li>Secure insert fastening by highly durable torx screw</li> </ul>
	<b>JP</b>			<ul style="list-style-type: none"> <li>Newly developed toolholders with easy operation for Swiss machines with small inlet.</li> <li>Clamping can be operated from both front and back side of toolholder.</li> <li>No removing parts when insert indexing.</li> </ul>
	<b>JT</b>			<ul style="list-style-type: none"> <li>Good operability for indexing the insert in limited space such as on gang tooling type lathes</li> <li>Good handling allows operating the clamping screw from back side of the toolholder</li> <li>Available shank height : 8, 10, 12 and 16 mm</li> </ul>
	<b>JS-SDUCL</b> (Round shank)			<ul style="list-style-type: none"> <li>Round shank type for small lathe</li> <li>For external copying</li> <li>Shank dia: <math>\phi 19.05 \sim \phi 25.4</math> mm</li> </ul>
	<b>P</b> Lever lock			<ul style="list-style-type: none"> <li>High indexing accuracy due to a 2 face restraining mechanism and exhibits excellent performance with NC lathe and special purpose machines.</li> </ul>
Special machining	<b>JSXG</b> Front and reverse turning Grooving and parting off			<ul style="list-style-type: none"> <li>The insert is clamped with a both end torx screw, resulting in easy and rapid changing or indexing of the insert. (Can be operated from the back side with a both end torx screw.)</li> <li>Applicable for front, reverse turning, grooving and parting off by changing insert</li> <li>Max. groove depth is 6.0 mm</li> </ul>
	<b>JSXB</b> Back turning Threading			<ul style="list-style-type: none"> <li>The insert is clamped with a both end torx screw, resulting in easy and rapid changing or indexing of the insert. (Can be operated from the back side with a both end torx screw.)</li> <li>Applicable for back turning and threading by changing insert</li> <li>The inserts for threading are two corner type. Applicable for 60° threads of 0.5 to 1.0 mm pitches.</li> </ul>
	<b>JSTB</b>			<ul style="list-style-type: none"> <li>Applicable for back turning</li> <li>The insert is clamped with a both end torx screw, resulting in easy and rapid changing or indexing of the insert. (Can be operated from the back side with a both end torx screw.)</li> <li>Three corner type insert</li> </ul>
	<b>JS-TBL3</b> (Round shank)			<ul style="list-style-type: none"> <li>Round shank type for small lathe</li> <li>For back turning</li> <li>Shank dia: <math>\phi 19.05 \sim \phi 25.4</math> mm</li> </ul>
	<b>JSEG</b>			<ul style="list-style-type: none"> <li>Applicable for back turning</li> <li>Max. Parting off dia: <math>\phi 3</math> mm</li> <li>Two corner type insert</li> </ul>

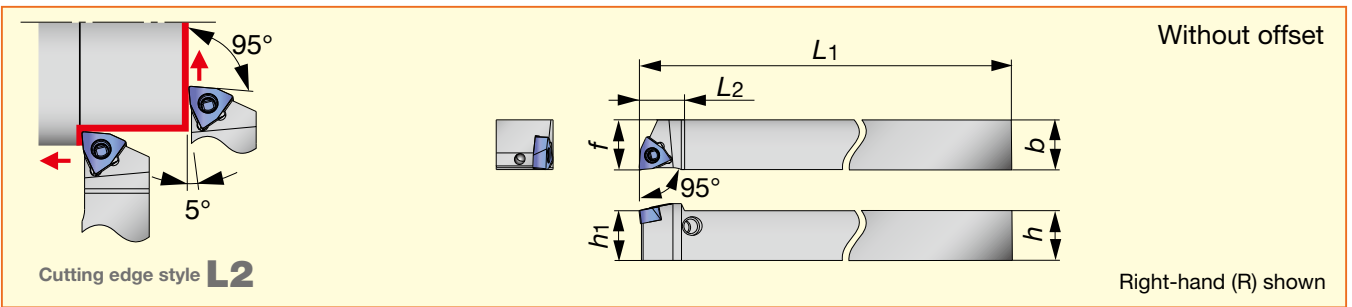
**JSWL2XR/L External turning and facing JS type (Positive rake, screw-on system)**



Cat. No.	Stock		Dimensions (mm)						Std. corner radius $r_e$	Insert	Parts		Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench	
JSWL2XR/L1010X04	●	●	10	10	120	11	10	10	0.2	WXGU0403**L/R	SR34-514	T-7F	0.9
JSWL2XR/L1212F04	●	●	12	12	85	11	12	12	0.2	WXGU0403**L/R	SR34-514	T-7F	0.9
JSWL2XR/L1212X04	●	●	12	12	120	11	12	12	0.2	WXGU0403**L/R	SR34-514	T-7F	0.9
JSWL2XR/L1616X04	●	●	16	16	120	13	16	16	0.2	WXGU0403**L/R	SR34-514	T-7F	0.9
<b>New</b> JSWL2XR/L2020H04	●	●	20	20	100	13	20	20	0.2	WXGU0403**L/R	SR34-514	T-7F	0.9

- ① Right-hand toolholders (R) are used with left-hand inserts (L)
- ② Left-hand toolholders (L) are used with right-hand inserts (R)

**JPWL2XR/L External turning and facing JP type (Positive rake, side-clamping system)**



Cat. No.	Stock		Dimensions (mm)						Std. corner radius $r_e$	Insert	Parts				Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Lever	Pin	Clamping screw	Wrench	
JPWL2XR/L1010X04	●	●	10	10	120	11	10	10	0.2	WXGU0403**L/R	SLLV-2	SL-PI-2	SR10400611	HW 2.0/5 RED	0.9
JPWL2XR/L1212F04	●	●	12	12	85	11	12	12	0.2	WXGU0403**L/R	SLLV-2	SL-PI-2	SR10400611	HW 2.0/5 RED	0.9
JPWL2XR/L1212X04	●	●	12	12	120	11	12	12	0.2	WXGU0403**L/R	SLLV-2	SL-PI-2	SR10400611	HW 2.0/5 RED	0.9
JPWL2XR/L1616X04	●	●	16	16	120	13	16	16	0.2	WXGU0403**L/R	SLLV-2	SL-PI-2	SR10400611	HW 2.0/5 RED	0.9

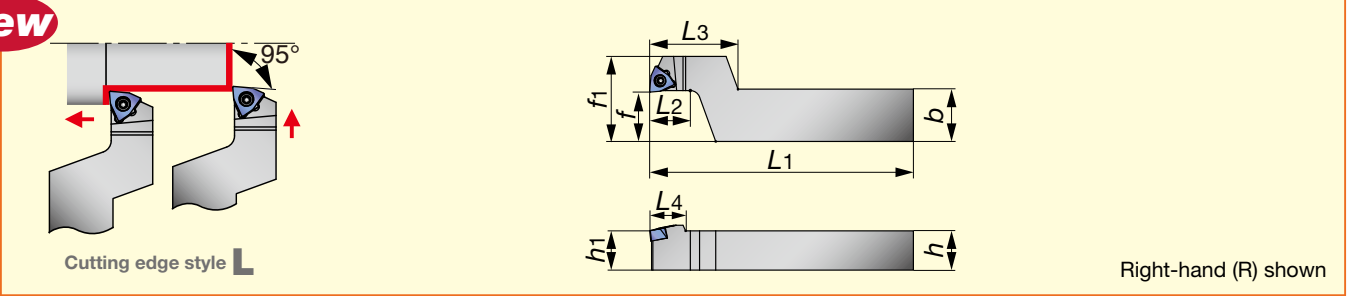
- ① Right-hand toolholders (R) are used with left-hand inserts (L)
- ② Left-hand toolholders (L) are used with right-hand inserts (R)

● : Stocked items



**JSWLXR-F External turning and facing Stepped-head type (Positive rake, screw-on system)**

**New**



Cat. No.	Stock		Dimensions (mm)									Std. corner radius $r_e$	Insert	Parts		Torque (N·m)
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	h <sub>1</sub>	f	f <sub>1</sub>			Clamping screw	Wrench	
JSWLXR1016X04-F15	●		10	16	120	12	27	11	10	15	26	0.2	WXGU0403**L	SR34-514	T-7F	0.9
JSWLXR1216F04-F15	●		12	16	85	12	27	11	12	15	26	0.2	WXGU0403**L	SR34-514	T-7F	0.9
JSWLXR1216X04-F15	●		12	16	120	12	27	11	12	15	26	0.2	WXGU0403**L	SR34-514	T-7F	0.9
JSWLXR1620X04-F15	●		16	20	120	12	27	11	16	15	26	0.2	WXGU0403**L	SR34-514	T-7F	0.9

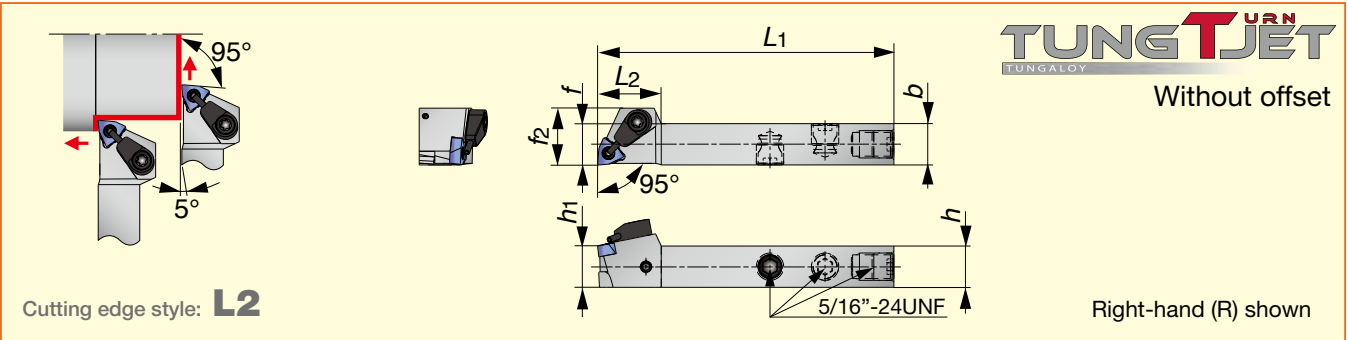
① Right-hand toolholders (R) are used with left-hand inserts (L)

4

TAC External Toolholders

**Works with high-pressure coolant**

**JSWL2XR/L-CHP External turning and facing CHP type (Positive rake, screw-on system)**

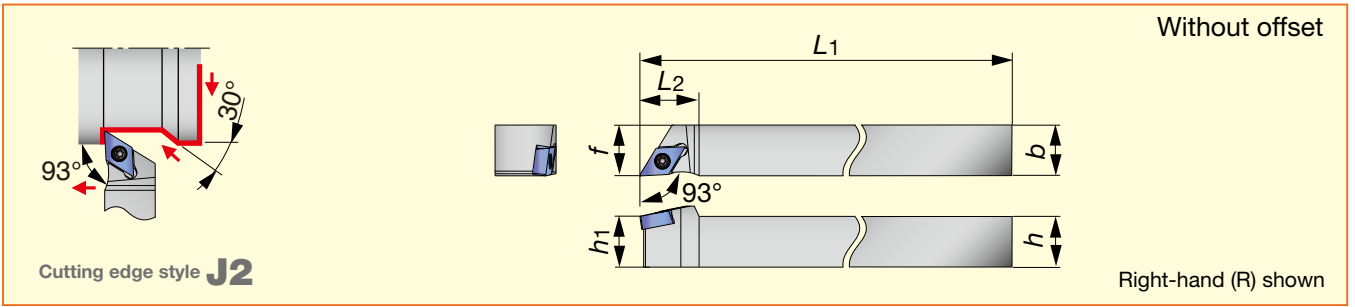


Cat. No	Stock		Dimensions (mm)							Std. corner radius $r_e$	Insert	Parts		Torque (N·m)
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f	f <sub>2</sub>			Clamping screw	Wrench	
JSWL2XR/L1212F04-CHP	●	●	12	12	85	18	12	12	16.5	0.2	WXGU0403**L/R	SR34-514	T-7F	0.9

- ① Right-hand toolholders (R) are used with left-hand inserts (L)
- ② Left-hand toolholders (L) are used with right-hand inserts (R)

● : Stocked items

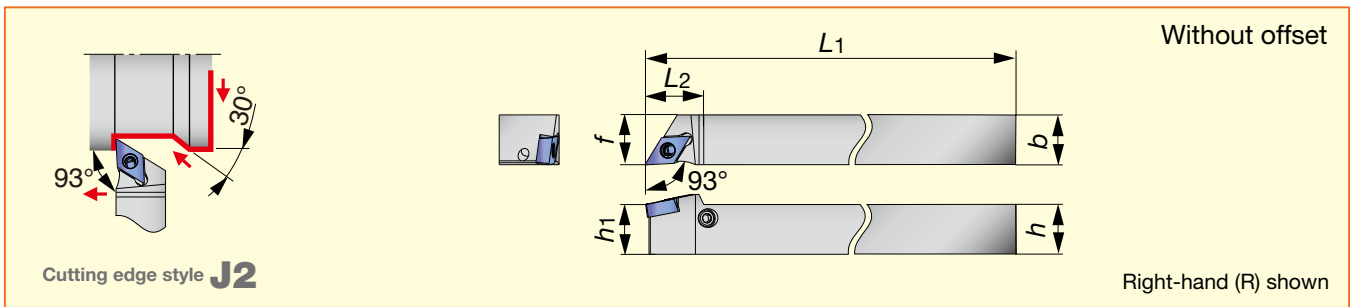
**JSDJ2XR/L External turning and profiling JS type (Positive rake, screw-on system)**



Cat. No.	Stock		Dimensions (mm)						Std. corner radius $r_{\epsilon}$	Insert	Parts		Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench	
JSDJ2XR/L1010X07	●	●	10	10	120	14	10	10	0.2	DXGU0703**L/R	SR34-514	T-7F	0.9
JSDJ2XR/L1212F07	●	●	12	12	85	14	12	12	0.2	DXGU0703**L/R	SR34-514	T-7F	0.9
JSDJ2XR/L1212X07	●	●	12	12	120	14	12	12	0.2	DXGU0703**L/R	SR34-514	T-7F	0.9
JSDJ2XR/L1616X07	●	●	16	16	120	18	16	16	0.2	DXGU0703**L/R	SR34-514	T-7F	0.9
<b>New</b> JSDJ2XR/L2020H07	●	●	20	20	100	18	20	20	0.2	DXGU0703**L/R	SR34-514	T-7F	0.9

- ① Right-hand toolholders (R) are used with left-hand inserts (L)
- ② Left-hand toolholders (L) are used with right-hand inserts (R)

**JPDJ2XR/L External turning and profiling JP type (Positive rake, side-clamping system)**



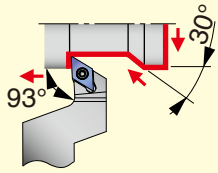
Cat. No.	Stock		Dimensions (mm)						Std. corner radius $r_{\epsilon}$	Insert	Parts				Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Lever	Pin	Clamping screw	Wrench	
JPDJ2XR/L1010X07	●	●	10	10	120	14	10	10	0.2	DXGU0703**L/R	SLLV-2	SL-PI-2	SR10400611	HW 2.0/5 RED	0.9
JPDJ2XR/L1212F07	●	●	12	12	85	14	12	12	0.2	DXGU0703**L/R	SLLV-2	SL-PI-2	SR10400611	HW 2.0/5 RED	0.9
JPDJ2XR/L1212X07	●	●	12	12	120	14	12	12	0.2	DXGU0703**L/R	SLLV-2	SL-PI-2	SR10400611	HW 2.0/5 RED	0.9
JPDJ2XR/L1616X07	●	●	16	16	120	18	16	16	0.2	DXGU0703**L/R	SLLV-2	SL-PI-2	SR10400611	HW 2.0/5 RED	0.9

- ① Right-hand toolholders (R) are used with left-hand inserts (L)
- ② Left-hand toolholders (L) are used with right-hand inserts (R)

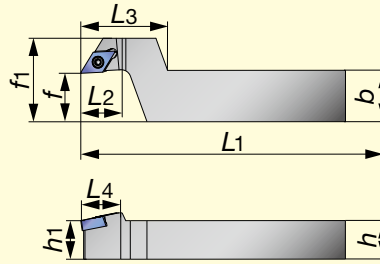
● : Stocked items

**JSDJXR-F** External turning and profiling Stepped-head type (Positive rake, screw-on system)

**New**



Cutting edge style **J**



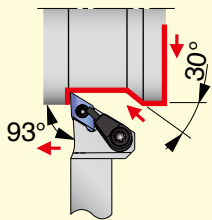
Right-hand (R) shown

Cat. No.	Stock		Dimensions (mm)									Std. corner radius $r_e$	Insert	Parts		Torque (N·m)
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	h <sub>1</sub>	f	f <sub>1</sub>			Clamping screw	Wrench	
JSDJXR1016X07-F15	●		10	16	120	12	27	14	10	15	26	0.2	DXGU0703**L	SR34-514	T-7F	0.9
JSDJXR1216F07-F15	●		12	16	85	12	27	14	12	15	26	0.2	DXGU0703**L	SR34-514	T-7F	0.9
JSDJXR1216X07-F15	●		12	16	120	12	27	14	12	15	26	0.2	DXGU0703**L	SR34-514	T-7F	0.9
JSDJXR1620X07-F15	●		16	20	120	12	27	14	16	15	26	0.2	DXGU0703**L	SR34-514	T-7F	0.9

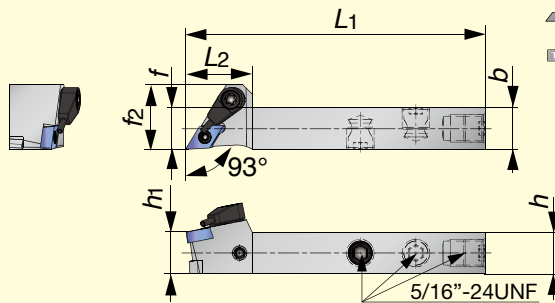
① Right-hand toolholders (R) are used with left-hand inserts (L)

Works with high-pressure coolant

**JSDJ2XR/L-CHP** External turning and profiling CHP type (Positive rake, screw-on system)



Cutting edge style: **J2**



**TUNG T<sub>URN</sub> JET**  
TUNGALOY  
Without offset

Right-hand (R) shown

Cat. No	Stock		Dimensions (mm)							Std. corner radius $r_e$	Insert	Parts		Torque (N·m)
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f	f <sub>2</sub>			Clamping screw	Wrench	
JSDJ2XR/L1212F07-CHP	●	●	12	12	85	19	12	12	18.5	0.2	DXGU0703**L/R	SR34-514	T-7F	0.9

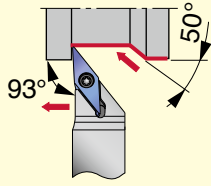
- ① Right-hand toolholders (R) are used with left-hand inserts (L)
- ② Left-hand toolholders (L) are used with right-hand inserts (R)

● : Stocked items

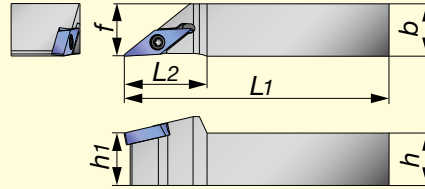
**JSVJ2XR/L External turning and profiling JS type (Positive rake, screw-on system)**

**New**

Without offset



Cutting edge style **J2**



Right-hand (R) shown

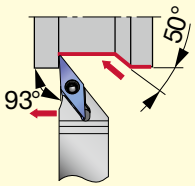
Cat. No.	Stock		Dimensions (mm)						Std. corner radius $r_e$	Insert	Parts		Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench	
JSVJ2XR/L1010X09	●	●	10	10	120	17	10	10	0.2	VXGU09T2**L/R	SR34-508	T-7F	0.9
JSVJ2XR/L1212F09	●	●	12	12	85	19	12	12	0.2	VXGU09T2**L/R	SR34-508	T-7F	0.9
JSVJ2XR/L1212X09	●	●	12	12	120	19	12	12	0.2	VXGU09T2**L/R	SR34-508	T-7F	0.9
JSVJ2XR/L1616X09	●	●	16	16	120	19	16	16	0.2	VXGU09T2**L/R	SR34-508	T-7F	0.9
JSVJ2XR/L2020H09	●	●	20	20	100	19	20	20	0.2	VXGU09T2**L/R	SR34-508	T-7F	0.9

- ① Right-hand toolholders (R) are used with left-hand inserts (L)
- ② Left-hand toolholders (L) are used with right-hand inserts (R)

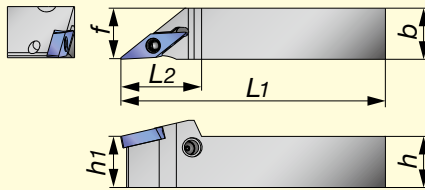
**JPVJ2XR/L External turning and profiling JP type (Positive rake, side-clamping system)**

**New**

Without offset



Cutting edge style **J2**



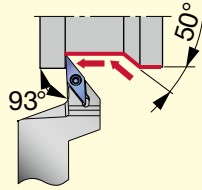
Cat. No.	Stock		Dimensions (mm)						Std. corner radius $r_e$	Insert	Parts				Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Lever	Pin	Clamping screw	Wrench	
JPVJ2XR/L1010X09	●	●	10	10	120	19	10	10	0.2	VXGU09T2**L/R	SLLV-1	SL-PI-2	SR 10400611	HW 2.0/5 RED	0.9
JPVJ2XR/L1212F09	●	●	12	12	85	19	12	12	0.2	VXGU09T2**L/R	SLLV-1	SL-PI-2	SR 10400611	HW 2.0/5 RED	0.9
JPVJ2XR/L1212X09	●	●	12	12	120	19	12	12	0.2	VXGU09T2**L/R	SLLV-1	SL-PI-2	SR 10400611	HW 2.0/5 RED	0.9
JPVJ2XR/L1616X09	●	●	16	16	120	19	16	16	0.2	VXGU09T2**L/R	SLLV-1	SL-PI-2	SR 10400611	HW 2.0/5 RED	0.9

- ① Right-hand toolholders (R) are used with left-hand inserts (L)
- ② Left-hand toolholders (L) are used with right-hand inserts (R)

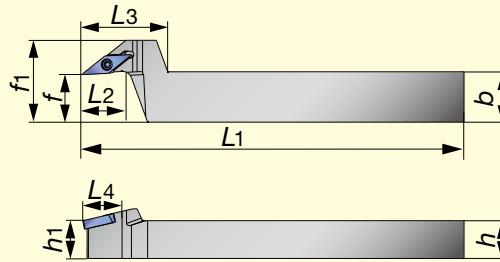
● : Stocked items

**JSVJXR-F** External turning and profiling Stepped-head type (Positive rake, screw-on system)

**New**



Cutting edge style **J**



Right-hand (R) shown

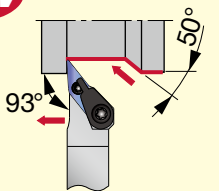
Cat. No.	Stock		Dimensions (mm)								Std. corner radius $r_\epsilon$	Insert	Parts		Torque (N·m)	
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	h <sub>1</sub>	f			f <sub>1</sub>	Clamping screw		Wrench
JSVJXR1016X09-F15	●		10	16	120	12	27	19	10	15	26	0.2	VXGU09T2**L	SR34-508	T-7F	0.9
JSVJXR1216F09-F15	●		12	16	85	12	27	19	12	15	26	0.2	VXGU09T2**L	SR34-508	T-7F	0.9
JSVJXR1216X09-F15	●		12	16	120	12	27	19	12	15	26	0.2	VXGU09T2**L	SR34-508	T-7F	0.9
JSVJXR1620X09-F15	●		16	20	120	12	27	19	16	15	26	0.2	VXGU09T2**L	SR34-508	T-7F	0.9

① Right-hand toolholders (R) are used with left-hand inserts (L)

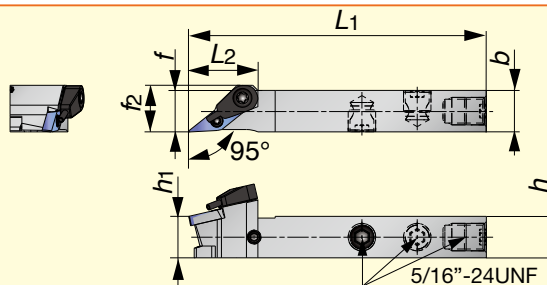
Works with high-pressure coolant

**JSVJ2XR/L-CHP** External turning and profiling CHP type (Positive rake, screw-on system)

**New**



Cutting edge style **J2**



**TUNG T JET**  
TUNGALOY

Without offset

Right-hand (R) shown

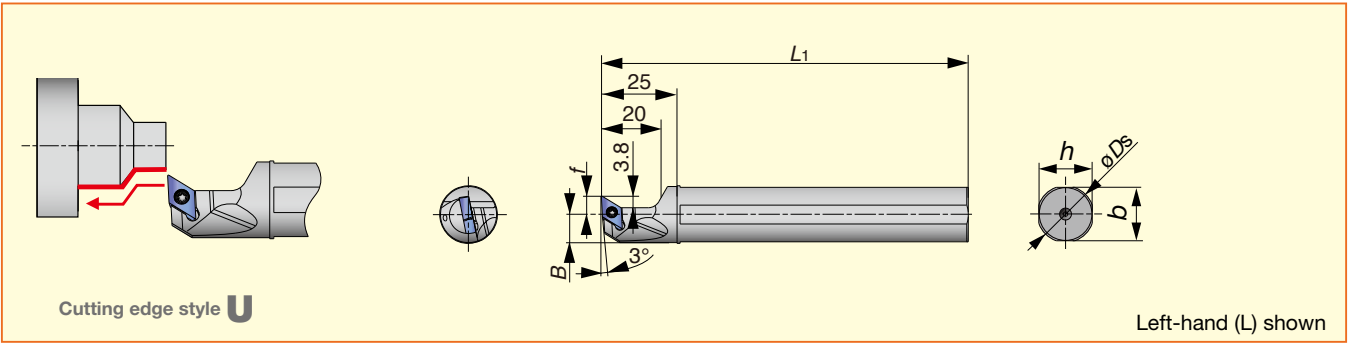
Cat. No	Stock		Dimensions (mm)								Std. corner radius $r_\epsilon$	Insert	Parts		Torque (N·m)
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f	f <sub>2</sub>	Clamping screw			Wrench		
JSVJ2XR/L1212F09-CHP	★	★	12	12	85	17.5	12	12	13.5	0.2	VXGU09T2**L/R	SR34-508	T-7F	0.9	

① Right-hand toolholders (R) are used with left-hand inserts (L)

② Left-hand toolholders (L) are used with right-hand inserts (R)

● : Stocked items

**JS-SDUXL** External turning and profiling JS type (Positive rake, screw-on system)

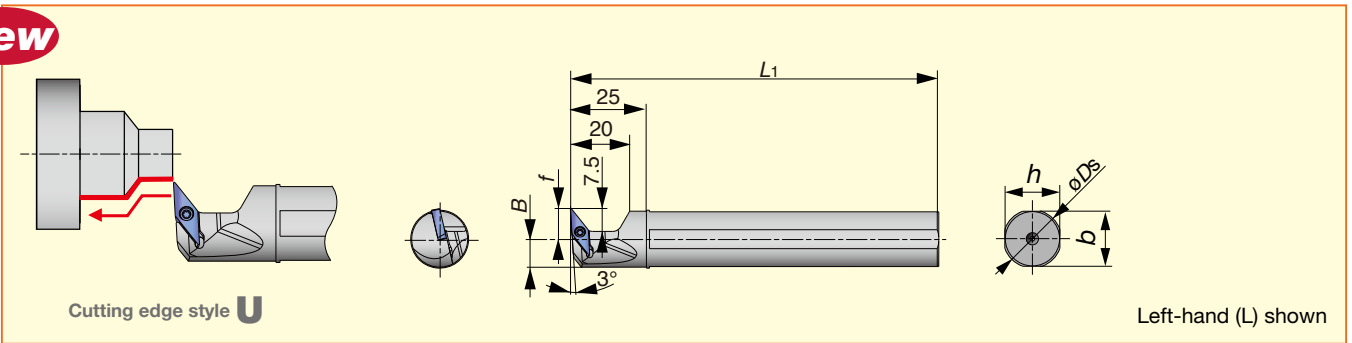


Cat. No.	Stock	Dimensions (mm)					Std. corner radius $r_E$	Insert	Parts		Torque (N·m)
		$\phi D_s$	$f$	$L_1$	$h/b$	$B$			Clamping screw	Wrench	
JS14H-SDUXL07	●	14	6	100	13	6.75	0.2	DXGU0703**L	SR34-514	T-7F	0.9
JS159F-SDUXL07	●	15.875	6	85	15	7.687	0.2	DXGU0703**L	SR34-514	T-7F	0.9
JS16F-SDUXL07	●	16	6	85	15	7.75	0.2	DXGU0703**L	SR34-514	T-7F	0.9
JS19G-SDUXL07	●	19.05	6	90	18	9.275	0.2	DXGU0703**L	SR34-514	T-7F	0.9
JS19X-SDUXL07	●	19.05	6	120	18	9.275	0.2	DXGU0703**L	SR34-514	T-7F	0.9
JS20G-SDUXL07	●	20	6	90	19	9.75	0.2	DXGU0703**L	SR34-514	T-7F	0.9
JS20X-SDUXL07	●	20	6	120	19	9.75	0.2	DXGU0703**L	SR34-514	T-7F	0.9
JS22X-SDUXL07	●	22.0	10	120	21	10.75	0.2	DXGU0703**L	SR34-514	T-7F	0.9
JS25H-SDUXL07	●	25.0	10	100	24	12.25	0.2	DXGU0703**L	SR34-514	T-7F	0.9
JS254X-SDUXL07	●	25.4	10	120	24	12.45	0.2	DXGU0703**L	SR34-514	T-7F	0.9

① Left-hand toolholders (L) are used with left-hand inserts (L)

**JS-SVUXL** External turning and profiling JS type (Positive rake, screw-on system)

**New**



Cat. No.	Stock	Dimensions (mm)					Std. corner radius $r_E$	Insert	Parts		Torque (N·m)
		$\phi D_s$	$f$	$L_1$	$h/b$	$B$			Clamping screw	Wrench	
JS159F-SVUXL09	●	15.875	10	85	15	7.7	0.2	VXGU09T2**L	SR34-508	T-7F	0.9
JS16F-SVUXL09	●	16	10	85	15	7.7	0.2	VXGU09T2**L	SR34-508	T-7F	0.9
JS19G-SVUXL09	●	19.05	10	90	18	9.2	0.2	VXGU09T2**L	SR34-508	T-7F	0.9
JS19X-SVUXL09	●	19.05	10	120	18	9.2	0.2	VXGU09T2**L	SR34-508	T-7F	0.9
JS20G-SVUXL09	●	20	10	90	19	9.7	0.2	VXGU09T2**L	SR34-508	T-7F	0.9
JS20X-SVUXL09	●	20	10	120	19	9.7	0.2	VXGU09T2**L	SR34-508	T-7F	0.9
JS22X-SVUXL09	●	22	10	120	21	10.7	0.2	VXGU09T2**L	SR34-508	T-7F	0.9
JS25H-SVUXL09	●	25	10	100	24	12.2	0.2	VXGU09T2**L	SR34-508	T-7F	0.9
JS254X-SVUXL09	●	25.4	10	120	24	12.4	0.2	VXGU09T2**L	SR34-508	T-7F	0.9

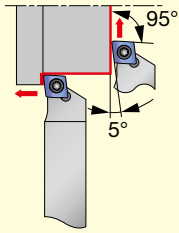
① Left-hand toolholders (L) are used with left-hand inserts (L)

● : Stocked items

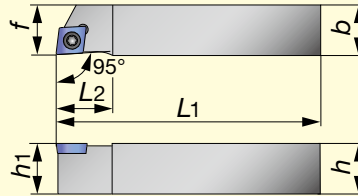
**JSCL2CR/L External turning and facing**

JS type (Positive rake, screw-on system)

Without offset



Cutting edge style **L2**



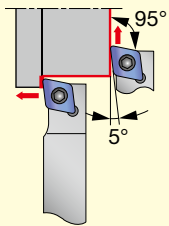
Right-hand (R) shown

Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_{\epsilon}$	Insert	Parts			Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench		
<b>New</b> JSCL2CR/L1010X06	●	●	10	10	120	12	10	10	0.2	CC**0602	CSTB-2.5	T-8F	1.2	
JSCL2CR/L1010K06	●	●	10	10	125	12	10	10	0.4	CC**0602	CSTB-2.5	T-8F	1.2	
<b>New</b> JSCL2CR/L1212F06	●	●	12	12	85	12	12	12	0.2	CC**0602	CSTB-2.5	T-8F	1.2	
<b>New</b> JSCL2CR/L1212X06	●	●	12	12	120	12	12	12	0.2	CC**0602	CSTB-2.5	T-8F	1.2	
JSCL2CR/L1212K06	●	●	12	12	125	12	12	12	0.4	CC**0602	CSTB-2.5	T-8F	1.2	
<b>New</b> JSCL2CR/L1212F09	●	●	12	12	85	16	12	12	0.2	CC**09T3	CSTB-4SD	T-8F	1.2	
<b>New</b> JSCL2CR/L1212X09	●	●	12	12	120	16	12	12	0.2	CC**09T3	CSTB-4SD	T-8F	1.2	
<b>New</b> JSCL2CR/L1616X09	●	●	16	16	120	16	16	16	0.2	CC**09T3	CSTB-4SD	T-8F	1.2	

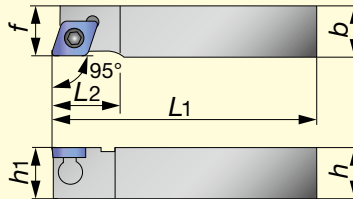
**JTCL2CR/L External turning and facing**

JT type (Positive rake, back-clamping system)

Without offset



Cutting edge style **L2**

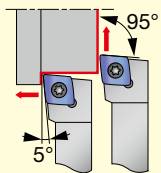


Right-hand (R) shown

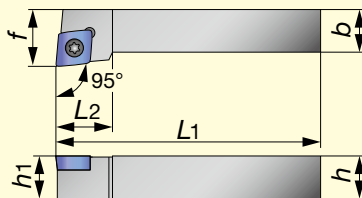
Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_{\epsilon}$	Insert	Parts			Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamp	Clamping screw	Wrench	
JTCL2CR/L0810K06	●	●	8	10	125	12	8	10	0.4	CC**0602	JCP-2	JDS-3525	P-2F	0.9
<b>New</b> JTCL2CR/L1010X06	●	●	10	10	120	12	10	10	0.2	CC**0602	JCP-2	JDS-3525	P-2F	0.9
JTCL2CR/L1010K06	●	●	10	10	125	12	10	10	0.4	CC**0602	JCP-2	JDS-3525	P-2F	0.9
<b>New</b> JTCL2CR/L1212F09	●	●	12	12	85	16	12	12	0.2	CC**09T3	JCP-3	JDS-5040	P-2.5F	1.2
<b>New</b> JTCL2CR/L1212X09	●	●	12	12	120	16	12	12	0.2	CC**09T3	JCP-3	JDS-5040	P-2.5F	1.2
JTCL2CR/L1212M09	●	●	12	12	150	16	12	12	0.8	CC**09T3	JCP-3	JDS-5040	P-2.5F	1.2
<b>New</b> JTCL2CR/L1616X09	●	●	16	16	120	16	16	16	0.2	CC**09T3	JCP-3	JDS-5040	P-2.5F	1.2
JTCL2CR/L1616M09	●	●	16	16	125	16	16	16	0.8	CC**09T3	JCP-3	JDS-5040	P-2.5F	1.2

● : Stocked items

**JSCLCR/L External turning and facing JS type (Positive rake, screw-on system)**



Cutting edge style **L**



Right-hand (R) shown

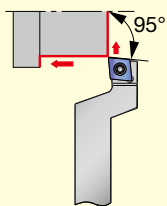
Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_{\epsilon}$	Insert	Parts		Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench	
JSCLCR/L0808H06	●	●	8	8	100	12	8	10	0.4	CC**0602	CSTB-2.5	T-8F	1.2
JSCLCR/L1010H06	●	●	10	10	100	12	10	12	0.4	CC**0602	CSTB-2.5	T-8F	1.2
JSCLCR/L1212H09	●	●	12	12	100	16	12	16	0.8	CC**09T3	CSTB-4SD	T-8F	1.2
JSCLCR/L1616H09	●	●	16	16	100	16	16	20	0.8	CC**09T3	CSTB-4SD	T-8F	1.2

4

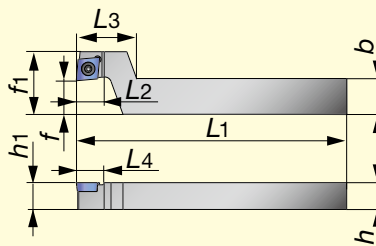
TAC External Toolholders

**JSCLCR-F External turning and facing Stepped-head type (Positive rake, screw-on system)**

**New**



Cutting edge style **L**



Right-hand (R) shown

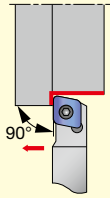
Cat. No.	Stock	Dimensions (mm)								Standard corner radius $r_{\epsilon}$	Insert	Parts		Torque (N·m)	
		$h$	$b$	$L_1$	$L_2$	$L_3$	$L_4$	$h_1$	$f$			$f_1$	Clamping screw		Wrench
JSCLCR1216F09-F15	●	12	16	85	12	27	12.5	12	15	28	0.2	CC**09T3	CSTB-4SD	T-8F	1.2
JSCLCR1216X09-F15	●	12	16	120	12	27	12.5	12	15	28	0.2	CC**09T3	CSTB-4SD	T-8F	1.2
JSCLCR1620X09-F15	●	16	20	120	12	27	12.5	16	15	28	0.2	CC**09T3	CSTB-4SD	T-8F	1.2

● : Stocked items

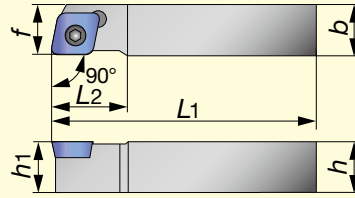


**JSCACR/L External turning JS type (Positive rake, screw-on system)**

Without offset



Cutting edge style **A**



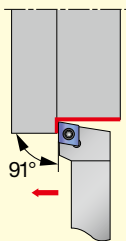
Right-hand (R) shown

Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_E$	Insert	Parts		Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench	
JSCACR/L0808H06	●	●	8	8	100	12	8	8	0.4	CC**0602	CSTB-2.5	T-8F	1.2
JSCACR/L1010H06	●	●	10	10	100	12	10	10	0.4	CC**0602	CSTB-2.5	T-8F	1.2
JSCACR/L1212H09	●	●	12	12	100	16	12	12	0.8	CC**09T3	CSTB-4SD	T-8F	1.2

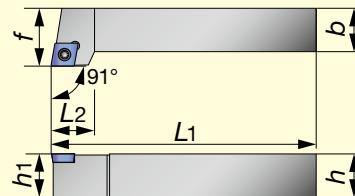
4

TAC External Toolholders

**JSCGCR/L External turning JS type (Positive rake, screw-on system)**



Cutting edge style **G**

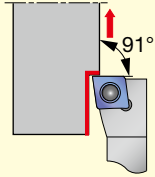


Right-hand (R) shown

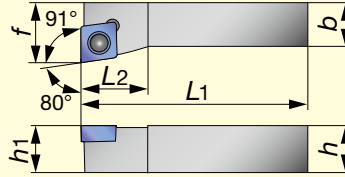
Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_E$	Insert	Parts		Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench	
JSCGCR/L1212H06	●	●	12	12	100	12	12	16	0.4	CC**0602	CSTB-2.5	T-8F	1.2
JSCGCR/L1616H09	●	●	16	16	100	16	16	20	0.8	CC**09T3	CSTB-4SD	T-8F	1.2

● : Stocked items

**JSCFCR/L Facing JS-type / External Turning (Positive rake, Screw-on system)**



Cutting edge style **F**



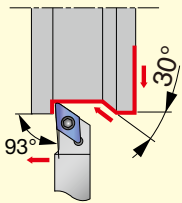
Right-hand (R) shown

Cat. No.	Stock		Dimensions (mm)							Standard corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$	$f_1$			Clamping screw	Wrench	
JSCFCR/L1212H06			12	12	100	16	12	16	-	0.4	CC**0602	CSTB-2.5	T-8F	1.2
JSCFCR/L1616H09			16	16	100	16	12	16	-	0.4	CC**09T3	CSTB-4SD	T-8F	1.2

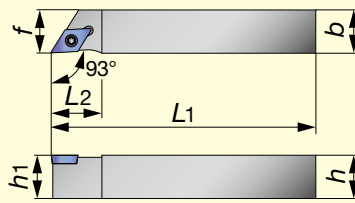
4

TAC External Toolholders

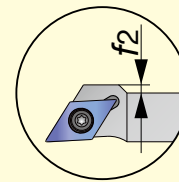
**JSDJ2CR/L External turning and profiling JS type (Positive rake, screw-on system)**



Cutting edge style **J2**



JSDJ2CR/L1212F11  
JSDJ2CR/L1212X11



Without offset

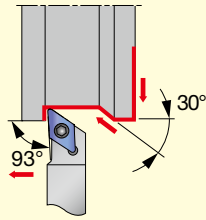
Right-hand (R) shown

Cat. No.	Stock		Dimensions (mm)							Standard corner radius $r_E$	Insert	Parts		Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$	$f_2$			Clamping screw	Wrench	
<b>New</b> JSDJ2CR/L0808F07	●	●	8	8	85	14	8	8	-	0.2	DC**0702	CSTB-2.5	T-8F	1.2
JSDJ2CR/L1010K07	●	●	10	10	125	14	10	10	-	0.4	DC**0702	CSTB-2.5	T-8F	1.2
<b>New</b> JSDJ2CR/L1010X07	●	●	10	10	120	14	10	10	-	0.2	DC**0702	CSTB-2.5	T-8F	1.2
<b>New</b> JSDJ2CR/L1010X11	●	●	10	10	120	20	10	10	4	0.2	DC**11T3	CSTB-4SD	T-8F	1.2
<b>New</b> JSDJ2CR/L1212F07	●	●	12	12	85	14	12	12	-	0.2	DC**0702	CSTB-2.5	T-8F	1.2
<b>New</b> JSDJ2CR/L1212F11	●	●	12	12	85	20	12	12	2	0.2	DC**11T3	CSTB-4SD	T-8F	1.2
<b>New</b> JSDJ2CR/L1212X07	●	●	12	12	120	14	12	12	-	0.2	DC**0702	CSTB-2.5	T-8F	1.2
JSDJ2CR/L1212K07	●	●	12	12	125	14	12	12	-	0.4	DC**0702	CSTB-2.5	T-8F	1.2
<b>New</b> JSDJ2CR/L1212X11	●	●	12	12	120	20	12	12	2	0.2	DC**11T3	CSTB-4SD	T-8F	1.2
<b>New</b> JSDJ2CR/L1616X11	●	●	16	16	120	20	16	16	-	0.2	DC**11T3	CSTB-4SD	T-8F	1.2

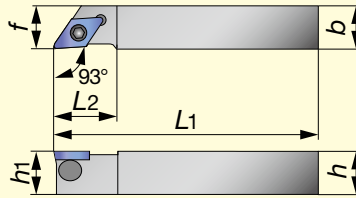
● : Stocked items

**JTDJ2CR/L External turning and profiling JT type (Positive rake, back-clamping system)**

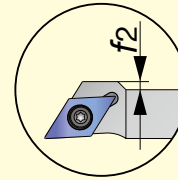
Without offset



Cutting edge style **J2**



JTDJ2CR/L1212F11  
JTDJ2CR/L1212X11



Right-hand (R) shown

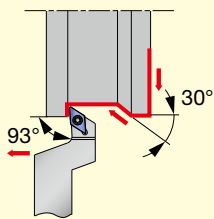
Cat. No.	Stock		Dimensions (mm)							Standard corner radius $r_e$	Insert	Parts			Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$	$f_2$			Clamp	Clamping screw	Wrench	
<b>New</b> JTDJ2CR/L0810K07	●	●	8	10	125	14	8	10	-	0.4	DC**0702	JCP-2	JDS-3525	P-2F	0.9
<b>New</b> JTDJ2CR/L1010X07	●	●	10	10	120	14	10	10	-	0.2	DC**0702	JCP-2	JDS-3525	P-2F	0.9
JTDJ2CR/L1010K07	●	●	10	10	125	14	10	10	-	0.4	DC**0702	JCP-2	JDS-3525	P-2F	0.9
<b>New</b> JTDJ2CR/L1212F07	●	●	12	12	85	14	12	12	-	0.2	DC**0702	JCP-2	JDS-3525	P-2F	0.9
<b>New</b> JTDJ2CR/L1212X07	●	●	12	12	120	14	12	12	-	0.2	DC**0702	JCP-2	JDS-3525	P-2F	0.9
<b>New</b> JTDJ2CR/L1212F11	●	●	12	12	85	20	12	12	2	0.2	DC**11T3	JCP-3	JDS-5040	P-2.5F	1.2
<b>New</b> JTDJ2CR/L1212X11	●	●	12	12	120	20	12	12	2	0.2	DC**11T3	JCP-3	JDS-5040	P-2.5F	1.2
JTDJ2CR/L1212M11	●	●	12	12	150	20	12	12	-	0.8	DC**11T3	JCP-3	JDS-5040	P-2.5F	1.2
<b>New</b> JTDJ2CR/L1616X11	●	●	16	16	120	20	16	16	-	0.2	DC**11T3	JCP-3	JDS-5040	P-2.5F	1.2
JTDJ2CR/L1616M11	●	●	16	16	150	20	16	16	-	0.8	DC**11T3	JCP-3	JDS-5040	P-2.5F	1.2

4

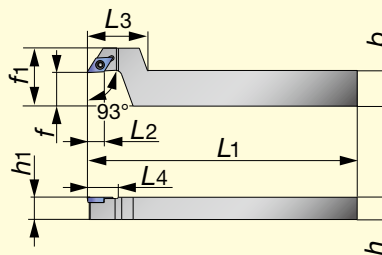
TAC External Toolholders

**JSDJCR-F External turning and profiling Stepped-head type (Positive rake, screw-on system)**

**New**



Cutting edge style **J**



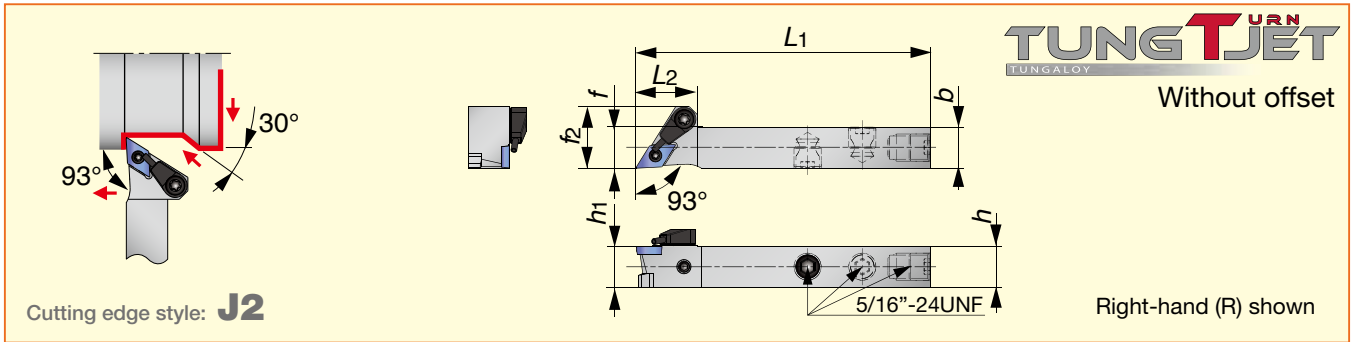
Right-hand (R) shown

Cat. No.	Stock	Dimensions (mm)									Standard corner radius $r_e$	Insert	Parts		Torque (N·m)
		$h$	$b$	$L_1$	$L_2$	$L_3$	$L_4$	$h_1$	$f$	$f_1$			Clamping screw	Wrench	
JSDJCR1016X07-F15	●	10	16	120	12.5	27	14	10	15	26	0.2	DC**0702	CSTB-2.5	T-8F	1.2
JSDJCR1216F07-F15	●	12	16	85	12.5	27	14	12	15	26	0.2	DC**0702	CSTB-2.5	T-8F	1.2
JSDJCR1216X07-F15	●	12	16	120	12.5	27	14	12	15	26	0.2	DC**0702	CSTB-2.5	T-8F	1.2
JSDJCR1216F11-F15	●	12	16	85	12.5	27	20	12	15	26	0.2	DC**1103	CSTB-4SD	T-8F	1.2
JSDJCR1216X11-F15	●	12	16	120	12.5	27	20	12	15	26	0.2	DC**1103	CSTB-4SD	T-8F	1.2
JSDJCR1620X11-F15	●	16	20	120	12.5	27	20	16	15	26	0.2	DC**1103	CSTB-4SD	T-8F	1.2

● : Stocked items

Works with high-pressure coolant

**JSDJ2CR/L** External turning and profiling **CHP type (Positive rake, screw-on system)**

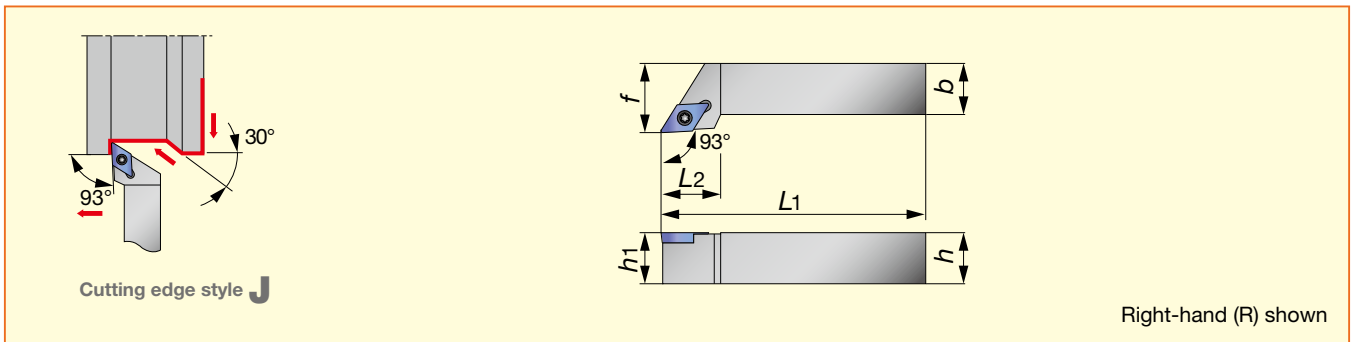


Cat. No	Stock		Dimensions (mm)							Std. corner radius $r_{\epsilon}$	Insert	Parts		Torque (N·m)
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f	f <sub>2</sub>			Clamping screw	Wrench	
JSDJ2CR/L1212F07-CHP	●	●	12	12	85	18	12	12	18	0.2	DC**0702	CSTB-4SD	T-8F	0.9
JSDJ2CR/L1212F11-CHP	●	●	12	12	85	19	12	12	20.5	0.2	DC**11T3	CSTB-4SD	T-8F	0.9

4

TAC External Toolholders

**JSDJCR/L** External turning and profiling **JS type (Positive rake, screw-on system)**



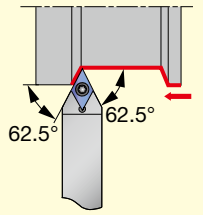
Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_{\epsilon}$	Insert	Parts		Torque (N·m)
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f			Clamping screw	Wrench	
JSDJCR/L0808H07	●	●	8	8	100	14	8	10	0.4	DC**0702	CSTB-2.5	T-8F	1.2
JSDJCR/L1010H11	●	●	10	10	100	18	10	12	0.8	DC**11T3	CSTB-4SD	T-8F	1.2
JSDJCR/L1212H07	●	●	12	12	100	14	12	16	0.4	DC**0702	CSTB-2.5	T-8F	1.2
JSDJCR/L1212H11	●	●	12	12	100	18	12	16	0.8	DC**11T3	CSTB-4SD	T-8F	1.2
JSDJCR/L1616H11	●	●	16	16	100	18	16	20	0.8	DC**11T3	CSTB-4SD	T-8F	1.2

● : Stocked items

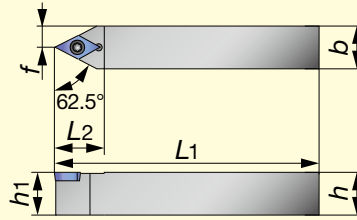
**JSDNCN**

**External profiling**

**JS type (Positive rake, screw-on system)**



Cutting edge style **N**



Right-hand (R) shown

Cat. No.	Stock	Dimensions (mm)						Standard corner radius $r_E$	Insert	Parts		Torque (N·m)
		$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench	
JSDNCN0808H07	●	8	8	100	14	8	4	0.4	DC**0702	CSTB-2.5	T-8F	1.2
<b>New</b> JSDNCN1010X07	●	10	10	120	15	10	5	0.2	DC**0702	CSTB-2.5	T-8F	1.2
<b>New</b> JSDNCN1010X11	●	10	10	120	21	10	5	0.2	DC**11T3	CSTB-4SD	T-8F	1.2
JSDNCN1010K07	●	10	10	125	14	10	5	0.4	DC**0702	CSTB-2.5	T-8F	1.2
<b>New</b> JSDNCN1212F07	●	12	12	85	15	12	6	0.2	DC**0702	CSTB-2.5	T-8F	1.2
<b>New</b> JSDNCN1212X07	●	12	12	120	15	12	6	0.2	DC**0702	CSTB-2.5	T-8F	1.2
JSDNCN1212K07	●	12	12	125	14	12	6	0.4	DC**0702	CSTB-2.5	T-8F	1.2
<b>New</b> JSDNCN1212F11	●	12	12	85	21	12	6	0.2	DC**11T3	CSTB-4SD	T-8F	1.2
JSDNCN1212H11	●	12	12	100	21	12	6	0.8	DC**11T3	CSTB-4SD	T-8F	1.2
<b>New</b> JSDNCN1212X11	●	12	12	120	21	12	6	0.2	DC**11T3	CSTB-4SD	T-8F	1.2
JSDNCN1616H11	●	16	16	100	21	16	8	0.8	DC**11T3	CSTB-4SD	T-8F	1.2
<b>New</b> JSDNCN1616X11	●	16	16	120	21	16	8	0.2	DC**11T3	CSTB-4SD	T-8F	1.2

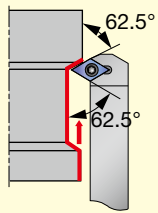
4

TAC External Toolholders

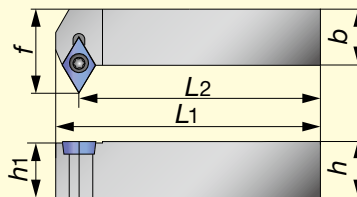
**JSDN3CR/L**

**Profiling**

**JS type (Positive rake, screw-on system)**



Cutting edge style **N3**



Right-hand (R) shown

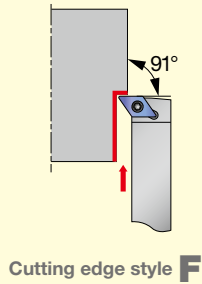
Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_E$	Insert	Parts		Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench	
JSDN3CR/L1212H07	●	●	12	12	105	100	12	18	0.4	DC**0702	CSTB-2.5	T-8F	1.2
JSDN3CR/L1616H11	●		16	16	107	100	16	25	0.8	DC**11T3	CSTB-4SD	T-8F	1.2

● : Stocked items

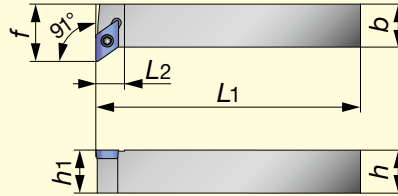
**JSDFCR/L**

**Facing**

**JS type (Positive rake, screw-on system)**



Cutting edge style **F**



Right-hand (R) shown

Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r\epsilon$	Insert	Parts		Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench	
JSDFCR/L1212H07	●	●	12	12	100	8	12	16	0.4	DC**0702	CSTB-2.5	T-8F	1.2
JSDFCR/L1616H11	●	●	16	16	100	10.5	16	22	0.8	DC**11T3	CSTB-4SD	T-8F	1.2

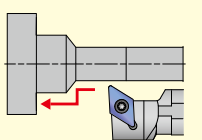
4

TAC External Toolholders

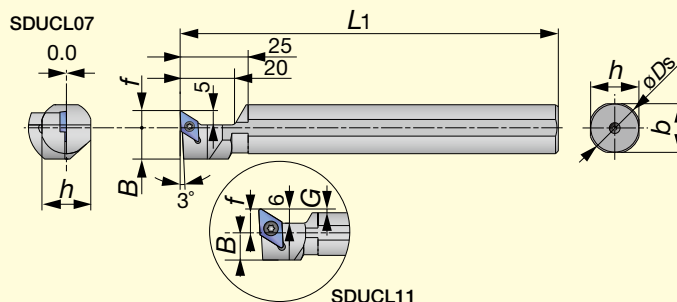
**JS-SDUCL**

**External profiling**

**JS type (Positive rake, screw-on system)**



Cutting edge style **U**

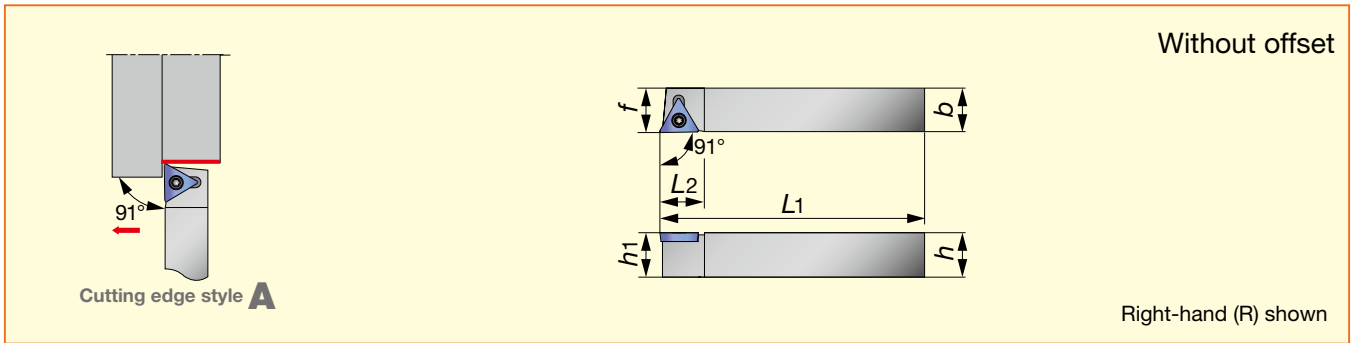


Left-hand (L) shown

Cat. No.	Stock			Dimensions (mm)						Standard corner radius $r\epsilon$	Insert	Parts		Torque (N·m)
	R	L	$\phi D_s$	$f$	$L_1$	$L_2$	$h$	$B$	$G$			Clamping screw	Wrench	
JS19K-SDUCL07	●	●	19.05	6	125	-	18	11.5	-	0.4	DC**0702	CSTB-2.5	T-8F	1.2
JS20K-SDUCL07	●	●	20	6	125	-	19	11.5	-	0.4	DC**0702	CSTB-2.5	T-8F	1.2
JS22K-SDUCL07	●	●	22	6	125	-	21	11.5	-	0.4	DC**0702	CSTB-2.5	T-8F	1.2
JS19K-SDUCL11	●	●	19.05	10	125	-	18	11.5	1.525	0.8	DC**11T3	CSTB-4SD	T-8F	1.2
JS20K-SDUCL11	●	●	20	10	125	-	19	11.5	1.0	0.8	DC**11T3	CSTB-4SD	T-8F	1.2
JS22K-SDUCL11	●	●	22	11	125	-	21	11.5	1.0	0.8	DC**11T3	CSTB-4SD	T-8F	1.2
JS25K-SDUCL11	●	●	25.4	12	125	-	24	12.7	0.7	0.8	DC**11T3	CSTB-4SD	T-8F	1.2

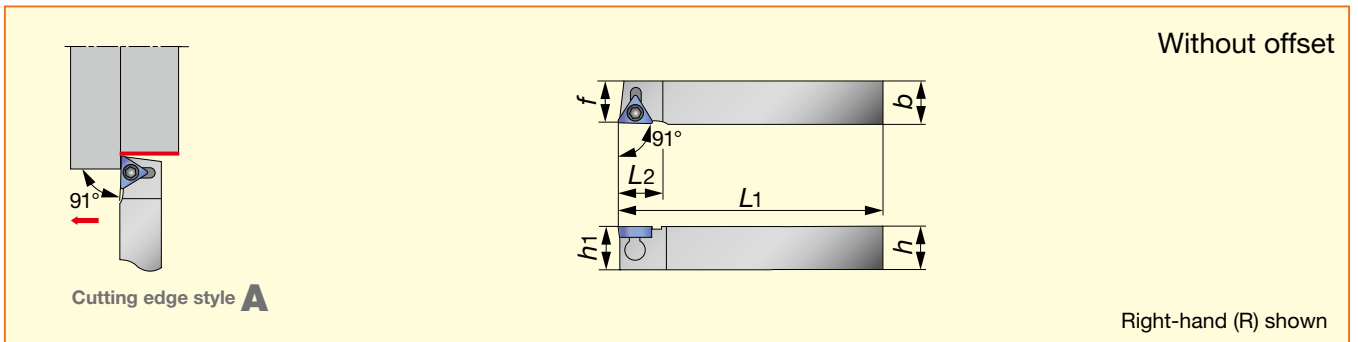
● : Stocked items

**JSTACR/L External turning JS type (Positive rake, screw-on system)**



Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_E$	Insert	Parts		Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench	
JSTACR/L0808K08	●	●	8	8	125	10	8	8	0.2	TC**0802	CSTB-2L	T-6F	0.6
JSTACR/L1010K08	●	●	10	10	125	10	10	10	0.2	TC**0802	CSTB-2L	T-6F	0.6
JSTACR/L1212K11	●	●	12	12	125	12	12	12	0.4	TC**1102	CSTB-2.5	T-8F	1.2
JSTACR/L1616H11	●	●	16	16	100	12	16	16	0.4	TC**1102	CSTB-2.5	T-8F	1.2

**JTTACR/L External turning JT type (Positive rake, back-clamping system)**



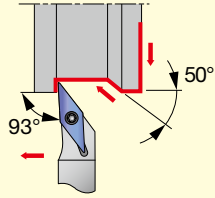
Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_E$	Insert	Parts			Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamp	Clamping screw	Wrench	
JTTACR/L0810K08	●	●	8	10	125	10	8	10	0.2	TC**0802	JCP-1	JDS-3525	P-2F	0.9
JTTACR/L1010K08	●	●	10	10	125	10	10	10	0.2	TC**0802	JCP-1	JDS-3525	P-2F	0.9
JTTACR/L1212M11	●	●	12	12	150	12	12	12	0.4	TC**1102	JCP-2	JDS-3525	P-2F	0.9
JTTACR/L1616M11	●	●	16	16	150	12	16	16	0.4	TC**1102	JCP-2	JDS-3525	P-2F	0.9

● : Stocked items

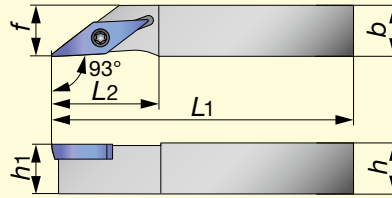
**JSVJ2BR/L External profiling**

JS type (Positive rake, screw-on system)

Without offset



Cutting edge style **J2**



Right-hand (R) shown

4 New

New

New

New

New

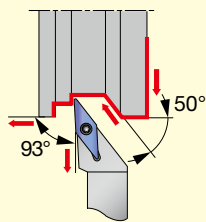
New

Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_{\epsilon}$	Insert	Parts		Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench	
JSVJ2BR/L1010X11	●	●	10	10	120	21	10	10	0.2	VB**1103	CSTB-2.5	T-8F	1.2
JSVJ2BR/L1010K11	●	●	10	10	125	21	10	10	0.2	VB**1103	CSTB-2.5	T-8F	1.2
JSVJ2BR/L1212F11	●	●	12	12	85	21	12	12	0.2	VB**1103	CSTB-2.5	T-8F	1.2
JSVJ2BR/L1212X11	●	●	12	12	120	21	12	12	0.2	VB**1103	CSTB-2.5	T-8F	1.2
JSVJ2BR/L1212K11	●	●	12	12	125	21	12	12	0.2	VB**1103	CSTB-2.5	T-8F	1.2
JSVJ2BR/L1616X11	●	●	16	16	120	21	16	16	0.2	VB**1103	CSTB-2.5	T-8F	1.2
JSVJ2BR/L1616K11	●	●	16	16	125	21	16	16	0.2	VB**1103	CSTB-2.5	T-8F	1.2

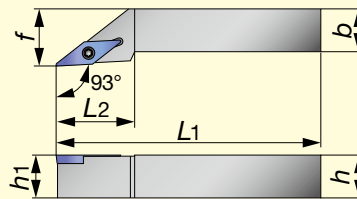
TAC External Toolholders

**JSVJBR/L External profiling**

JS type (Positive rake, screw-on system)



Cutting edge style **J**



Right-hand (R) shown

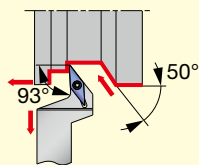
Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_{\epsilon}$	Insert	Parts		Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench	
JSVJBR/L1010H11	●	●	10	10	100	20	10	12	0.4	VB**1103	CSTB-2.5	T-8F	1.2
JSVJBR/L1212H11	●	●	12	12	100	22	12	16	0.4	VB**1103	CSTB-2.5	T-8F	1.2
JSVJBR/L1616H11	●	●	16	16	100	22	16	20	0.4	VB**1103	CSTB-2.5	T-8F	1.2

● : Stocked items

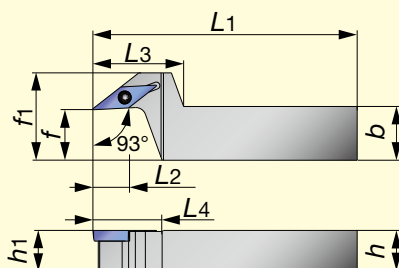


**JSVJBR-F External turning and profiling Stepped-head type (Positive rake, screw-on system)**

**New**



Cutting edge style **J**



Right-hand (R) shown

Cat. No.	Stock	Dimensions (mm)									Standard corner radius $r_\epsilon$	Insert	Parts		Torque (N·m)
		<i>h</i>	<i>b</i>	<i>L</i> <sub>1</sub>	<i>L</i> <sub>2</sub>	<i>L</i> <sub>3</sub>	<i>L</i> <sub>4</sub>	<i>h</i> <sub>1</sub>	<i>f</i>	<i>f</i> <sub>1</sub>			Clamping screw	Wrench	
JSVJBR1216F11-F15	●	12	16	85	12.6	27	21	12	15	26	0.2	VB**1103	CSTB-2.5	T-8F	1.2
JSVJBR1216X11-F15	●	12	16	120	12.6	27	21	12	15	26	0.2	VB**1103	CSTB-2.5	T-8F	1.2
JSVJBR1620X11-F15	●	16	20	120	12.6	27	21	16	15	26	0.2	VB**1103	CSTB-2.5	T-8F	1.2

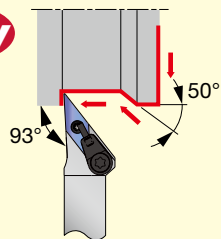
4

TAC External Toolholders

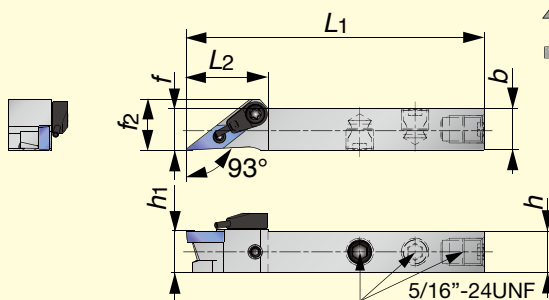
Works with high-pressure coolant

**JSVJ2BR/L-CHP External turning and profiling CHP type (Positive rake, screw-on system)**

**New**



Cutting edge style: **J2**



**TUNG T<sup>URN</sup> JET**  
TUNGALOY

Without offset

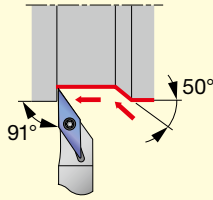
Right-hand (R) shown

Cat. No	Stock		Dimensions (mm)							Std. corner radius $r_\epsilon$	Insert	Parts		Torque (N·m)
	R	L	<i>h</i>	<i>b</i>	<i>L</i> <sub>1</sub>	<i>L</i> <sub>2</sub>	<i>h</i> <sub>1</sub>	<i>f</i>	<i>f</i> <sub>2</sub>			Clamping screw	Wrench	
JSVJ2BR/L1212F11-CHP	●	●	12	12	85	23.6	12	12	14.7	0.2	VB**1103	CSTB-2.5	T-8F	1.2

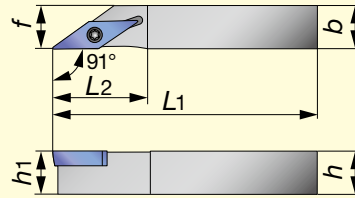
● : Stocked items

**JSVABR/L External turning JS type (Positive rake, screw-on system)**

Without offset



Cutting edge style **A**

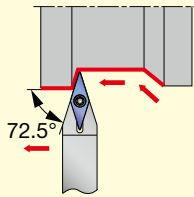


Right-hand (R) shown

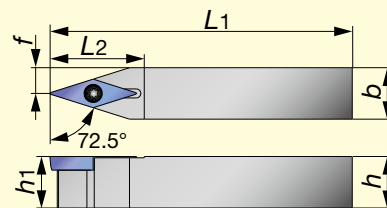
Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r\epsilon$	Insert	Parts		Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench	
JSVABR/L1010K11	●	●	10	10	125	21	10	10	0.2	VB**1103	CSTB-2.5	T-8F	1.2
JSVABR/L1212K11	●	●	12	12	125	21	12	12	0.2	VB**1103	CSTB-2.5	T-8F	1.2
JSVABR/L1616K11	●	●	16	16	125	21	16	16	0.2	VB**1103	CSTB-2.5	T-8F	1.2

**JSVNBN External profiling JS type (Positive rake, screw-on system)**

**New**



Cutting edge style **N**



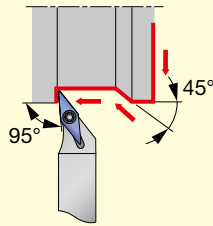
Right-hand (R) shown

Cat. No.	Stock	Dimensions (mm)						Standard corner radius $r\epsilon$	Insert	Parts		Torque (N·m)
		$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench	
JSVNBN1010X11	●	10	10	120	22	10	0	0.2	VB**1103	CSTB-2.5	T-8F	1.2
JSVNBN1212F11	●	12	12	85	22	12	0	0.2	VB**1103	CSTB-2.5	T-8F	1.2
JSVNBN1212X11	●	12	12	120	22	12	0	0.2	VB**1103	CSTB-2.5	T-8F	1.2
JSVNBN1616X11	●	16	16	120	22	16	0	0.2	VB**1103	CSTB-2.5	T-8F	1.2

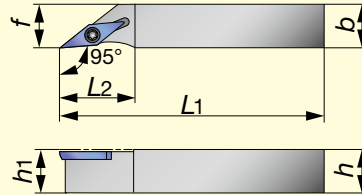
● : Stocked items

**JSVL2PR/L External turning and facing JS type (Positive rake, screw-on system)**

Without offset



Cutting edge style **L2**

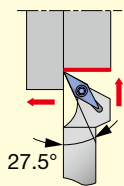


Right-hand (R) shown

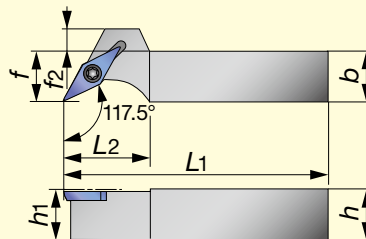
Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_E$	Insert	Parts		Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamping screw	Wrench	
<b>New</b> JSVL2PR/L1010X08	●	●	10	10	120	16	10	10	0.2	VP**0802	CSTB-2L	T-6F	0.6
JSVL2PR/L1010K08	●	●	10	10	125	16	10	10	0.2	VP**0802	CSTB-2L	T-6F	0.6
<b>New</b> JSVL2PR/L1212F08	●	●	12	12	85	16	12	12	0.2	VP**0802	CSTB-2L	T-6F	0.6
<b>New</b> JSVL2PR/L1212F11	●	●	12	12	85	21	12	12	0.2	VP**1103	CSTB-2.5	T-8F	1.2
<b>New</b> JSVL2PR/L1212X08	●	●	12	12	120	16	12	12	0.2	VP**0802	CSTB-2L	T-6F	0.6
<b>New</b> JSVL2PR/L1212X11	●	●	12	12	120	21	12	12	0.2	VP**1103	CSTB-2.5	T-8F	1.2
JSVL2PR/L1212K08	●	●	12	12	125	16	12	12	0.2	VB**0802	CSTB-2L	T-6F	0.6
<b>New</b> JSVL2PR/L1616X08	●	●	16	16	120	16	16	16	0.2	VP**0802	CSTB-2L	T-6F	0.6
JSVL2PR/L1616K08	●	●	16	16	125	16	16	16	0.2	VP**0802	CSTB-2L	T-6F	0.6
<b>New</b> JSVL2PR/L1616X11	●	●	16	16	120	21	16	16	0.2	VP**1103	CSTB-2.5	T-8F	1.2

**JSVP2PR/L External profiling and undercut JS type (Positive rake, screw-on system)**

Without offset



Cutting edge style **P2**



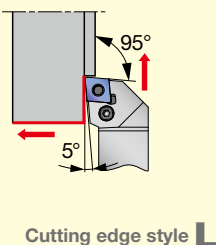
Right-hand (R) shown

Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_E$	Insert	Parts		Torque (N·m)	
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			$f_2$	Clamping screw		Wrench
JSVP2PR/L1010K08	●	●	10	10	125	16	10	10	4	0.2	VP**0802	CSTB-2L	T-6F	0.6
JSVP2PR/L1212K08	●	●	12	12	125	16	12	12	2	0.2	VP**0802	CSTB-2L	T-6F	0.6
JSVP2PR/L1616K08	●	●	16	16	125	16	16	16	2	0.2	VP**0802	CSTB-2L	T-6F	0.6
JSVP2PR/L1010K11	●	●	10	10	125	20	10	10	8	0.2	VP**1103	CSTB-2.5	T-8F	1.2
JSVP2PR/L1212K11	●	●	12	12	125	20	12	12	6	0.2	VP**1103	CSTB-2.5	T-8F	1.2
JSVP2PR/L1616K11	●	●	16	16	125	20	16	16	6	0.2	VP**1103	CSTB-2.5	T-8F	1.2

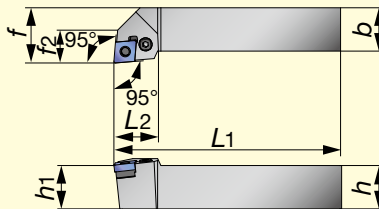
● : Stocked items

**PCLNR** External turning and facing P type (Negative rake, lever-lock system)

**New**



Cutting edge style **L**



Right-hand (R) shown

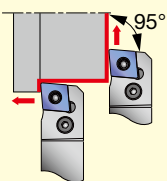
Cat. No.	Stock	Dimensions (mm)							Standard corner radius $r\epsilon$	Insert	Parts					Torque (N·m)
		$h$	$b$	$L_1$	$L_2$	$h_1$	$f$	$f_2$			Shim	Clamping screw	Lever	Spring	Wrench	
<b>PCLNR2020H12</b>	●	20	20	100	26	20	25	18	0.8	CNMG1204	LSC42 D30	LCS4	LCL4	LSP4	P-3	3.0

TAC External Toolholders

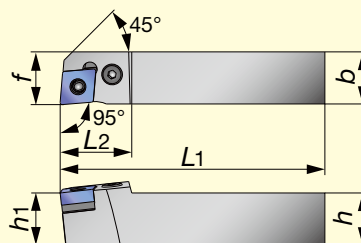
4

**PCL2NR** External turning and facing P type (Negative rake, lever-lock system)

**New**



Cutting edge style **L2**



Without offset

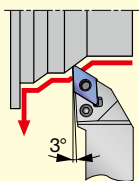
Right-hand (R) shown

Cat. No.	Stock	Dimensions (mm)							Standard corner radius $r\epsilon$	Insert	Parts					Torque (N·m)
		$h$	$b$	$L_1$	$L_2$	$h_1$	$f$				Shim	Clamping screw	Lever	Spring	Wrench	
<b>PCL2NR2020H12</b>	●	20	20	100	26	20	20	0.8	CNMG1204	LSC42 D30	LCS4	LCL4	LSP4	P-3	3.0	

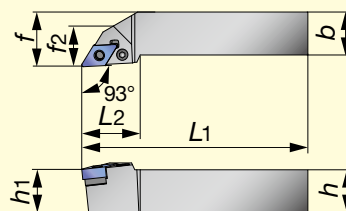
● : Stocked items

**PDJNR** External turning and profiling P type (Negative rake, lever-lock system)

**New**



Cutting edge style **J**



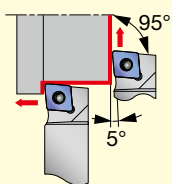
Right-hand (R) shown

Cat. No.	Stock	Dimensions (mm)							Standard corner radius $r_E$	Insert	Parts					Torque (N·m)	
		$h$	$b$	$L_1$	$L_2$	$h_1$	$f$	$f_2$			Shim	Clamping screw	Lever	Spring	Wrench		
<b>PDJNR2020H15</b>	●	20	20	100	32	20	25	20	0.8	DNMG1504	LSD42	D30	LCS4	LCL4	LSP4	P-3	3.0

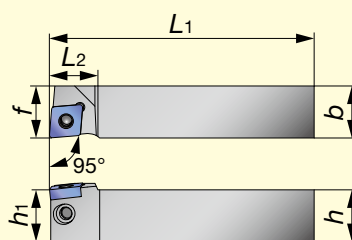
4

TAC External Toolholders

**JTCL2NR/L** Turning / Facing JT-type / External Turning (Negative rake, back-clamping system)



Cutting edge style **L2**



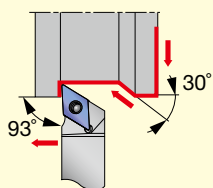
Without offset

Right-hand (R) shown

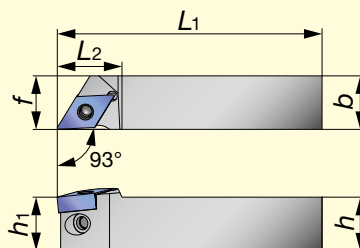
Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_E$	Applicable inserts	Parts		
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamp	Clamping screw	Wrench
<b>JTCL2NR/L1216K09</b>	●	●	12	16	125	15.6	12	16	0.4	CN**0903	JCP-3N	JDS-5040	P-2.5F
<b>JTCL2NR/L1616K09</b>	●	●	16	16	125	15.6	16	16	0.4	CN**0903	JCP-3N	JDS-5040	P-2.5F

● : Stocked items

**JTDJ2NR/L** Turning / profiling JT-type / External Turning (Negative rake, back-clamping system)



Cutting edge style **J2**



Without offset

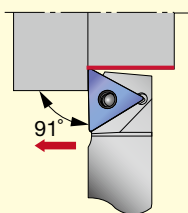
Right-hand (R) shown

Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_E$	Applicable inserts	Parts		
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamp	Clamping screw	Wrench
JTDJ2NR/L1216K11	●	●	12	16	125	15.6	12	16	0.4	DN**1104	JCP-3N	JDS-5040	P-2.5F
JTDJ2NR/L1616K11	●	●	16	16	125	15.6	16	16	0.4	DN**1104	JCP-3N	JDS-5040	P-2.5F

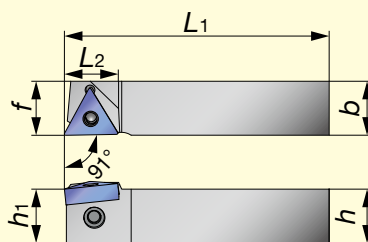
4

TAC External Toolholders

**JTTANR/L** External turning JT type (Negative rake, back-clamping system)



Cutting edge style **A**



Without offset

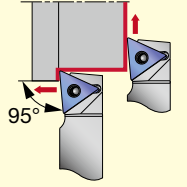
Right-hand (R) shown

Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_E$	Insert	Parts			Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamp	Clamping screw	Wrench	
JTTANR/L1216K16	●	●	12	16	125	19.8	12	16	0.4	TN**1604	JCP-3N	JDS-5040	P-2.5F	1.2
JTTANR/L1616K16	●	●	16	16	125	19.8	16	16	0.4	TN**1604	JCP-3N	JDS-5040	P-2.5F	1.2

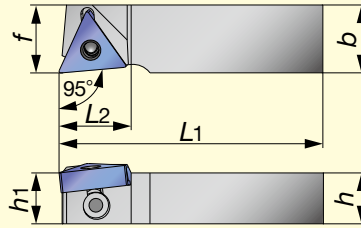
● : Stocked items

**JTTLNR/L** External turning and facing JT type (Negative rake, back-clamping system)

**New**



Cutting edge style **L**



Without offset

Right-hand (R) shown

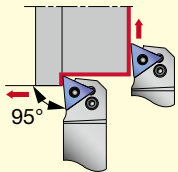
Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_E$	Insert	Parts			Torque (N·m)
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Clamp	Clamping screw	Wrench	
JTTLNR/L1216F16	●	●	12	16	85	17	12	16	0.4	TN**1604	JCP-3N	JDS-5040	P-2.5F	1.0
JTTLNR/L1216X16	●	●	12	16	120	17	12	16	0.4	TN**1604	JCP-3N	JDS-5040	P-2.5F	1.0
JTTLNR/L1616X16	●	●	16	16	120	17	16	16	0.4	TN**1604	JCP-3N	JDS-5040	P-2.5F	1.0

4

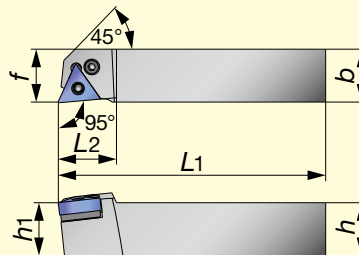
TAC External Toolholders

**PTL2NR/L** External turning and facing P type (Negative rake, lever-lock system)

**New**



Cutting edge style **L2**



Without offset

Right-hand (R) shown

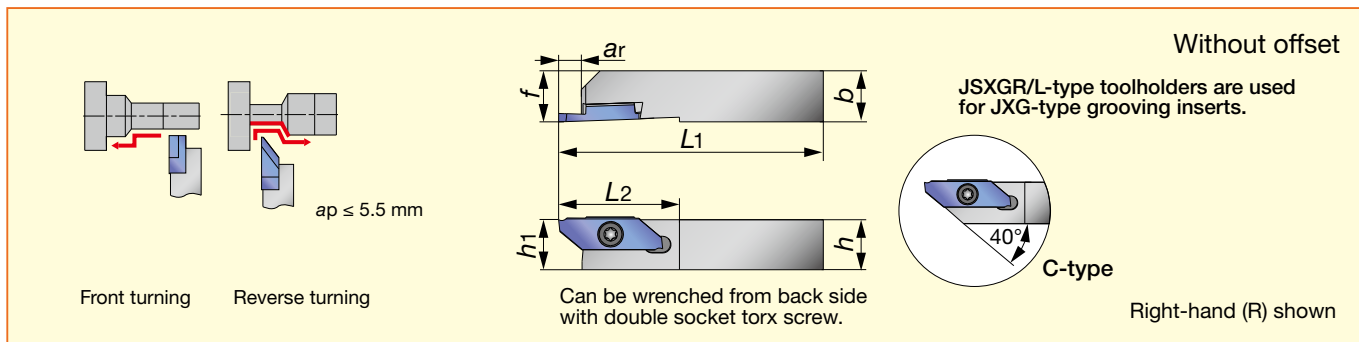
Cat. No.	Stock		Dimensions (mm)						Standard corner radius $r_E$	Insert	Parts				Torque (N·m)	
	R	L	$h$	$b$	$L_1$	$L_2$	$h_1$	$f$			Shim	Clamping screw	Lever	Spring		Wrench
PTL2NR/L2020H16	●	●	20	20	100	22	20	20	0.4	TN**1604	LST317	LCS3	LCL3	LSP3	P-2.5	2.0

● : Stocked items

**JSXGR/L**

**Front and reverse turning**

**J-type (Screw-on system)**

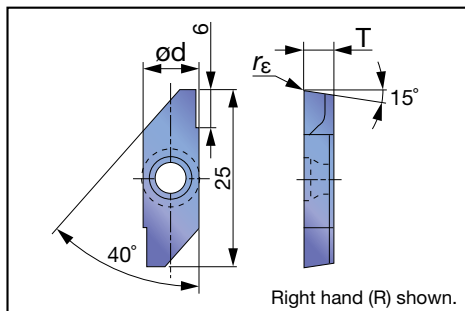


Cat. No.	Stock		Dimensions (mm)							Applicable inserts	Clamping screw	Wrench
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	a <sub>r</sub>	h <sub>1</sub>	f			
JSXGR/L1010K8-C	●	●	10	10	125	29	6.7	10	9.9	JXFR/L8*** / JXRR/L8***	CSTB-4SD	T-8F (T-8L)
JSXGR/L1212K8-C	●	●	12	12	125	29	6.7	12	11.9	JXFR/L8*** / JXRR/L8***	CSTB-4SD	T-8F (T-8L)
JSXGR/L1616K8	●	●	16	16	125	29	6.5	16	15.9	JXFR/L8*** / JXRR/L8***	CSTB-4SD	T-8F (T-8L)
JSXGR/L2020K8	●	●	20	20	125	29	6.5	20	19.9	JXFR/L8*** / JXRR/L8***	CSTB-4SD	T-8F (T-8L)
JSXGR/L2525K8	●	●	25	25	125	29	6.5	25	24.9	JXFR/L8*** / JXRR/L8***	CSTB-4SD	T-8F (T-8L)

4

TAC External Toolholders

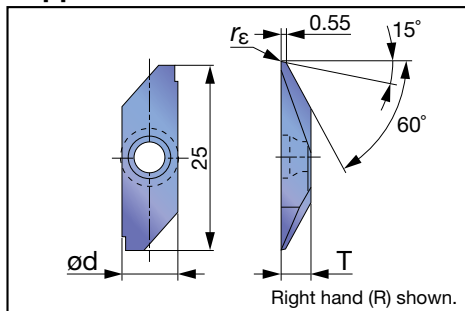
**Applicable inserts**



**JXF-type inserts (with sharp edges) for front turning**

Cat. No.	Dimensions (mm)				Stock		
	ød	T	r <sub>ε</sub>	Max. depth of cut	Coated	Cermet	Uncoated
					J740	NS530	TH10
R	L	R	L	R	L		
JXFR/L8000F	8	3.97	0.03	5.5	●	●	●
JXFR/L8010F	8	3.97	0.1	5.5	●	●	●

**Applicable inserts**



**JXR-type inserts (with sharp edges) for reverse turning**

Cat. No.	Dimensions (mm)				Stock		
	ød	T	r <sub>ε</sub>	Max. depth of cut	Coated	Cermet	Uncoated
					J740	NS530	TH10
R	L	R	L	R	L		
JXRR/L8000F	8	3.97	0.03	5.5	●	●	●
JXRR/L8010F	8	3.97	0.1	5.5	●	●	●

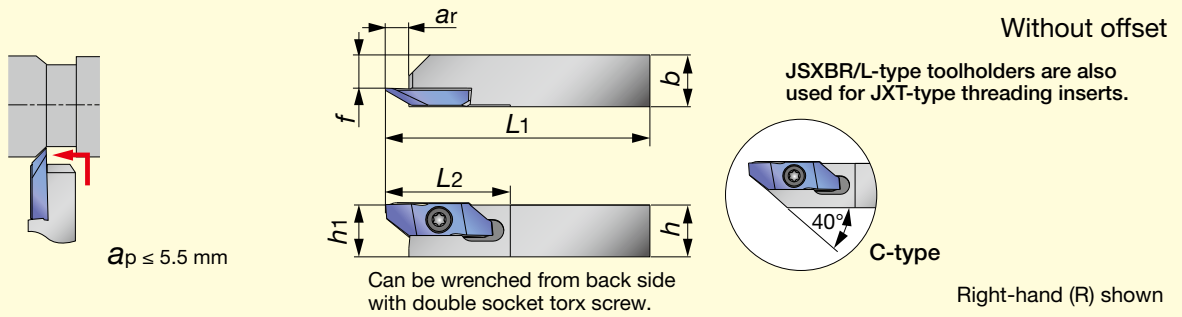
● : Stocked items



**JSXBR/L**

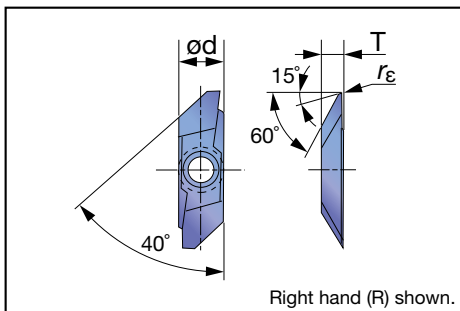
**Back turning**

**J-type (Screw-on system)**



Cat. No.	Stock		Dimensions (mm)							Applicable inserts	Clamping screw	Wrench	
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	a <sub>r</sub>	h <sub>1</sub>	f			R	L
JSXBR/L1010K8-C	●	●	10	10	125	29	6.7	10	5.7	JXBR/L8***	CSTB-4SD	T-8F	(T-8L)
JSXBR/L1212K8-C	●	●	12	12	125	29	6.7	12	7.7	JXBR/L8***	CSTB-4SD	T-8F	(T-8L)
JSXBR/L1616K8	●	●	16	16	125	29	6.4	16	11.7	JXBR/L8***	CSTB-4SD	T-8F	(T-8L)
JSXBR/L2020K8	●	●	20	20	125	29	6.4	20	15.7	JXBR/L8***	CSTB-4SD	T-8F	(T-8L)
JSXBR/L2525K8	●	●	25	25	125	29	6.4	25	20.7	JXBR/L8***	CSTB-4SD	T-8F	(T-8L)

**Applicable inserts**



**JXB-type inserts (with sharp edges)**

Cat. No.	Dimensions (mm)				Stock					
	ød	T	r <sub>ε</sub>	Max. depth of cut	Coated J740		Cermet NS530		Uncoated TH10	
					R	L	R	L	R	L
JXBR/L8000F	8	3.97	0.03	5.5	●	●	●		●	●
JXBR/L8005F	8	3.97	0.05	5.5	●	●			●	●
JXBR/L8010F	8	3.97	0.1	5.5	●	●	●		●	●
JXBR/L8015F	8	3.97	0.15	5.5	●	●			●	●

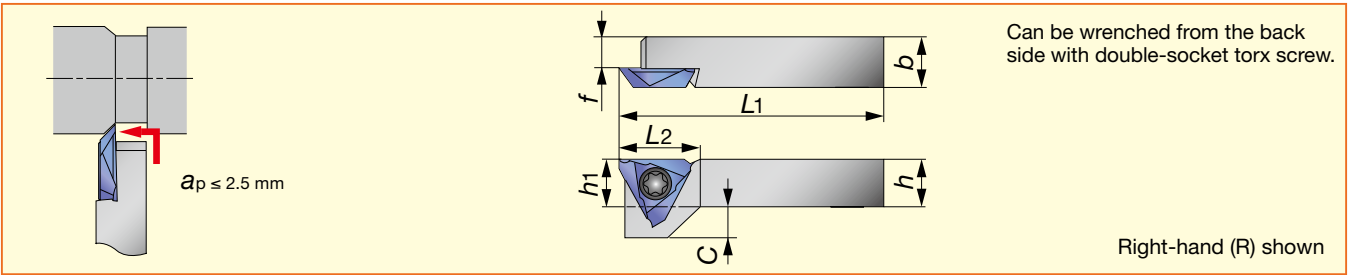
**JXB-type inserts (with honed edges)**

Cat. No.	Dimensions (mm)				Stock					
	ød	T	r <sub>ε</sub>	Max. depth of cut	Coated J740		Cermet NS530		Uncoated TH10	
					R	L	R	L	R	L
JXBR/L8005	8	3.97	0.05	5.5	●	●				
JXBR/L8010	8	3.97	0.1	5.5	●	●				
JXBR/L8015	8	3.97	0.15	5.5	●	●				

● : Stocked items

**JSTBR/L Back turning**

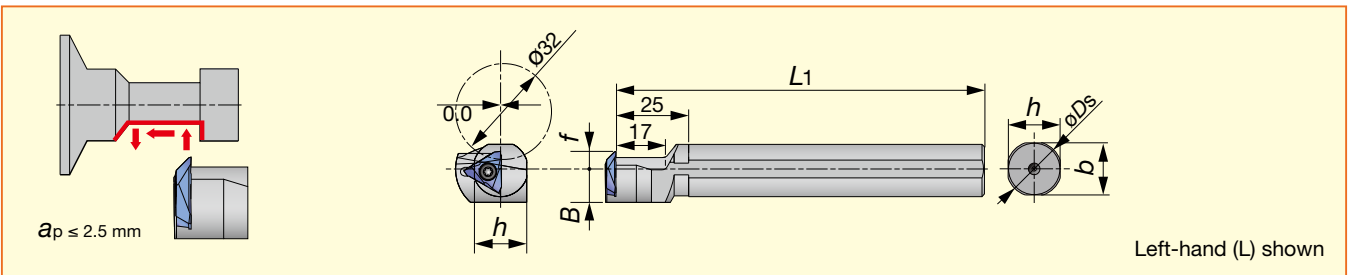
JS type (Screw-on system)



Cat. No.	Stock		Dimensions (mm)							Insert	Parts			Torque (N-m)
	R	L	h	b	L1	L2	h1	f	C		Clamping screw	Wrench (Optional)		
<b>New</b> JSTBR/L1010X3	●	●	10	10	120	15	12	10	5	JTBR/L3**	CSTB-4SD	T-8F (T-8L)	1.2	
JSTBR/L1010K3	●	●	12	12	125	15	10	10	5	JTBR/L3**	CSTB-4SD	T-8F (T-8L)	1.2	
<b>New</b> JSTBR/L1212F3	●	●	12	12	85	15	12	12	3	JTBR/L3**	CSTB-4SD	T-8F (T-8L)	1.2	
<b>New</b> JSTBR/L1212X3	●	●	12	12	120	15	12	12	3	JTBR/L3**	CSTB-4SD	T-8F (T-8L)	1.2	
JSTBR/L1212K3	●	●	12	12	125	15	12	12	3	JTBR/L3**	CSTB-4SD	T-8F (T-8L)	1.2	
<b>New</b> JSTBR/L1616X3	●	●	16	16	120	15	16	16	-	JTBR/L3**	CSTB-4SD	T-8F (T-8L)	1.2	
JSTBR/L1616K3	●	●	16	16	125	15	16	16	-	JTBR/L3**	CSTB-4SD	T-8F (T-8L)	1.2	

**JS-TBL3 Back turning**

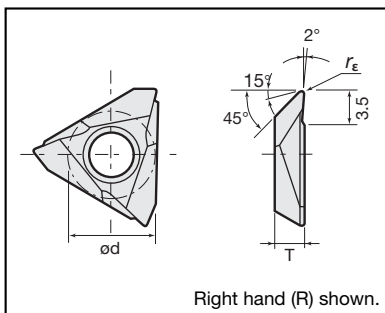
JS type (Screw-on system)



Cat. No.	Stock	Dimensions (mm)							Insert	Parts		Torque (N-m)
		øDs	f	L1	L2	h	B	Clamping screw		Wrench		
JS19K-TBL3	●	19.05	6	125	-	18	11.5	JTBR3***	CSTB-4S	T-15F	3.0	
JS20K-TBL3	●	20	6	125	-	19	11.5	JTBR3***	CSTB-4S	T-15F	3.0	
JS22K-TBL3	●	22	6	125	-	21	11.5	JTBR3***	CSTB-4S	T-15F	3.0	
JS25K-TBL3	●	25.4	10	125	-	24	12.7	JTBR3***	CSTB-4S	T-15F	3.0	

Notes: The right-hand insert (JTBR3\*\*) is used for the Left-hand toolholders (JS\*\*-TBL3).

**Applicable inserts**



**JTB-type inserts (with sharp edges)**

Cat. No.	Dimensions (mm)				Stock					
	ød	T	rE	Max. depth of cut	Coated		Cermet		Uncoated	
					J740	SH725	NS9530	TH10	R	L
JTBR/L3000F	9.438	3.18	0.03	2.5	●	●	●	●	●	●
JTBR/L3005F	9.438	3.18	0.05	2.5	●	●	●	●	●	●
JTBR/L3010F	9.438	3.18	0.1	2.5	●	●	●	●	●	●
JTBR/L3015F	9.438	3.18	0.15	2.5	●	●	●	●	●	●

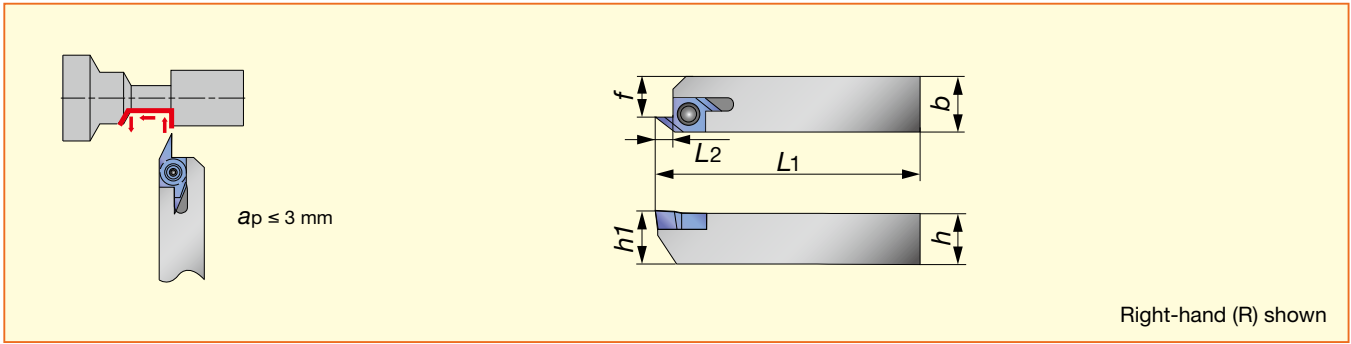
**JTB-type inserts (with honed edges)**

Cat. No.	Dimensions (mm)				Stock					
	ød	T	rE	Max. depth of cut	Coated		Coated cermet		Uncoated	
					J740	J9530	J9530	TH10	R	L
JTBR/L3005	9.438	3.18	0.05	2.5	●	●	●	●	●	●
JTBR/L3010	9.438	3.18	0.1	2.5	●	●	●	●	●	●
JTBR/L3015	9.438	3.18	0.15	2.5	●	●	●	●	●	●

● : Stocked items

4 TAC External Toolholders

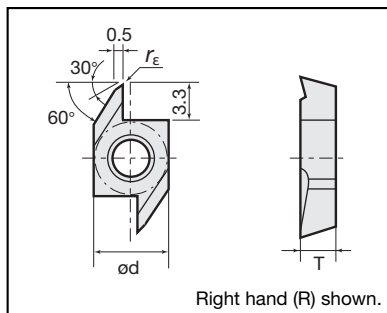
**JSEGR/L Back turning JS type (Screw-on system)**



Right-hand (R) shown

Cat. No.	Stock		Dimensions (mm)						Insert	Parts			Torque (N·m)
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f		Clamping screw		Wrench (Optional)	
JSEGR/L1010K10	●	●	10	10	125	3.3	10	7.5	J10ER/L****	CSTB-2.5	T-8F	(T-8L)	1.2
JSEGR/L1212K10	●	●	12	12	125	3.3	12	9.5	J10ER/L****	CSTB-2.5	T-8F	(T-8L)	1.2
JSEGR/L1616K10	●	●	16	16	125	3.3	16	13.5	J10ER/L****	CSTB-2.5	T-8F	(T-8L)	1.2

**Applicable inserts**



Right hand (R) shown.

**J10E-type inserts (with sharp edges)**

Cat. No.	Dimensions (mm)				Stock				
	ød	T	r <sub>E</sub>	Max. depth of cut	Coated		Cermet		Uncoated
					J740	SH725	NS9530	TH10	
J10ER/L005BF	6.35	3.18	0.05	3	●	●	●	●	●
J10ER/L010BF	6.35	3.18	0.1	3	●	●	●	●	●
J10ER/L015BF	6.35	3.18	0.15	3	●	●	●		

**J10E-type inserts (with honed edges)**

Cat. No.	Dimensions (mm)				Stock			
	ød	T	r <sub>E</sub>	Max. depth of cut	Coated		Coated cermet	Uncoated
					J740	J9530	J9530	TH10
J10ER/L005B	6.35	3.18	0.05	3	●	●	●	
J10ER/L010B	6.35	3.18	0.1	3	●	●	●	
J10ER/L015B	6.35	3.18	0.15	3	●			

Notes: Right hand holder use right hand insert and left hand holder use left hand insert.

● : Stocked items

# Chapter Composition of TAC Internal Toolholders

- ◆ Products are arranged by the series as follows:  
TinyMini-Turn, Stream Jet Bars, MiniForce-Turn
- ◆ In the same series, they are arranged by the insert shape to be used.  
In the same group, they are arranged by the cutting edge style.

Cat. No. of TAC internal toolholder

Typical application  
Main application (such as internal turning, facing, profiling) of the toolholder type is illustrated.

Series name

Designation of toolholder type

Machining type

Type of clamping system

Replacement parts

**STREAMJETBAR**

**Internal toolholders, positive type**

**SCLCR/L Boring & internal facing**      **S-type (Positive, screw-on)**

**Steel shank**

Toolholder Cat. No.	Stock Min. R L	Stock Min. ODmm	Dimensions (mm)							Applicable Inserts	Parts Catalogue	Torque Min. (N.m)	
			ODs	f	L1	L2	h	f2	φ				
AMF-SCLCR/L03-0050	5	4	2.5	80	9	3.8	-	0°	-15°	0.2	CCCD03X1	CSTA-1.6 T-F 0.6	1.2
AMF-SCLCR/L03-0060	5	6	3	80	9	4.8	-	0°	-13°	0.2	CCCD03X3	CSTA-1.6 T-F 0.6	1.2
AMG-SCLCR/L04-0070	7	6	3.5	90	11	5.75	-	0°	-13°	0.2	CCCD04T1	CSB-2 T-F 0.6	0.6
AMG-SCLCR/L04-0080	7	7	4	90	12	6.75	-	0°	-11°	0.2	CCCD04T2	CSB-2 T-F 0.6	0.6
ADH-SCLCR/L05-D100	10	8	5.5	100	16	7.5	-	0°	-13°	0.4	CCCD0602	CSB-2.5S T-F 1.2	1.4
AI0F-SCLCR/L05-D120	12	10	6	80	20	9	-	0°	-10°	0.4	CCCD0602	CSB-2.5S T-F 1.2	1.2
AI0K-SCLCR/L05-D120	12	10	6	125	20	9	-	0°	-10°	0.4	CCCD0602	CSB-2.5S T-F 1.2	1.2
AI0H-SCLCR/L05-D140	14	12	7	100	24	11	-	0°	-8°	0.4	CCD0602	CSB-2.5S T-F 1.2	1.2
AI2M-SCLCR/L05-D140	14	12	7	150	24	11	-	0°	-8°	0.4	CCCD0602	CSB-2.5S T-F 1.2	1.2
AI2H-SCLCR/L05-D160	16	12	9	100	24	11	-	0°	-7°	0.4	CCCD0602	CSB-2.5S T-F 1.2	1.2
AI2M-SCLCR/L05-D180	18	12	9	150	24	11	-	0°	-7°	0.4	CCCD0602	CSB-2.5S T-F 1.2	1.2
AI6K-SCLCR/L09-D168	18	16	9	125	32	15	-	0°	-9°	0.8	CCCD09T3	CSB-4S T-15F 3.0	3.0
AI6D-SCLCR/L09-D180	18	16	9	180	32	15	-	0°	-10°	0.8	CCCD09T3	CSB-4S T-15F 3.0	3.0
AI8K-SCLCR/L09-D200	20	16	11	125	32	15	-	0°	-9°	0.8	CCCD09T3	CSB-4S T-15F 3.0	3.0
AI6O-SCLCR/L09-D200	20	16	11	180	32	15	-	0°	-9°	0.8	CCCD09T3	CSB-4S T-15F 3.0	3.0
AI8R-SCLCR/L09-D220	22	20	11	200	32	18	-	0°	-8°	0.8	CCCD09T3	CSB-4S T-15F 3.0	3.0
AI8S-SCLCR/L09-D270	27	25	13.5	250	45	23	-	0°	-8°	0.8	CCCD09T3	CSB-4S T-15F 3.0	3.0

**Carbide shank**

Toolholder Cat. No.	Stock Min. R L	Stock Min. ODmm	Dimensions (mm)							Applicable Inserts	Parts Catalogue	Torque Min. (N.m)	
			ODs	f	L1	L2	h	f2	φ				
EMG-SCLCR/L03-0050	5	4	2.5	80	9	3.8	-	0°	-15°	0.2	CCCD03X1	CSTA-1.6 T-F 0.6	0.6
EMG-SCLCR/L03-0060	5	6	3	80	10	4.8	-	0°	-13°	0.2	CCCD03X3	CSTA-1.6 T-F 0.6	0.6
EMH-SCLCR/L04-0070	7	6	3.5	100	12	5.75	-	0°	-13°	0.2	CCCD04T1	CSB-2 T-F 0.6	0.6
EMG-SCLCR/L04-0080	7	7	4	100	14	6.75	-	0°	-11°	0.2	CCCD04T2	CSB-2 T-F 0.6	0.6
EIOF-SCLCR/L05-D100	10	8	5.5	125	22	7.5	-	0°	-13°	0.4	CCCD0602	CSB-2.5S T-F 1.2	1.2
E10F-SCLCR/L05-D120	12	10	6	80	25	9	-	0°	-10°	0.4	CCD0602	CSB-2.5S T-F 1.2	1.2
E10K-SCLCR/L05-D120	12	10	6	100	25	9	-	0°	-10°	0.4	CCCD0602	CSB-2.5S T-F 1.2	1.2
E10M-SCLCR/L05-D140	14	12	7	110	27	11	-	0°	-8°	0.4	CCCD0602	CSB-2.5S T-F 1.2	1.2
E12J-SCLCR/L05-D140	14	12	7	160	27	11	-	0°	-8°	0.4	CCCD0602	CSB-2.5S T-F 1.2	1.2
E12H-SCLCR/L05-D160	16	12	9	110	27	11	-	0°	-8°	0.4	CCCD0602	CSB-2.5S T-F 1.2	1.2
E12D-SCLCR/L05-D180	18	12	9	160	27	11	-	0°	-8°	0.4	CCCD0602	CSB-2.5S T-F 1.2	1.2
E16K-SCLCR/L09-D168	18	16	9	100	32	15	-	0°	-9°	0.8	CCCD09T3	CSB-4S T-15F 3.0	3.0
E16L-SCLCR/L09-D180	18	16	9	130	32	15	-	0°	-10°	0.8	CCCD09T3	CSB-4S T-15F 3.0	3.0
E18R-SCLCR/L09-D200	20	16	11	100	32	15	-	0°	-9°	0.8	CCCD09T3	CSB-4S T-15F 3.0	3.0
E16O-SCLCR/L09-D200	20	16	11	130	32	15	-	0°	-9°	0.8	CCCD09T3	CSB-4S T-15F 3.0	3.0
E18R-SCLCR/L09-D220	22	20	11	200	32	15	-	0°	-8°	0.8	CCCD09T3	CSB-4S T-15F 3.0	3.0
E18S-SCLCR/L09-D270	27	25	13.5	300	45	23	-	0°	-8°	0.8	CCCD09T3	CSB-4S T-15F 3.0	3.0

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SCLCR CD type), and the left hand insert (L) is used for the right hand toolholders (SCLCR CD type).

● Stocked items

**STREAMJETBAR**

**SCLPR/L Boring & internal facing**      **S-type (Positive, screw-on)**

**Steel shank**

Toolholder Cat. No.	Stock Min. R L	Stock Min. ODmm	Dimensions (mm)							Applicable Inserts	Parts Catalogue	Torque Min. (N.m)	
			ODs	f	L1	L2	h	f2	φ				
A08K-SCLPR/L05-D100	10	8	5.5	100	16	7.5	-	+5°	-8°	0.4	CPD0902	CSB-2.5S T-F 1.2	1.2
A10K-SCLPR/L05-D120	12	10	6	125	20	9	-	+5°	-5°	0.4	CPD0902	CSB-2.5S T-F 1.2	1.2
A12M-SCLPR/L05-D140	14	12	7	150	24	11	-	+5°	-4°	0.4	CPD0902	CSB-2.5S T-F 1.2	1.2
A12M-SCLPR/L05-D180	16	12	9	150	24	11	-	+5°	-3°	0.4	CPD0902	CSB-2.5S T-F 1.2	1.2
A16K-SCLPR/L09-D168	18	16	9	180	32	15	-	+5°	-3.5°	0.8	CPD0903	CSB-4.060 T-15F 3.0	3.0
A16K-SCLPR/L09-D200	20	16	11	180	32	15	-	+5°	-3°	0.8	CPD0903	CSB-4.060 T-15F 3.0	3.0
A20R-SCLPR/L09-D220	22	20	11	200	36	18	-	+5°	-2°	0.8	CPD0903	CSB-4.060 T-15F 3.0	3.0
A25S-SCLPR/L09-D270	27	25	13.5	250	45	23	-	+5°	-1°	0.8	CPD0903	CSB-4.060 T-15F 3.0	3.0

**Carbide shank**

Toolholder Cat. No.	Stock Min. R L	Stock Min. ODmm	Dimensions (mm)							Applicable Inserts	Parts Catalogue	Torque Min. (N.m)	
			ODs	f	L1	L2	h	f2	φ				
E08K-SCLPR/L05-D100	10	8	5.5	125	22	7.5	-	+5°	-8°	0.4	CPD0902	CSB-2.5S T-F 1.2	1.2
E10M-SCLPR/L05-D120	12	10	6	150	25	9	-	+5°	-5°	0.4	CPD0902	CSB-2.5S T-F 1.2	1.2
E10H-SCLPR/L05-D120	12	10	6	100	25	9	-	+5°	-5°	0.4	CPD0902	CSB-2.5S T-F 1.2	1.2
E12D-SCLPR/L05-D140	14	12	7	160	27	11	-	+5°	-4°	0.4	CPD0902	CSB-2.5S T-F 1.2	1.2
E12J-SCLPR/L05-D140	14	12	7	110	27	11	-	+5°	-4°	0.4	CPD0902	CSB-2.5S T-F 1.2	1.2
E12D-SCLPR/L05-D160	16	12	9	160	27	11	-	+5°	-3°	0.4	CPD0902	CSB-2.5S T-F 1.2	1.2
E12J-SCLPR/L05-D160	16	12	9	110	27	11	-	+5°	-3°	0.4	CPD0902	CSB-2.5S T-F 1.2	1.2
E16K-SCLPR/L09-D168	18	16	9	100	32	15	-	+5°	-3.5°	0.8	CPD0903	CSB-4.060 T-15F 3.0	3.0
E16L-SCLPR/L09-D180	18	16	9	130	32	15	-	+5°	-3°	0.8	CPD0903	CSB-4.060 T-15F 3.0	3.0
E18R-SCLPR/L09-D200	20	16	11	100	32	15	-	+5°	-3°	0.8	CPD0903	CSB-4.060 T-15F 3.0	3.0
E16O-SCLPR/L09-D200	20	16	11	130	32	15	-	+5°	-3°	0.8	CPD0903	CSB-4.060 T-15F 3.0	3.0
E18R-SCLPR/L09-D220	22	20	11	200	32	15	-	+5°	-3°	0.8	CPD0903	CSB-4.060 T-15F 3.0	3.0

When using a right or left hand insert, the right hand (R) insert is used for the left hand toolholders (SCLPR CD type), and the left hand insert (L) is used for the right hand toolholders (SCLPR CD type).

● Stocked items

Dimensions of toolholders

Symbol of stock status

Applicable TAC inserts

## Ordering information

- When ordering TAC boring toolholders, please specify Cat. No. and quantity.  
Example: **A07G-STUPR07-D080** 1 piece
- Standard packing quantity is 1 piece
- Inserts must be ordered separately.

# 5

## TAC Internal Toolholders

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### Guidance

#### ■ TAC Internal Toolholder overview

<b>TINY<sup>INI</sup>MTURN</b> .....	5-2
<b>STREAMJETBAR</b> .....	5-14
<b>MINI<sup>FCI</sup>TURN</b> .....	5-15

### Products

#### ■ TAC Internal Toolholder

<b>TINY<sup>INI</sup>MTURN</b> .....	5-3
<b>STREAMJETBAR</b> .....	5-16
<b>MINI<sup>FCI</sup>TURN</b> .....	5-31

# Overview of J series Internal Turning

## TINY<sup>INI</sup>MTURN

- 146 solid bar items in a wide range of geometries
- Minimum boring diameter:  $\varnothing D_m = 0.6 \text{ mm}$



### Boring, profiling, chamfering

Type	Application	Shank diameter $\varnothing D_s$ (mm)	Min. bore dia. $\varnothing D_m$ (mm)					
			0	2	4	6	8	10
JBT ▶ 5-3	Boring, profiling, chamfering	$\varnothing 4, \varnothing 7$	$\varnothing 0.6$	[Green bar from 0.6 to 7.0]				$\varnothing 7.0$
JBP ▶ 5-4	Boring, chamfering	$\varnothing 4, \varnothing 7$		$\varnothing 2.8$	[Green bar from 2.8 to 5.0]		$\varnothing 5.0$	
JBU ▶ 5-4	Back boring, chamfering	$\varnothing 7$			$\varnothing 5.0$	[Green bar from 5.0 to 5.0]		
JBC ▶ 5-5	Boring, 45° chamfering	$\varnothing 7$			$\varnothing 5.0$	[Green bar from 5.0 to 6.8]		$\varnothing 6.8$
JBB ▶ 5-5	Back boring	$\varnothing 4, \varnothing 7$		$\varnothing 3.0$	[Green bar from 3.0 to 7.0]			$\varnothing 7.0$

### Threading

Type	Application	Shank diameter $\varnothing D_s$ (mm)	Min. bore dia. $\varnothing D_m$ (mm)					
			0	2	4	6	8	10
JBI ▶ 5-6	Threading (Metric thread)	$\varnothing 4, \varnothing 7$			$\varnothing 4.0$	[Green bar from 4.0 to 7.0]		$\varnothing 7.0$

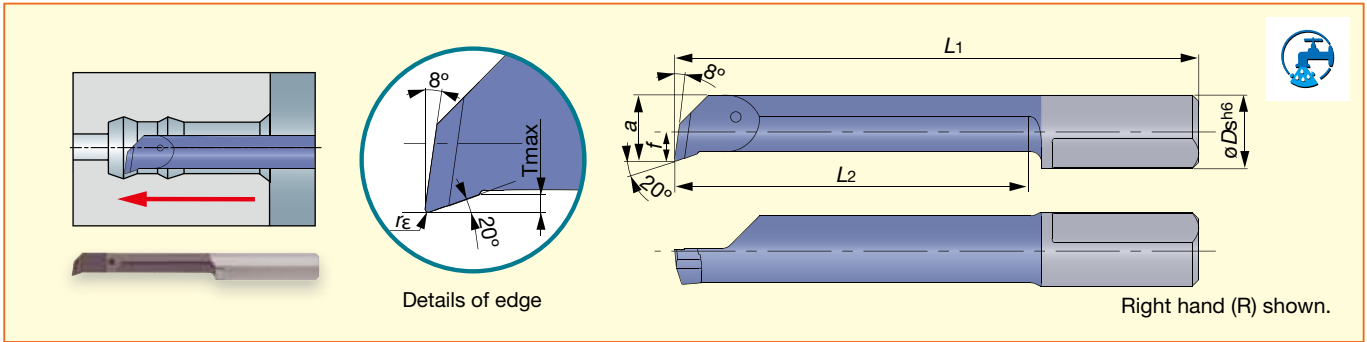
### Grooving

Type	Application	Shank diameter $\varnothing D_s$ (mm)	Groove width W (mm)	Min. bore dia. $\varnothing D_m$ (mm)										
				0	2	4	6	8	10	12	14	15		
JBG ▶ 5-7	Grooving	$\varnothing 4, \varnothing 7$	0.5 - 2.0		$\varnothing 2.0$	[Green bar from 2.0 to 6.8]			$\varnothing 6.8$					
JBF ▶ 5-8	Face grooving	$\varnothing 7$	1.0 - 3.0				$\varnothing 6.0$	[Green bar from 6.0 to 15.0]						
JBS ▶ 5-8	Face grooving (for shaft)	$\varnothing 7$	2.0				$\varnothing 6.0$	[Green bar from 6.0 to 6.0]						
JBR ▶ 5-9	Boring, profiling (full radius type)	$\varnothing 7$	1.0			$\varnothing 5.0$	[Green bar from 5.0 to 6.8]		$\varnothing 6.8$					

**JBT**

**Boring, profiling, chamfering**

Internal Turning (Solid boring bars)



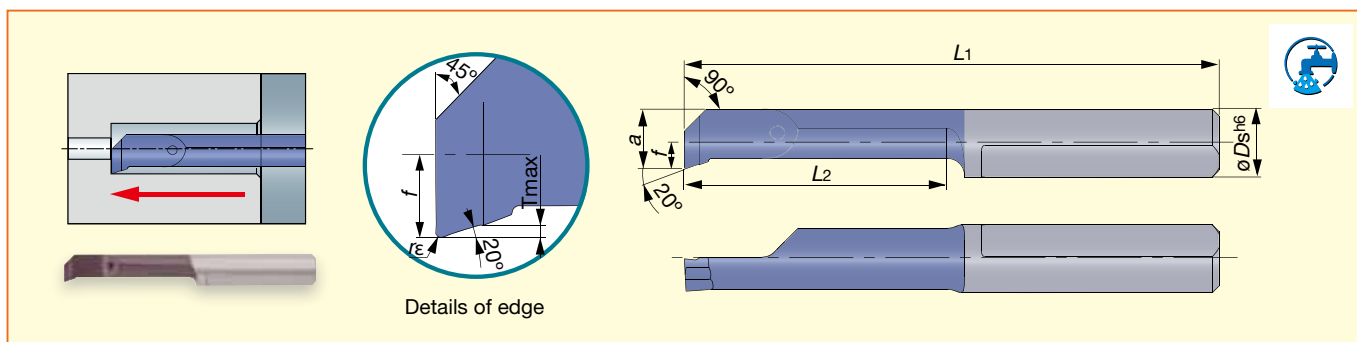
Cat. No.	Grade		Min. bore dia. $\phi D_m$ (mm)	Dimensions (mm)						
	SH730			$\phi D_s$	$f$	$a$	$L_1$	Overhang length $L_2$	$T_{max}$	Corner radius $r_{\epsilon} +0.05_0$
	R	L								
JBTR/L04020004-D006	●		0.6	4	-	0.5	18.5	2	0.08	0.04
JBTR/L04030004-D006	●		0.6	4	-	0.5	19.5	3	0.08	0.04
JBTR/L04045005-D010	●		1	4	-	0.9	21	4.5	0.1	0.05
JBTR/L04065005-D010	●		1	4	-	0.9	23	6.5	0.1	0.05
JBTR/L04040005-D020	●		2	4	-	1.7	20.5	4	0.1	0.05
JBTR/L04090005-D020	●		2	4	-	1.7	25.5	9	0.1	0.05
JBTR/L04140005-D020	●		2	4	-	1.7	30.5	14	0.1	0.05
JBTR/L04090010-D028	●	●	2.8	4	0.6	2.6	25.5	9	0.2	0.10
JBTR/L04150010-D028	●	●	2.8	4	0.6	2.6	31.5	15	0.2	0.10
JBTR/L04190010-D028	●	●	2.8	4	0.6	2.6	35.5	19	0.2	0.10
JBTR/L04090010-D040	●	●	4	4	1.5	3.5	25.5	9	0.3	0.10
JBTR/L04150010-D040	●	●	4	4	1.5	3.5	31.5	15	0.3	0.10
JBTR/L04190010-D040	●	●	4	4	1.5	3.5	35.5	19	0.3	0.10
JBTR/L04230010-D040	●		4	4	1.5	3.5	39.5	23	0.3	0.10
JBTR/L04270010-D040	●		4	4	1.5	3.5	43.5	27	0.3	0.10
JBTR/L07090015-D050	●	●	5	7	0.9	4.4	25	9	0.5	0.15
JBTR/L07140015-D050	●	●	5	7	0.9	4.4	30	14	0.5	0.15
JBTR/L07190015-D050	●	●	5	7	0.9	4.4	35	19	0.5	0.15
JBTR/L07240015-D050	●	●	5	7	0.9	4.4	40	24	0.5	0.15
JBTR/L07290015-D050	●	●	5	7	0.9	4.4	45	29	0.5	0.15
JBTR/L07340015-D050	●		5	7	0.9	4.4	50	34	0.5	0.15
JBTR/L07140015-D060	●	●	6	7	1.8	5.3	30	14	0.5	0.15
JBTR/L07210015-D060	●	●	6	7	1.8	5.3	37	21	0.5	0.15
JBTR/L07240015-D060	●	●	6	7	1.8	5.3	40	24	0.5	0.15
JBTR/L07290015-D060	●	●	6	7	1.8	5.3	45	29	0.5	0.15
JBTR/L07340015-D060	●		6	7	1.8	5.3	50	34	0.5	0.15
JBTR/L07410015-D060	●		6	7	1.8	5.3	57	41	0.5	0.15
JBTR/L07190015-D068	●	●	6.8	7	2.8	6.3	35	19	0.6	0.15
JBTR/L07240015-D068	●		6.8	7	2.8	6.3	40	24	0.6	0.15
JBTR/L07290015-D068	●	●	6.8	7	2.8	6.3	45	29	0.6	0.15
JBTR/L07340015-D070	●	●	7	7	2.8	6.3	50	34	0.6	0.15
JBTR/L07390015-D070	●		7	7	2.8	6.3	55	39	0.6	0.15
JBTR/L07440015-D070	●		7	7	2.8	6.3	60	44	0.6	0.15
JBTR/L07490015-D070	●		7	7	2.8	6.3	65	49	0.6	0.15

● : Stocked items

## JBP

### Boring, chamfering

### Internal Turning (Solid boring bars)



Cat. No.	Grade SH730	Min. bore dia. øDm (mm)	Dimensions (mm)							Corner radius $r_{\epsilon} +0.05$ 0
			øDs	f	a	L1	Overhang length L2	Tmax		
JBPR04090010-D028	●	2.8	4	0.6	2.6	25.5	9	0.2	0.10	
JBPR04150010-D028	●	2.8	4	0.6	2.6	31.5	15	0.2	0.10	
JBPR04090010-D040	●	4	4	1.5	3.5	25.5	9	0.3	0.10	
JBPR04150010-D040	●	4	4	1.5	3.5	31.5	15	0.3	0.10	
JBPR07140015-D050	●	5	7	0.9	4.4	30	14	0.5	0.15	
JBPR07190015-D050	●	5	7	0.9	4.4	35	19	0.5	0.15	

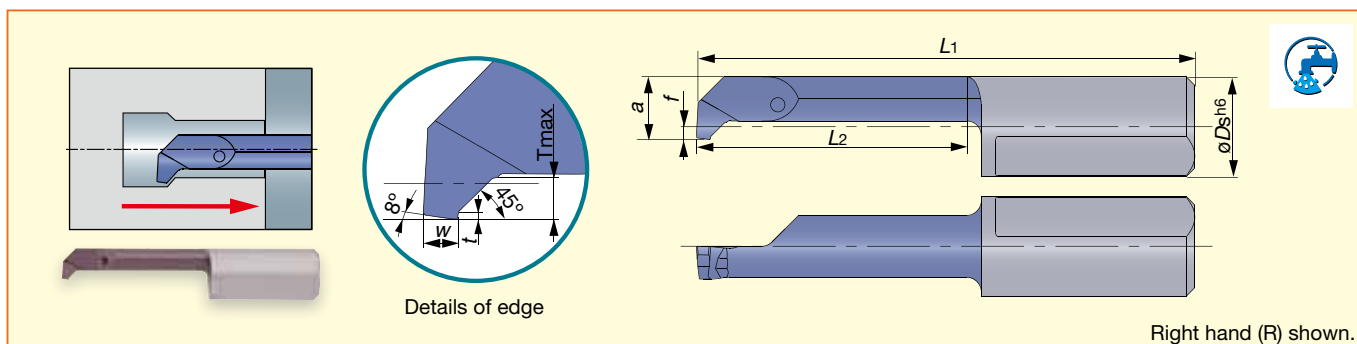
5

TAC Internal Toolholders

## JBU

### Back boring, chamfering

### Internal Turning (Solid boring bars)



Right hand (R) shown.

Cat. No.	Grade		Min. bore dia. øDm (mm)	Dimensions (mm)							Groove width (mm) $W+0.05$ 0
	R	L		øDs	f	a	L1	Overhang length L2	t	Tmax	
JBUR/L07140010-D050	●		5	7	0.9	4.4	30	14	0.2	1	1
JBUR/L07190010-D050	●		5	7	0.9	4.4	35	19	0.2	1	1

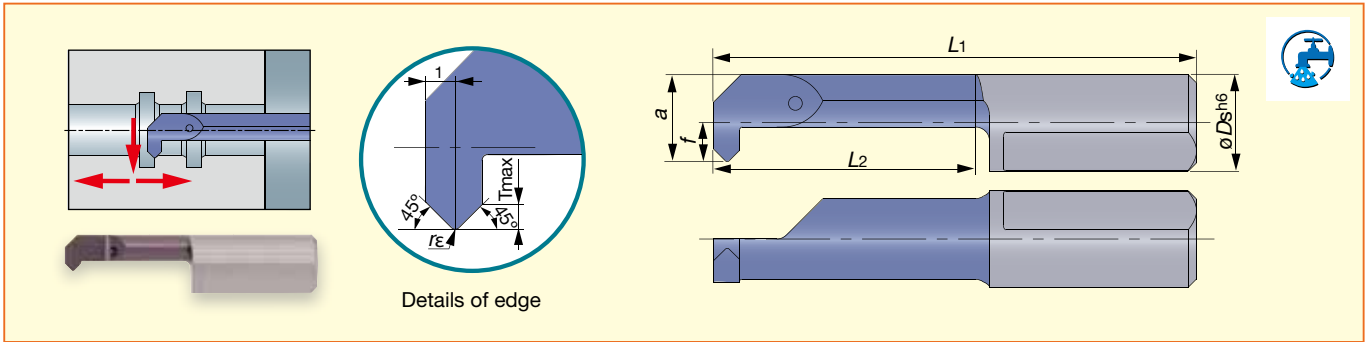
● : Stocked items



**JBC**

**Boring, 45° chamfering**

Internal Turning (Solid boring bars)

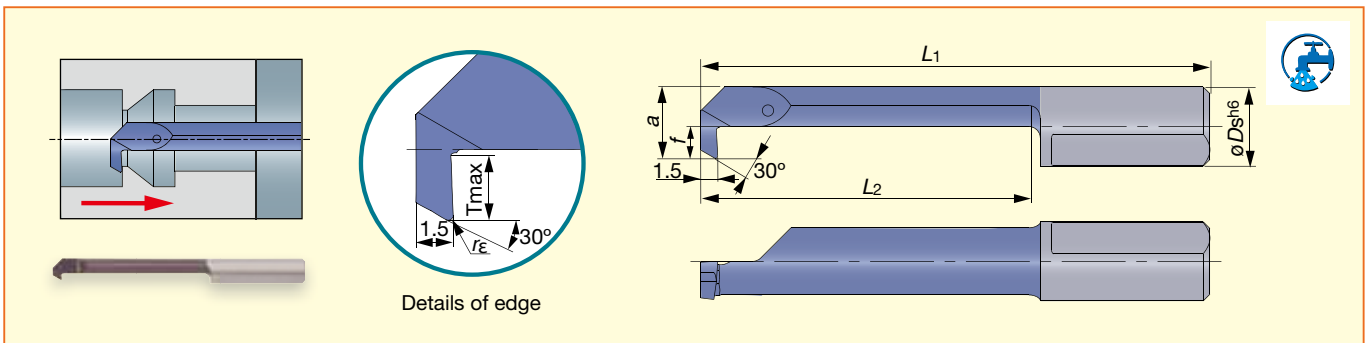


Cat. No.	Grade SH730	Min. bore dia. øDm (mm)	Dimensions (mm)						
			øDs	f	a	L1	Overhang length L2	Tmax	Corner radius rε±0.05
JBCR07140020-D050	●	5	7	0.9	4.4	30	14	0.7	0.2
JBCR07190020-D050	●	5	7	0.9	4.4	35	19	0.7	0.2
JBCR07190020-D068	●	6.8	7	2.8	6.3	35	19	0.7	0.2

**JBB**

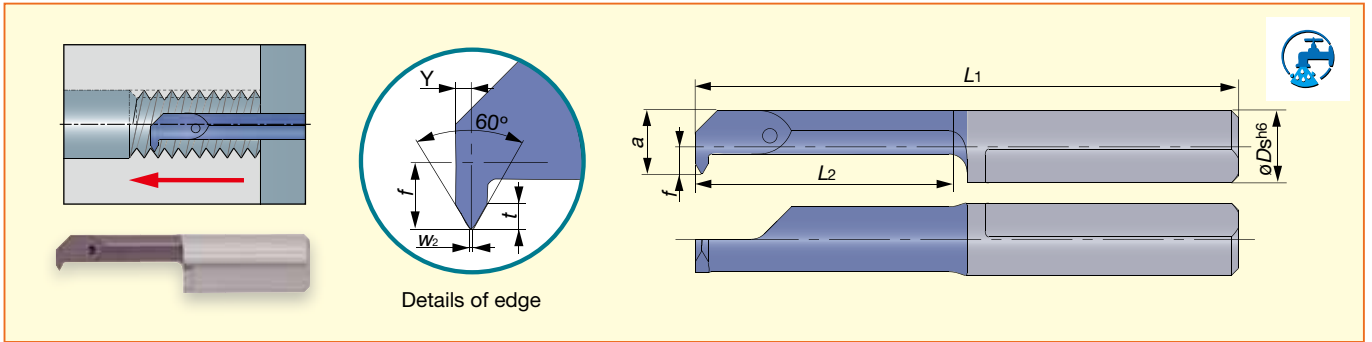
**Back boring**

Internal Turning (Solid boring bars)



Cat. No.	Grade SH730	Min. bore dia. øDm (mm)	Dimensions (mm)						
			øDs	f	a	L1	Overhang length L2	Tmax	Corner radius rε±0.05
JBBR04140020-D030	●	3	4	0.6	2.6	30	14	0.5	0.2
JBBR04190020-D030	●	3	4	0.6	2.6	35	19	0.5	0.2
JBBR04140015-D040	●	4	4	1.5	3.5	30	14	0.8	0.15
JBBR04240015-D040	●	4	4	1.5	3.5	40	24	0.8	0.15
JBBR07190020-D050	●	5	7	0.9	4.4	35	19	1	0.2
JBBR07290020-D050	●	5	7	0.9	4.4	45	29	1	0.2
JBBR07190020-D060	●	6	7	1.8	5.3	35	19	1.8	0.2
JBBR07290020-D060	●	6	7	1.8	5.3	45	29	1.8	0.2
JBBR07190020-D070	●	7	7	2.8	6.3	35	19	2.5	0.2
JBBR07290020-D070	●	7	7	2.8	6.3	45	29	2.5	0.2

● : Stocked items



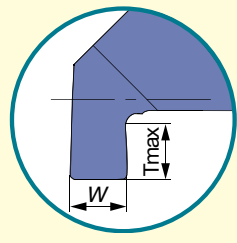
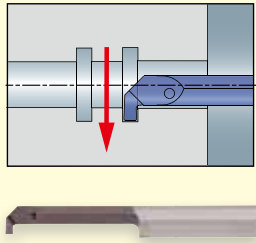
Details of edge

Cat. No.	Grade SH730	Pitch (mm)	Min. bore dia. øDm (mm)	Flat width W <sub>2</sub> - 0.02	Dimensions (mm)						
					øDs	f	a	L <sub>1</sub>	Overhang length L <sub>2</sub>	t	Y
JBIR04140050-D040	●	0.5	4	0.06	4	1.5	3.5	30	14	0.3	0.35
JBIR07140050-D050	●	0.5	5	0.06	7	0.9	4.4	30	14	0.3	0.35
JBIR07140075-D050	●	0.75	5	0.09	7	0.9	4.4	30	14	0.4	0.45
JBIR07140100-D048	●	1.0	4.8	0.12	7	0.9	4.4	30	14	0.6	0.55
JBIR07140100-D060	●	1.0	6	0.12	7	1.8	5.3	30	14	0.6	0.55
JBIR07140125-D060	●	1.25	6	0.15	7	1.8	5.3	30	14	0.7	0.65
JBIR07140150-D060	●	1.5	6	0.18	7	1.8	5.3	30	14	0.8	0.75
JBIR07140150-D070	●	1.5	7	0.18	7	2.8	6.3	30	14	0.8	0.75

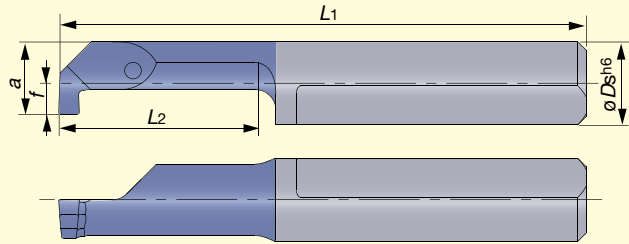
## JBG

## Grooving

## Internal Turning (Solid boring bars)



Details of edge



Right hand (R) shown.



Cat. No.	Grade		Groove width $W+0.05$ 0 (mm)	Min. bore dia. $\phi D_m$ (mm)	Dimensions (mm)					
	SH730				$\phi D_s$	f	a	L <sub>1</sub>	Overhang length L <sub>2</sub>	Tmax
	R	L								
JBGR/L04050050-D020	●		0.5	2	4	0.2	1.8	21	5	0.4
JBGR/L04100050-D020	●		0.5	2	4	0.2	1.8	26	10	0.4
JBGR/L04050070-D030	●		0.7	3	4	0.7	2.7	21	5	0.6
JBGR/L04100070-D030	●		0.7	3	4	0.7	2.7	26	10	0.6
JBGR/L04090100-D040	●		1	4	4	1.5	3.5	25.5	9	0.8
JBGR/L04150100-D040	●		1	4	4	1.5	3.5	31.5	15	0.8
JBGR/L07090100-D050	●		1	5	7	0.9	4.4	25	9	1
JBGR/L07140100-D050	●		1	5	7	0.9	4.4	30	14	1
JBGR/L07090150-D050	●		1.5	5	7	0.9	4.4	25	9	1
JBGR/L07140150-D050	●		1.5	5	7	0.9	4.4	30	14	1
JBGR/L07090200-D050	●		2	5	7	0.9	4.4	25	9	1
JBGR/L07190200-D050	●		2	5	7	0.9	4.4	35	19	1
JBGR/L07090100-D060	●	●	1	6	7	1.8	5.3	25	9	1.8
JBGR/L07140100-D060	●		1	6	7	1.8	5.3	30	14	1.8
JBGR/L07210100-D060	●		1	6	7	1.8	5.3	37	21	1.8
JBGR/L07290100-D060	●		1	6	7	1.8	5.3	45	29	1.8
JBGR/L07090150-D060	●	●	1.5	6	7	1.8	5.3	25	9	1.8
JBGR/L07140150-D060	●		1.5	6	7	1.8	5.3	30	14	1.8
JBGR/L07210150-D060	●		1.5	6	7	1.8	5.3	37	21	1.8
JBGR/L07240150-D060	●		1.5	6	7	1.8	5.3	40	24	1.8
JBGR/L07290150-D060	●		1.5	6	7	1.8	5.3	45	29	1.8
JBGR/L07090200-D060	●		2	6	7	1.8	5.3	25	9	1.8
JBGR/L07140200-D060	●		2	6	7	1.8	5.3	30	14	1.8
JBGR/L07210200-D060	●		2	6	7	1.8	5.3	37	21	1.8
JBGR/L07240200-D060	●		2	6	7	1.8	5.3	40	24	1.8
JBGR/L07290200-D060	●		2	6	7	1.8	5.3	45	29	1.8
JBGR/L07090100-D068	●		1	6.8	7	2.7	6.2	25	9	2.5
JBGR/L07140100-D068	●		1	6.8	7	2.7	6.2	30	14	2.5
JBGR/L07210100-D068	●		1	6.8	7	2.7	6.2	37	21	2.5
JBGR/L07090150-D068	●		1.5	6.8	7	2.7	6.2	25	9	2.5
JBGR/L07140150-D068	●		1.5	6.8	7	2.7	6.2	30	14	2.5
JBGR/L07210150-D068	●		1.5	6.8	7	2.7	6.2	37	21	2.5
JBGR/L07290150-D068	●		1.5	6.8	7	2.7	6.2	45	29	2.5
JBGR/L07090200-D068	●		2	6.8	7	2.7	6.2	25	9	2.5
JBGR/L07140200-D068	●	●	2	6.8	7	2.7	6.2	30	14	2.5
JBGR/L07210200-D068	●		2	6.8	7	2.7	6.2	37	21	2.5
JBGR/L07250200-D068	●		2	6.8	7	2.7	6.2	40	25	2.5
JBGR/L07290200-D068	●		2	6.8	7	2.7	6.2	45	29	2.5

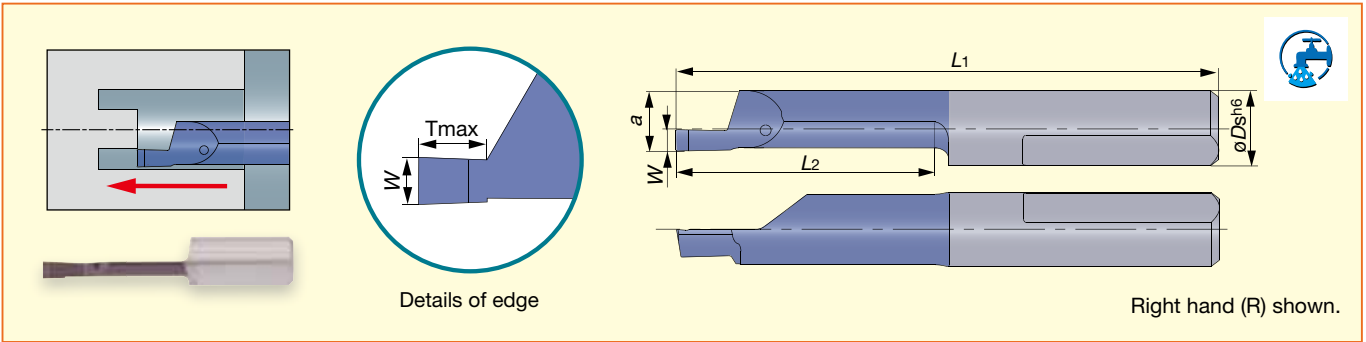
\* The corner radius is less than 0.1 mm.

● : Stocked items

## JBF

## Face grooving

## Internal Turning (Solid boring bars)



Details of edge

Right hand (R) shown.

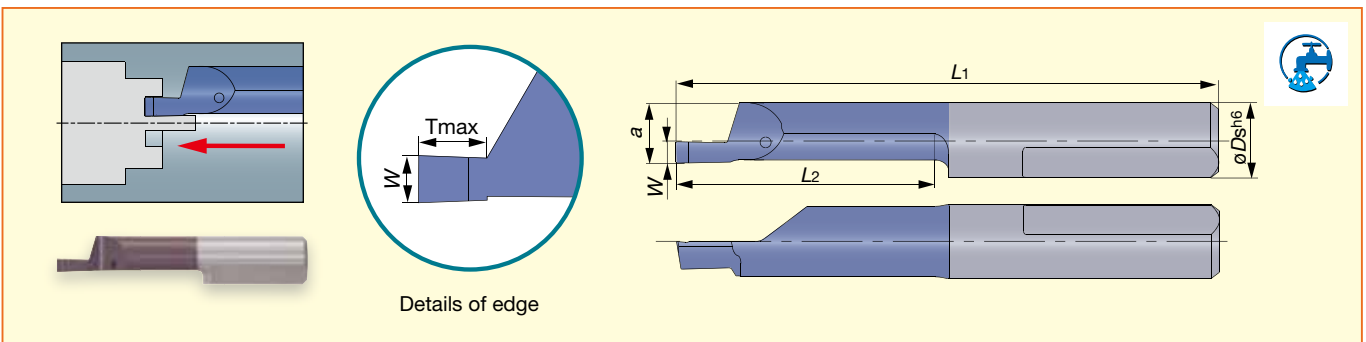
Cat. No.	Grade		Groove width $W+0.05_0$ (mm)	Min. bore dia. $\phi D_m$ (mm)	Dimensions (mm)				
	R	L			$\phi D_s$	a	L <sub>1</sub>	Overhang length L <sub>2</sub>	Tmax
JBFR/L07110100-D060	●		1	6	7	5.2	26	10	1.5
JBFR/L07110150-D060	●		1.5	6	7	5.2	26	10	2
JBFR/L07110200-D060	●		2	6	7	5.2	26	10	3
JBFR/L07110100-D080	●		1	8	7	5.9	27	11	1.5
JBFR/L07110150-D080	●		1.5	8	7	5.9	27	11	2.5
JBFR/L07110200-D080	●		2	8	7	5.9	27	11	3
JBFR/L07110250-D080	●		2.5	8	7	5.9	27	11	3.5
JBFR/L07110300-D080	●		3	8	7	5.9	27	11	3.5
JBFR/L07200200-D080	●		2	8	7	5.9	36	20	3
JBFR/L07210150-D080	●	●	1.5	8	7	5.9	36	21	2.5
JBFR/L07210200-D080	●		2	8	7	5.9	36	21	3
JBFR/L07210250-D080	●		2.5	8	7	5.9	36	21	3.5
JBFR/L07210300-D080	●		3	8	7	5.9	36	21	3.5
JBFR/L07300200-D080	●	●	2	8	7	5.9	46	30	3
JBFR/L07300300-D080	●		3	8	7	5.9	46	30	3.5
JBFR/L07200250-D150	●		2.5	15	7	5.9	36	20	20
JBFR/L07200300-D150	●		3	15	7	5.9	36	20	20
JBFR/L07300300-D150	●		3	15	7	5.9	46	30	30

\* The corner radius is less than 0.1 mm.

## JBS

## Face grooving (for machining shaft)

## Internal Turning (Solid boring bars)



Details of edge

Cat. No.	Grade		Groove width $W+0.05_0$ (mm)	Min. bore dia. $\phi D_m$ (mm)	Dimensions (mm)				
	SH730				$\phi D_s$	a	L <sub>1</sub>	Overhang length L <sub>2</sub>	Tmax
JBSR07200200-D060	●		2	6	7	5.2	36	20	4

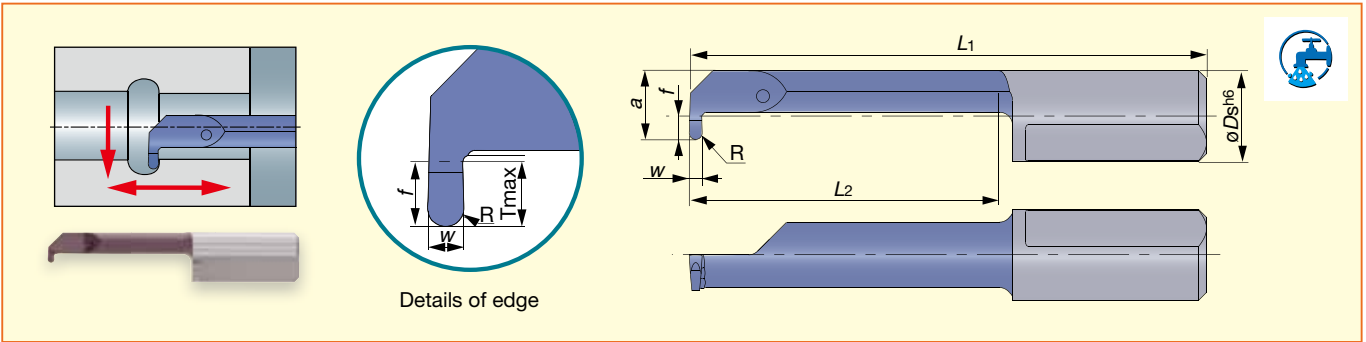
\* The corner radius is less than 0.1 mm.

● : Stocked items

**JBR**

**Boring, profiling (full radius type)**

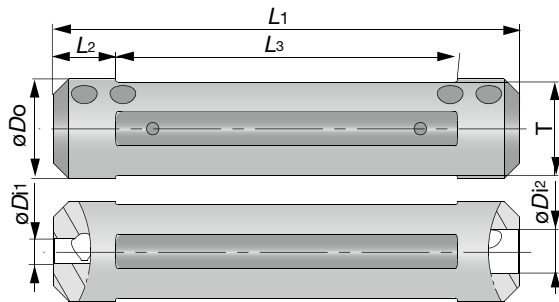
Internal Turning (Solid boring bars)



Cat. No.	Grade SH730	Groove width $W + 0.05$ (mm)	Min. bore dia. $\phi D_m$ (mm)	Dimensions (mm)						
				$\phi D_s$	$f$	$a$	$L_1$	Overhang length $L_2$	$T_{max}$	$R$
JBRR07190050-D050	●	1	5	7	0.9	4.4	35	19	1	0.5
JBRR07240050-D060	●	1	6	7	1.8	5.3	40	24	1.8	0.5
JBRR07290050-D068	●	1	6.8	7	2.8	6.3	45	29	2.5	0.5

**Sleeves**

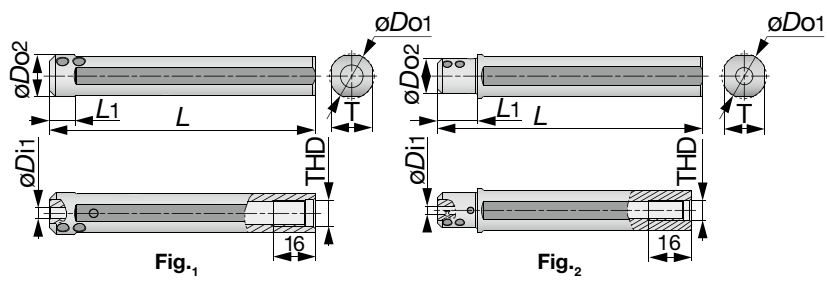
**JBBS For TinyTurn**



Cat. No.	Stock	Dimensions (mm)							Replacement parts	
		$\phi D_o$	$\phi D_{i1}$	$\phi D_{i2}$	$L_1$	$L_2$	$L_3$	$T$	Clamping screw	Wrench
JBBS12-4-4	●	12	4	4	75	10	55	10.3	SSHM5-4PF-S	P-2.5
JBBS127-4-4	●	12.7	4	4	76.2	10	56.2	11.6	SSHM5-6PF-S	P-2.5
JBBS14-4-4	●	14	4	4	75	10	55	12	SSHM5-4PF-S	P-2.5
JBBS159-4-7	●	15.875	4	7	76.2	10	56.2	14	SSHM5-6PF-S	P-2.5
JBBS16-4-7	●	16	4	7	75	10	55	15	SSHM5-6PF-S	P-2.5
JBBS19-4-7	●	19.05	4	7	89	10	69	17.2	SSHM5-6PF-S	P-2.5
JBBS20-4-7	●	20	4	7	90	10	70	18	SSHM5-6PF-S	P-2.5
JBBS22-4-7	●	22	4	7	90	10	70	20	SSHM5-6PF-S	P-2.5
JBBS25-4-7	●	25	4	7	100	10	80	23	SSHM5-6PF-S	P-2.5
JBBS254-4-7	●	25.4	4	7	90	10	70	23.4	SSHM5-6PF-S	P-2.5

● : Stocked items

## JBBS-C For TinyTurn (internal coolant supply)



Cat. No.	Stock	Dimensions (mm)								Replacement parts	
		øDo1	øDo2	øDi1	L	L1	T	THD	Fig	Clamping screw	Wrench
JBBS159-4-L100C	●	15.875	15.875	4	100	10	14.58	R1/8	1	SSHM5-6PF-S	P-2.5
JBBS159-7-L100C	●	15.875	15.875	7	100	10	14.58	R1/8	1	SSHM5-4PF-S	P-2.5
JBBS16-4-L100C	●	16	16	4	100	10	15	R1/8	1	SSHM5-6PF-S	P-2.5
JBBS16-7-L100C	●	16	16	7	100	10	15	R1/8	1	SSHM5-4PF-S	P-2.5
JBBS19-4-L100C	●	19.05	17.5	4	100	20	17.2	R1/8	2	SSHM5-6PF-S	P-2.5
JBBS19-7-L100C	●	19.05	17.5	7	100	20	17.2	R1/8	2	SSHM5-4PF-S	P-2.5
JBBS20-4-L100C	●	20	17.5	4	100	20	18	R1/8	2	SSHM5-6PF-S	P-2.5
JBBS20-7-L100C	●	20	17.5	7	100	20	18	R1/8	2	SSHM5-4PF-S	P-2.5
JBBS22-4-L100C	●	22	17.5	4	100	20	20	R1/8	2	SSHM5-6PF-S	P-2.5
JBBS22-7-L100C	●	22	17.5	7	100	20	20	R1/8	2	SSHM5-4PF-S	P-2.5
JBBS25-4-L100C	●	25	18	4	100	23	23	R1/8	2	SSHM5-6PF-S	P-2.5
JBBS25-7-L100C	●	25	18	7	100	23	23	R1/8	2	SSHM5-4PF-S	P-2.5
JBBS254-4-L100C	●	25.4	18	4	100	23	23.4	R1/8	2	SSHM5-6PF-S	P-2.5
JBBS254-7-L100C	●	25.4	18	7	100	23	23.4	R1/8	2	SSHM5-4PF-S	P-2.5

● : Stocked items

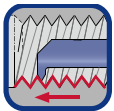
# Standard cutting condition



Boring, profiling, chamfering, back boring

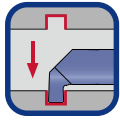
ISO	Workpiece materials	Grade	Cutting speed V <sub>c</sub> (m/min)	Feed f (mm/rev)
<b>P</b>	Low carbon steels (C15, C20 etc.)	SH730	40 - 140	0.01 - 0.08 *
	Carbon steels, Alloy steels (C55, 42CrMoS4 etc.)	SH730	40 - 140	0.01 - 0.08 *
	Prehardened steels (NAK80, PX5 etc.)	SH730	40 - 140	0.01 - 0.08 *
<b>M</b>	Stainless steels (X5CrNi18-9, X5CrNiMo17-12-2 etc.)	SH730	40 - 140	0.01 - 0.08 *
<b>K</b>	Grey cast irons (250, 300 etc.)	SH730	30 - 100	0.01 - 0.08 *
	Ductile cast irons (400-15, 600-3 etc.)	SH730	30 - 100	0.01 - 0.08 *
<b>N</b>	Aluminium alloys, copper alloys Si < 12%	SH730	90 - 200	0.01 - 0.08 *
<b>S</b>	Titanium alloys (Ti-6Al-4V, etc.)	SH730	30 - 100	0.01 - 0.08 *
	Superalloys (Inconel718, etc.)	SH730	30 - 100	0.01 - 0.08 *

\* JBTR/L04020004-D006,  
JBTR/L04030004-D006  
Max. f = 0.01 mm/rev



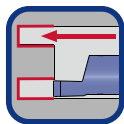
Threading (metric thread)

ISO	Workpiece materials	Grade	Cutting speed V <sub>c</sub> (m/min)	Number of passes Pitch (mm)				
				0.5	0.75	1	1.25	1.5
<b>P</b>	Low carbon steels (C15, C20 etc.)	SH730	40 - 140	6 - 8	8 - 10	10 - 12	12 - 15	15 - 18
	Carbon steels, Alloy steels (C55, 42CrMoS4 etc.)	SH730	40 - 140	6 - 8	8 - 10	10 - 12	12 - 15	15 - 18
	Prehardened steels (NAK80, PX5 etc.)	SH730	40 - 140	6 - 8	8 - 10	10 - 12	12 - 15	15 - 18
<b>M</b>	Stainless steels (X5CrNi18-9, X5CrNiMo17-12-2 etc.)	SH730	40 - 140	8	10	12	15	18
<b>K</b>	Grey cast irons (250, 300 etc.)	SH730	30 - 100	7	9	12	14	17
	Ductile cast irons (400-15, 600-3 etc.)	SH730	30 - 100	7	9	12	14	17
<b>N</b>	Aluminium alloys, copper alloys Si < 12%	SH730	90 - 200	6	8	10	12	15



## Internal grooving

ISO	Workpiece materials	Grade	Cutting speed V <sub>c</sub> (m/min)	Feed f (mm/rev)
<b>P</b>	Low carbon steels (C15, C20 etc.)	SH730	40 - 140	0.01 - 0.03
	Carbon steels, Alloy steels (C55, 42CrMoS4 etc.)	SH730	40 - 140	0.01 - 0.03
	Prehardened steels (NAK80, PX5 etc.)	SH730	40 - 140	0.01 - 0.03
<b>M</b>	Stainless steels (X5CrNi18-9, X5CrNiMo17-12-2 etc)	SH730	40 - 140	0.01 - 0.03
<b>K</b>	Grey cast irons (250, 300 etc.)	SH730	30 - 100	0.01 - 0.03
	Ductile cast irons (400-15, 600-3 etc.)	SH730	30 - 100	0.01 - 0.03
<b>N</b>	Aluminium alloys, copper alloys Si < 12%	SH730	90 - 200	0.01 - 0.03
<b>S</b>	Titanium alloys Ti-6Al-4V etc.	SH730	30 - 100	0.01 - 0.03
	Superalloys (Inconel718, etc.)	SH730	30 - 100	0.01 - 0.03



## Face grooving

ISO	Workpiece materials	Grade	Cutting speed V <sub>c</sub> (m/min)	Feed f (mm/rev)
<b>P</b>	Low carbon steels (C15, C20 etc.)	SH730	40 - 140	0.01 - 0.05
	Carbon steels, Alloy steels (C55, 42CrMoS4 etc.)	SH730	40 - 140	0.01 - 0.05
	Prehardened steels (NAK80, PX5 etc.)	SH730	40 - 140	0.01 - 0.05
<b>M</b>	Stainless steels (X5CrNi18-9, X5CrNiMo17-12-2 etc)	SH730	40 - 140	0.01 - 0.05
<b>K</b>	Grey cast irons (250, 300 etc.)	SH730	30 - 100	0.01 - 0.05
	Ductile cast irons (400-15, 600-3 etc.)	SH730	30 - 100	0.01 - 0.05
<b>N</b>	Aluminium alloys, copper alloys Si < 12%	SH730	90 - 200	0.01 - 0.05
<b>S</b>	Titanium alloys Ti-6Al-4V etc.	SH730	30 - 100	0.01 - 0.05
	Superalloys (Inconel718, etc.)	SH730	30 - 100	0.01 - 0.05

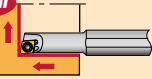
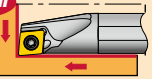
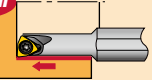
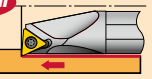
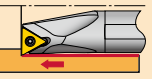
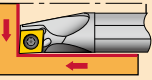
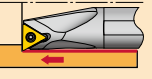
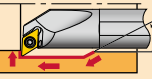
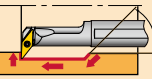
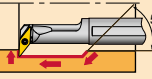
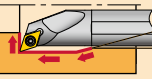
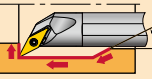
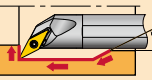


A large grid of graph paper for taking notes, consisting of 20 columns and 40 rows of small squares.

# Overview of J series Internal Turning

## STREAMJETBAR

### Positive type

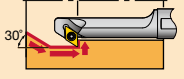
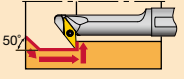
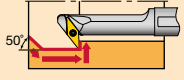
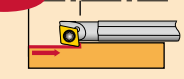
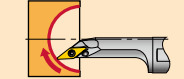
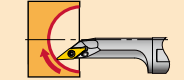
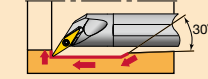
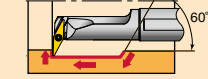
Style	Shank material	Shank diameter	Minimum bore diameter (mm)					
			0	10	20	30	40	50
 <b>SEXPR/L</b> <span style="color: red;">▶ 5-26</span> Boring and facing Insert type: EP□□	Steel	ø4 ~ ø8	ø4.5	ø7				
	Carbide	ø4 ~ ø8	ø4.5	ø7				
 <b>SCLCR/L</b> <span style="color: red;">▶ 5-16</span> Boring and facing Insert type: CC□□	Steel	ø4 ~ ø25	ø5	ø27				
	Carbide	ø4 ~ ø25	ø5	ø27				
 <b>SWUBR/L</b> <span style="color: red;">▶ 5-25</span> Boring Insert type: WB□□	Steel	ø5 ~ ø8	ø6	ø8				
	Carbide	ø5 ~ ø8	ø6	ø8				
 <b>STUPR/L</b> <span style="color: red;">▶ 5-22</span> Boring Insert type: TP□□	Steel	ø7 ~ ø32	ø8	ø34				
	Carbide	ø7 ~ ø25	ø8	ø27				
 <b>STFPR/L</b> <span style="color: red;">▶ 5-21</span> Boring Insert type: TP□□	Steel	ø8 ~ ø25	ø10	ø27				
	Carbide	ø8 ~ ø20	ø10	ø22				
 <b>SCLPR/L</b> <span style="color: red;">▶ 5-17</span> Boring and facing Insert type: CP□□	Steel	ø8 ~ ø25	ø10	ø27				
	Carbide	ø8 ~ ø16	ø10	ø20				
 <b>STFCR/L</b> <span style="color: red;">▶ 5-20</span> Boring Insert type: TC□□	Steel	ø8 ~ ø25	ø10	ø27				
	Carbide	ø8 ~ ø25	ø10	ø27				
 <b>SDUCR/L</b> <span style="color: red;">▶ 5-18</span> Internal profiling Insert type: DC□□	Steel	ø10 ~ ø25	ø13	ø32				
	Carbide	ø10 ~ ø20	ø13	ø27				
 <b>SVUCR/L</b> <span style="color: red;">▶ 5-24</span> Internal profiling Insert type: VC□□	Steel	ø12 ~ ø40	ø16	ø50				
	Carbide	ø12 ~ ø25	ø18	ø32				
 <b>SVUBR/L</b> <span style="color: red;">▶ 5-24</span> Internal profiling Insert type: VB□□	Steel	ø16 ~ ø25	ø20	ø32				
	Carbide	ø16 ~ ø25	ø24.5	ø34				
 <b>SDQCR/L</b> <span style="color: red;">▶ 5-18</span> Internal profiling Insert type: DC□□	Steel	ø10~ ø25	ø13	ø30				
	Carbide	ø10~ ø20	ø13	ø25				
 <b>SVQCR/L</b> <span style="color: red;">▶ 5-23</span> Internal profiling Insert type: VC□□	Steel	ø10~ ø40	ø13.5	ø50				
	Carbide	ø10~ ø16	ø13.5	ø21.5				
 <b>SVQBR/L</b> <span style="color: red;">▶ 5-23</span> Internal profiling Insert type: VB□□	Steel	ø12 ~ ø25	ø17	ø30.5				
	Carbide	ø12 ~ ø25	ø17	ø30.5				

5

TAC Internal Toolholders

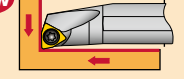
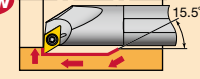
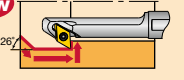
# Overview of J series Internal Turning

Positive

Style	Shank material	Shank diameter	Minimum bore diameter (mm)						
			0	10	20	30	40	50	
 <b>SDZCR/L</b> ▶ 5-19 Back boring Insert type: DC□□	Steel	ø12 ~ ø25			ø14	ø25			
	Carbide	ø12 ~ ø16			ø18	ø22			
 <b>SVZCR/L</b> ▶ 5-25 Back boring Insert type: VC□□	Steel	ø12			ø16				
 <b>SVZBR/L</b> ▶ 5-24 Back boring Insert type: VB□□	Steel	ø16 ~ ø32			ø20		ø40		
 <b>SEZPR/L</b> ▶ 5-25 Back boring Insert type: EP□□	Steel	ø4 ~ ø5	ø5.5	ø6.5					
	Carbide	ø4 ~ ø5	ø5.5	ø6.5					
 <b>SVJCR/L</b> ▶ 5-26 Internal sphere cutting Insert type: VC□□	Steel	ø12 ~ ø16			ø16	ø20			
 <b>SVJBR/L</b> ▶ 5-26 Internal sphere cutting Insert type: VB□□	Steel	ø20 ~ ø25			ø25	ø30			
 <b>SYQBR/L</b> ▶ 5-28 Internal undercut and profiling Insert type: YW□□	Steel	ø12 ~ ø16			ø17	ø21.5			
	Carbide	ø12 ~ ø16			ø17	ø21.5			
 <b>SYUBR/L</b> ▶ 5-28 Internal profiling Insert type: YW□□	Steel	ø16			ø20				
	Carbide	ø12 ~ ø16			ø20	ø24.5			

## MINIFORCE TURN

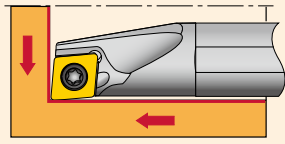
### Positive type (Double sided)

Style	Shank material	Shank diameter	Minimum bore diameter (mm)								
			0	10	20	30	40	50	60	70	
 <b>SWLXR/L</b> ▶ 5-31 Boring and facing Insert type: WXGU	Steel	ø10 ~ ø20		ø12	ø22						
	Carbide	ø10 ~ ø20		ø12	ø22						
 <b>SDXXR/L</b> ▶ 5-31 Internal profiling Insert type: DXGU	Steel	ø10 ~ ø20		ø13	ø24						
	Carbide	ø10 ~ ø20		ø13	ø24						
 <b>SDZXR/L</b> ▶ 5-32 Back boring Insert type: DXGU	Steel	ø12 ~ ø20		ø14	ø20						
	Carbide	ø12 ~ ø16		ø18	ø22						

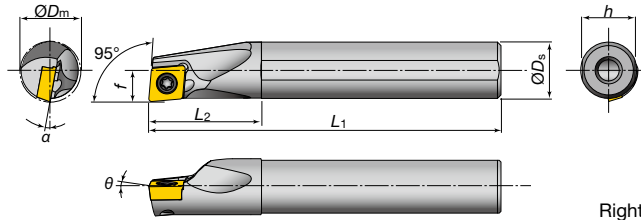
## Internal toolholders, positive type

**SCLCR/L** Boring & internal facing

S-type (Positive, screw-on)



Cutting edge style **L**



Right hand (R) shown

### Steel shank

Toolholder Cat. No.	Stock		Min bore dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$a$	Clamping screw		Wrench
<b>New MINI</b> A04F-SCLCR/L03-D050	●	●	5	4	2.5	80	8	3.8	-	0°	-15°	0.2	CC□□03X1	CSTA-1.6	T-6F	0.6
<b>New MINI</b> A05F-SCLCR/L03-D060	●	●	6	5	3	80	9	4.8	-	0°	-13°	0.2	CC□□03X1	CSTA-1.6	T-6F	0.6
<b>New MINI</b> A06G-SCLCR/L04-D070	●	●	7	6	3.5	90	11	5.75	-	0°	-13°	0.2	CC□□04T1	CSTB-2	T-6F	0.6
<b>New MINI</b> A07G-SCLCR/L04-D080	●	●	8	7	4	90	12	6.75	-	0°	-11°	0.2	CC□□04T1	CSTB-2	T-6F	0.6
A08H-SCLCR/L06-D100	●	●	10	8	5.5	100	16	7.5	-	0°	-13°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
A10F-SCLCR/L06-D120	●	●	12	10	6	80	20	9	-	0°	-10°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
A10K-SCLCR/L06-D120	●	●	12	10	6	125	20	9	-	0°	-10°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
A12H-SCLCR/L06-D140	●	●	14	12	7	100	24	11	-	0°	-8°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
A12M-SCLCR/L06-D140	●	●	14	12	7	150	24	11	-	0°	-8°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
A12H-SCLCR/L06-D160	●	●	16	12	9	100	24	11	-	0°	-7°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
A12M-SCLCR/L06-D160	●	●	16	12	9	150	24	11	-	0°	-7°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
A16K-SCLCR/L09-D180	●	●	18	16	9	125	32	15	-	0°	-9°	0.8	CC□□09T3	CSTB-4S	T-15F	3.0
A16Q-SCLCR/L09-D180	●	●	18	16	9	180	32	15	-	0°	-10°	0.8	CC□□09T3	CSTB-4S	T-15F	3.0
A16K-SCLCR/L09-D200	●	●	20	16	11	125	32	15	-	0°	-9°	0.8	CC□□09T3	CSTB-4S	T-15F	3.0
A16Q-SCLCR/L09-D200	●	●	20	16	11	180	32	15	-	0°	-9°	0.8	CC□□09T3	CSTB-4S	T-15F	3.0
A20R-SCLCR/L09-D220	●	●	22	20	11	200	32	18	-	0°	-8°	0.8	CC□□09T3	CSTB-4S	T-15F	3.0
A25S-SCLCR/L09-D270	●	●	27	25	13.5	250	45	23	-	0°	-6°	0.8	CC□□09T3	CSTB-4S	T-15F	3.0

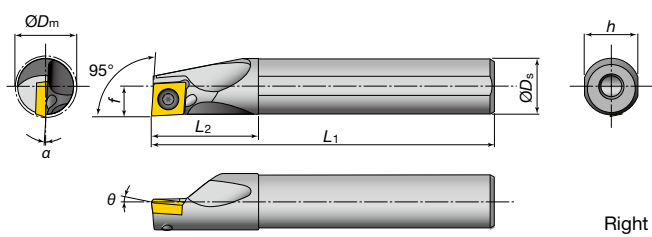
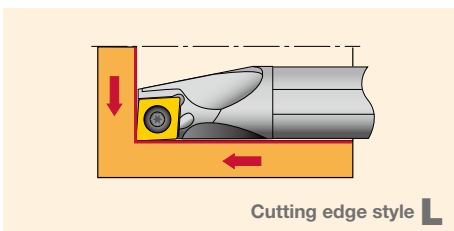
### Carbide shank

Toolholder Cat. No.	Stock		Min bore dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$a$	Clamping screw		Wrench
<b>New MINI</b> E04G-SCLCR/L03-D050	●	●	5	4	2.5	90	9	3.8	-	0°	-15°	0.2	CC□□03X1	CSTA-1.6	T-6F	0.6
<b>New MINI</b> E05G-SCLCR/L03-D060	●	●	6	5	3	90	10	4.8	-	0°	-13°	0.2	CC□□03X1	CSTA-1.6	T-6F	0.6
<b>New MINI</b> E06H-SCLCR/L04-D070	●	●	7	6	3.5	100	12	5.75	-	0°	-13°	0.2	CC□□04T1	CSTB-2	T-6F	0.6
<b>New MINI</b> E07H-SCLCR/L04-D080	●	●	8	7	4	100	14	6.75	-	0°	-11°	0.2	CC□□04T1	CSTB-2	T-6F	0.6
E08G-SCLCR/L06-D100	●	●	10	8	5.5	90	22	7.5	-	0°	-13°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
E08K-SCLCR/L06-D100	●	●	10	8	5.5	125	22	7.5	-	0°	-13°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
E10F-SCLCR/L06-D120	●	●	12	10	6	80	25	9	-	0°	-10°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
E10H-SCLCR/L06-D120	●	●	12	10	6	100	25	9	-	0°	-10°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
E10M-SCLCR/L06-D120	●	●	12	10	6	150	25	9	-	0°	-10°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
E12G-SCLCR/L06-D140	●	●	14	12	7	90	27	11	-	0°	-8°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
E12J-SCLCR/L06-D140	●	●	14	12	7	110	27	11	-	0°	-8°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
E12Q-SCLCR/L06-D140	●	●	14	12	7	180	27	11	-	0°	-8°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
E12G-SCLCR/L06-D160	●	●	16	12	9	90	27	11	-	0°	-7°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
E12J-SCLCR/L06-D160	●	●	16	12	9	110	27	11	-	0°	-7°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
E12Q-SCLCR/L06-D160	●	●	16	12	9	180	27	11	-	0°	-7°	0.4	CC□□0602	CSTB-2.5S	T-8F	1.2
E16H-SCLCR/L09-D180	●	●	18	16	9	100	32	15	-	0°	-10°	0.8	CC□□09T3	CSTB-4L060	T-15F	3.0
E16L-SCLCR/L09-D180	●	●	18	16	9	130	32	15	-	0°	-10°	0.8	CC□□09T3	CSTB-4L060	T-15F	3.0
E16R-SCLCR/L09-D180	●	●	18	16	9	200	32	15	-	0°	-10°	0.8	CC□□09T3	CSTB-4L060	T-15F	3.0
E16H-SCLCR/L09-D200	●	●	20	16	11	100	32	15	-	0°	-9°	0.8	CC□□09T3	CSTB-4L060	T-15F	3.0
E16L-SCLCR/L09-D200	●	●	20	16	11	130	32	15	-	0°	-9°	0.8	CC□□09T3	CSTB-4L060	T-15F	3.0
E16R-SCLCR/L09-D200	●	●	20	16	11	200	32	15	-	0°	-9°	0.8	CC□□09T3	CSTB-4L060	T-15F	3.0
E20S-SCLCR/L09-D220	●	●	22	20	11	250	36	18	-	0°	-8°	0.8	CC□□09T3	CSTB-4S	T-15F	3.0
E25T-SCLCR/L09-D270	●	●	27	25	13.5	300	45	23	-	0°	-6°	0.8	CC□□09T3	CSTB-4S	T-15F	3.0

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SCLCL □□ type), and the left hand insert (L) is used for the right hand toolholders (SCLCR □□ type).

● : Stocked items

**SCLPR/L Boring & internal facing S-type (Positive, screw-on)**



Right hand (R) shown

**Steel shank**

Toolholder Cat. No.	Stock		Min bore dia. ØDm	ØDs	f	Dimensions (mm)					Std. corner radius rε	Applicable inserts	Parts		Torque (N·m)	
	R	L				L1	L2	h	f2	θ			a	Clamping screw		Wrench
<b>New</b> A08H-SCLPR/L06-D100	●	●	10	8	5.5	100	16	7.5	-	+5°	-8°	0.4	CP□□0602	CSTB-2.5S	T-8F	1.2
<b>New</b> A10K-SCLPR/L06-D120	●	●	12	10	6	125	20	9	-	+5°	-5°	0.4	CP□□0602	CSTB-2.5S	T-8F	1.2
A10K-SCLPR/L08-D120	●	●	12	10	6	125	20	9	-	+5°	-5°	0.4	CP□□0802	CSTB-3L042	T-9F	1.4
<b>New</b> A12M-SCLPR/L06-D140	●	●	14	12	7	150	24	11	-	+5°	-4°	0.4	CP□□0602	CSTB-2.5S	T-8F	1.2
A12M-SCLPR/L08-D140	●	●	14	12	7	150	24	11	-	+5°	-4°	0.4	CP□□0802	CSTB-3L050	T-9F	1.4
A12M-SCLPR/L08-D160	●	●	16	12	9	150	24	11	-	+5°	-3°	0.4	CP□□0802	CSTB-3L050	T-9F	1.4
A16Q-SCLPR/L09-D180	●	●	18	16	9	180	32	15	-	+5°	-3.5°	0.8	CP□□0903	CSTB-4L060	T-15F	3.0
A16Q-SCLPR/L09-D200	●	●	20	16	11	180	32	15	-	+5°	-3°	0.8	CP□□0903	CSTB-4L060	T-15F	3.0
A20R-SCLPR/L09-D220	●	●	22	20	11	200	36	18	-	+5°	-2°	0.8	CP□□0903	CSTB-4L060	T-15F	3.0
A25S-SCLPR/L09-D270	●	●	27	25	13.5	250	45	23	-	+5°	-1°	0.8	CP□□0903	CSTB-4L060	T-15F	3.0

**Carbide shank**

Toolholder Cat. No.	Stock		Min bore dia. ØDm	ØDs	f	Dimensions (mm)					Std. corner radius rε	Applicable inserts	Parts		Torque (N·m)	
	R	L				L1	L2	h	f2	θ			a	Clamping screw		Wrench
<b>New</b> E08K-SCLPR/L06-D100	●	●	10	8	5.5	125	22	7.5	-	+5°	-8°	0.4	CP□□0602	CSTB-2.5S	T-8F	1.2
<b>New</b> E10M-SCLPR/L06-D120	●	●	12	10	6	150	25	9	-	+5°	-5°	0.4	CP□□0602	CSTB-2.5S	T-8F	1.2
E10H-SCLPR/L08-D120	●	●	12	10	6	100	25	9	-	+5°	-5°	0.4	CP□□0802	CSTB-3L042	T-9F	1.4
E10M-SCLPR/L08-D120	●	●	12	10	6	150	25	9	-	+5°	-5°	0.4	CP□□0802	CSTB-3L042	T-9F	1.4
<b>New</b> E12Q-SCLPR/L06-D140	●	●	14	12	7	180	27	11	-	+5°	-4°	0.4	CP□□0602	CSTB-2.5S	T-8F	1.2
E12G-SCLPR/L08-D140	●	●	14	12	7	90	27	11	-	+5°	-4°	0.4	CP□□0802	CSTB-3L050	T-9F	1.4
E12J-SCLPR/L08-D140	●	●	14	12	7	110	27	11	-	+5°	-4°	0.4	CP□□0802	CSTB-3L050	T-9F	1.4
E12Q-SCLPR/L08-D140	●	●	14	12	7	180	27	11	-	+5°	-4°	0.4	CP□□0802	CSTB-3L050	T-9F	1.4
E12G-SCLPR/L08-D160	●	●	16	12	9	90	27	11	-	+5°	-3°	0.4	CP□□0802	CSTB-3L050	T-9F	1.4
E12J-SCLPR/L08-D160	●	●	16	12	9	110	27	11	-	+5°	-3°	0.4	CP□□0802	CSTB-3L050	T-9F	1.4
E12Q-SCLPR/L08-D160	●	●	16	12	9	180	27	11	-	+5°	-3°	0.4	CP□□0802	CSTB-3L050	T-9F	1.4
E16H-SCLPR/L09-D180	●	●	18	16	9	100	32	15	-	+5°	-3.5°	0.8	CP□□0903	CSTB-4L060	T-15F	3.0
E16L-SCLPR/L09-D180	●	●	18	16	9	130	32	15	-	+5°	-3.5°	0.8	CP□□0903	CSTB-4L060	T-15F	3.0
E16R-SCLPR/L09-D180	●	●	18	16	9	200	32	15	-	+5°	-3.5°	0.8	CP□□0903	CSTB-4L060	T-15F	3.0
E16H-SCLPR/L09-D200	●	●	20	16	11	100	32	15	-	+5°	-3°	0.8	CP□□0903	CSTB-4L060	T-15F	3.0
E16L-SCLPR/L09-D200	●	●	20	16	11	130	32	15	-	+5°	-3°	0.8	CP□□0903	CSTB-4L060	T-15F	3.0
E16R-SCLPR/L09-D200	●	●	20	16	11	200	32	15	-	+5°	-3°	0.8	CP□□0903	CSTB-4L060	T-15F	3.0

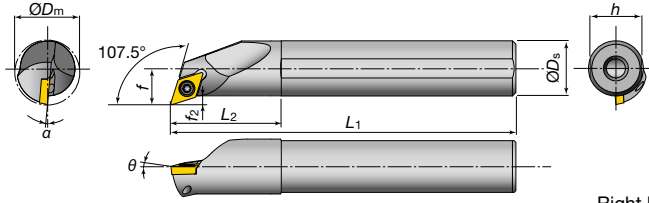
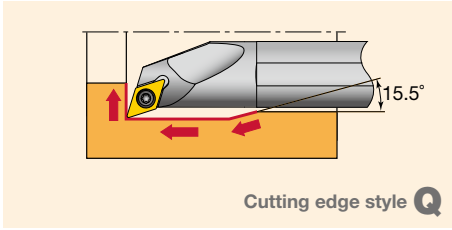
When using a right or left hand insert, the right hand (R) insert is used for the left hand toolholders (SCLPL □□ type), and the left hand insert (L) is used for the right hand toolholders (SCLPR □□ type).

● : Stocked items

5  
TAC Internal Toolholders

## SDQCR/L Boring & internal profiling

S-type (Positive, screw-on)



Right hand (R) shown

### Steel shank

Toolholder Cat. No.	Stock		Min bore dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$\alpha$	Clamping screw		Wrench
A10K-SDQCR/L07-D130	●	●	13	10	7.6	125	20	9	2.6	0°	-8°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
A12M-SDQCR/L07-D160	●	●	16	12	8.6	150	24	11	2.6	0°	-6°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
A16Q-SDQCR/L07-D200	●	●	20	16	10.6	180	32	15	2.6	0°	-5°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
A20R-SDQCR/L11-D250	●	●	25	20	13.7	200	36	18	3.7	0°	-7°	0.8	DC□□11T3	CSTB-4S	T-15F	3.0
A25S-SDQCR/L11-D300	●	●	30	25	16.2	250	45	23	3.7	0°	-4°	0.8	DC□□11T3	CSTB-4S	T-15F	3.0

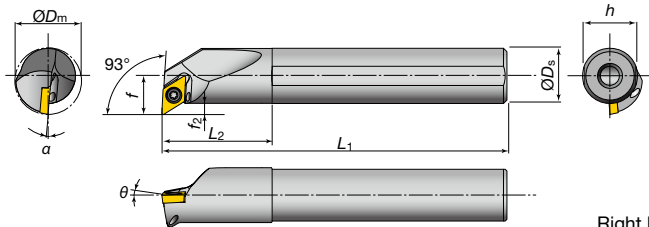
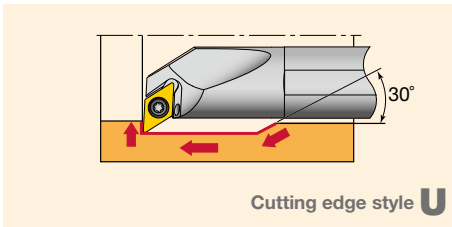
### Carbide shank

Toolholder Cat. No.	Stock		Min bore dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$\alpha$	Clamping screw		Wrench
E10H-SDQCR/L07-D130	●	●	13	10	7.6	100	25	9	2.5	0°	-8°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
E10M-SDQCR/L07-D130	●	●	13	10	7.6	150	25	9	2.6	0°	-8°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
E12J-SDQCR/L07-D160	●	●	16	12	8.6	110	27	11	2.5	0°	-6°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
E12Q-SDQCR/L07-D160	●	●	16	12	8.6	180	27	11	2.6	0°	-6°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
E16L-SDQCR/L07-D200	●	●	20	16	10.6	130	32	15	2.5	0°	-5°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
E16R-SDQCR/L07-D200	●	●	20	16	10.6	200	32	15	2.6	0°	-5°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
E20S-SDQCR/L11-D250	●	●	25	20	13.7	250	36	18	3.7	0°	-7°	0.8	DC□□11T3	CSTB-4S	T-15F	3.0

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SDQCL □□ type), and the left hand insert (L) is used for the right hand toolholders (SDQCR □□ type).

## SDUCR/L Boring & internal profiling

S-type (Positive, screw-on)



Right hand (R) shown

### Steel shank

Toolholder Cat. No.	Stock		Min bore dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$\alpha$	Clamping screw		Wrench
A10K-SDUCR/L07-D130	●	●	13	10	7	125	20	9	2.0	0°	-10°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
A12M-SDUCR/L07-D160	●	●	16	12	9.3	150	24	11	3.3	0°	-6°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
A16Q-SDUCR/L07-D200	●	●	20	16	11.3	180	32	15	3.3	0°	-5°	0.4	DC□□0702	CSTB-2.5	T-8F	1.2
A20R-SDUCR/L11-D270	●	●	27	20	16.1	200	36	18	6.1	0°	-5°	0.8	DC□□11T3	CSTB-4S	T-15F	3.0
A25S-SDUCR/L11-D320	●	●	32	25	18.6	250	45	23	6.1	0°	-4°	0.8	DC□□11T3	CSTB-4S	T-15F	3.0

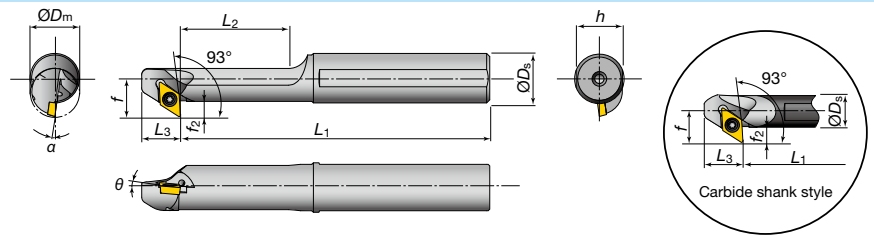
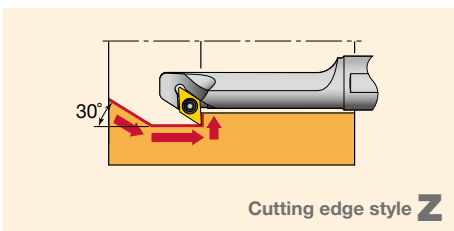
### Carbide shank

Toolholder Cat. No.	Stock		Min bore dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$\alpha$	Clamping screw		Wrench
E10H-SDUCR/L07-D130	●	●	13	10	7	100	25	9	1.9	5°	-3.5°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
E10M-SDUCR/L07-D130	●	●	13	10	7	150	25	9	2.0	0°	-10°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
E12J-SDUCR/L07-D160	●	●	16	12	9.3	110	27	11	3.2	0°	-6°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
E12Q-SDUCR/L07-D160	●	●	16	12	9.3	180	27	11	3.3	0°	-6°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
E16L-SDUCR/L07-D200	●	●	20	16	11.3	130	32	15	3.2	0°	-5°	0.4	DC□□0702	CSTB-2.5S	T-8F	1.2
E16R-SDUCR/L07-D200	●	●	20	16	11.3	200	32	15	3.3	0°	-5°	0.4	DC□□0702	CSTB-2.5	T-8F	1.2
E20S-SDUCR/L11-D270	●	●	27	20	16.1	250	36	18	6.1	0°	-5°	0.8	DC□□11T3	CSTB-4S	T-15F	3.0

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SDUCL □□ type), and the left hand insert (L) is used for the right hand toolholders (SDUCR □□ type).

● : Stocked items

**SDZCR/L Back boring S-type (Positive, screw-on)**



**Steel shank** Right hand (R) shown

Toolholder Cat. No.	Stock		Dimensions (mm)										Std. corner radius r <sub>c</sub>	Applicable inserts	Parts		
	R	L	Min. bore dia. ØD <sub>m</sub>	ØD <sub>s</sub>	f	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	h	f <sub>2</sub>	θ	α			Clamping screw	Wrench	Torque (N·m)
<b>A12M-SDZCR/L07-D140</b>	●	●	14	12	10.5	150	30	12.5	11	4.5	0°	-9°	0.4	DC□□0702	CSTB-2.5	T-8F	1.2
<b>A16Q-SDZCR/L07-D160</b>	●	●	16	16	12.5	180	35	12.5	15	4.5	0°	-8°	0.4	DC□□0702	CSTB-2.5	T-8F	1.2
<b>A20R-SDZCR/L11-D200</b>	●	●	20	20	15.5	200	40	15	18	5.5	0°	-8°	0.8	DC□□11T3	CSTB-4S	T-15F	3.0
<b>A25S-SDZCR/L11-D250</b>	●	●	25	25	18	250	50	15	23	5.5	0°	-6°	0.8	DC□□11T3	CSTB-4S	T-15F	3.0

**Carbide shank**

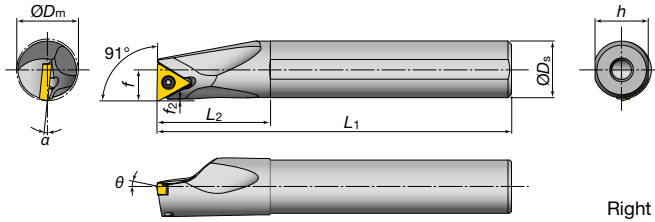
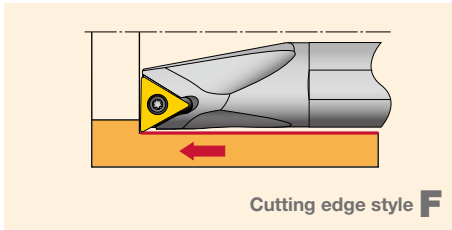
Toolholder Cat. No.	Stock		Dimensions (mm)										Std. corner radius r <sub>c</sub>	Applicable inserts	Parts		
	R	L	Min. bore dia. ØD <sub>m</sub>	ØD <sub>s</sub>	f	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	h	f <sub>2</sub>	θ	α			Clamping screw	Wrench	Torque (N·m)
<b>E12Q-SDZCR/L07-D180</b>	●	●	18	12	10.5	180	-	12.5	11	4.5	0°	-8°	0.4	DC□□0702	CSTB-2.5	T-8F	1.2
<b>E16R-SDZCR/L07-D220</b>	●	●	22	16	12.5	200	-	12.5	15	4.5	0°	-6°	0.4	DC□□0702	CSTB-2.5	T-8F	1.2

When using a right or left hand insert, the right hand insert (R) is used for the right hand toolholders (SDZCR □□ type), and the left hand insert (L) is used for the left hand toolholders (SDZCL □□ type).

● : Stocked items

## STFCR/L Boring

S-type (Positive, screw-on)



### Steel shank

Toolholder Cat. No.	Stock		Min bore.dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$a$	Clamping screw		Wrench
A08H-STFCR/L09-D100			10	8	5.5	100	16	7.5	0.6	0°	-12°	0.4	TC□□0902	CSTB-2.2S	T-7F	0.9
A10K-STFCR/L09-D120			12	10	6.5	125	20	9	0.6	0°	-10°	0.4	TC□□0902	CSTB-2.2S	T-7F	0.9
A10K-STFCR/L1102-D120			12	10	6.5	125	20	9	0.6	0°	-10°	0.4	TC□□1102	CSTB-2.5	T-8F	1.2
<b>New</b> A10K-STFCR/L1103-D120	●	●	12	10	6.5	125	20	9	0.6	0°	-13°	0.4	TC□□1103	CSTB-2.5	T-8F	1.2
A12M-STFCR/L09-D140			14	12	7	150	24	11	0.5	0°	-8°	0.4	TC□□0902	CSTB-2.2	T-7F	0.9
A12M-STFCR/L1102-D140			14	12	7	150	24	11	0.5	0°	-8°	0.4	TC□□1102	CSTB-2.5	T-8F	1.2
<b>New</b> A12M-STFCR/L1103-D140	●	●	14	12	7	150	24	11	0.5	0°	-10°	0.4	TC□□1103	CSTB-2.5	T-8F	1.2
A16Q-STFCR/L09-D180			18	16	9	180	32	15	0.6	0°	-6°	0.4	TC□□0902	CSTB-2.2	T-7F	0.9
A16Q-STFCR/L1102-D180			18	16	9	180	32	15	0.6	0°	-6°	0.4	TC□□1102	CSTB-2.5	T-8F	1.2
<b>New</b> A16Q-STFCR/L1103-D180	●	●	18	16	9	180	32	15	0.5	0°	-7°	0.4	TC□□1103	CSTB-2.5	T-8F	1.2
A20R-STFCR/L1102-D220			22	20	11	200	36	18	0.5	0°	-4°	0.4	TC□□1102	CSTB-2.5	T-8F	1.2
A20R-STFCR/L16-D220			22	20	11	200	36	18	0.4	0°	-7°	0.8	TC□□16T3	CSTB-4M	T-15F	3.0
A25S-STFCR/L16-D270			27	25	13.5	250	45	23	0.4	0°	-5°	0.8	TC□□16T3	CSTB-4M	T-15F	3.0

### Carbide shank

Toolholder Cat. No.	Stock		Min bore.dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$a$	Clamping screw		Wrench
E08K-STFCR/L09-D100			10	8	5.5	125	22	7.5	0.6	0°	-12°	0.4	TC□□0902	CSTB-2.2S	T-7F	0.9
E10M-STFCR/L09-D120			12	10	6.5	150	25	9	0.6	0°	-10°	0.4	TC□□0902	CSTB-2.2S	T-7F	0.9
E10M-STFCR/L1102-D120			12	10	6.5	150	25	9	0.6	0°	-10°	0.4	TC□□1102	CSTB-2.5	T-8F	1.2
<b>New</b> E10M-STFCR/L1103-D120	●	●	12	10	6.5	150	25	9	0.7	0°	-13°	0.4	TC□□1103	CSTB-2.5	T-8F	1.2
E12Q-STFCR/L09-D140			14	12	7	180	27	11	0.6	0°	-8°	0.4	TC□□0902	CSTB-2.2	T-7F	0.9
E12Q-STFCR/L1102-D140			14	12	7	180	27	11	0.6	0°	-8°	0.4	TC□□1102	CSTB-2.5	T-8F	1.2
<b>New</b> E12Q-STFCR/L1103-D140	●	●	14	12	7	180	27	11	0.5	0°	-10°	0.4	TC□□1103	CSTB-2.5	T-8F	1.2
E16R-STFCR/L09-D180			18	16	9	200	32	15	0.6	0°	-6°	0.4	TC□□0902	CSTB-2.2	T-7F	0.9
E16R-STFCR/L1102-D180			18	16	9	200	32	15	0.6	0°	-6°	0.4	TC□□1102	CSTB-2.5	T-8F	1.2
<b>New</b> E16R-STFCR/L1103-D180	●	●	18	16	9	200	32	15	0.5	0°	-7°	0.4	TC□□1103	CSTB-2.5	T-8F	1.2
E20S-STFCR/L1102-D220			22	20	11	250	36	18	0.6	0°	-4°	0.4	TC□□1102	CSTB-2.5	T-8F	1.2
E20S-STFCR/L16-D220			22	20	11	250	36	18	0.6	0°	-7°	0.8	TC□□16T3	CSTB-4M	T-15F	3.0
E25T-STFCR/L16-D270			27	25	13.5	300	45	23	0.5	0°	-5°	0.8	TC□□16T3	CSTB-4M	T-15F	3.0

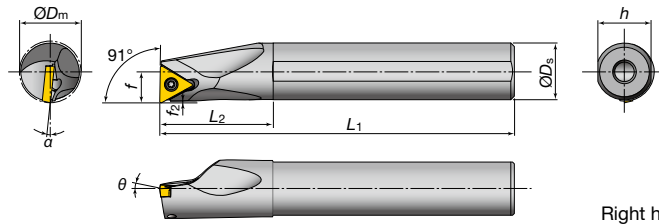
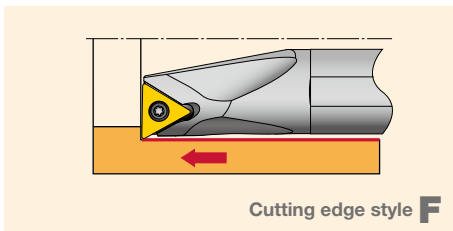
When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (STFCL □□ type), and the left hand insert (L) is used for the right hand toolholders (STFCR □□ type).

● : Stocked items



**STFPR/L Boring**

S-type (Positive, screw-on)



Right hand (R) shown

**Steel shank**

Toolholder Cat. No.	Stock		Min bore dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_c$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$a$	Clamping screw		Wrench
<b>A08H-STFPR/L09-D100</b>	●	●	10	8	5.5	100	16	7.5	0.7	+5°	-8°	0.4	*TP□□0902	CSTB-2.2S	T-7F	0.9
<b>A10K-STFPR/L1102-D120</b>	●	●	12	10	6.5	125	20	9	0.7	+5°	-6°	0.4	*TP□□1102	CSTB-2.5B	T-8F	1.2
<b>A10K-STFPR/L1103-D120</b>			12	10	6.5	125	20	9	0.7	+5°	-7°	0.4	*TP□□1103	CSTB-3L050	T-9F	1.4
<b>A12M-STFPR/L1102-D140</b>	●	●	14	12	7	150	24	11	0.6	+5°	-4°	0.4	*TP□□1102	CSTB-2.5	T-8F	1.2
<b>A12M-STFPR/L1103-D140</b>			14	12	7	150	24	11	0.6	+5°	-4°	0.4	*TP□□1103	CSTB-3S	T-9F	1.4
<b>A16Q-STFPR/L1103-D180</b>			18	16	9	180	32	15	0.7	+5°	-2°	0.4	*TP□□1103	CSTB-3S	T-9F	1.4
<b>A16Q-STFPR/L13-D180</b>	●	●	18	16	9	180	32	15	0.7	+5°	-2°	0.4	*TP□□1303	CSTB-3S	T-9F	1.4
<b>A20R-STFPR/L13-D220</b>	●		22	20	11	200	36	18	0.8	+5°	-2°	0.4	*TP□□1303	CSTB-3	T-9F	1.4
<b>A25S-STFPR/L16-D270</b>	●		27	25	13.5	250	45	23	0.6	+5°	-1°	0.4	*TP□□16T3	CSTB-4M	T-15F	3.0

**Carbide shank**

Toolholder Cat. No.	Stock		Min bore dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_c$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$a$	Clamping screw		Wrench
<b>E08K-STFPR/L09-D100</b>	●	●	10	8	5.5	125	22	7.5	0.7	+5°	-8°	0.4	*TP□□0902	CSTB-2.2S	T-7F	0.9
<b>E10M-STFPR/L1102-D120</b>	●	●	12	10	6.5	150	25	9	0.7	+5°	-6°	0.4	*TP□□1102	CSTB-2.5B	T-8F	1.2
<b>E10M-STFPR/L1103-D120</b>			12	10	6.5	150	25	9	0.7	+5°	-7°	0.4	*TP□□1103	CSTB-3L050	T-9F	1.4
<b>E12Q-STFPR/L1102-D140</b>	●	●	14	12	7	180	27	11	0.6	+5°	-4°	0.4	*TP□□1102	CSTB-2.5	T-8F	1.2
<b>E12Q-STFPR/L1103-D140</b>			14	12	7	180	27	11	0.6	+5°	-4°	0.4	*TP□□1103	CSTB-3S	T-9F	1.4
<b>E16R-STFPR/L1103-D180</b>			18	16	9	200	32	15	0.7	+5°	-2°	0.4	*TP□□1103	CSTB-3S	T-9F	1.4
<b>E16R-STFPR/L13-D180</b>	●		18	16	9	200	32	15	0.7	+5°	-2°	0.4	*TP□□1303	CSTB-3S	T-9F	1.4
<b>E20S-STFPR/L13-D220</b>	●		22	20	11	250	36	18	0.8	+5°	-2°	0.4	*TP□□1303	CSTB-3	T-9F	1.4

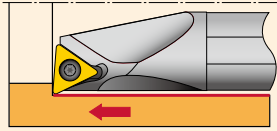
When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (STFPL □□ type), and the left hand insert (L) is used for the right hand toolholders (STFPR □□ type).

\* Inserts of TPGH, TPGM and TPGA are not applicable.

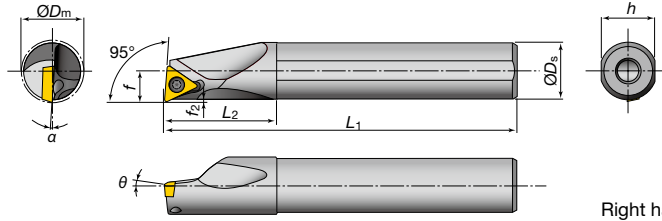
● : Stocked items

## STUPR/L Boring

S-type (Positive, screw-on)



Cutting edge style **U**



Right hand (R) shown

### Steel shank

Toolholder Cat. No.	Stock		Min. bore dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$\alpha$	Clamping screw		Wrench
<b>New MINI</b> A07G-STUPR/L07-D080	●	●	8	7	4	90	12	6.75	0.4	+5°	-10°	0.4	TP□□0701	CSTB-2.2L038	T-7F	0.9
A08H-STUPR/L07-D080	●	●	8	8	4	100	19.5	7.5	0.5	+5°	-10°	0.4	TP□□0701	CSTB-2.2L038	T-7F	0.9
A08H-STUPR/L09-D100	●	●	10	8	5.5	100	16	7.5	0.6	+5°	-8°	0.4	*TP□□0902	CSTB-2.2L038	T-7F	0.9
A10F-STUPR/L1102-D120	●		12	10	6.5	80	20	9	1.4	+5°	-6°	0.4	*TP□□1102	CSTB-2.5S	T-8F	1.2
A10K-STUPR/L1102-D120	●	●	12	10	6.5	125	20	9	0.7	+5°	-6°	0.4	*TP□□1102	CSTB-2.5S	T-8F	1.2
A10K-STUPR/L1103-D120	●	●	12	10	6.5	125	20	9	0.6	+5°	-10°	0.4	*TP□□1103	CSTB-3L050	T-9F	1.4
A12H-STUPR/L1102-D140	●		14	12	7	100	24	11	0.9	+5°	-4°	0.4	*TP□□1102	CSTB-2.5B	T-8F	1.2
A12M-STUPR/L1102-D140	●	●	14	12	7	150	24	11	0.7	+5°	-4°	0.4	*TP□□1102	CSTB-2.5B	T-8F	1.2
A12M-STUPR/L1103-D140	●	●	14	12	7	150	24	11	0.6	+5°	-6°	0.4	*TP□□1103	CSTB-3L050	T-9F	1.4
A12H-STUPR/L1102-D160	●		16	12	9	100	24	11	0.6	+5°	-3°	0.4	*TP□□1102	CSTB-2.5B	T-8F	1.2
A12M-STUPR/L1102-D160	●	●	16	12	9	150	24	11	0.6	+5°	-3°	0.4	*TP□□1102	CSTB-2.5B	T-8F	1.2
A16K-STUPR/L13-D180	●		18	16	9	125	32	15	0.9	+5°	-3°	0.4	*TP□□1303	CSTB-3S	T-9F	1.4
A16Q-STUPR/L1103-D180	●	●	18	16	9	180	32	15	0.8	+5°	-4°	0.4	*TP□□1103	CSTB-3S	T-9F	1.4
A16Q-STUPR/L13-D180	●	●	18	16	9	180	32	15	0.6	+5°	-3°	0.4	*TP□□1303	CSTB-3S	T-9F	1.4
A16K-STUPR/L13-D200	●		20	16	11	125	32	15	0.6	+5°	-3°	0.4	*TP□□1303	CSTB-3S	T-9F	1.4
A16Q-STUPR/L13-D200	●	●	20	16	11	180	32	15	0.6	+5°	-3°	0.4	*TP□□1303	CSTB-3S	T-9F	1.4
A20R-STUPR/L1103-D220	●	●	22	20	11	200	36	18	0.7	+5°	-2°	0.4	*TP□□1103	CSTB-3S	T-9F	1.4
A20R-STUPR/L13-D220	●	●	22	20	11	200	36	18	0.7	+5°	-2°	0.4	*TP□□1303	CSTB-3	T-9F	1.4
A25S-STUPR/L16-D270	●	●	27	25	13.5	250	45	23	0.5	+5°	-1°	0.8	*TP□□16T3	CSTB-4M	T-15F	3.0
A32T-STUPR/L16-D340	●	●	34	32	17	300	50	30	0.7	+5°	0°	0.8	*TP□□16T3	CSTB-4M	T-15F	3.0

### Carbide shank

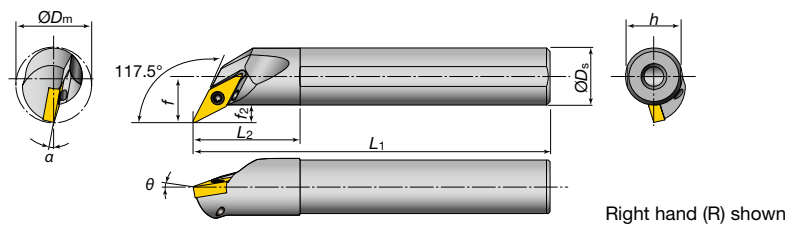
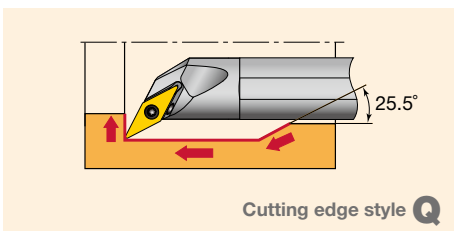
Toolholder Cat. No.	Stock		Min. bore dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$\alpha$	Clamping screw		Wrench
<b>New MINI</b> E07H-STUPR/L07-D080	●	●	8	7	4	100	14	6.75	0.3	+5°	-10°	0.4	TP□□0701	CSTB-2.2L038	T-7F	0.9
E08G-STUPR/L07-D080	●		8	8	4	90	44.5	7.5	0.5	+5°	-10°	0.4	TP□□0701	CSTB-2.2L038	T-7F	0.9
E08K-STUPR/L07-D080	●	●	8	8	4	125	44.5	7.5	0.5	+5°	-10°	0.4	TP□□0701	CSTB-2.2L038	T-7F	0.9
E08G-STUPR/L09-D100	●		10	8	5.5	90	22	7	0.6	+5°	-8°	0.4	*TP□□0902	CSTB-2.2L038	T-7F	0.9
E08K-STUPR/L09-D100	●	●	10	8	5.5	125	22	7	0.6	+5°	-8°	0.4	*TP□□0902	CSTB-2.2L038	T-7F	0.9
E10F-STUPR/L1102-D120	●		12	10	6.5	80	25	9	0.5	+5°	-6°	0.4	*TP□□1102	CSTB-2.5S	T-8F	1.2
E10H-STUPR/L1102-D120	●		12	10	6.5	100	25	9	0.6	+5°	-6°	0.4	*TP□□1102	CSTB-2.5S	T-8F	1.2
E10M-STUPR/L1102-D120	●	●	12	10	6.5	150	25	9	0.6	+5°	-6°	0.4	*TP□□1102	CSTB-2.5S	T-8F	1.2
E10M-STUPR/L1103-D120	●	●	12	10	6.5	150	25	9	0.7	+5°	-10°	0.4	*TP□□1103	CSTB-3L050	T-9F	1.4
E12G-STUPR/L1102-D140	●		14	12	7	90	27	11	0.9	+5°	-4°	0.4	*TP□□1102	CSTB-2.5S	T-8F	1.2
E12J-STUPR/L1102-D140	●		14	12	7	110	27	11	0.6	+5°	-4°	0.4	*TP□□1102	CSTB-2.5B	T-8F	1.2
E12Q-STUPR/L1102-D140	●	●	14	12	7	180	27	11	0.6	+5°	-4°	0.4	*TP□□1102	CSTB-2.5B	T-8F	1.2
E12Q-STUPR/L1103-D140	●	●	14	12	7	180	27	11	0.7	+5°	-6°	0.4	*TP□□1103	CSTB-3L050	T-9F	1.4
E12G-STUPR/L1102-D160	●		16	12	9	90	27	11	0.6	+5°	-3°	0.4	*TP□□1102	CSTB-2.5B	T-8F	1.2
E12J-STUPR/L1102-D160	●		16	12	9	110	27	11	0.6	+5°	-3°	0.4	*TP□□1102	CSTB-2.5B	T-8F	1.2
E12Q-STUPR/L1102-D160	●	●	16	12	9	180	27	11	0.6	+5°	-3°	0.4	*TP□□1102	CSTB-2.5B	T-8F	1.2
E16H-STUPR/L13-D180	●		18	16	9	100	32	15	0.9	+5°	-3°	0.4	*TP□□1303	CSTB-3S	T-9F	1.4
E16R-STUPR/L1103-D180	●	●	18	16	9	200	32	15	0.8	+5°	-4°	0.4	*TP□□1103	CSTB-3S	T-9F	1.4
E16L-STUPR/L13-D180	●		18	16	9	130	32	15	0.6	+5°	-3°	0.4	TP□□1303	CSTB-3S	T-9F	1.4
E16R-STUPR/L13-D180	●	●	18	16	9	200	32	15	0.6	+5°	-3°	0.4	TP□□1303	CSTB-3S	T-9F	1.4
E16H-STUPR/L13-D200	●		20	16	11	100	32	15	0.6	+5°	-3°	0.4	TP□□1303	CSTB-3S	T-9F	1.4
E16L-STUPR/L13-D200	●		20	16	11	130	32	15	0.6	+5°	-3°	0.4	TP□□1303	CSTB-3S	T-9F	1.4
E16R-STUPR/L13-D200	●	●	20	16	11	200	32	15	0.6	+5°	-3°	0.4	TP□□1303	CSTB-3S	T-9F	1.4
E20S-STUPR/L1103-D220	●		22	20	11	250	36	18	0.7	+5°	-2°	0.4	*TP□□1103	CSTB-3S	T-9F	1.4
E20S-STUPR/L13-D220	●		22	20	11	250	36	18	0.6	+5°	-2°	0.4	*TP□□1303	CSTB-3	T-9F	1.4
E25T-STUPR/L16-D270	●		27	25	13.5	300	45	23	0.5	+5°	-1°	0.8	*TP□□16T3	CSTB-4M	T-15F	3.0

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (STUPL □□ type), and the left hand insert (L) is used for the right hand toolholders (STUPR □□ type).

● : Stocked items

\* Inserts of TPGH, TPGM and TPGA are not applicable.

**SVQBR/L Boring & internal profiling S-type (Positive, screw-on)**



**Steel shank**

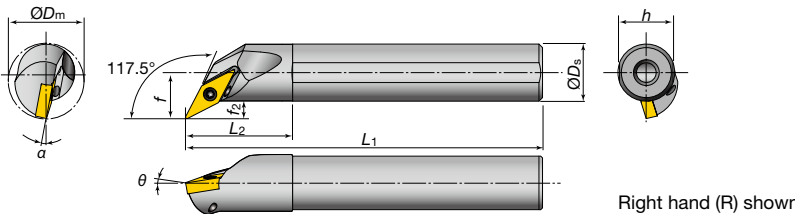
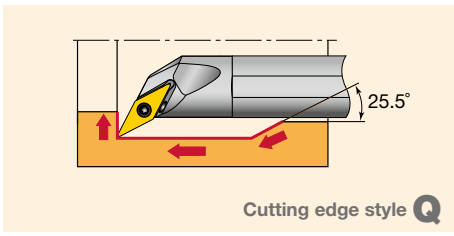
Toolholder Cat. No.	Stock		Min bore.dia. ØDm	Dimensions (mm)							Std. corner radius rε	Applicable inserts	Parts		Torque (N·m)	
	R	L		ØDs	f	L1	L2	h	f2	θ			α	Clamping screw		Wrench
A12M-SVQBR/L11-D170	●	●	17	12	10.5	150	24	11	4.5	-5°	-10°	0.4	VB□□1103	CSTB-2.5	T-8F	1.2
A16Q-SVQBR/L11-D215	●	●	21.5	16	13	180	30	15	5	-5°	-8°	0.4	VB□□1103	CSTB-2.5	T-8F	1.2
A20R-SVQBR/L11-D255	●	●	25.5	20	15	200	36	18	5	-5°	-6°	0.4	VB□□1103	CSTB-2.5	T-8F	1.2
A25S-SVQBR/L16-D305	●	●	30.5	25	17.5	250	45	23	5	-5°	-8°	0.8	VB□□1604	CSTB-3.5	T-15F	3.0

**Carbide shank**

Toolholder Cat. No.	Stock		Min bore.dia. ØDm	Dimensions (mm)							Std. corner radius rε	Applicable inserts	Parts		Torque (N·m)	
	R	L		ØDs	f	L1	L2	h	f2	θ			α	Clamping screw		Wrench
E12Q-SVQBR/L11-D170	●	●	17	12	10.5	180	27	11	4.5	-5°	-10°	0.4	VB□□1103	CSTB-2.5	T-8F	1.2
E16R-SVQBR/L11-D215	●	●	21.5	16	13	200	32	15	5	-5°	-8°	0.4	VB□□1103	CSTB-2.5	T-8F	1.2
E20S-SVQBR/L11-D255	●	●	25.5	20	15	250	36	18	5	-5°	-6°	0.4	VB□□1103	CSTB-2.5	T-8F	1.2
E25T-SVQBR/L16-D305	●	●	30.5	25	17.5	300	45	23	5	-5°	-8°	0.8	VB□□1604	CSTB-3.5	T-15F	3.0

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SVQBL □□ type), and the left hand insert (L) is used for the right hand toolholders (SVQBR □□ type).

**SVQCR/L Boring & internal profiling S-type (Positive, screw-on)**



**Steel shank**

Toolholder Cat. No.	Stock		Min bore.dia. ØDm	Dimensions (mm)							Std. corner radius rε	Applicable inserts	Parts		Torque (N·m)	
	R	L		ØDs	f	L1	L2	h	f2	θ			α	Clamping screw		Wrench
A10K-SVQCR/L08-D135	●	●	13.5	10	8	125	20	9	3	-5°	-8°	0.4	VC□□0802	CSTB-2L	T-6F	0.6
<b>New</b> A16Q-SVQCR/L11-D215	●	●	21.5	16	13	180	30	15	4.9	-5°	-8°	0.4	VC□□1103	CSTB-2.5	T-8F	1.2
A25S-SVQCR/L16-D320			32	25	17	250	45	23	4.5	0°	-5°	0.8	VC□□1604	CSTB-3.5	T-15F	3.0
A32T-SVQCR/L16-D400			40	32	22	300	50	30	6	0°	-3°	0.8	VC□□1604	CSTB-3.5	T-15F	3.0
A40U-SVQCR/L16-D500			50	40	27	350	60	37	7	0°	-1°	0.8	VC□□1604	CSTB-3.5	T-15F	3.0

**Carbide shank**

Toolholder Cat. No.	Stock		Min bore.dia. ØDm	Dimensions (mm)							Std. corner radius rε	Applicable inserts	Parts		Torque (N·m)	
	R	L		ØDs	f	L1	L2	h	f2	θ			α	Clamping screw		Wrench
<b>New</b> E10M-SVQCR/L08-D135	●	●	13.5	10	8	150	25	9	3	-5°	-8°	0.4	VC□□0802	CSTB-2L	T-6F	0.6
<b>New</b> E16R-SVQCR/L11-D215	●	●	21.5	16	13	200	32	15	4.9	-5°	-8°	0.4	VC□□1103	CSTB-2.5	T-8F	1.2

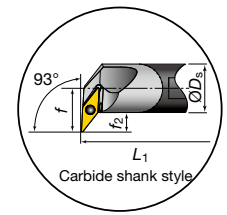
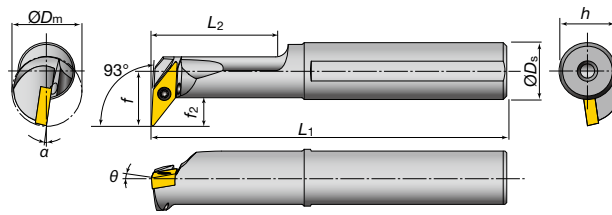
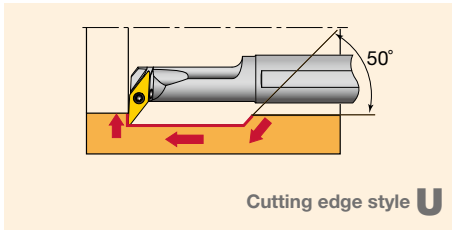
When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SVQCL □□ type), and the left hand insert (L) is used for the right hand toolholders (SVQCR □□ type).

● : Stocked items

5  
TAC Internal Toolholders

## SVUBR/L Boring & internal profiling

S-type (Positive, screw-on)



Right hand (R) shown

### Steel shank

Toolholder Cat. No.	Stock		Min bore.dia. $\varnothing D_m$	$\varnothing D_s$	Dimensions (mm)						Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L			$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$a$	Clamping screw		Wrench
A16Q-SVUBR/L11-D200	●	●	20	16	15.5	180	35	15	8	0°	-8°	0.4	VB□□1103	CSTB-2.5	T-8F	1.2
A20R-SVUBR/L11-D250	●	●	25	20	17.5	200	40	19	8	0°	-7°	0.4	VB□□1103	CSTB-2.5	T-8F	1.2
A25S-SVUBR/L16-D320	●	●	32	25	20.5	250	50	23	8.5	0°	-6°	0.8	VB□□1604	CSTB-3.5	T-15F	3.0

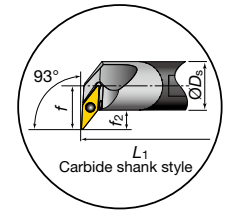
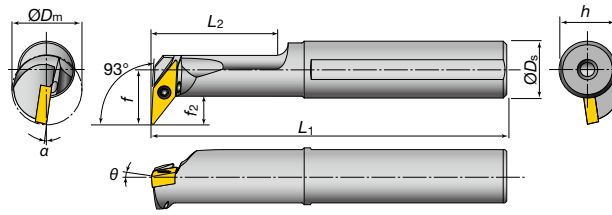
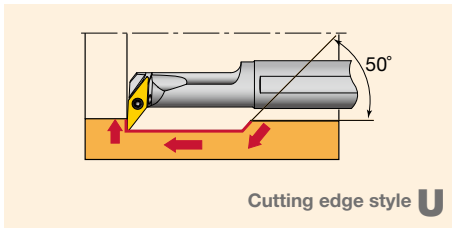
### Carbide shank

Toolholder Cat. No.	Stock		Min bore.dia. $\varnothing D_m$	$\varnothing D_s$	Dimensions (mm)						Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L			$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$a$	Clamping screw		Wrench
E16R-SVUBR/L11-D245	●	●	24.5	16	16	200	-	15	8	0°	-8°	0.4	VB□□1103	CSTB-2.5	T-8F	1.2
E20S-SVUBR/L11-D285	●	●	28.5	20	18	250	-	19	8	0°	-7°	0.4	VB□□1103	CSTB-2.5	T-8F	1.2
E25T-SVUBR/L16-D340	●	●	34	25	21	300	-	23	8.5	0°	-6°	0.8	VB□□1604	CSTB-3.5	T-15F	3.0

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SVUBL □□ type), and the left hand insert (L) is used for the right hand toolholders (SVUBR □□ type).

## SVUCR/L Boring & internal profiling

S-type (Positive, screw-on)



Right hand (R) shown

### Steel shank

Toolholder Cat. No.	Stock		Min bore.dia. $\varnothing D_m$	$\varnothing D_s$	Dimensions (mm)						Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L			$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$a$	Clamping screw		Wrench
A12M-SVUCR/L08-D160	●	●	16	12	11	150	30	11	5.5	0°	-8°	0.4	VC□□0802	CSTB-2L	T-6F	0.6
A25S-SVUCR/L16-D320	●	●	32	25	19	250	45	23	6.5	0°	-5°	0.8	VC□□1604	CSTB-3.5	T-15F	3.0
A32T-SVUCR/L16-D400			40	32	22	300	50	30	6	0°	-3°	0.8	VC□□1604	CSTB-3.5L	T-15F	3.0
A40U-SVUCR/L16-D500			50	40	27	350	60	37	7	0°	-1°	0.8	VC□□1604	CSTB-3.5L	T-15F	3.0

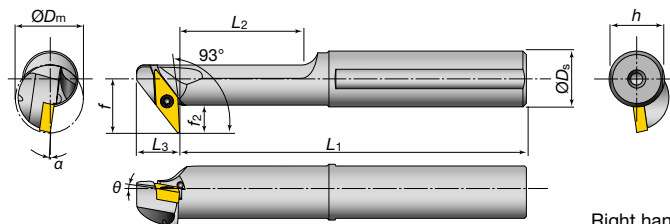
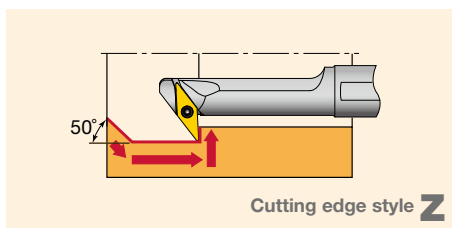
### Carbide shank

Toolholder Cat. No.	Stock		Min bore.dia. $\varnothing D_m$	$\varnothing D_s$	Dimensions (mm)						Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L			$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$a$	Clamping screw		Wrench
E12Q-SVUCR/L08-D180	●	●	18	12	11.5	180	-	11	5.5	0°	-8°	0.4	VC□□0802	CSTB-2L	T-6F	0.6
E25T-SVUCR/L16-D320	●	●	32	25	19	300	-	23	6.5	0°	-5°	0.8	VC□□1604	CSTB-3.5	T-15F	3.0

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SVUCL □□ type), and the left hand insert (L) is used for the right hand toolholders (SVUCR □□ type).

## SVZBR/L Back boring

S-type (Positive, screw-on)



Right hand (R) shown

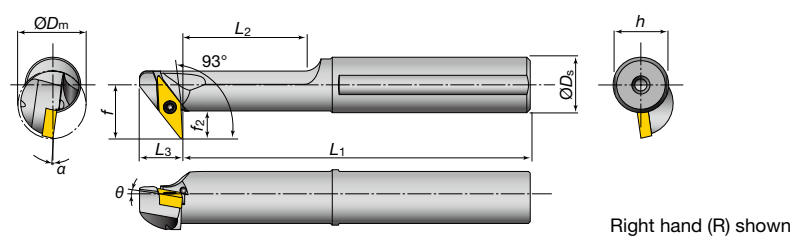
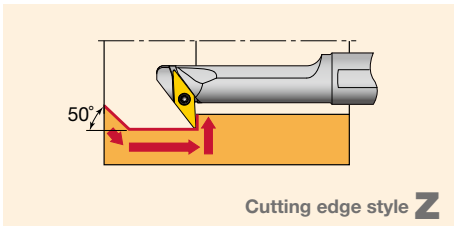
### Steel shank

Toolholder Cat. No.	Stock		Min bore.dia. $\varnothing D_m$	$\varnothing D_s$	Dimensions (mm)						Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)		
	R	L			$f$	$L_1$	$L_2$	$L_3$	$h$	$f_2$			$\theta$	$a$		Clamping screw	Wrench
A16Q-SVZBR/L11-D200	●	●	20	16	15.5	180	35	12.5	15	8	0°	-8°	0.4	VB□□1103	CSTB-2.5	T-8F	1.2
A20R-SVZBR/L11-D250	●	●	25	20	17.5	200	40	12.5	18	8	0°	-7°	0.4	VB□□1103	CSTB-2.5	T-8F	1.2
A25S-SVZBR/L16-D320	●	●	32	25	24	250	50	17.5	23	12	0°	-6°	0.8	VB□□1604	CSTB-3.5	T-15F	3.0
A32T-SVZBR/L16-D400	●	●	40	32	27.5	300	72	17.5	30	12	0°	-5°	0.8	VB□□1604	CSTB-3.5L	T-15F	3.0

When using a right or left hand insert, the right hand insert (R) is used for the right hand toolholders (SVZBR □□ type), and the left hand insert (L) is used for the left hand toolholders (SVZBL □□ type).

● : Stocked items

## SVZCR/L Back boring S-type (Positive, screw-on)

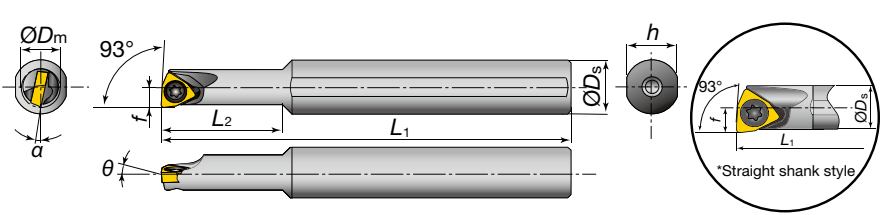
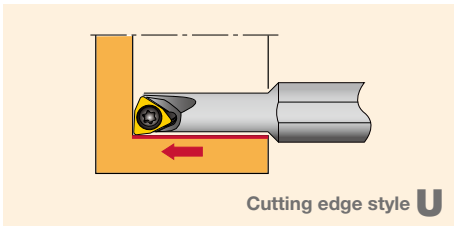


### Steel shank

Toolholder Cat. No.	Stock		Min bore.dia. $\varnothing D_m$	$\varnothing D_s$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L			f	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	h	f <sub>2</sub>	$\theta$			a	Clamping screw		Wrench
<b>A12M-SVZCR/L08-D160</b>	●	●	16	12	11	150	30	10	11	5.5	0°	-8°	0.4	VC□□0802	CSTB-2L	T-6F	0.6

When using a right or left hand insert, the right hand insert (R) is used for the right hand toolholders (SVZCR □□ type), and the left hand insert (L) is used for the left hand toolholders (SVZCL □□ type).

## SWUBR/L Boring S-type (Positive, screw-on)



### Steel shank

Toolholder Cat. No.	Stock		Min bore.dia. $\varnothing D_m$	$\varnothing D_s$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)
	R	L			f	L <sub>1</sub>	L <sub>2</sub>	h	f <sub>2</sub>	$\theta$	a			Clamping screw	Wrench	
<b>*A05F-SWUBR/L03-D060</b>	●	●	6	5	3	80	9	4.8	-	0°	-13°	0.4	WB□□0301	CSTB-2	T-6F	0.6
<b>*A06G-SWUBR/L03-D070</b>	●	●	7	6	3.5	90	11	5.75	-	0°	-12°	0.4	WB□□0301	CSTB-2	T-6F	0.6
<b>*A07G-SWUBR/L03-D080</b>	●	●	8	7	4	90	12	6.75	-	0°	-11°	0.4	WB□□0301	CSTB-2	T-6F	0.6
<b>A08H-SWUBR03-D060</b>	●		6	8	3.1	100	18	7.5	-	0°	-12°	0.4	WB□□0301	CSTB-2	T-6F	0.6
<b>A08H-SWUBR03-D070</b>	●		7	8	3.6	100	20	7.5	-	0°	-12°	0.4	WB□□0301	CSTB-2	T-6F	0.6

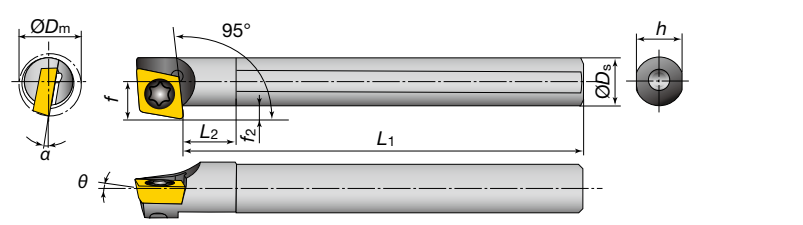
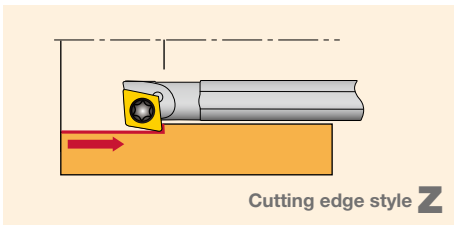
**New MINI**

### Carbide shank

Toolholder Cat. No.	Stock		Min bore.dia. $\varnothing D_m$	$\varnothing D_s$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)
	R	L			f	L <sub>1</sub>	L <sub>2</sub>	h	f <sub>2</sub>	$\theta$	a			Clamping screw	Wrench	
<b>*E05G-SWUBR/L03-D060</b>	●	●	6	5	3	90	10	4.8	-	0°	-13°	0.4	WB□□0301	CSTB-2	T-6F	0.6
<b>*E06H-SWUBR/L03-D070</b>	●	●	7	6	3.5	100	12	5.75	-	0°	-12°	0.4	WB□□0301	CSTB-2	T-6F	0.6
<b>*E07H-SWUBR/L03-D080</b>	●	●	8	7	4	100	14	6.75	-	0°	-11°	0.4	WB□□0301	CSTB-2	T-6F	0.6
<b>E08K-SWUBR03-D060</b>	●		6	8	3.1	125	30	7.5	-	0°	-12°	0.4	WB□□0301	CSTB-2	T-6F	0.6
<b>E08K-SWUBR03-D070</b>	●		7	8	3.6	125	40	7.5	-	0°	-12°	0.4	WB□□0301	CSTB-2	T-6F	0.6

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SWUBL □□ type), and the left hand insert (L) is used for the right hand toolholders (SWUBR □□ type).

## SEZPR/L Back boring S-type (Positive, screw-on)



### Steel shank

Toolholder Cat. No.	Stock		Min bore.dia. $\varnothing D_m$	$\varnothing D_s$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)
	R	L			f	L <sub>1</sub>	L <sub>2</sub>	h	f <sub>2</sub>	$\theta$	a			Clamping screw	Wrench	
<b>*A04F-SEZPR/L03-D055</b>	●	●	5.5	4	3.2	80	4	3.8	1.2	0°	-8°	0.2	EP□□03X1	CSTA-1.6	T-6F	0.6
<b>*A05F-SEZPR/L03-D065</b>	●	●	6.5	5	3.7	80	5	4.8	1.2	0°	-6°	0.2	EP□□03X1	CSTA-1.6	T-6F	0.6

### Carbide shank

Toolholder Cat. No.	Stock		Min bore.dia. $\varnothing D_m$	$\varnothing D_s$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)
	R	L			f	L <sub>1</sub>	L <sub>2</sub>	h	f <sub>2</sub>	$\theta$	a			Clamping screw	Wrench	
<b>*E04G-SEZPR/L03-D055</b>	●	●	5.5	4	3.2	90	5	3.8	1.2	0°	-8°	0.2	EP□□03X1	CSTA-1.6	T-6F	0.6
<b>*E05G-SEZPR/L03-D065</b>	●	●	6.5	5	3.7	90	6	4.8	1.2	0°	-6°	0.2	EP□□03X1	CSTA-1.6	T-6F	0.6

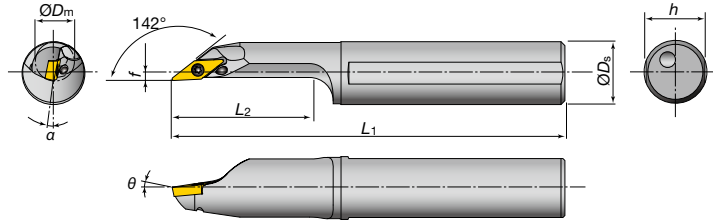
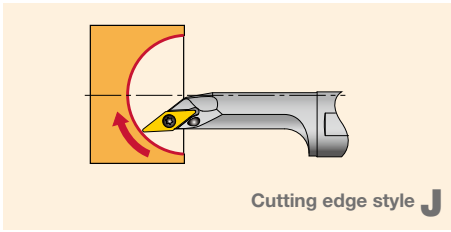
When using a right or left hand insert, the right hand insert (R) is used for the right hand toolholders (SEZPR □□ type), and the left hand insert (L) is used for the left hand toolholders (SEZPL □□ type).

● : Stocked items

5  
TAC Internal Toolholders

## SVJBR/L Internal sphere cutting

S-type (Positive, screw-on)



Right hand (R) shown

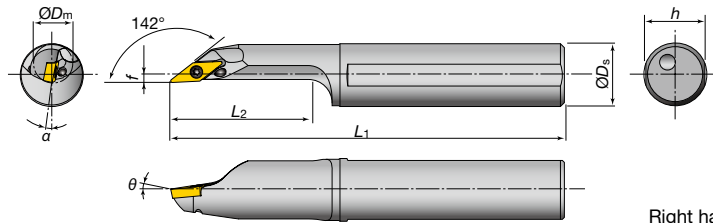
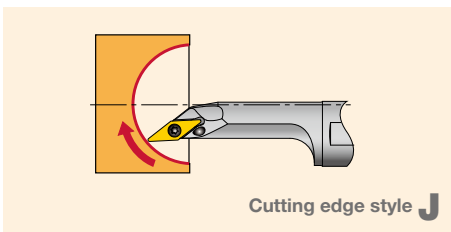
### Steel shank

Toolholder Cat. No.	Stock		Min. bore dia. $\varnothing D_m$	$\varnothing D_s$	Dimensions (mm)						Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L			f	L <sub>1</sub>	L <sub>2</sub>	h	f <sub>2</sub>	$\theta$			$\alpha$	Clamping screw		Wrench
A20R-SVJBR/L11-D250	●	●	25	20	2	200	40	18	-	-5°	-5°	0.4	VB□□1103	CSTB-2.5	T-8F	1.2
A25S-SVJBR/L11-D300	●	●	30	25	3.5	250	50	23	-	-5°	-5°	0.4	VB□□1103	CSTB-2.5	T-8F	1.2

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SVJBL □□ type), and the left hand insert (L) is used for the right hand toolholders (SVJBR □□ type).

## SVJCR/L Internal sphere cutting

S-type (Positive, screw-on)



Right hand (R) shown

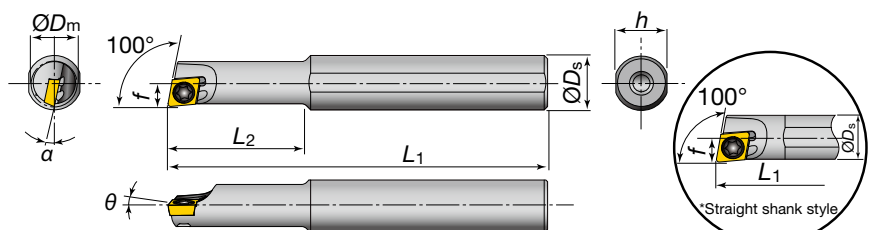
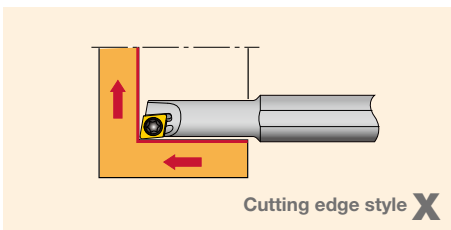
### Steel shank

Toolholder Cat. No.	Stock		Min. bore dia. $\varnothing D_m$	$\varnothing D_s$	Dimensions (mm)						Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L			f	L <sub>1</sub>	L <sub>2</sub>	h	f <sub>2</sub>	$\theta$			$\alpha$	Clamping screw		Wrench
A12M-SVJCR/L08-D160	●	●	16	12	2	150	28	11	-	-5°	-5°	0.4	VC□□0802	CSTB-2L	T-6F	0.6
A16Q-SVJCR/L08-D200	●	●	20	16	2	180	35	15	-	-5°	-5°	0.4	VC□□0802	CSTB-2L	T-6F	0.6

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SVJCL □□ type), and the left hand insert (L) is used for the right hand toolholders (SVJCR □□ type).

## SEXPR/L Boring & internal facing

S-type (Positive, screw-on)



Right hand (R) shown

### Steel shank

Toolholder Cat. No.	Stock		Min. bore dia. $\varnothing D_m$	$\varnothing D_s$	Dimensions (mm)						Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L			f	L <sub>1</sub>	L <sub>2</sub>	h	f <sub>2</sub>	$\theta$			$\alpha$	Clamping screw		Wrench
<b>New MINI</b> *A04F-SEXPR/L03-D045	●	●	4.5	4	2.3	80	-	3.8	-	0°	-15°	0.2	EP□□03X1	CSTA-1.6	T-6F	0.6
<b>New MINI</b> *A04F-SEXPR/L03-D050	●	●	5	4	2.5	80	-	3.8	-	0°	-13°	0.2	EP□□03X1	CSTA-1.6	T-6F	0.6
<b>New MINI</b> *A05F-SEXPR/L04-D055	●	●	5.5	5	2.75	80	-	4.8	-	0°	-12°	0.4	EP□□0401	CSTB-2	T-6F	0.6
<b>New MINI</b> *A06G-SEXPR/L04-D070	●	●	7	6	3.6	90	-	5.75	-	0°	-12°	0.4	EP□□0401	CSTB-2	T-6F	0.6
A08H-SEXPR/L04-D055	●	●	5.5	8	2.75	100	16	7.5	-	0°	-12°	0.4	EP□□0401	CSTB-2	T-6F	0.6
A08H-SEXPR/L04-D070	●	●	7	8	3.6	100	20	7.5	-	0°	-12°	0.4	EP□□0401	CSTB-2	T-6F	0.6

### Carbide shank

Toolholder Cat. No.	Stock		Min. bore dia. $\varnothing D_m$	$\varnothing D_s$	Dimensions (mm)						Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L			f	L <sub>1</sub>	L <sub>2</sub>	h	f <sub>2</sub>	$\theta$			$\alpha$	Clamping screw		Wrench
<b>New MINI</b> *E04G-SEXPR/L03-D045	●	●	4.5	4	2.3	90	-	3.8	-	0°	-15°	0.2	EP□□03X1	CSTA-1.6	T-6F	0.6
<b>New MINI</b> *E04G-SEXPR/L03-D050	●	●	5	4	2.5	90	-	3.8	-	0°	-13°	0.2	EP□□03X1	CSTA-1.6	T-6F	0.6
<b>New MINI</b> *E05G-SEXPR/L04-D055	●	●	5.5	5	2.75	90	-	4.8	-	0°	-12°	0.4	EP□□0401	CSTB-2	T-6F	0.6
<b>New MINI</b> *E06H-SEXPR/L04-D070	●	●	7	6	3.6	100	-	5.75	-	0°	-12°	0.4	EP□□0401	CSTB-2	T-6F	0.6
E08K-SEXPR/L04-D055	●	●	5.5	8	2.75	125	28	7.5	-	0°	-12°	0.4	EP□□0401	CSTB-2	T-6F	0.6
E08K-SEXPR/L04-D070	●	●	7	8	3.6	125	40	7.5	-	0°	-12°	0.4	EP□□0401	CSTB-2	T-6F	0.6

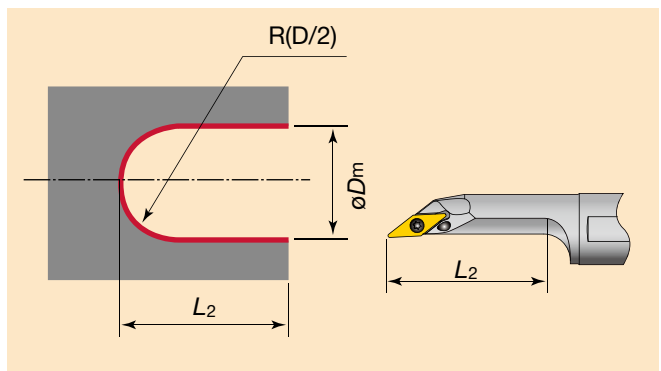
When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SEXPL □□ type), and the left hand insert (L) is used for the right hand toolholders (SEXPR □□ type).

● : Stocked items

# How to use SVJC(B)R/L-type tools

## General machining information

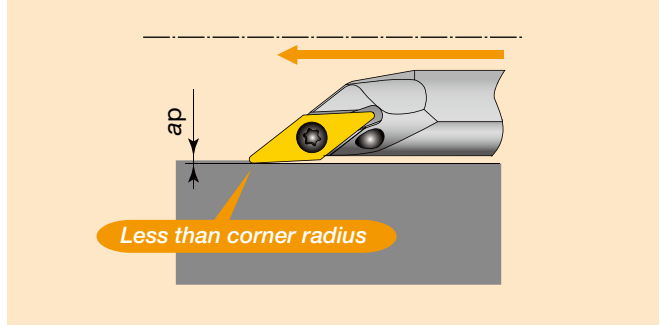
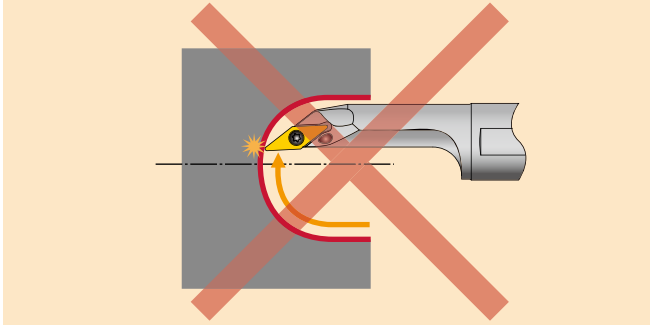
The minimum machinable radius (R) of the internal sphere is 1/2 of the minimum bore diameter ( $\phi D_m$ ).  
 The maximum machinable depth of the bore is within the  $L_2$  size of the tool.



## Cautionary points

To avoid insert breakage the tool point should not overrun the bore center.

To avoid burr, the depth of cut should be within the corner radius.

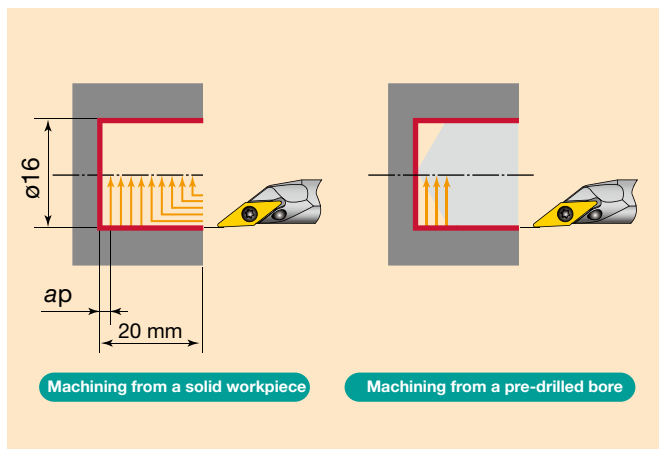
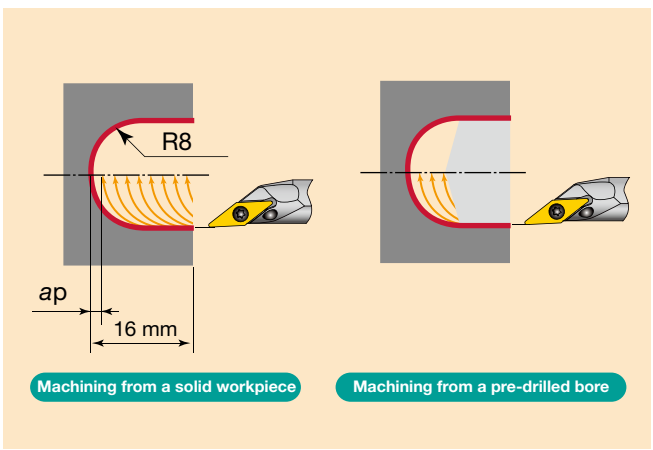


## Machining examples

### Machining of internal sphere

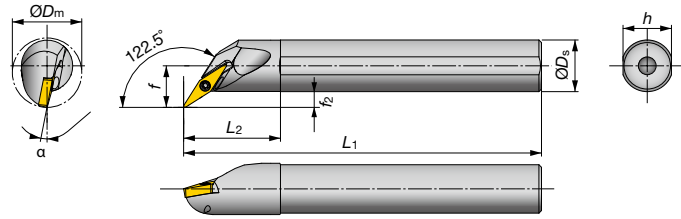
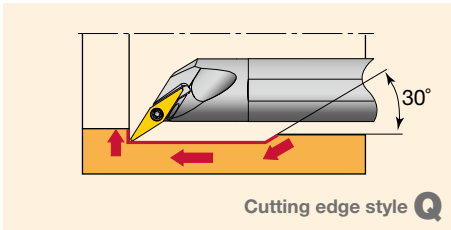
Work material : S45C  
 Toolholder : A12M-SVJCR08-D160  
 Insert : VCMT080204-PF (NS730)  
 Cutting speed :  $V_c = \sim 100$  m/min  
 No of revs. :  $n = 3000$  min<sup>-1</sup> (constant)  
 Feed :  $f = 0.1$  mm/rev  
 Depth of cut :  $a_p = 0.5$  mm

Work material : S45C  
 Toolholder : A12M-SVJCR08-D160  
 Insert : VCMT080204-PF (T9015)  
 Cutting speed :  $V_c = \sim 100$  m/min  
 No of revs. :  $n = 3000$  min<sup>-1</sup> (constant)  
 Feed :  $f = 0.1$  mm/rev  
           :  $f = 0.05$  mm/rev (only for plunging)  
 Depth of cut :  $a_p = 0.5$  mm



## SYQBR/L Internal undercut & profiling

S-type (Positive, screw-on)



### Steel shank

Right hand (R) shown

Toolholder Cat. No.	Stock		Min. bore dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$a$	Clamping screw		Wrench
A12M-SYQBR/L11-D170	●	●	17	12	10.5	150	24	11	4.5	-5°	-10°	0.4	YW□□11T2	CSTB-2L	T-6F	0.6
A16Q-SYQBR/L11-D215	●	●	21.5	16	13	180	30	15	5	-5°	-8°	0.4	YW□□11T2	CSTB-2L	T-6F	0.6

### Carbide shank

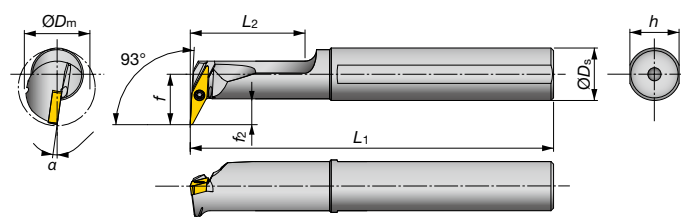
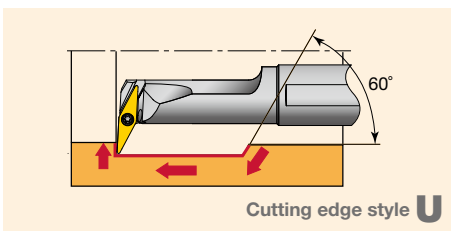
Toolholder Cat. No.	Stock		Min. bore dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$a$	Clamping screw		Wrench
E12Q-SYQBR/L11-D170	●	●	17	12	10.5	180	27	11	4.5	-5°	-10°	0.4	YW□□11T2	CSTB-2L	T-6F	0.6
E16R-SYQBR/L11-D215	●	●	21.5	16	13	200	32	15	5	-5°	-8°	0.4	YW□□11T2	CSTB-2L	T-6F	0.6

5

TAC Internal Toolholders

## SYUBR/L Boring & internal profiling

S-type (Positive, screw-on)



### Steel shank

Right hand (R) shown

Toolholder Cat. No.	Stock		Min. bore dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$a$	Clamping screw		Wrench
A16Q-SYUBR/L11-D200	●	●	20	16	15.5	180	35	15	8	0°	-8°	0.4	YW□□11T2	CSTB-2L	T-6F	0.6

### Carbide shank

Toolholder Cat. No.	Stock		Min. bore dia. $\varnothing D_m$	Dimensions (mm)							Std. corner radius $r_E$	Applicable inserts	Parts		Torque (N·m)	
	R	L		$\varnothing D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$a$	Clamping screw		Wrench
E12Q-SYUBR/L11-D200	●	●	20	12	13.5	180	27	11	7.5	0°	-8°	0.4	YW□□11T2	CSTB-2L	T-6F	0.6
E16R-SYUBR/L11-D245	●	●	24.5	16	16	200	32	15	8	0°	-8°	0.4	YW□□11T2	CSTB-2L	T-6F	0.6

● : Stocked items



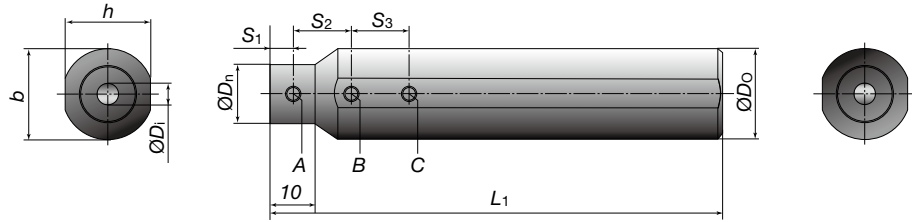
## Standard cutting conditions

### For Internal Turning

ISO	Work material	Chip-breaker	Grades	Cutting Speed $V_c$ (m/min)	Depth of cut $a_p$ (mm)	Feed $f$ (mm/rev)			
						R0.03	R0.1	R0.2	R0.4
<b>P</b>	Steels S45C, SCM435, etc. (C45, 34CrMo4, etc.)	W08 JS08	SH725	50 - 200	0.05 - 1.0	0.005 - 0.02	0.01 - 0.05	0.02 - 0.10	0.05 - 0.15
<b>M</b>	Stainless steels SUS303, SUS304, etc. (X10CrNiS18-9, etc.)	W08 JS	SH725	30 - 200	0.05 - 1.0	0.005 - 0.02	0.01 - 0.05	0.02 - 0.10	0.05 - 0.15
<b>K</b>	Grey cast irons Ductile cast irons FC250, FCD450, etc. (GG25, GGG45, etc.)	W08 JS	TH10	30 - 100	0.05 - 1.0	0.005 - 0.02	0.01 - 0.05	0.02 - 0.10	0.05 - 0.15
<b>N</b>	Aluminium alloys Copper alloys Si < 13%	W08 JS	TH10	100 - 500	0.05 - 1.0	0.005 - 0.02	0.01 - 0.05	0.02 - 0.10	0.05 - 0.15
<b>S</b>	Titanium Titanium alloys Ti-6Al-4V etc.	W08 JS	SH725	30 - 100	0.05 - 1.0	0.005 - 0.02	0.01 - 0.05	0.02 - 0.10	0.05 - 0.15

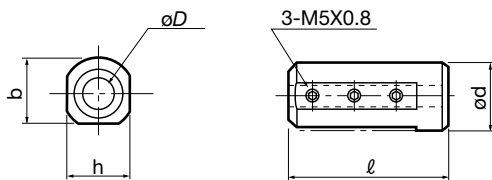
## Sleeves

**BLM** type (Round shank for Stream Jet Bar MINI)



Cat. No.	Stock	Dimensions (mm)							Replacement parts						
		øDo	øDi	øDn	L1	h	b	S1	S2	S3	Clamping screws			Wrench	*Seal cap (Inner screw)
											A	B	C		
BLM159-04	●	15.875	4	15	100	15	15.875	5	15	15	SSHM4-4	SSHM4-4	SSHM4-4	P-2	CA-16 (M6)
BLM159-05	●	15.875	5	15	100	15	15.875	5	15	15	SSHM4-4	SSHM4-4	SSHM4-4	P-2	CA-16 (M6)
BLM159-06	●	15.875	6	15	100	15	15.875	5	20	20	SSHM4-4	SSHM4-4	SSHM4-4	P-2	CA-16 (M6)
BLM159-07	●	15.875	7	15	100	15	15.875	5	20	20	SSHM4-4	SSHM4-4	SSHM4-4	P-2	CA-16 (M6)
BLM16-04	●	16	4	15	100	15	16	5	15	15	SSHM4-4	SSHM4-4	SSHM4-4	P-2	CA-16 (M6)
BLM16-05	●	16	5	15	100	15	16	5	15	15	SSHM4-4	SSHM4-4	SSHM4-4	P-2	CA-16 (M6)
BLM16-06	●	16	6	15	100	15	16	5	20	20	SSHM4-4	SSHM4-4	SSHM4-4	P-2	CA-16 (M6)
BLM16-07	●	16	7	15	100	15	16	5	20	20	SSHM4-4	SSHM4-4	SSHM4-4	P-2	CA-16 (M6)
BLM19-04	●	19.05	4	18	100	18	19.05	5	15	15	SSHM4-4	SSHM4-6	SSHM4-6	P-2	CA-16 (M6)
BLM19-05	●	19.05	5	18	100	18	19.05	5	15	15	SSHM4-4	SSHM4-4	SSHM4-4	P-2	CA-16 (M6)
BLM19-06	●	19.05	6	18	100	18	19.05	5	20	20	SSHM4-4	SSHM4-4	SSHM4-4	P-2	CA-16 (M6)
BLM19-07	●	19.05	7	18	100	18	19.05	5	20	20	SSHM4-4	SSHM4-4	SSHM4-4	P-2	CA-16 (M6)
BLM20-04	●	20	4	13	100	19	20	5	15	15	SSHM4-4	SSHM4-6	SSHM4-6	P-2	CA-16 (M6)
BLM20-05	●	20	5	14	100	19	20	5	15	15	SSHM4-4	SSHM4-6	SSHM4-6	P-2	CA-16 (M6)
BLM20-06	●	20	6	15	100	19	20	5	20	20	SSHM4-4	SSHM4-4	SSHM4-4	P-2	CA-16 (M6)
BLM20-07	●	20	7	16	100	19	20	5	20	20	SSHM4-4	SSHM4-4	SSHM4-4	P-2	CA-16 (M6)
BLM22-04	●	22	4	13	125	21	22	5	15	15	SSHM4-4	SSHM4-6	SSHM4-6	P-2	CA-16 (M6)
BLM22-05	●	22	5	14	125	21	22	5	15	15	SSHM4-4	SSHM4-6	SSHM4-6	P-2	CA-16 (M6)
BLM22-06	●	22	6	15	125	21	22	5	20	20	SSHM4-4	SSHM4-6	SSHM4-6	P-2	CA-16 (M6)
BLM22-07	●	22	7	16	125	21	22	5	20	20	SSHM4-4	SSHM4-6	SSHM4-6	P-2	CA-16 (M6)
BLM25-04	●	25	4	13	125	24	25	5	15	15	SSHM4-4	SSHM4-8	SSHM4-8	P-2	CA-16 (M6)
BLM25-05	●	25	5	14	125	24	25	5	15	15	SSHM4-4	SSHM4-8	SSHM4-8	P-2	CA-16 (M6)
BLM25-06	●	25	6	15	125	24	25	5	20	20	SSHM4-4	SSHM4-8	SSHM4-8	P-2	CA-16 (M6)
BLM25-07	●	25	7	16	125	24	25	5	20	20	SSHM4-4	SSHM4-6	SSHM4-6	P-2	CA-16 (M6)
BLM254-04	●	25.4	4	13	125	24	25.4	5	15	15	SSHM4-4	SSHM4-8	SSHM4-8	P-2	CA-16 (M6)
BLM254-05	●	25.4	5	14	125	24	25.4	5	15	15	SSHM4-4	SSHM4-8	SSHM4-8	P-2	CA-16 (M6)
BLM254-06	●	25.4	6	15	125	24	25.4	5	20	20	SSHM4-4	SSHM4-8	SSHM4-8	P-2	CA-16 (M6)
BLM254-07	●	25.4	7	16	125	24	25.4	5	20	20	SSHM4-4	SSHM4-6	SSHM4-6	P-2	CA-16 (M6)

**BLM** type (Round shank)



Above drawing shows BLM25-\*\*C type.

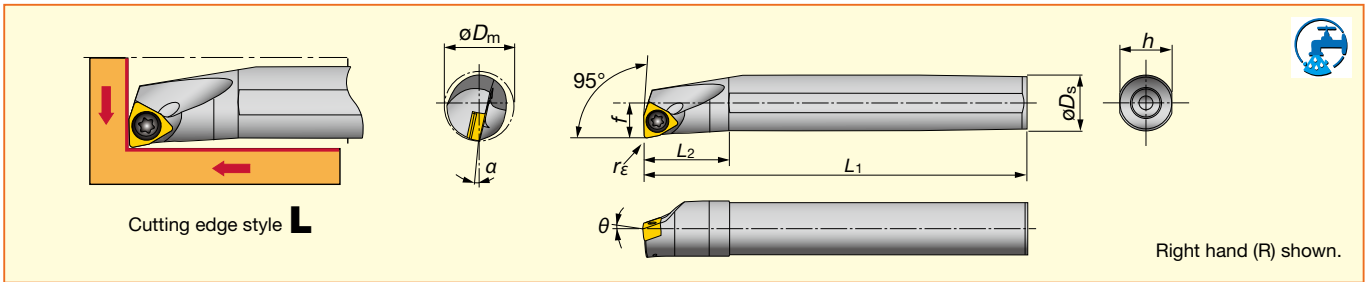
Cat. No.	Stock	Applicable shank dia. øD	Dimensions (mm)			
			ød	ℓ	h	b
BLM19-08	●	8	19.05	100	18	18
BLM20-08	●	8	20	100	19	18
BLM22-08	●	8	22	125	21	21
BLM254-08	●	8	25.4	125	24	24
BLM25-08C	●	8	25	55	24	23
BLM25-10C	●	10	25	55	24	23
BLM25-12C	●	12	25	55	24	23

\* optional  
● : Stocked items.

**SWLXR/L**

**Boring & internal facing**

S-type (Positive, screw-on system)



**Steel shank**

Cat. No	Stock		Dimensions (mm)								Std. corner radius $r_\epsilon$	Insert	Parts		Torque	
	R	L	$\phi D_m$	$\phi D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$\alpha$	Clamping screw		Wrench (N·m)
A10K-SWLXR/L04-D120	●	●	12	10	6	125	20	9	-	-10°	-16°	0.4	WXGU0403** L/R	SR34-514	T-7F	0.9
A12M-SWLXR/L04-D140	●	●	14	12	7	150	24	11	-	-10°	-14°	0.4	WXGU0403** L/R	SR34-514	T-7F	0.9
A16Q-SWLXR/L04-D180	●	●	18	16	9	180	32	15	-	-10°	-11°	0.4	WXGU0403** L/R	SR34-514	T-7F	0.9
A20R-SWLXR/L04-D220	●	●	22	20	11	200	36	18	-	-10°	-10°	0.4	WXGU0403** L/R	SR34-514	T-7F	0.9

**Carbide shank**

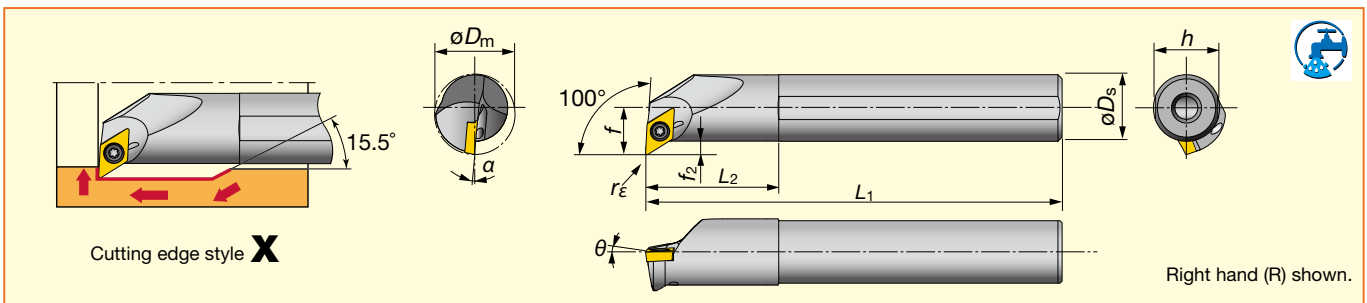
Cat. No	Stock		Dimensions (mm)								Std. corner radius $r_\epsilon$	Insert	Parts		Torque	
	R	L	$\phi D_m$	$\phi D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$\alpha$	Clamping screw		Wrench (N·m)
E10M-SWLXR/L04-D120	●	●	12	10	6	150	25	9	-	-10°	-16°	0.4	WXGU0403** L/R	SR34-514	T-7F	0.9
E12Q-SWLXR/L04-D140	●	●	14	12	7	180	27	11	-	-10°	-14°	0.4	WXGU0403** L/R	SR34-514	T-7F	0.9
E16R-SWLXR/L04-D180	●	●	18	16	9	200	32	15	-	-10°	-11°	0.4	WXGU0403** L/R	SR34-514	T-7F	0.9
E20S-SWLXR/L04-D220	●	●	22	20	11	250	36	18	-	-10°	-10°	0.4	WXGU0403** L/R	SR34-514	T-7F	0.9

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SWLXL04-D\*\*), and the left hand insert (L) is used for the right hand toolholders (SWLXR04-D\*\*).

**SDXXR/L**

**Boring & internal profiling**

S-type (Positive, screw-on system)



**Steel shank**

Cat. No	Stock		Dimensions (mm)								Std. corner radius $r_\epsilon$	Insert	Parts		Torque	
	R	L	$\phi D_m$	$\phi D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$\alpha$	Clamping screw		Wrench (N·m)
A10K-SDXXR/L07-D130	●	●	13	10	7.6	125	20	9	2.6	-14°	-16°	0.4	DXGU0703** L/R	SR34-514	T-7F	0.9
A12M-SDXXR/L07-D160	●	●	16	12	8.6	150	24	11	2.6	-14°	-14°	0.4	DXGU0703** L/R	SR34-514	T-7F	0.9
A16Q-SDXXR/L07-D200	●	●	20	16	10.6	180	32	15	2.6	-13°	-13°	0.4	DXGU0703** L/R	SR34-514	T-7F	0.9
A20R-SDXXR/L07-D240	●	●	24	20	12.6	200	36	18	2.6	-13°	-12°	0.4	DXGU0703** L/R	SR34-514	T-7F	0.9

**Carbide shank**

Cat. No	Stock		Dimensions (mm)								Std. corner radius $r_\epsilon$	Insert	Parts		Torque	
	R	L	$\phi D_m$	$\phi D_s$	$f$	$L_1$	$L_2$	$h$	$f_2$	$\theta$			$\alpha$	Clamping screw		Wrench (N·m)
E10M-SDXXR/L07-D130	●	●	13	10	7.6	150	25	9	2.6	-14°	-16°	0.4	DXGU0703** L/R	SR34-514	T-7F	0.9
E12Q-SDXXR/L07-D160	●	●	16	12	8.6	180	27	11	2.6	-14°	-14°	0.4	DXGU0703** L/R	SR34-514	T-7F	0.9
E16R-SDXXR/L07-D200	●	●	20	16	10.6	200	32	15	2.6	-13°	-13°	0.4	DXGU0703** L/R	SR34-514	T-7F	0.9
E20S-SDXXR/L07-D240	●	●	24	20	12.6	250	36	18	2.6	-13°	-12°	0.4	DXGU0703** L/R	SR34-514	T-7F	0.9

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SDXXL07-D\*\*), and the left hand insert (L) is used for the right hand toolholders (SDXXR07-D\*\*).

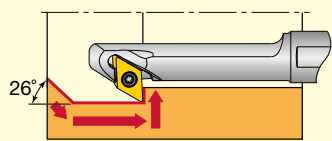
● : Stocked items.

## SDZXR/L

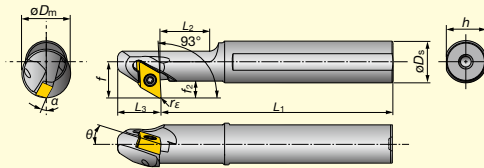
### Back boring

S-type (Positive, screw-on system)

**New**



Cutting edge style **Z**



Right hand (R) shown.

### Steel shank

Cat. No	Stock		Min bore dia. $\phi D_m$	Dimensions (mm)										Std. corner radius $r_E$	Insert	Parts		Torque
	R	L		$\phi D_s$	$f$	$L_1$	$L_2$	$L_3$	$h$	$f_2$	$\theta$	$\alpha$	Clamping screw			Wrench (N·m)		
A12M-SDZXR/L07-D140	●	●	14	12	11	150	30	13	11	4.5	-10°	-14°	0.4	DXGU0703** R/L	SR34-514	T-7F	0.9	
A16Q-SDZXR/L07-D160	●	●	16	16	13	180	35	13	15	4.5	-10°	-12.5°	0.4	DXGU0703** R/L	SR34-514	T-7F	0.9	
A20R-SDZXR/L07-D200	●	●	20	20	15	200	40	13	18	4.5	-10°	-10.5°	0.4	DXGU0703** R/L	SR34-514	T-7F	0.9	

### Carbide shank

Cat. No	Stock		Min bore dia. $\phi D_m$	Dimensions (mm)										Std. corner radius $r_E$	Insert	Parts		Torque
	R	L		$\phi D_s$	$f$	$L_1$	$L_2$	$L_3$	$h$	$f_2$	$\theta$	$\alpha$	Clamping screw			Wrench (N·m)		
E12Q-SDZXR/L07-D180	●	●	18	12	11	180	-	13	11	4.5	-11°	-11°	0.4	DXGU0703** R/L	SR34-514	T-7F	0.9	
E16R-SDZXR/L07-D220	●	●	22	16	13	200	-	13	15	4.5	-11°	-9°	0.4	DXGU0703** R/L	SR34-514	T-7F	0.9	

When using a right or left hand insert, the right hand insert (R) is used with the right hand toolholders (SDZXR07-D\*\*), and the left hand insert (L) is used with the left hand toolholders (SDZXL07-D\*\*).

# Standard cutting conditions

## For Internal Turning

ISO	Workpiece materials	Grades			Cutting speed Vc (m/min)	Depth of cut ap (mm)	Feed f (mm/rev)
		First Choice	For surface finish	For wear resistance (High speed)			
<b>P</b>	Low carbon steel (SS400 / E275A, S25C / C25, etc.)	AH725	-	-	50 - 180	0.3 - 2.0	0.08 - 0.3
		-	NS9530	-	80 - 250	0.3 - 2.0	0.08 - 0.3
		-	-	GT9530	80 - 300	0.3 - 2.0	0.08 - 0.3
	Carbon steel (S45C / C45, S55C / C55, etc.)	AH725	-	-	50 - 180	0.3 - 2.0	0.08 - 0.3
		-	NS9530	-	80 - 250	0.3 - 2.0	0.08 - 0.3
		-	-	GT9530	80 - 300	0.3 - 2.0	0.08 - 0.3
	Low alloy steel (SCM415, etc.)	AH725	-	-	50 - 180	0.3 - 2.0	0.08 - 0.3
		-	NS9530	-	80 - 250	0.3 - 2.0	0.08 - 0.3
		-	-	GT9530	80 - 300	0.3 - 2.0	0.08 - 0.3
	Alloy steel (SCM440 / 42CrMo4, SCr420 / 20Cr4, etc.)	AH725	-	-	50 - 180	0.3 - 2.0	0.08 - 0.3
		-	NS9530	-	80 - 250	0.3 - 2.0	0.08 - 0.3
		-	-	GT9530	80 - 300	0.3 - 2.0	0.08 - 0.3
<b>M</b>	Stainless steel (Austenitic) (SUS304 / X5CrNi18-9, SUS316 / X5CrNiMo17-12-3, etc.)	AH725	-	-	50 - 150	0.3 - 2.0	0.08 - 0.3
		AH725	-	-	50 - 150	0.3 - 2.0	0.08 - 0.3
		AH725	-	-	50 - 150	0.3 - 2.0	0.08 - 0.3
<b>K</b>	Grey cast iron (FC250 / 250 / GG25, etc.)	AH725	-	-	50 - 180	0.3 - 2.0	0.08 - 0.3
		-	NS9530	-	80 - 250	0.3 - 2.0	0.08 - 0.3
		-	-	GT9530	80 - 300	0.3 - 2.0	0.08 - 0.3
	Ductile cast iron (FCD700 / GGG70, etc.)	AH725	-	-	50 - 120	0.3 - 2.0	0.08 - 0.3
		-	NS9530	-	80 - 150	0.3 - 2.0	0.08 - 0.3
		-	-	GT9530	80 - 180	0.3 - 2.0	0.08 - 0.3
<b>N</b>	Non ferrous Metal (Aluminum alloy, etc.)	KS05F	-	-	100 - 300	0.3 - 2.0	0.08 - 0.3
	Non ferrous Metal (Cu Alloy, etc.)	KS05F	-	-	100 - 300	0.3 - 2.0	0.08 - 0.3

# Chapter Composition of TAC Grooving Tools

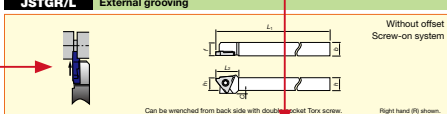
◆ In the machining type, tools are arranged by product series.

Illustration of tooling condition

Cat. No. of applicable inserts

**J-SERIES J-type / External grooving**

**JSTGR/L External grooving**



Cat. No.	Stock		Dimensions (mm)							Insert	Parts	Torque (N·m)	
	R	L	h	b	L1	L2	h	f	C				
JSTGR/L1010K3	●	●	10	10	120	18.5	10	10	2	JTGR/L3**	CSTB-4SD	T-8F (T-8L)	1.2
JSTGR/L1010K3	●	●	10	10	125	18.5	10	10	2	JTGR/L3**	CSTB-4SD	T-8F (T-8L)	1.2
JSTGR/L1212F3	●	●	12	12	85	18.5	12	12	-	JTGR/L3**	CSTB-4SD	T-8F (T-8L)	1.2
JSTGR/L1212K3	●	●	12	12	120	18.5	12	12	-	JTGR/L3**	CSTB-4SD	T-8F (T-8L)	1.2
JSTGR/L1212K3	●	●	12	12	125	18.5	12	12	-	JTGR/L3**	CSTB-4SD	T-8F (T-8L)	1.2
JSTGR/L1616K3	●	●	16	16	120	18.5	16	16	-	JTGR/L3**	CSTB-4SD	T-8F (T-8L)	1.2
JSTGR/L1616K3	●	●	16	16	125	18.5	16	16	-	JTGR/L3**	CSTB-4SD	T-8F (T-8L)	1.2

6

● Stocked items

6-11

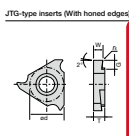
Symbols of stock status

Cat. No. of applicable inserts

Dimensions of applicable inserts

**J-SERIES J-type / External grooving**

JTG-type inserts (With honed edges)



Cat. No.	Dimensions (mm)					Max. depth (mm)	Grades			
	wd	T	W <sub>0.05</sub>	G						
	R	L	R	L	R		L	R	L	
JTGR/L3033	9.525	3.18	0.53	0.8	0.7	0.03	●	●	●	●
JTGR/L3035	9.525	3.18	0.5	1.2	1.1	0.03	●	●	●	●
JTGR/L3073	9.525	3.18	0.75	2.0	1.9	0.03	●	●	●	●
JTGR/L3095	9.525	3.18	0.95	2.0	1.9	0.03	●	●	●	●
JTGR/L3105	9.525	3.18	1	2.2	2.1	0.05	●	●	●	●
JTGR/L3125	9.525	3.18	1.25	2.2	2.1	0.05	●	●	●	●
JTGR/L3145	9.525	3.18	1.45	2.2	2.1	0.05	●	●	●	●
JTGR/L4150	9.525	3.18	1.5	2.2	2.1	0.05	●	●	●	●
JTGR/L3175	9.525	3.18	1.75	2.2	2.1	0.05	●	●	●	●
JTGR/L3205	9.525	3.18	2	2.7	2.6	0.05	●	●	●	●
JTGR/L3250	9.525	3.18	2.5	2.7	2.6	0.05	●	●	●	●

**JTG Standard cutting conditions**

ISO	Work materials	Grades	Cutting speed (m/min)	Feed (mm/rev)
P	General steel (S45C / C45, etc.)	SH725	50 - 200	0.01 - 0.1
		J740	10 - 100	0.01 - 0.1
		NS9530	50 - 150	0.01 - 0.1
M	Free-cutting steel (SUM22 / 11SM26, etc.)	SH725	50 - 200	0.01 - 0.1
		J740	10 - 100	0.01 - 0.1
		NS9530	50 - 150	0.01 - 0.1
N	Stainless steel (SUS304 / X3CrNi18-9, etc.)	J740	10 - 100	0.01 - 0.1
		NS9530	50 - 150	0.01 - 0.1
		J9530	50 - 150	0.01 - 0.1
S	Aluminum alloys, Brass (Si < 12%, Cu30Al5) / CW618, etc.)	TH10	10 - 200	0.01 - 0.1
		TH10	10 - 30	0.01 - 0.1

6

● Stocked items

6-13

Standard cutting conditions  
Cutting speeds by work material and feed ranges by machining type are shown.

## Ordering information

- When ordering the toolholder, please specify Cat. No. and quantity.  
Example: **JCTER1010-1.4T10**... 1 piece.
- When ordering inserts for grooving and parting tools, please specify Cat. No., grade, and quantity.  
Example: **DGM2-020 AH725**... 10 pieces.
  - Standard packing quantity of inserts is 10 pieces.

## 6

## TAC Grooving Tools

## Guidance

- Types and application of TAC Grooving Tools ..... 6-2
- Structures and features of TAC Grooving Tools ..... 6-4

## Products

## ■ Grooving tools


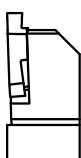
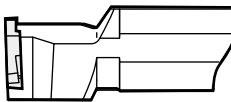
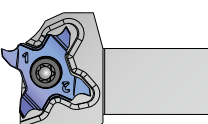
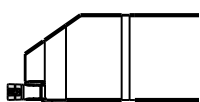
● STC18	Grooving	TCP18 inserts	..... 6-5
● STC27	Grooving	TCS27 inserts	..... 6-9
● JSTGR/L	Grooving	JTGR/L inserts	..... 6-11
● JS-TGL3	Grooving (Round shank)	JTGR inserts	..... 6-11
● JCTER/L	Grooving / Turning	□G□, DTE inserts	..... 6-14
● CGER/L	Deep grooving	□G□ inserts	..... 6-15
● JSVGR/L	Grooving	JVGR/L inserts	..... 6-20
● JSXGR/L	Grooving	JXGR/L inserts	..... 6-21
● CE	Grooving	GTGN-16ER inserts	..... 6-22
● SPGN	Grooving (profiling)	PSGB inserts	..... 6-24

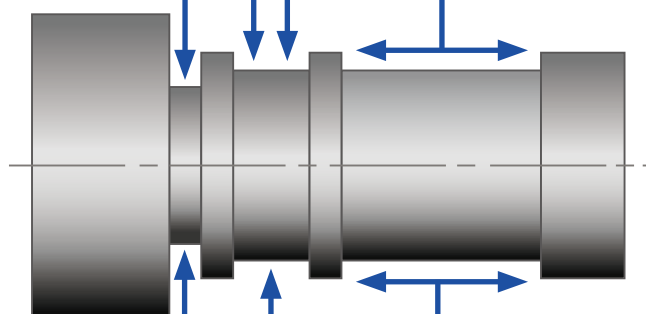
# Selection Guide of Tools

## ● For grooving

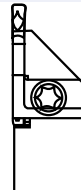
TETRAMCUT

TETRAF CUT

<p>JSVGR/L (P. 6-20) Shank size 10 ~ 16 mm</p> <p>Groove with: 0.33 ~ 2.0 mm Max. groove depth: 0.7 ~ 5.5 mm</p> 	<p>JSTGR/L (P. 6-11) Shank size 10 ~ 16 mm</p> <p>Groove with: 0.33 ~ 3.0 mm Max. groove depth: 0.7 ~ 2.6 mm</p> 	<p>JS-TGL3 (P. 6-11) Shank dia. ø19.05 ~ ø25.4 mm</p> <p>Groove with: 0.33 ~ 3.0 mm Max. groove depth: 0.7 ~ 2.6 mm</p> 	<p>STCR/L-18 (P. 6-5) Shank size 10 ~ 25 mm</p> <p>Groove with: 0.33 ~ 3.0 mm Max. groove depth: 0.8 ~ 2.5 mm</p> 	<p>STCR/L-27 (P. 6-9) Shank size 10 ~ 20 mm</p> <p>Groove with: 0.5 ~ 3.18 mm Max. groove depth: 1.0 ~ 6.4 mm</p> 
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

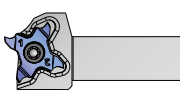






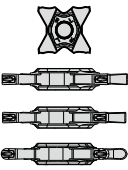

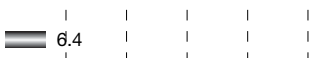


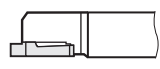





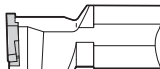





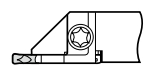
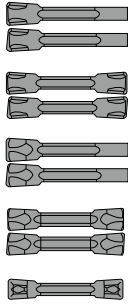





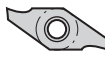



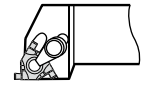




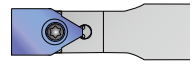


## ● For grooving, and turning

<p>JCTER/L (P. 6-14) <b>New</b></p> <p>Shank size 10 ~ 20 mm</p> <p>Groove width: 1.0 ~ 3.0 mm Max. parting dia. : ø32 mm</p> 
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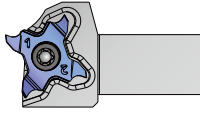

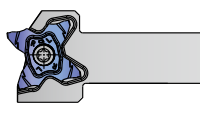

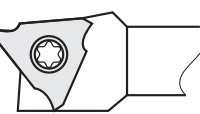

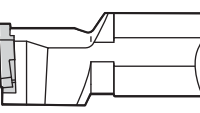

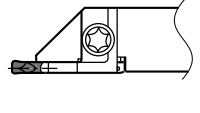

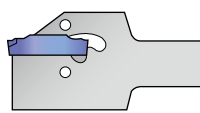

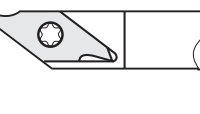

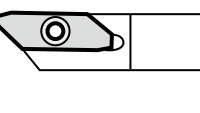

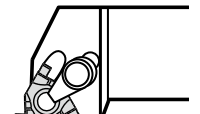

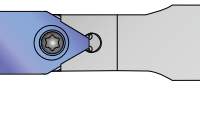
TUNG CUT



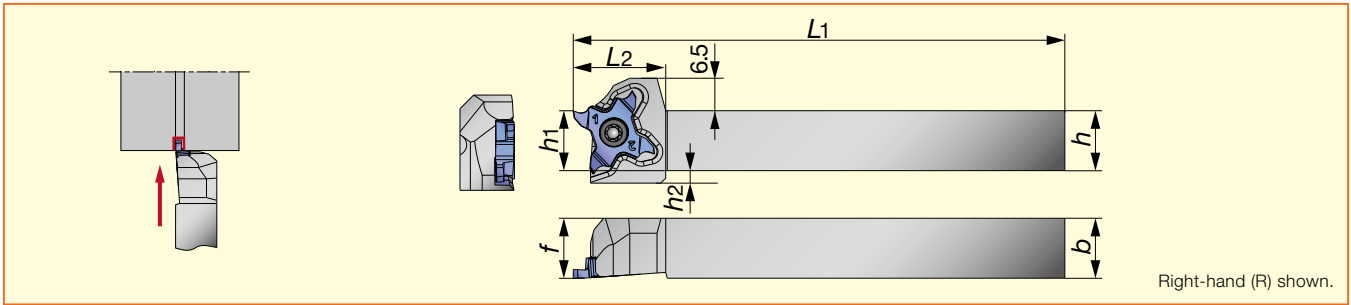
## External Grooving

Appli.	Type	Appearance	Shape	Groove width (mm)					Groove depth (mm)				
				2	4	6	8	10	10	20	30	40	50
TetraMini-Cut	STCR/L-18  6-5	 											
				0.33					3				
TetraForce-Cut	STCR/L-27  6-9	 											
				0.5				3.18				6.4	
J series	JSTG  6-11	 											
				0.33					3				
J series	JS-TGL3  6-11	 											
				0.33					3				
TungCut	JCTER/L  6-14	 											
				1.4					3				
J series	JSVG  6-20	 											
				0.33					2				
GTGN	CE  6-22												
				1					2.25				
TungHeavyGroove	SPGN/FPGN  6-24			(for profiling custom grooves) width $\geq$ 10 mm									
									41				

# Structures and features of TAC Grooving Tools

Appli.	Type	Appearance	Clamping mechanism	Features
Grooving / Parting-off	<b>STCR/L-18</b> TETRAMCUT ▶ 6-5			<ul style="list-style-type: none"> <li>• Suitable for shallow grooving in small parts</li> <li>• Applicable for machining next to the shoulder without interference</li> <li>• 4-cornered insert with innovative shape is applied</li> </ul>
	<b>STCR/L-27</b> TETRAFCUT ▶ 6-9			<ul style="list-style-type: none"> <li>• 4-cornered insert with high-economic advantage</li> <li>• High clamping rigidity allows highly precise machining</li> </ul>
Grooving	<b>JSTG</b> ▶ 6-11			<ul style="list-style-type: none"> <li>• Applicable for grooving</li> <li>• The insert is clamped with a both end torx screw, resulting in easy and rapid changing or indexing of the insert. (Can be operated from the the back side with a both end torx screw.)</li> <li>• Applicable for grooving E-ring grooves of small parts (Cutting edge width: 0.33 ~ 2.5 mm)</li> <li>• Three corner type insert</li> </ul>
	<b>JS-TGL3</b> (Round shank) ▶ 6-11			<ul style="list-style-type: none"> <li>• Round shank type for grooving</li> <li>• Shank dia: <math>\varnothing 19.05 \sim \varnothing 25.4</math> mm</li> <li>• Three corner type insert</li> </ul>
Deep grooving / Parting-off	<b>JCTER/L</b> TUNG CUT ▶ 6-14			<ul style="list-style-type: none"> <li>• M-class insert with good chip control</li> <li>• Applicable in various grooving and parting-off</li> <li>• Right and left hand inserts are stocked</li> </ul>
	<b>CGER/L</b> TUNG CUT ▶ 6-15			<ul style="list-style-type: none"> <li>• Multi-functional grooving system with high versatility</li> <li>• Various types of insert are applicable for a wide range of applications.</li> </ul>
Grooving	<b>JSVG</b> ▶ 6-20			<ul style="list-style-type: none"> <li>• Applicable for grooving</li> <li>• Max. groove depth: 5.5 mm</li> </ul>
	<b>JSXG</b> ▶ 6-21			<ul style="list-style-type: none"> <li>• Applicable for groove width: <math>W = 0.7 - 2.0</math> mm</li> <li>• Max. groove depth: 6.0 mm</li> </ul>
	<b>CE</b> ▶ 6-22			<ul style="list-style-type: none"> <li>• Highly recommended for accurate grooving such as circlip grooving.</li> <li>• Groove width: 1.0 ~ 2.25 mm</li> <li>• Max. groove depth: 1.25 ~ 1.8 mm</li> </ul>
	<b>SPGN</b> ▶ 6-24			<ul style="list-style-type: none"> <li>• Customizable insert blanks for grooving tailor-made profiles in one plunge.</li> <li>• Insert width: 10.2 mm and up</li> <li>• Screw-on and lever lock holders are available.</li> </ul>

**STCR/L-18 External grooving**



Designation	<i>h</i>	<i>b</i>	<i>L</i> <sub>1</sub>	<i>L</i> <sub>2</sub>	<i>h</i> <sub>1</sub>	<i>f</i>	<i>h</i> <sub>2</sub>	Insert
STCR/L1010X18	10.0	10.0	120.0	18.5	10.0	10.0	4.5	TC*18*
STCR/L1212F18	12.0	12.0	85.0	18.5	12.0	12.0	2.5	TC*18*
STCR/L1212X18	12.0	12.0	120.0	18.5	12.0	12.0	2.5	TC*18*
STCR/L1616X18	16.0	16.0	120.0	18.5	16.0	16.0	0.0	TC*18*
STCR/L2020H18	20.0	20.0	100.0	18.5	20.0	20.0	0.0	TC*18*
STCR/L2020X18	20.0	20.0	120.0	23.0	20.0	25.0	0.0	TC*18*
STCR/L2525Z18	25.0	25.0	135.0	23.0	25.0	30.0	0.0	TC*18*

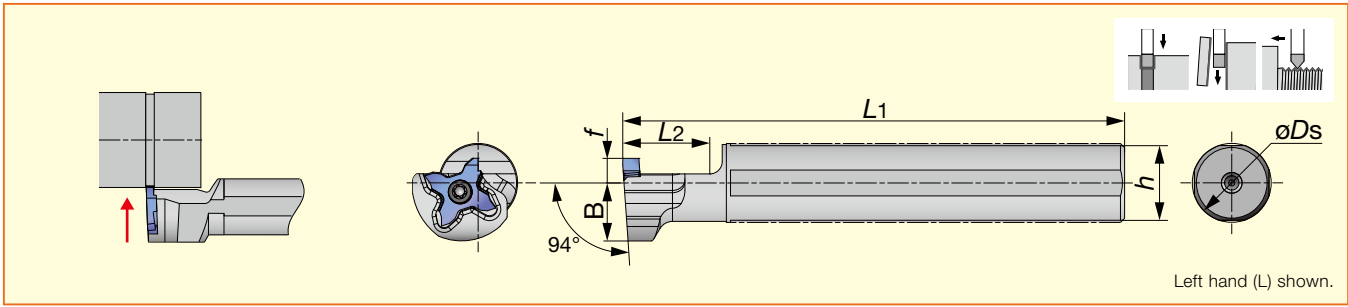
- The right hand insert (TC\*18R\*\*) is used for the right hand toolholders (STCR\*\*), and the left hand insert (TC\*18L\*\*) is used for the left hand toolholders (STCL\*\*).

**SPARE PARTS**



Designation	Clamping screw	Wrench
STCR**18	CSTC-4L100DL	T-1008/5
STCL**18	CSTC-4L100DR	T-1008/5

**JS-STCL18 Round shank**



Left hand (L) shown.

Designation	øDs	L1	L2	H	B	f	Insert
JS14H-STCL18	14	100	20	13	14	6	TC*18*
JS159F-STCL18	15.875	85	20	15	14	6	TC*18*
JS16F-STCL18	16	85	20	15	14	6	TC*18*
JS19G-STCL18	19.05	90	20	18	14	6	TC*18*
JS19X-STCL18	19.05	120	20	18	14	6	TC*18*
JS20G-STCL18	20	90	20	19	14	6	TC*18*
JS20X-STCL18	20	120	20	19	14	6	TC*18*
JS22X-STCL18	22	120	20	21	12.25	10	TC*18*
JS25H-STCL18	25	100	20	24	12.25	10	TC*18*
JS254X-STCL18	25.4	120	20	24	12.25	10	TC*18*

- The right-hand insert (TC\*18R\*\*) is used for the Left-hand toolholders (JS\*\*-STCL18).

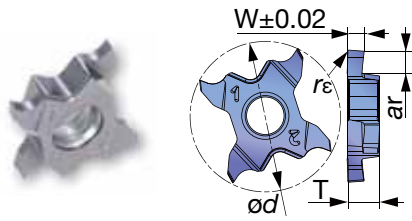
**SPARE PARTS**



Designation	Clamping screw	Wrench
JS***STCL18	CSTC-4L100DR	T-1008/5

## Inserts

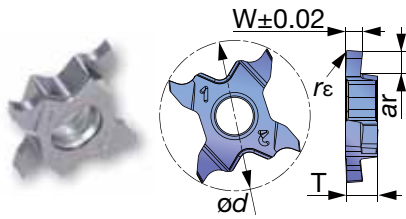
### TCP18R/L-F (sharp edge)



Designation	Grade SH725		Dimensions (mm)				d
	R	L	W	re	ar	T	
TCP18R/L033F-005	✓	✓	0.33	0.05	0.8	4	18
TCP18R/L043F-005	✓	✓	0.43	0.05	1.2	4	18
TCP18R/L050F-005	✓	✓	0.5	0.05	1.2	4	18
TCP18R/L075F-005	✓	✓	0.75	0.05	2	4	18
TCP18R/L095F-005	✓	✓	0.95	0.05	2	4	18
TCP18R/L100F-010	✓	✓	1	0.1	2	4	18
TCP18R/L120F-010	✓	✓	1.2	0.1	2	4	18
TCP18R/L125F-010	✓	✓	1.25	0.1	2	4	18
TCP18R/L145F-010	✓	✓	1.45	0.1	2	4	18
TCP18R/L150F-010	✓	✓	1.5	0.1	2	4	18
TCP18R/L175F-010	✓	✓	1.75	0.1	2	4	18
TCP18R/L200F-010	✓	✓	2	0.1	2.5	4	18
TCP18R/L250F-010	✓	✓	2.5	0.1	2.5	4	18
TCP18R/L300F-010	✓	✓	3	0.1	2.5	4	18

✓ : Stocked items

## TCP18R/L



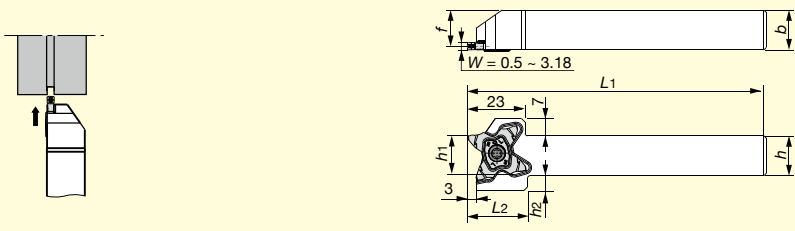
Designation	Grade AH725		Dimensions (mm)				
	R	L	W	$r_\epsilon$	$a_r$	T	d
TCP18R/L033-005	✓	✓	0.33	0.05	0.8	4	18
TCP18R/L043-005	✓	✓	0.43	0.05	1.2	4	18
TCP18R/L050-005	✓	✓	0.5	0.05	1.2	4	18
TCP18R/L075-005	✓	✓	0.75	0.05	2	4	18
TCP18R/L095-005	✓	✓	0.95	0.05	2	4	18
TCP18R/L100-010	✓	✓	1	0.1	2	4	18
TCP18R/L120-010	✓	✓	1.2	0.1	2	4	18
TCP18R/L125-010	✓	✓	1.25	0.1	2	4	18
TCP18R/L145-010	✓	✓	1.45	0.1	2	4	18
TCP18R/L150-010	✓	✓	1.5	0.1	2	4	18
TCP18R/L175-010	✓	✓	1.75	0.1	2	4	18
TCP18R/L200-010	✓	✓	2	0.1	2.5	4	18
TCP18R/L250-010	✓	✓	2.5	0.1	2.5	4	18
TCP18R/L300-010	✓	✓	3	0.1	2.5	4	18

✓ : Stocked items

## Standard cutting conditions

ISO	Workpiece materials	Priority	Grades	Cutting speed $V_c$ (m/min)	Feed $f$ (mm/rev)
<b>P</b>	Low carbon steels (C15, C20 etc.)	First choice	SH725	80 - 180	0.03 - 0.1
		Toughness	AH725	80 - 180	0.03 - 0.1
	Carbon steels, Alloy steels (C55, 42CrMoS4 etc.)	First choice	SH725	80 - 180	0.03 - 0.1
		Toughness	AH725	80 - 180	0.03 - 0.1
<b>M</b>	Prehardened steels (NAK80, PX5 etc.)	First choice	SH725	80 - 180	0.03 - 0.1
		Toughness	AH725	80 - 180	0.03 - 0.1
<b>K</b>	Stainless steels (X5CrNi18-9, X5CrNiMo17-12-2 etc)	First choice	SH725	50 - 120	0.03 - 0.1
		Toughness	AH725	50 - 120	0.03 - 0.1
	Grey cast irons (250, 300 etc.)	First choice	AH725	50 - 180	0.03 - 0.1
		Sharpness	SH725	50 - 180	0.03 - 0.1
<b>S</b>	Ductile cast irons (400-15, 600-3 etc.)	First choice	AH725	50 - 180	0.03 - 0.1
		Sharpness	SH725	50 - 180	0.03 - 0.1
	Titanium alloys (Ti-6Al-4V, etc.)	First choice	SH725	20 - 80	0.03 - 0.1
		Toughness	AH725	20 - 80	0.03 - 0.1
Superalloys (Inconel718, etc.)	First choice	SH725	20 - 80	0.03 - 0.1	
	Toughness	AH725	20 - 80	0.03 - 0.1	

**STCR/L-27 External grooving**

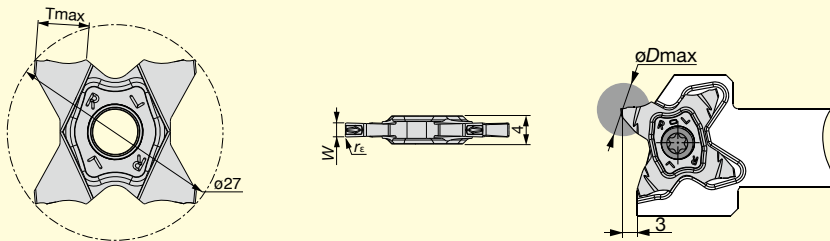


Right hand (R) shown.

Cat. No.	Stock		Dimensions (mm)							Parts		
	R	L	h <sub>1</sub>	b	h	L <sub>1</sub>	f	h <sub>2</sub>	L <sub>2</sub>	Screw		Wrench
										R	L	
STCR/L1010-27	●	●	10	10	10	120	8.5	9.5	24	SR 16-212-01397L	SR 16-212-01397	T-2010/5
STCR/L1212-27	●	●	12	12	12	120	10.5	8	24	SR 16-212-01397L	SR 16-212-01397	T-2010/5
STCR/L1616-27	●	●	16	16	16	120	14.5	6	24	SR 16-212-01397L	SR 16-212-01397	T-2010/5
STCR/L2020-27	●	●	20	20	20	120	18.5	2	24	SR 16-212-01397L	SR 16-212-01397	T-2010/5

**Insert**

4 cornered insert for grooving and parting off



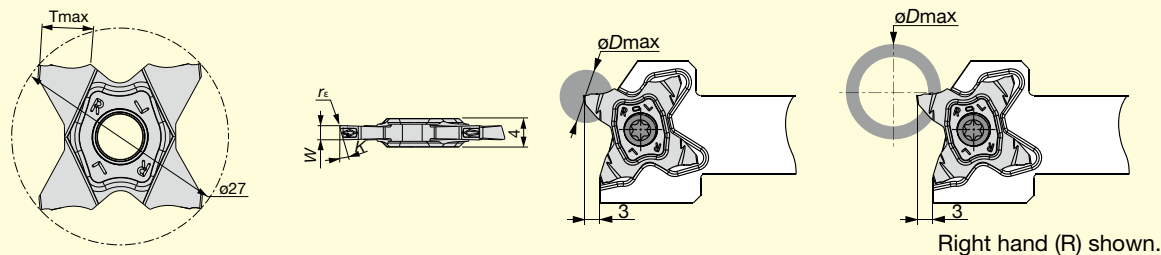
Right hand (R) shown.

Cat. No.	Stock		Dimensions (mm)				Relation of groove depth (T) and Max. diameter (øDmax)										
	Coating	Cutting edge width W ± 0.02 (mm)	Corner radius r <sub>c</sub>	Max. grooving depth Tmax	Max. parting off diameter (solid bar)	T ≤ 1.0	T ≤ 2.0	T ≤ 3.0	T ≤ 3.5	T ≤ 4.0	T ≤ 4.5	T ≤ 5.0	T ≤ 5.5	T ≤ 5.7	T ≤ 6.0	T ≤ 6.2	T ≤ 6.4
TCS27-050-000	AH725	0.50	0.00	1.0	2.0	∞	-	-	-	-	-	-	-	-	-	-	-
TCS27-050-004	AH725	0.50	0.04	2.5	5.0	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-075-010	AH725	0.75	0.10	2.5	5.0	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-080-000	AH725	0.80	0.00	1.6	3.2	∞	-	-	-	-	-	-	-	-	-	-	-
TCS27-100-006	AH725	1.00	0.06	3.5	7.0	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-100-010	AH725	1.00	0.10	3.5	7.0	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-104-000	AH725	1.04	0.00	2.0	4.0	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-120-000	AH725	1.20	0.00	2.0	4.0	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-125-010	AH725	1.25	0.10	3.5	7.0	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-125-020	AH725	1.25	0.20	3.5	7.0	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-140-000	AH725	1.40	0.00	2.0	4.0	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-147-000	AH725	1.47	0.00	2.5	5.0	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-150-010	AH725	1.50	0.10	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-150-020	AH725	1.50	0.20	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-157-015	AH725	1.57	0.15	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-170-010	AH725	1.70	0.10	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-175-010	AH725	1.75	0.10	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-175-020	AH725	1.75	0.20	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-178-018	AH725	1.78	0.18	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-185-020	AH725	1.85	0.20	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-196-015	AH725	1.96	0.15	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-200-010	AH725	2.00	0.10	6.4	12.8	∞	∞	∞	600	280	180	130	105	85	60	50	30
TCS27-200-020	AH725	2.00	0.20	6.4	12.8	∞	∞	∞	600	280	180	130	105	85	60	50	30
TCS27-222-015	AH725	2.22	0.15	3.5	7.0	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-230-020	AH725	2.30	0.20	3.5	7.0	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-239-015	AH725	2.39	0.15	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-247-020	AH725	2.47	0.20	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-250-010	AH725	2.50	0.10	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-250-030	AH725	2.50	0.30	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-270-010	AH725	2.70	0.10	6.2	12.4	∞	∞	∞	600	280	180	135	105	95	85	78	-
TCS27-287-020	AH725	2.87	0.20	6.2	12.4	∞	∞	∞	600	280	180	135	105	95	85	78	-
TCS27-300-000	AH725	3.00	0.00	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCS27-300-020	AH725	3.00	0.20	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCS27-300-030	AH725	3.00	0.30	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCS27-300-040	AH725	3.00	0.40	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCS27-315-015	AH725	3.15	0.15	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	68
TCS27-318-020	AH725	3.18	0.20	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	68

● : Stocked items / Packing Quantity = 5 pcs.

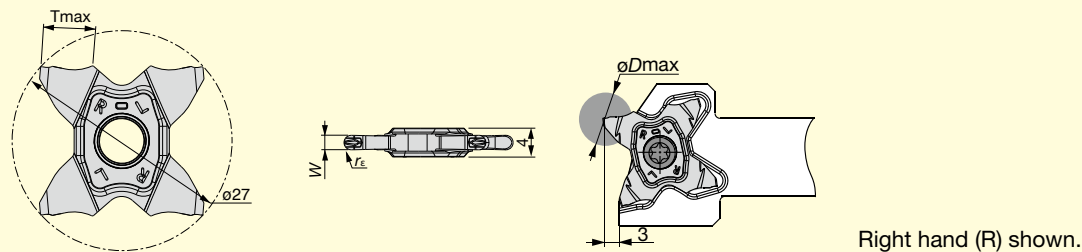
**Insert**

4 cornered & handed inserts for parting off



Cat. No.	Stock		Dimensions (mm)				Max. parting off dia. øDmax (mm)	
	Coating AH725	Cutting edge width W ± 0.02 (mm)	Corner radius r <sub>E</sub>	Max. grooving depth Tmax	Front edge angle K	Solid bar	Tube	
TCS27-100-15R/L	●	1.00	0.06	3.5	15°	7.0	600	
TCS27-150-6R/L	●	1.50	0.06	5.7	6°	11.4	35	
TCS27-150-15R/L	●	1.50	0.06	5.7	15°	11.4	35	
TCS27-200-6R/L	●	2.00	0.10	6.4	6°	12.8	30	
TCS27-200-15R/L	●	2.00	0.10	6.4	15°	12.8	30	

4 cornered inserts with full radius for grooving and profiling



Cat. No.	Stock		Dimensions (mm)				Relation of groove depth (T) and Max. diameter (øDmax)										
	Coating AH725	Cutting edge width W ± 0.02 (mm)	Corner radius r <sub>E</sub>	Max. parting off diameter (solid bar) Tmax													
					T≤1.0	T≤2.0	T≤3.0	T≤3.5	T≤4.0	T≤4.5	T≤5.0	T≤5.5	T≤5.7	T≤6.0	T≤6.2	T≤6.4	
TCS27-157-079	●	1.57	0.79	3.0	∞	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-200-100	●	2.00	1.00	3.0	∞	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-239-120	●	2.39	1.20	5.7	∞	∞	∞	600	280	180	130	50	35	-	-	-	-
TCS27-300-150	●	3.00	1.50	6.4	∞	∞	∞	600	280	180	135	105	95	85	78	55	-

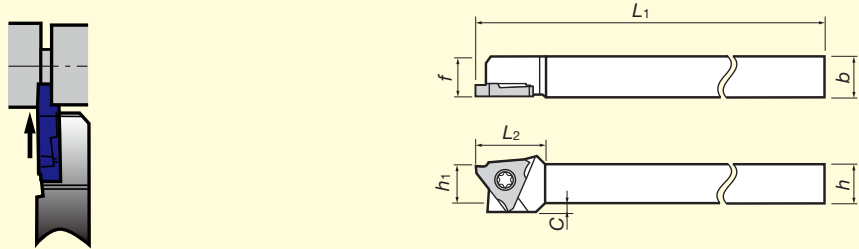
● : Stocked items / Packing Quantity = 5 pcs.

**Standard cutting conditions**

ISO	Work materials	Grades	Cutting speed Vc (m/min)	Feed: f (mm/rev)			Depth of cut for profiling (with full radius insert) ap (mm)
				Grooving, Parting off	Parting off (with hand)	Profiling (with full radius insert)	
<b>P</b>	Steels (S45C / C45 etc.)	AH725	100 ~ 200	0.05 ~ 0.15	0.04 ~ 0.12	0.05 ~ 0.10	Max 0.5
	Alloy steels (SCM435 / 34CrMo4 etc.)	AH725	50 ~ 180	0.05 ~ 0.15	0.04 ~ 0.12	0.05 ~ 0.10	Max 0.5
<b>M</b>	Stainless steels (SUS304 / X5CrNi18-9 etc.)	AH725	50 ~ 150	0.05 ~ 0.15	0.04 ~ 0.12	0.05 ~ 0.10	Max 0.5
<b>K</b>	Grey cast irons (FC250 / 250 / GG25 etc.)	AH725	50 ~ 180	0.05 ~ 0.15	0.04 ~ 0.12	0.05 ~ 0.10	Max 0.5
	Ductile cast irons (FCD400 / 400-15 / GGG400 etc.)	AH725	50 ~ 120	0.05 ~ 0.15	0.04 ~ 0.12	0.05 ~ 0.10	Max 0.5
<b>S</b>	Titanium alloys (Ti-6Al-4V etc.)	AH725	30 ~ 60	0.05 ~ 0.15	0.04 ~ 0.12	0.05 ~ 0.10	Max 0.5



**JSTGR/L** External grooving

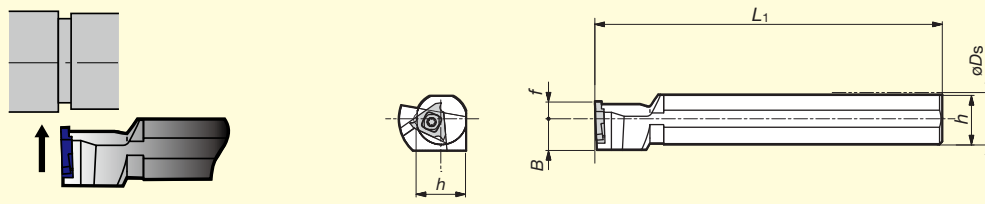


Without offset  
Screw-on system

Can be wrenched from back side with double-socket Torx screw. Right hand (R) shown.

Cat. No.	Stock		Dimensions (mm)							Insert	Parts		Torque (N·m)
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f	C		Clamping screw	Wrench (Optional)	
JSTGR/L1010X3	●	●	10	10	120	18.5	10	10	2	JTGR/L3**	CSTB-4SD	T-8F (T-8L)	1.2
JSTGR/L1010K3	●	●	10	10	125	18.5	10	10	2	JTGR/L3**	CSTB-4SD	T-8F (T-8L)	1.2
JSTGR/L1212F3	●	●	12	12	85	18.5	12	12	-	JTGR/L3**	CSTB-4SD	T-8F (T-8L)	1.2
JSTGR/L1212X3	●	●	12	12	120	18.5	12	12	-	JTGR/L3**	CSTB-4SD	T-8F (T-8L)	1.2
JSTGR/L1212K3	●	●	12	12	125	18.5	12	12	-	JTGR/L3**	CSTB-4SD	T-8F (T-8L)	1.2
JSTGR/L1616X3	●	●	16	16	120	18.5	16	16	-	JTGR/L3**	CSTB-4SD	T-8F (T-8L)	1.2
JSTGR/L1616K3	●	●	16	16	125	18.5	16	16	-	JTGR/L3**	CSTB-4SD	T-8F (T-8L)	1.2

**JS-TGL3** External grooving



Screw-on system

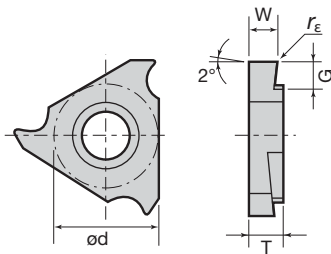
Leht hand (L) shown.

Cat. No.	Stock		Applicable inserts	Dimensions (mm)						Clamping screw	Wrench
	R	L		øDs	f	L <sub>1</sub>	L <sub>2</sub>	h	B		
JS19K-TGL3	●		JTGR3*** (F)	19.05	6	125	-	18	11.5	CSTB-4S	T-15F
JS20K-TGL3	●		JTGR3*** (F)	20	6	125	-	19	11.5	CSTB-4S	T-15F
JS22K-TGL3	●		JTGR3*** (F)	22	6	125	-	21	11.5	CSTB-4S	T-15F
JS25K-TGL3	●		JTGR3*** (F)	25.4	10	125	-	24	12.7	CSTB-4S	T-15F

● : Stocked items

**Applicable inserts**

JTG-type inserts (With sharp edges)

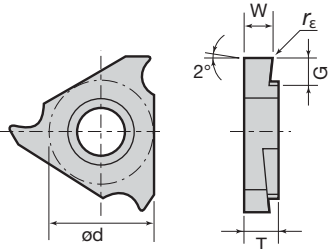


Right hand (R) shown.

Cat. No.	Dimensions (mm)							Grades							
	ød	T	W+ <sup>0.05</sup> <sub>0</sub>	G	Max. groove depth	r <sub>E</sub>	Coated				Cermet Uncoated				
							SH725		J740		NS9530		TH10		
JTGR/L3033F	9.525	3.18	0.33	0.8	0.7	0.03	●	●	●	●	●	●	●	●	
JTGR/L3033F-005	9.525	3.18	0.33	0.8	0.7	0.05	●								
JTGR/L3043F	9.525	3.18	0.43	1.2	1.1	0.03			●						
JTGR/L3050F	9.525	3.18	0.5	1.2	1.1	0.03	●	●	●	●	●	●	●	●	
JTGR/L3050F-005	9.525	3.18	0.5	1.2	1.1	0.05	●	●							
JTGR/L3065F	9.525	3.18	0.65	2	1.9	0.03	●		●						
JTGR/L3065F-010	9.525	3.18	0.65	2	1.9	0.1	●								
JTGR/L3075F	9.525	3.18	0.75	2	1.9	0.03	●	●	●	●	●	●	●	●	
JTGR/L3075F-010	9.525	3.18	0.75	2	1.9	0.1	●	●							
JTGR/L3080F	9.525	3.18	0.8	2	1.9	0.03	●		●						
JTGR/L3080F-010	9.525	3.18	0.8	2	1.9	0.1	●								
JTGR/L3085F	9.525	3.18	0.85	2	1.9	0.03	●		●						
JTGR/L3095F	9.525	3.18	0.95	2	1.9	0.03	●	●	●	●	●	●	●	●	
JTGR/L3095F-010	9.525	3.18	0.95	2	1.9	0.1	●	●							
JTGR/L3100F	9.525	3.18	1	2.2	2.1	0.05	●	●	●	●	●	●	●	●	
JTGR/L3100F-010	9.525	3.18	1	2.2	2.1	0.1	●	●							
JTGR/L3110F	9.525	3.18	1.1	2.2	2.1	0.05	●		●						
JTGR/L3120F	9.525	3.18	1.2	2.2	2.1	0.05	●		●						
JTGR/L3120F-010	9.525	3.18	1.2	2.2	2.1	0.1	●								
JTGR/L3125F	9.525	3.18	1.25	2.2	2.1	0.05	●	●	●	●	●	●	●	●	
JTGR/L3125F-010	9.525	3.18	1.25	2.2	2.1	0.1	●	●							
JTGR/L3130F	9.525	3.18	1.3	2.2	2.1	0.05	●		●						
JTGR/L3140F	9.525	3.18	1.4	2.2	2.1	0.05	●		●						
JTGR/L3140F-010	9.525	3.18	1.4	2.2	2.1	0.1	●								
JTGR/L3145F	9.525	3.18	1.45	2.2	2.1	0.05	●		●	●	●	●	●	●	
JTGR/L3145F-010	9.525	3.18	1.45	2.2	2.1	0.1	●								
JTGR/L3150F	9.525	3.18	1.5	2.2	2.1	0.05	●	●	●	●	●	●	●	●	
JTGR/L3150F-010	9.525	3.18	1.5	2.2	2.1	0.1	●	●							
JTGR/L3175F	9.525	3.18	1.75	2.2	2.1	0.05	●		●	●	●	●	●	●	
JTGR/L3175F-010	9.525	3.18	1.75	2.2	2.1	0.1	●								
JTGR/L3180F	9.525	3.18	1.8	2.2	2.1	0.05	●		●						
JTGR/L3200F	9.525	3.18	2	2.7	2.6	0.05	●	●	●	●	●	●	●	●	
JTGR/L3200F-010	9.525	3.18	2	2.7	2.6	0.1	●	●							
JTGR/L3225F	9.525	3.18	2.25	2.7	2.6	0.05	●		●						
JTGR/L3250F	9.525	3.18	2.5	2.7	2.6	0.05	●	●	●	●	●	●	●	●	
JTGR/L3250F-010	9.525	3.18	2.5	2.7	2.6	0.1	●	●							
JTGR/L3275F	9.525	3.18	2.75	2.7	2.6	0.05			●						
JTGR/L3300F	9.525	3.18	3	2.7	2.6	0.05	●		●						
JTGR/L3300F-010	9.525	3.18	3	2.7	2.6	0.1	●								

● : Stocked items

JTG-type inserts (With honed edges)



Right hand (R) shown.

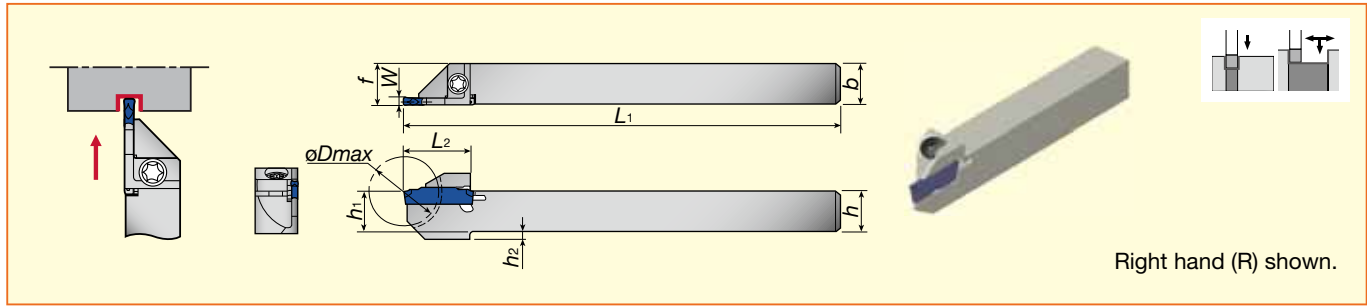
Cat. No.	Dimensions (mm)						Grades							
	ød	T	W+ <sup>0.05</sup> <sub>0</sub>	G	Max. groove depth	r <sub>E</sub>	Coated		Coated cermet		Cermet		Uncoated	
							J740	J9530	NS9530	TH10	R	L	R	L
JTGR/L3033	9.525	3.18	0.33	0.8	0.7	0.03								
JTGR/L3050	9.525	3.18	0.5	1.2	1.1	0.03								
JTGR/L3075	9.525	3.18	0.75	2.0	1.9	0.03								
JTGR/L3095	9.525	3.18	0.95	2.0	1.9	0.03								
JTGR/L3100	9.525	3.18	1	2.2	2.1	0.05			●	●				
JTGR/L3125	9.525	3.18	1.25	2.2	2.1	0.05			●	●				
JTGR/L3145	9.525	3.18	1.45	2.2	2.1	0.05			●	●				
JTGR/L3150	9.525	3.18	1.5	2.2	2.1	0.05			●	●				
JTGR/L3175	9.525	3.18	1.75	2.2	2.1	0.05			●	●				
JTGR/L3200	9.525	3.18	2	2.7	2.6	0.05			●	●				
JTGR/L3250	9.525	3.18	2.5	2.7	2.6	0.05			●	●				

**JTG Standard cutting conditions**

ISO	Work materials	Grades	Cutting speed V <sub>c</sub> (m/min)	Feed f (mm/rev)
<b>P</b>	General steel (S45C / C45, etc.)	SH725	50 - 200	0.01 - 0.1
		J740	10 - 100	0.01 - 0.1
		NS9530	50 - 150	0.01 - 0.1
		J9530	50 - 150	0.01 - 0.1
<b>M</b>	Free-cutting steel (SUM22 / 11SMn28, etc.)	SH725	50 - 200	0.01 - 0.1
		J740	10 - 100	0.01 - 0.1
<b>M</b>	Stainless steel (SUS304 / X5CrNi18-9, etc.)	SH725	50 - 200	0.01 - 0.1
		J740	10 - 100	0.01 - 0.1
		NS9530	50 - 150	0.01 - 0.1
		J9530	50 - 150	0.01 - 0.1
<b>N</b>	Aluminium alloys, Brass (Si < 12%, C3604B / CW614N, etc.)	TH10	10 - 200	0.01 - 0.1
<b>S</b>	Difficult-to-cut materials, Titanium alloys (Ti-6Al-4V, etc.)	TH10	10 - 30	0.01 - 0.1

● : Stocked items

**JCTER/L Grooving**

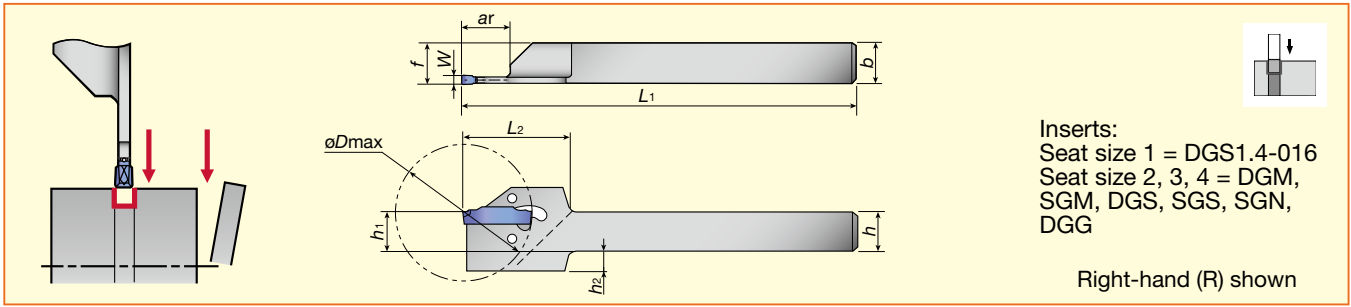


Insert seat size	Toolholders Cat. No.	Stock		Max. dia. $\phi D_{max}$ (mm)	Dimensions (mm)								Inserts	Parts	
		R	L		$h$	$b$	$L_1$	$L_2$	$h_1$	$^*f$	$W$	$h_2$		Clamping screw	Wrench
1	JCTER/L1010X-1.4T10	★	★	20	10	10	120	18	10	10.2	1	-	DGS1.4-016	CSHB-4-A	T-15F
1	JCTER/L1010-1.4T10	▲	▲	20	10	10	125	18	10	10.2	1	-	DGS1.4-016	CSHB-4-A	T-15F
1	JCTER/L1212F1.4T12	★	★	24	12	12	85	19.5	12	12.2	1	-	DGS1.4-016	CSHB-4-A	T-15F
1	JCTER/L1212X1.4T12	★	★	24	12	12	120	19.5	12	12.2	1	-	DGS1.4-016	CSHB-4-A	T-15F
1	JCTER/L1212-1.4T12	▲	▲	24	12	12	125	19.5	12	12.2	1	-	DGS1.4-016	CSHB-4-A	T-15F
1	JCTER/L1414-1.4T12	●	●	24	14	14	125	19.5	14	14.2	1	-	DGS1.4-016	CSHB-4-A	T-15F
1	JCTER/L1616X1.4T16	●	●	32	16	16	120	24	16	16.2	1	-	DGS1.4-016	CSHB-4-A	T-15F
2	JCTER/L1010X2T10	●	●	20	10	10	120	18	10	10.2	1	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
2	JCTER/L1212F2T12	●	●	24	12	12	85	19.5	12	12.2	1	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
2	JCTER/L1212X2T12	●	●	24	12	12	120	19.5	12	12.2	1	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
2	JCTER/L1414-2T12	●	●	24	14	14	125	19.5	14	14.2	1	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
2	JCTER/L1616X2T16	●	●	32	16	16	120	24	16	16.2	1	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
3	JCTER/L1212F3T12	★	★	24	12	12	85	19	12	12.3	3	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
3	JCTER/L1212X3T12	★	★	24	12	12	120	19	12	12.3	3	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
3	JCTER/L1212-3T12	▲	▲	24	12	12	125	19	12	12.3	3	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
3	JCTER/L1616X3T16	★	★	32	16	16	120	24	14	16.3	3	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
3	JCTER/L1616-3T16	▲	▲	32	16	16	125	24	14	16.3	3	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
3	JCTER/L2020H3T16	★	★	32	20	20	100	24	16	20.3	3	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
3	JCTER/L2020-3T16	▲	▲	32	20	20	125	24	16	20.3	3	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F

\* "f" value in the above table is calculated with groove width "W" shown in the table.

● : Stocked items  
★ : Available in 2016  
▲ : Discontinued items

**CGER/L** Deep grooving



Inserts:  
Seat size 1 = DGS1.4-016  
Seat size 2, 3, 4 = DGM,  
SGM, DGS, SGS, SGN,  
DGG

Right-hand (R) shown

Insert seat size	Cat. No.	Stock		Max. dia. øDm (mm)	Max. groove depth ar (mm)	Dimensions (mm)							Parts Wrench <sup>(2)</sup>		
		R	L			DGS/M	SGS/M	h <sub>1</sub>	b	h	L <sub>1</sub>	f <sup>(1)</sup>		W	h <sub>2</sub>
1	CGER/L2020-1.4T14	●	●	29	29	9.7	20	20	20	125	20.2	1.4	-	30	CRW23
2	CGER/L1212-2T17	●	●	35	35	11.8	12	12	12	150	12.1	2	6	30	CRW33
2	CGER/L1616-2T17	●	●	35	35	11.8	16	16	16	150	16.1	2	2	30	CRW33
2	CGER/L2020-2T17	●	●	35	35	9.8	20	20	20	125	20.1	2	-	30	CRW33
3	CGER/L1212-3T19	●	●	38	40	12	12	12	12	150	12.3	3	6	30	CRW33
3	CGER/L1616-3T19	●	●	38	45	14.9	16	16	16	150	16.3	3	2	30	CRW33
3	CGER/L2020-3T19	●	●	38	45	13.2	20	20	20	125	20.3	3	-	30	CRW33
4	CGER/L2020-4T19	●	●	38	55	20.3	20	20	20	125	20.4	4	-	32	CRW33

(1) "f" value in the above table is calculated with groove width "W" shown in the table.

(2) Wrench, CRW□□, should be ordered separately. Please see information below about wrench usage.

● : Stocked items

# Inserts

## Notation of "insert seat size"

Seat size and grooving width are different. The seat size measure is for the specification of the setting insert. Please note this point.

## Insert application

Insert	Application		
	Grooving	Parting off	Turning
	External		External
DGM / SGM	●	●	
DGS / SGS	●	●	
DTE	●		●
DGE	●		
DGG	●	●	

## DGM External grooving and parting off, 2 corner

Neutral		Insert seat size	Cat. No.	Grades			Dimensions (mm)				
				Coated			W±0.05	r <sub>ε</sub>	L	h	κ
				AH7025	AH725	GH130					
		2	DGM 2-020	●	●	●	2	0.2	20	5	-
		3	DGM 3-020	●	●	●	3	0.2	20	5	-

## SGM External deep grooving and parting off, 1 corner

Neutral		Insert seat size	Cat. No.	Grades			Dimensions (mm)				
				Coated			W±0.05	r <sub>ε</sub>	L	h	κ
				AH725	GH130						
		2	SGM 2-020	●	●		2	0.2	20	5	-
		3	SGM 3-020	●	●		3	0.2	20	5	-

● : Stocked items

**DGS** External grooving and parting off, 2 corner

Neutral		Insert seat size	Cat. No.	Grades		Dimensions (mm)				
				Coated		$W \pm 0.05$	$r_\epsilon$	L	h	$\kappa$
				AH7025	AH725 GH130					
1	DGS1.4-016	●	●	●	1.4	0.16	16	4.3	-	
2	DGS2-020	●	●	●	2	0.2	20	5	-	
3	DGS3-020	●	●	●	3	0.2	20	5	-	

**SGS** External deep grooving and parting off, 1 corner

Neutral		Insert seat size	Cat. No.	Grades		Dimensions (mm)				
				Coated		$W \pm 0.05$	$r_\epsilon$	L	h	$\kappa$
				AH725	GH130					
2	SGS 2-020	●	●	●	2	0.2	20	5	-	
3	SGS 3-020	●	●	●	3	0.2	20	5	-	

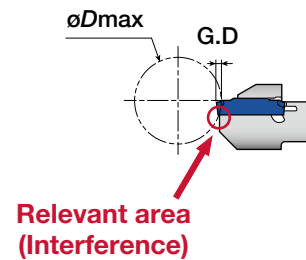
**DGE** External grooving (Ground)

Neutral		Insert seat size	Cat. No.	Grades		Dimensions (mm)				
				Coated		$W \pm 0.02$	$r_\epsilon \pm 0.05$	L <sub>1</sub>	L	h
				AH725	GH130					
2	DGE100-000	●	●	●	1	0	2.5	20	5	
2	DGE130-000	●	●	●	1.3	0	2.5	20	5	
2	DGE160-010	●	●	●	1.6	0.1	2.5	20	5	
2	DGE185-010	●	●	●	1.85	0.1	3.5	20	5	
2	DGE215-015	●	●	●	2.15	0.15	3.5	20	5	

**Caution**

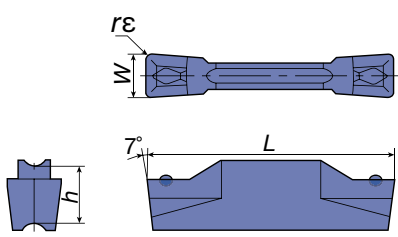
$\phi D_{max}$  is limited as shown in picture in right according to groove depth, G.D. Please refer to the following table.

Cat. No.	Max. groove depth (mm)	G.D = Groove depth				
		$\phi D_{max}$ (mm)				
		G.D = 1	G.D = 1.5	G.D = 2	G.D = 2.5	G.D = 3
DGE100-000	2	∞	18.6	11.5	-	-
DGE130-000	2	∞	18.6	11.5	-	-
DGE160-010	2	∞	18.6	11.5	-	-
DGE185-010	3	∞	18.6	11.5	8.8	7
DGE215-015	3	∞	18.6	11.5	8.8	7



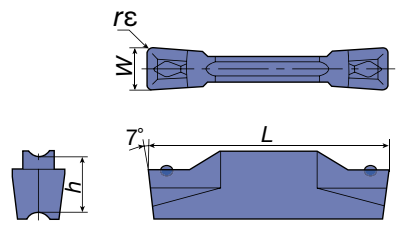
● : Stocked items

**DTE** External, face grooving and turning (Ground)



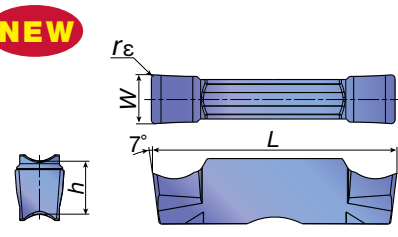
Insert seat size	Cat. No.	Grades				Dimensions (mm)			
		Coated		Cermet		$W \pm 0.02$	$r_{\epsilon} \pm 0.05$	$L$	$h$
		AH7025	AH725	GH130	NS9530				
3	<b>DTE265-015</b>	●	●	●	●	2.65	0.15	20	5
3	<b>DTE300-020</b>	●	●	●	●	3	0.2	20	5
3	<b>DTE300-040</b>		●	●	●	3	0.4	20	5
3	<b>DTE315-015</b>		●	●	●	3.15	0.15	20	5

External, face grooving and turning (Molded)



Insert seat size	Cat. No.	Grades				Dimensions (mm)			
		Coated		Cermet		$W \pm 0.05$	$r_{\epsilon}$	$L$	$h$
		AH7025	AH725	GH130	NS9530				
3	<b>DTE3-040</b>	●	●	●	●	3	0.4	20	5

**DGG** External, face grooving (Ground)



Insert seat size	Cat. No.	Grades		Dimensions (mm)			
		Cermet	Carbide	$W \pm 0.02$	$r_{\epsilon} \pm 0.05$	$L$	$h$
		NS9530	KS05F				
2	<b>DGG200-020</b>	●	●	2	0.2	20	5.0
3	<b>DGG300-020</b>	●	●	3	0.2	20	5.0
4	<b>DGG400-040</b>	●	●	4	0.4	20	5.0

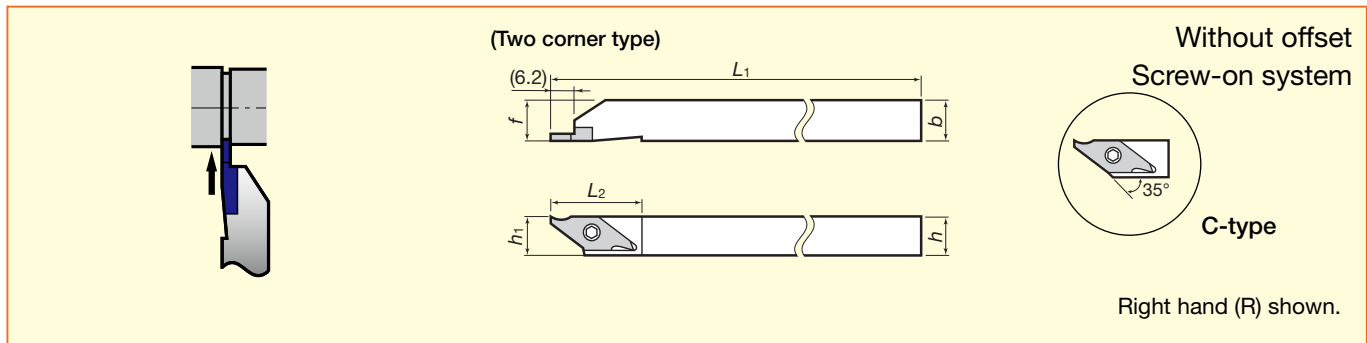


## Standard cutting conditions

Insert type	Application	insert seat size	Groove width W (mm)	Feed: f (mm/rev) Depth of cut: ap (mm)	Features
<b>DGM</b> (2 corner) <b>SGM</b> (1 corner)	External grooving	2	2	f = 0.05 ~ 0.2	<ul style="list-style-type: none"> <li>Smooth chip evacuation</li> <li>Well designed edge with high strength</li> <li>Handed insert available</li> </ul>
		3	3	f = 0.07 ~ 0.25	
<b>DGS</b> (2 corner) <b>SGS</b> (1 corner)	External grooving	1	1.4	f = 0.02 ~ 0.1	<ul style="list-style-type: none"> <li>Sharper edge, and low cutting force</li> <li>Unique designed edge and chipbreaker</li> <li>Handed insert available</li> </ul>
		2	2	f = 0.03 ~ 0.13	
		3	3	f = 0.03 ~ 0.17	
<b>DGE</b> (2 corner)	Grooving	2	1	f = 0.05 ~ 0.15	<ul style="list-style-type: none"> <li>For narrow grooving</li> <li>Excellent chip control</li> <li>Ground insert with high accuracy</li> </ul>
			1.3	f = 0.05 ~ 0.17	
			1.6	f = 0.05 ~ 0.18	
			1.85	f = 0.05 ~ 0.19	
			2.15	f = 0.05 ~ 0.2	
<b>DTE</b> (2 corner)	External grooving External Turning	3	3 (Grooving)	f = 0.05 ~ 0.25	<ul style="list-style-type: none"> <li>Unique chipbreaker makes chips shorter</li> <li>Molded and ground insert available</li> </ul>
			3 (Turning)	f = 0.1 ~ 0.25 ap = 0.5 ~ 2.2	
<b>DGG</b>	Grooving	2	2	f = 0.05 ~ 0.15	<ul style="list-style-type: none"> <li>Chipbreaker with low cutting force</li> <li>Sharp cutting edge that prevents vibration and delivers fine surface finish</li> </ul>
		3	3	f = 0.05 ~ 0.15	

ISO	Work materials	Hardness	Cutting speed	
			AH725	Vc (m/min) GH130
<b>P</b>	<b>Steels</b> S45C, SCM435 etc. (C45, 34CrMo4 etc.)	< 300 HB	50 ~ 180	40 ~ 150
<b>M</b>	<b>Stainless steels</b> SUS303, SUS304 etc. (X10CrNiS18-9 etc.)	< 200 HB	50 ~ 120	50 ~ 120
<b>K</b>	<b>Grey cast irons, Ductile cast irons</b> FC250, FCD450 etc. (GG25, GGG45 etc.)	-	-	50 ~ 180
<b>S</b>	<b>Titanium, Titanium alloys</b> (Ti-6Al-4V etc.)	< 40 HRC	20 ~ 80	20 ~ 80

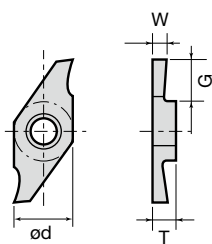
**JSVGR/L External grooving**



Cat. No.	Stock		Applicable inserts	Dimensions (mm)					Clamping screw	Wrench (Option)	
	R	L		h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>			f
JSVGR/L1010K-C	●	●	JVGR/L***(F)	10	10	125	23	10	10	CSTB-3S	T-9F (T-9L)
JSVGR/L1212K-C	●	●	JVGR/L***(F)	12	12	125	23	12	12	CSTB-3S	T-9F (T-9L)
JSVGR/L1616K	●	●	JVGR/L***(F)	16	16	125	23	16	16	CSTB-3S	T-9F (T-9L)

**Applicable inserts JVGR-type inserts (sharp edges)**

Cat. No.	Dimensions (mm)					Max. groove depth	Grades							
	ød	T	W <sub>+0.05</sub>	G	Coated				Cermet Uncoated					
					SH725 R		SH725 L	J740 R	J740 L	NS9530 R	NS9530 L	TH10 R	TH10 L	
JVGR/L033F	7.94	3.18	0.33	0.8	0.7	●	●	●	●	●	●	●	●	
JVGR/L050F	7.94	3.18	0.5	1.2	1.1	●	●	●	●	●	●	●	●	
JVGR/L075F	7.94	3.18	0.75	2	1.9	●	●	●	●	●	●	●	●	
JVGR/L095F	7.94	3.18	0.95	2	1.9	●	●	●	●	●	●	●	●	
JVGR/L100F	7.94	3.18	1	6	5.5	●	●	●	●	●	●	●	●	
JVGR/L125F	7.94	3.18	1.25	5.5	5	●	●	●	●	●	●	●	●	
JVGR/L150F	7.94	3.18	1.5	6	5.5	●	●	●	●	●	●	●	●	
JVGR/L200F	7.94	3.18	2	6	5.5	●	●	●	●	●	●	●	●	



**JVG, JXG Standard cutting conditions**

ISO	Work materials	Grades	Cutting speed V <sub>c</sub> (m/min)	Feed f (mm/rev)
<b>P</b>	General steel (S45C / C45, etc.)	SH725	50 - 200	0.01 - 0.1
		J740	10 - 100	0.01 - 0.1
		NS9530	50 - 150	0.01 - 0.1
	Free-cutting steel (SUM22 / 11SMn28, etc.)	SH725	50 - 200	0.01 - 0.1
		J740	10 - 100	0.01 - 0.1
		J9530	50 - 150	0.01 - 0.1
<b>M</b>	Stainless steel (SUS304 / X5CrNi18-9, etc.)	SH725	50 - 200	0.01 - 0.1
		J740	10 - 100	0.01 - 0.1
		NS9530	50 - 150	0.01 - 0.1
		J9530	50 - 150	0.01 - 0.1
<b>N</b>	Aluminium alloys, Brass (Si < 12%, C3604B / CW614N, etc.)	TH10	10 - 200	0.01 - 0.1
<b>S</b>	Difficult-to-cut materials, Titanium alloys (Ti-6Al-4V, etc.)	TH10	10 - 30	0.01 - 0.1

● : Stocked items

**JSXGR/L External grooving**

JSXG type toolholders are also used for front-turning JXF-type inserts and reverse-turning JXR-type inserts.

Without offset Screw-on system

C-type

Can be wrenched from back side with double-socket Torx screw.

Right hand (R) shown.

Cat. No.	Stock		Applicable inserts	Dimensions (mm)						Clamping screw	Wrench (Option)	
	R	L		h	b	L <sub>1</sub>	L <sub>2</sub>	a <sub>r</sub>	h <sub>1</sub>			f
JSXGR/L1010K8-C	●	●	JXGR/L8***	10	10	125	29	6.7	10	9.9	CSTB-4SD	T-8F (T-8L)
JSXGR/L1212K8-C	●	●	JXGR/L8***	12	12	125	29	6.7	12	11.9	CSTB-4SD	T-8F (T-8L)
JSXGR/L1616K8	●	●	JXGR/L8***	16	16	125	29	6.7	16	15.9	CSTB-4SD	T-8F (T-8L)
JSXGR/L2020K8	●	●	JXGR/L8***	20	20	125	29	6.5	20	19.9	CSTB-4SD	T-8F (T-8L)
JSXGR/L2525K8	●	●	JXGR/L8***	25	25	125	29	6.5	25	24.9	CSTB-4SD	T-8F (T-8L)

**Applicable inserts JXG-type inserts (With sharp edges and cutting direction)**

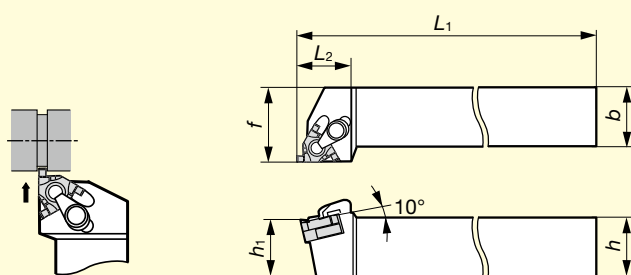
Cat. No.	Dimensions (mm)							Grades							
	ød	T	W <sup>+0.05</sup>	θ	Max. groove depth	r <sub>ε</sub>	Coated		Coated cermet		Cermet		Uncoated		
							J740	J9530	R	L	R	L	R	L	R
JXGR/L8070FA	8	3.97	0.7	15°	4.5	0	●	●			●	●	●	●	
JXGR/L8070FA-005	8	3.97	0.7	15°	4.5	0.05	●								
JXGR/L8100FA	8	3.97	1	15°	6	0	●	●			●	●	●	●	
JXGR/L8100FA-005	8	3.97	1	15°	6	0.05	●								
JXGR/L8100FA45	8	3.97	1	15°	4.5	0	●			●			●		
JXGR/L8100FA45-005	8	3.97	1	15°	4.5	0.05	●								
JXGR/L8120FA	8	3.97	1.2	15°	6	0									
JXGR/L8150FA	8	3.97	1.5	15°	6	0	●	●			●	●	●	●	
JXGR/L8150FA-005	8	3.97	1.5	15°	6	0.05	●								
JXGR/L8150FA50	8	3.97	1.5	15°	5	0	●			●			●		
JXGR/L8150FA50-005	8	3.97	1.5	15°	5	0.05	●								
JXGR/L8180FA	8	3.97	1.8	15°	6	0	●			●			●		
JXGR/L8180FA-005	8	3.97	1.8	15°	6	0.05	●								
JXGR/L8200FA	8	3.97	2	15°	6	0	●	●			●	●	●	●	
JXGR/L8200FA-005	8	3.97	2	15°	6	0.05	●								
JXGR/L8200FN	8	3.97	2	0°	6	0	●	●			●	●	●	●	
JXGR/L8200FN-005	8	3.97	2	0°	6	0.05	●								

Right hand (R) shown.

● : Stocked items

# CE R/L

## External grooving



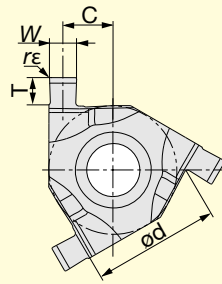
\* When using the GTGN insert, the exclusive shim shown in the table must be used. Exclusive shim should be ordered separately.

Right hand (R) shown.

### Steel shank Screw-on, clamp-on type

Cat. No	Stock	Dimensions (mm)						Insert	Shim *
		<i>h</i>	<i>b</i>	<i>L</i> <sub>1</sub>	<i>L</i> <sub>2</sub>	<i>h</i> <sub>1</sub>	<i>f</i>		
CER1212H16DT	●	12	12	100	24	12	16	GTGN-16ER/IL***	G16ER/IL-DT
CEL1212H16DT	●	12	12	100	24	12	16	GTGN-16EL/IR***	G16EL/IR-DT
CER1616H16DT	●	16	16	100	24	16	20	GTGN-16ER/IL***	G16ER/IL-DT
CEL1616H16DT	●	16	16	100	24	16	20	GTGN-16EL/IR***	G16EL/IR-DT
CER2020K16DT	●	20	20	125	24	20	25	GTGN-16ER/IL***	G16ER/IL-DT
CEL2020K16DT	●	20	20	125	24	20	25	GTGN-16EL/IR***	G16EL/IR-DT

## Insert



Right hand (R) shown.

Insert size	Groove width $W \pm 0.03$ (mm)	Cat. No.	Grade	Dimensions (mm)				Shim		
				Coated SH730	$\phi d$	Max. groove depth T	$r_\epsilon$	Center of width C	Dual method clamp type; Screw-on/ Clamp-on	Clamp-on type
16	1.00	GTGN-16ER/IL100	●	9.525	1.25	0.1	4.22	G16ER/IL-DT	G16ER/IL-S	
16	1.20	GTGN-16ER/IL120	●	9.525	1.30	0.1	4.12	G16ER/IL-DT	G16ER/IL-S	
16	1.40	GTGN-16ER/IL140	●	9.525	1.50	0.1	4.02	G16ER/IL-DT	G16ER/IL-S	
16	1.70	GTGN-16ER/IL170	●	9.525	1.70	0.1	3.87	G16ER/IL-DT	G16ER/IL-S	
16	1.95	GTGN-16ER/IL195	●	9.525	1.70	0.1	3.75	G16ER/IL-DT	G16ER/IL-S	
16	2.25	GTGN-16ER/IL225	●	9.525	1.80	0.1	3.60	G16ER/IL-DT	G16ER/IL-S	
16	1.00	GTGN-16EL/IR100	●	9.525	1.25	0.1	4.22	G16EL/IR-DT	G16EL/IR-S	
16	1.20	GTGN-16EL/IR120	●	9.525	1.30	0.1	4.12	G16EL/IR-DT	G16EL/IR-S	
16	1.40	GTGN-16EL/IR140	●	9.525	1.50	0.1	4.02	G16EL/IR-DT	G16EL/IR-S	
16	1.70	GTGN-16EL/IR170	●	9.525	1.70	0.1	3.87	G16EL/IR-DT	G16EL/IR-S	
16	1.95	GTGN-16EL/IR195	●	9.525	1.70	0.1	3.75	G16EL/IR-DT	G16EL/IR-S	
16	2.25	GTGN-16EL/IR225	●	9.525	1.80	0.1	3.60	G16EL/IR-DT	G16EL/IR-S	

Note: GTGN insert is applicable for both external and internal grooving, but the hand of tool is opposite in external and internal machining. Shim for GTGN is exclusive to each type of toolholders

Packing quantity = 10 pcs

## Spare parts

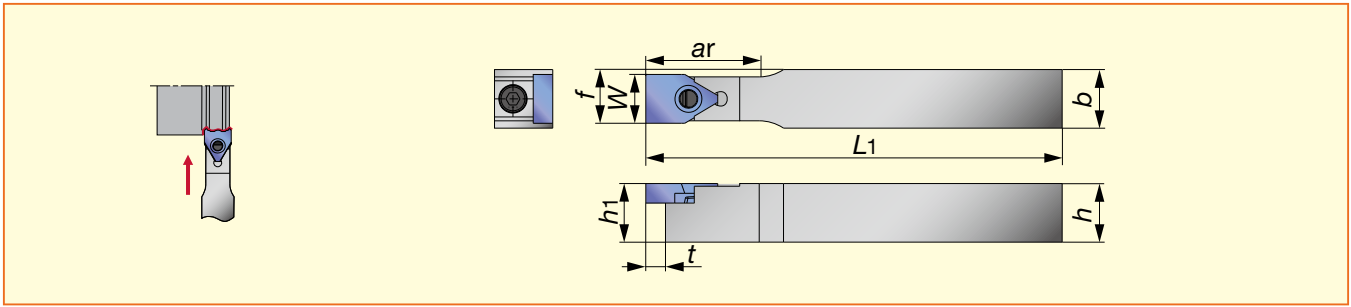
Cat. No	Clamp set	Shim screw	Clamping screw	Wrench
CER/L1212H16DT	CSP16	DTS5-3.5	CSTB-3.5ST	T-15F P-3.5
CER/L1616H16DT	CSP16	DTS5-3.5	CSTB-3.5ST	T-15F P-3.5
CER/L2020K16DT	CSP16	DTS5-3.5	CSTB-3.5ST	T-15F P-3.5
CER/L2525M16DT	CSP16	DTS5-3.5	CSTB-3.5ST	T-15F P-3.5
CER/L3232P16T	CSP16	-	-	T-15F
B-CER/L16M16	CSP16	-	-	T-15F

## Standard cutting conditions

ISO	Work materials	Grades	Cutting speed $V_c$ (m/min)	Feed $f$ (mm/rev)
<b>P</b>	Steels S45C, SCM440 etc. (C45, 42CrMo4 etc.)	SH730	50 - 150	0.05 - 0.10
<b>M</b>	Stainless steels SUS304, SUS316 etc. (X5CrNi18-9, X5CrNiMo17-12-2 etc.)	SH730	30 - 150	0.05 - 0.10
<b>S</b>	Heat-resistant alloys, Titanium alloys etc. (Ti-6Al-4V etc.)	SH730	30 - 100	0.05 - 0.10

**FPGN**

**External profile grooving**



Designation	W	$\frac{ar}{PSGB}$	$h_1$	b	h	$\frac{L_1}{PSGB}$	f	$\frac{t}{PSGB}$	Insert
FPGN1212X-10T20	10	25	12	12	12	125	11.0	5.5	PSGB10
FPGN1616X-10T20	10	25	16	16	16	125	13.0	5.5	PSGB10
FPGN2020K-10T20	10	25	20	20	20	130	15.0	5.5	PSGB10
FPGN1616X-15T25	15	30	16	16	16	125	15.5	5.5	PSGB15
FPGN2020K-15T25	15	30	20	20	20	130	17.5	5.5	PSGB15
FPGN2020K-20T32	20	37	20	20	20	130	20.0	5.5	PSGB20
FPGN2525M-20T32	20	37	25	25	25	155	22.5	5.5	PSGB20
FPGN2525M-25T36	25	41	25	25	25	155	25.0	5.5	PSGB25

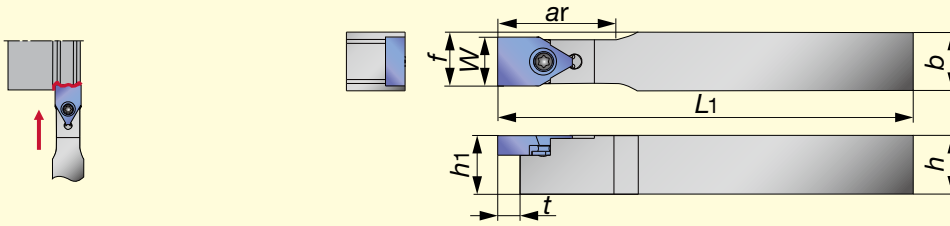
**SPARE PARTS**



Designation	Clamping screw	Lever	Spring	Wrench
FPGN...-10T**	FCS3	FCL4	BP-5	P-2.5
FPGN...-15T**	FCS3	FCL4	BP-5	P-2.5
FPGN...-20T**	FCS6	FCL8	BP-9	P-5
FPGN...-25T**	FCS6	FCL8	BP-9	P-5

**SPGN**

**External profile grooving**



Designation	W	ar	h <sub>1</sub>	b	h	L <sub>1</sub>	f	t	Insert
SPGN1212X-10T20	10	25	12	12	12	125	11.0	5.5	PSGB10
SPGN1616X-10T20	10	25	16	16	16	125	13.0	5.5	PSGB10
SPGN2020K-10T20	10	25	20	20	20	130	15.0	5.5	PSGB10
SPGN1616X-15T25	15	30	16	16	16	125	15.5	5.5	PSGB15
SPGN2020K-15T25	15	30	20	20	20	130	17.5	5.5	PSGB15
SPGN2020K-20T32	20	37	20	20	20	130	20.0	5.5	PSGB20
SPGN2525M-20T32	20	37	25	25	25	155	22.5	5.5	PSGB20
SPGN2525M-25T36	25	41	25	25	25	155	25.0	5.5	PSGB25

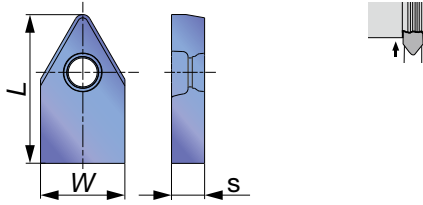
**SPARE PARTS**



Designation	Clamping screw	Wrench
SPGN...-10T**	CSTB-3L081	T-9F
SPGN...-15T**	CSTB-4	T-15F
SPGN...-20T**	CSTB-5	T-20F
SPGN...-25T**	CSTB-5	T-20F

## Inserts

### Blanks for wide profile grooving\*

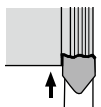


Designation	W ± 0.025	Grade		L	s
		UX30	TH10		
PSGB10	10.2	✓	✓	18	4.0
PSGB15	15.2	✓	✓	20	5.0
PSGB20	20.2	✓	✓	27	6.5
PSGB25	25.2	✓	✓	27	6.5

✓ : Stocked items

\*Stocked products are blanks (semi-finished) for formed inserts

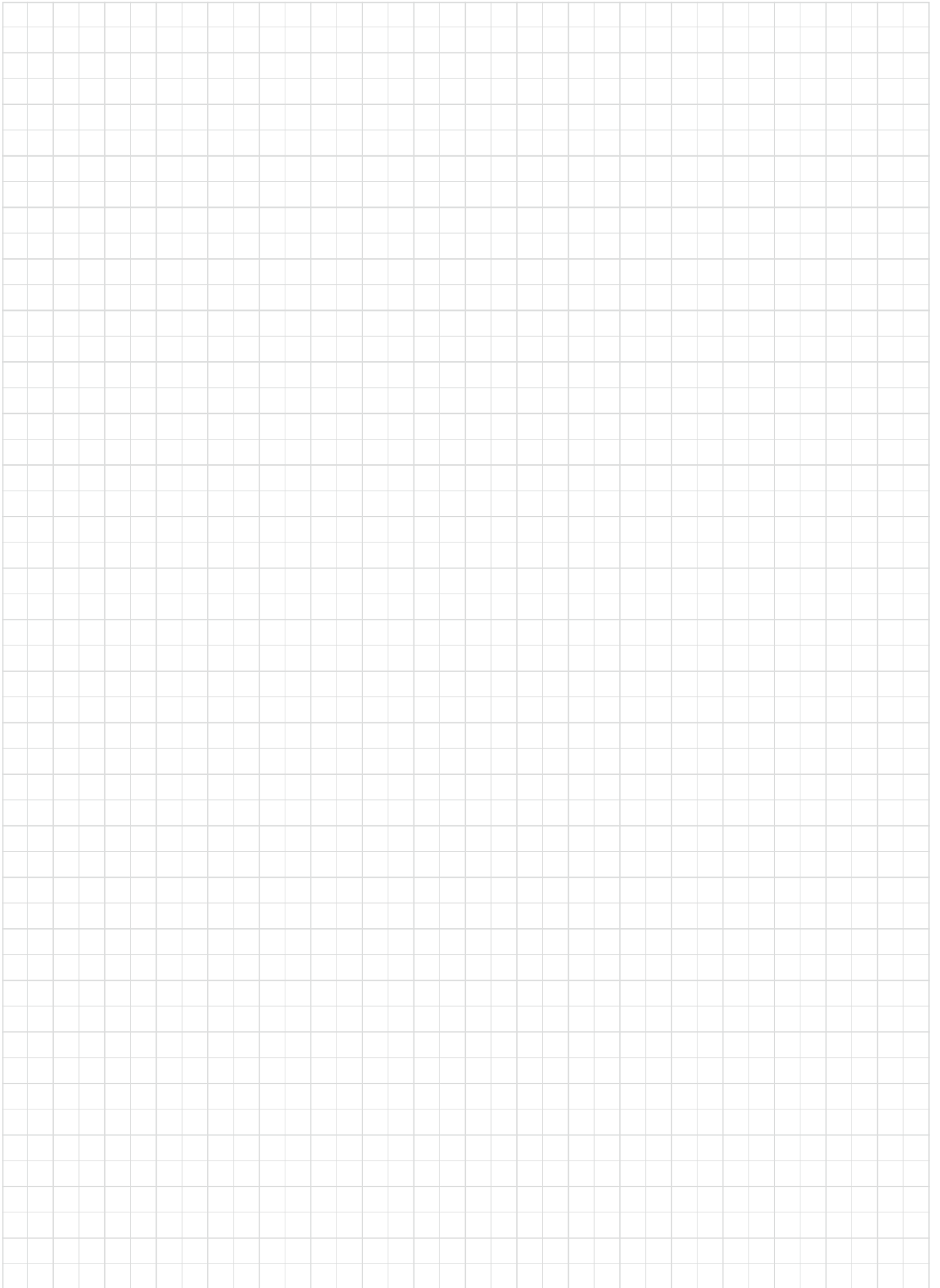
## Standard cutting conditions



### Forming

ISO	Workpiece materials	Hardness (HB)	Grade	Cutting speed Vc (m/min)
<b>P</b>	Steel (S45C / C45, etc.)	< 200	UX30	50 - 150
	Alloy steel (SCM440 / 42CrMo4, etc.)	< 300	UX30	50 - 120
<b>M</b>	Stainless steel (SUS303 / X10CrNiS18-9, etc.)	< 200	UX30	50 - 120
<b>K</b>	Grey cast iron (FC250 / 250, etc.)	-	TH10	50 - 150
	Ductile cast iron (FCD450 / 450-10S, etc.)	-	TH10	50 - 120
<b>N</b>	Aluminium alloy (Si < 12%, etc.)	-	TH10	100 - 500





# Chapter Composition of TAC Parting Tools

◆ In the machining type, tools are arranged by product series.

Illustration of tooling condition

Cat. No. of applicable inserts

**J-SERIES J-type / Parting-off**

**JXSGR/L Parting-off**

Two corner type  
Without offset  
Screw-on system  
C-type  
Can be fixed from back side with double-socket Torx screw.  
Right hand (R) shown.

Cat. No.	Stock		Applicable inserts	Dimensions (mm)							Clamping screw	Wrench (mm)
	R	L		h	d	L1	L2	ar	h1	f		
JXSGR/L1019K8-C	●	●	JXGR/L8***	10	10	125	29	6.7	10	9.9	CSTB-4SD	T-8F (T-8L)
JXSGR/L1219K8-C	●	●	JXGR/L8***	12	12	125	29	6.7	12	11.9	CSTB-4SD	T-8F (T-8L)
JXSGR/L1616K8	●	●	JXGR/L8***	16	16	125	29	6.7	16	15.9	CSTB-4SD	T-8F (T-8L)
JXSGR/L2020K8	●	●	JXGR/L8***	20	20	125	29	6.5	20	19.9	CSTB-4SD	T-8F (T-8L)
JXSGR/L2525K8	●	●	JXGR/L8***	25	25	125	29	6.5	25	24.9	CSTB-4SD	T-8F (T-8L)

**Applicable inserts JXG-type inserts (With sharp edges and cutting direction)**

Cat. No.	Dimensions (mm)				Grades							
	sd	T	W	θ	Crated		General		Special		Uncoated	
	mm	°	mm	mm	R	L	R	L	R	L	R	L
JXGR/L81070FA	8	3.97	0.7	15°	4.5	0	●	●	●	●	●	●
JXGR/L81070FA-005	8	3.97	0.7	15°	4.5	0.05	●	●	●	●	●	●
JXGR/L81100FA	8	3.97	1	15°	6	0	●	●	●	●	●	●
JXGR/L81100FA-005	8	3.97	1	15°	6	0.05	●	●	●	●	●	●
JXGR/L81100FAA5	8	3.97	1	15°	4.5	0	●	●	●	●	●	●
JXGR/L81100FAA5-005	8	3.97	1	15°	4.5	0.05	●	●	●	●	●	●
JXGR/L8120FA	8	3.97	1.2	15°	6	0	●	●	●	●	●	●
JXGR/L8130FA	8	3.97	1.5	15°	6	0	●	●	●	●	●	●
JXGR/L8130FA-005	8	3.97	1.5	15°	6	0.05	●	●	●	●	●	●
JXGR/L8130FAA50	8	3.97	1.5	15°	5	0	●	●	●	●	●	●
JXGR/L8130FAA50-005	8	3.97	1.5	15°	5	0.05	●	●	●	●	●	●
JXGR/L8180FA	8	3.97	1.8	15°	6	0	●	●	●	●	●	●
JXGR/L8180FA-005	8	3.97	1.8	15°	6	0.05	●	●	●	●	●	●
JXGR/L8200FA	8	3.97	2	15°	6	0	●	●	●	●	●	●
JXGR/L8200FA-005	8	3.97	2	15°	6	0.05	●	●	●	●	●	●
JXGR/L8200FN	8	3.97	2	0°	6	0	●	●	●	●	●	●
JXGR/L8200FN-005	8	3.97	2	0°	6	0.05	●	●	●	●	●	●

Right hand (R) shown.

7-16

**J-SERIES J-type / Parting-off**

**JXG Standard cutting conditions**

ISO	Work materials	Grades	Cutting speed Vc (m/min)	Feed f (mm/rev)
P	General steel (S45C / C45, etc.)	J740	10 - 100	0.01 - 0.1
		NS9530	50 - 150	0.01 - 0.1
		J9530	50 - 150	0.01 - 0.1
M	Free-cutting steel (SUM22 / Y13Mn20, etc.)	J740	10 - 100	0.01 - 0.1
		J740	10 - 100	0.01 - 0.1
		NS9530	50 - 150	0.01 - 0.1
N	Stainless steel (SUS304 / XSCN18-9, etc.)	J740	10 - 100	0.01 - 0.1
		NS9530	50 - 150	0.01 - 0.1
		J9530	50 - 150	0.01 - 0.1
S	Aluminum alloy, Brass (Si < 12%, C3604B / CW514N, etc.)	TH10	10 - 200	0.01 - 0.1
		TH10	10 - 200	0.01 - 0.1
S	Difficult-to-cut materials, Titanium alloy (Ti-6Al-4V, etc.)	TH10	10 - 30	0.01 - 0.1
		TH10	10 - 30	0.01 - 0.1

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Cat. No. of applicable inserts

Symbols of stock status

Dimensions of applicable inserts

Standard cutting conditions  
Cutting speeds by work material and feed ranges by machining type are shown.

## Ordering information

- When ordering the toolholder, please specify Cat. No. and quantity.  
Example: **JCTER1010-1.4T10**... 1 piece.
- When ordering inserts for grooving and parting tools, please specify Cat. No., grade, and quantity.  
Example: **DGM2-020 AH725**... 10 pieces.
  - Standard packing quantity of inserts is 10 pieces.



# TAC Parting Tools

## Guidance

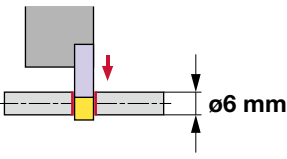

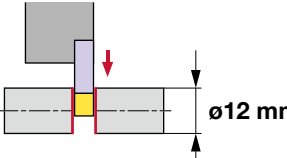

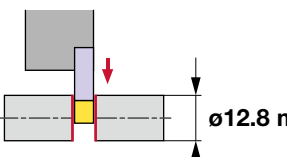

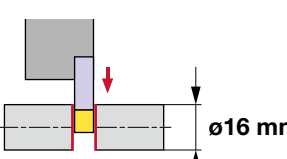

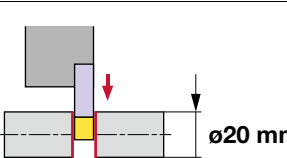

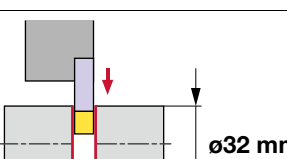

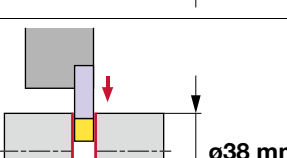

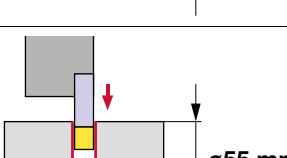

■ Types and application of TAC Parting Tools	.....	7-2
■ Structures and features of TAC Parting Tools	.....	7-3

## Products

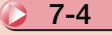

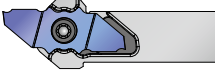
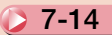


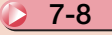

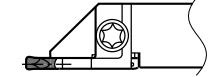
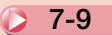


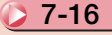

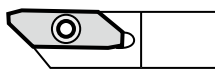
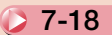


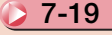

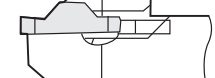
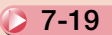

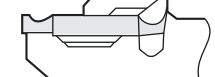
### ■ Parting tools

● JSXXR/L	Parting-off	JXPGR/L inserts	.....	7-4
● JCTER/L	Parting-off	□G□ DTE inserts	.....	7-8
● CGER/L	Parting-off	□G□ inserts	.....	7-9
● STCR/L-27	Parting-off	TCS27 inserts	.....	7-14
● JSXGR/L	Parting-off	JXGR/L inserts	.....	7-16
● JCGSSR/L	Parting-off	GE20 inserts	.....	7-18
● JCCWSR/L	Parting-off	JCC inserts	.....	7-19
● JCGWSR/L	Parting-off	JCG inserts	.....	7-19

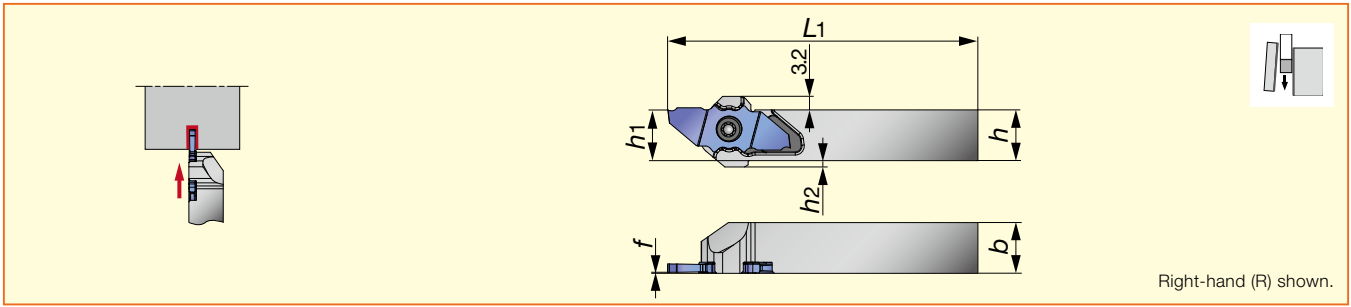
# Selection Guide of Tools

	Max. parting dia.	Shape of tool	
~ $\phi 6$		<b>DUOJ<sup>UST</sup>CUT</b> <b>JSXXR/L</b> Applicable insert: JXPG06R/L	
~ $\phi 12$		<b>DUOJ<sup>UST</sup>CUT</b> <b>JSXXR/L</b> Applicable insert: JXPG12R/L	<b>J-SERIES</b> <b>JSXGR/L</b> Applicable insert: JXGR/L 
~ $\phi 12.8$		<b>TETRAFC<sup>ORCE</sup>CUT</b> <b>STCR/L-27</b> Applicable insert: TCS27	
~ $\phi 16$		<b>DUOJ<sup>UST</sup>CUT</b> <b>JSXXR/L</b> Applicable insert: JXPG16R/L	
~ $\phi 20$		<b>J-SERIES</b> <b>JCCWSR/L</b> Applicable insert: JCC	<b>J-SERIES</b> <b>JCGWSR/L</b> Applicable insert: JCG 
~ $\phi 32$		<b>TUNG<sup>UT</sup>CUT</b> <b>JCTER/L</b> Applicable insert: □G□ DTE	<b>J-SERIES</b> <b>JCGSSR/L</b> Applicable insert: GE20 
~ $\phi 38$		<b>TUNG<sup>UT</sup>CUT</b> <b>CGER/L</b> Applicable insert: DGS/M	
~ $\phi 55$		<b>TUNG<sup>UT</sup>CUT</b> <b>CGER/L</b> Applicable insert: SGS/M	

# Structures and features of TAC Grooving and Parting Tools

Appli.	Type	Appearance	Clamping mechanism	Features
Deep grooving / Parting-off	<b>JSXX</b> <b>DUOJ<sup>UST</sup>CUT</b>  7-4			<ul style="list-style-type: none"> <li>• 3 types of inserts that are available for different parting-off diameters can be mounted on the same pocket of the toolholder.</li> <li>• Unique clamping system for highly rigid clamping.</li> <li>• Works between main and sub-spindles.</li> </ul>
	<b>STCR/L</b> <b>-27</b> <b>TETRA<sup>FC</sup>CUT</b>  7-14			<ul style="list-style-type: none"> <li>• 4-cornered insert with high-economic advantage</li> <li>• High clamping rigidity allows highly precise machining</li> </ul>
	<b>JCTER/L</b> <b>TUNG<sup>FC</sup>CUT</b>  7-8			<ul style="list-style-type: none"> <li>• M-class insert with good chip control</li> <li>• Applicable in various grooving and parting-off</li> <li>• Right and left hand inserts are stocked</li> </ul>
	<b>CGER/L</b> <b>TUNG<sup>FC</sup>CUT</b>  7-9			<ul style="list-style-type: none"> <li>• Multi-functional grooving system with high versatility</li> <li>• Various types of insert are applicable for a wide range of applications.</li> </ul>
	<b>JSXG</b>  7-16			<ul style="list-style-type: none"> <li>• Applicable for groove width: W=0.7 - 2.0mm</li> <li>• Max. groove depth: 6.0mm</li> </ul>
Parting-off	<b>JCGSS</b>  7-18			<ul style="list-style-type: none"> <li>• Applicable for parting-off</li> <li>• M-class insert with good chip control</li> <li>• One corner type insert</li> </ul>
	<b>JCCWS</b>  7-19			<ul style="list-style-type: none"> <li>• Applicable for parting-off</li> <li>• Secure engaging of the clamp and the top face of the insert, allows secure clamping and superior accuracy of cutting edge positioning.</li> <li>• Right and left hand inserts are stocked.</li> </ul>
	<b>JCGWS</b>  7-19			<ul style="list-style-type: none"> <li>• Applicable for parting-off</li> <li>• Right and left hand inserts are stocked.</li> </ul>

**JSXXR/L Parting-off**



Right-hand (R) shown.

Designation	<i>h</i>	<i>b</i>	<i>f</i>	<i>L1</i> *	<i>h1</i>	<i>h2</i>	Insert
JSXXR/L1010X09	10.0	10.0	0.2	≤ 120.0	10.0	3.0	JXPG06,12,16
JSXXR/L1212F09	12.0	12.0	0.2	≤ 85.0	12.0	1.5	JXPG06,12,16
JSXXR/L1212X09	12.0	12.0	0.2	≤ 120.0	12.0	1.5	JXPG06,12,16
JSXXR/L1616X09	16.0	16.0	0.2	≤ 120.0	16.0	0.0	JXPG06,12,16
JSXXR/L2020H09	20.0	20.0	0.2	≤ 100.0	20.0	0.0	JXPG06,12,16

\* "L1" is calculated with JXPG16\*\*\* insert. When JXPG12\*\*\* insert is used, "L1" is 2 mm shorter.

When JXPG06\*\*\* insert is used, "L1" is 4 mm shorter.

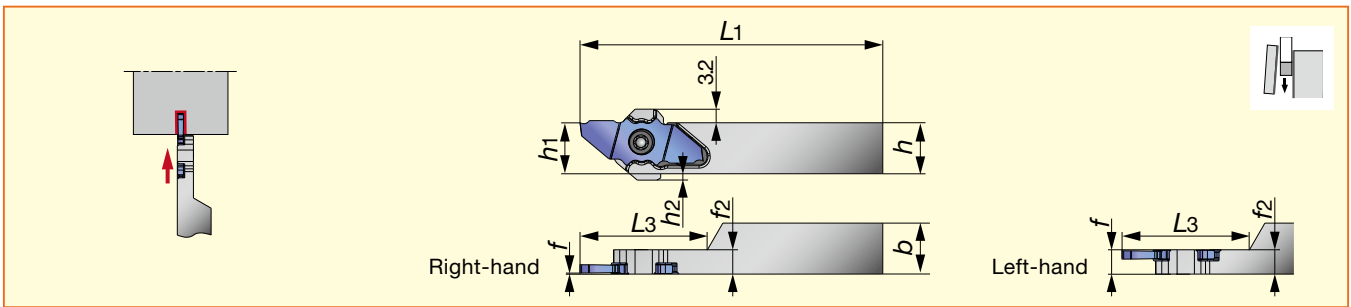
Note: The right-hand insert (JXPG\*\*R\*\*\*) is used for the right-hand toolholder (JSXXR\*\*\*), and the left-hand insert (JXPG\*\*L\*\*\*) is used for the left-hand toolholder (JSXXL\*\*\*).

**SPARE PARTS**



Designation	Clamping screw	Wrench
JSXXR****	CSTC-4L100DL	T-1008/5
JSXXL****	CSTC-4L100DR	T-1008/5

**JSXXR/L-S Parting-off in sub-spindle**



Designation	<i>h</i>	<i>b</i>	<i>f</i>	<i>L1</i> *	<i>L3</i> *	<i>h1</i>	<i>h2</i>	<i>f2</i>	Insert
JSXXR/L1010X09-S	10.0	10.0	0.2/5.5	≤ 120.0	≤ 26.0	10.0	3.0	5.7	JXPG06,12,16
JSXXR/L1212F09-S	12.0	12.0	0.2/5.5	≤ 85.0	≤ 26.0	12.0	1.5	5.7	JXPG06,12,16
JSXXR/L1212X09-S	12.0	12.0	0.2/5.5	≤ 120.0	≤ 30.0	12.0	1.5	5.7	JXPG06,12,16

\* "L1" and "L3" are calculated with JXPG16\*\*\* insert. When JXPG12\*\*\* insert is used, "L1" and "L3" are 2 mm shorter.

When JXPG06\*\*\* insert is used, "L1" and "L3" are 4 mm shorter.

Note: The right-hand insert (JXPG\*\*R\*\*\*) is used for the right-hand toolholder (JSXXR\*\*\*), and the left-hand insert (JXPG\*\*L\*\*\*) is used for the left-hand toolholder (JSXXL\*\*\*).

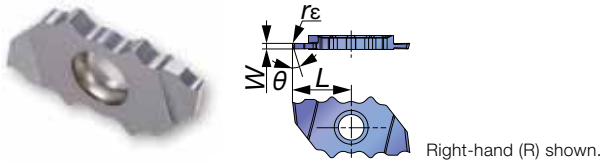
**SPARE PARTS**



Designation	Clamping screw	Wrench
JSXXR****-S	CSTC-4L055DL	T-1008/5
JSXXL****-S	CSTC-4L055DR	T-1008/5

## Inserts

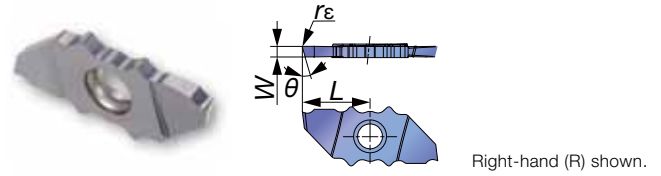
### JXPG06R/L-F (Sharp edge)



Designation	Grade SH725		Dimensions (mm)				
	R	L	D <sub>max</sub>	W	r <sub>ε</sub>	L	θ (deg)
JXPG06R/L10F	✓	✓	6	1	0.05	10.5	-
JXPG06R/L15F	✓	✓	6	1.5	0.05	10.5	-
JXPG06R/L10F-15	✓	✓	6	1	0.05	10.5	15
JXPG06R/L15F-15	✓	✓	6	1.5	0.05	10.5	15

✓ : Stocked items  
Note: D<sub>max</sub>: Max. parting-off dia.

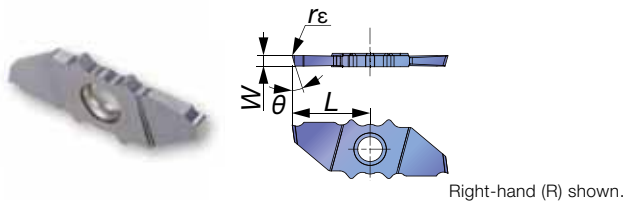
### JXPG12R/L-F (Sharp edge)



Designation	Grade SH725		Dimensions (mm)				
	R	L	D <sub>max</sub>	W	r <sub>ε</sub>	L	θ (deg)
JXPG12R/L15F	✓	✓	12	1.5	0.05	12.5	-
JXPG12R/L20F	✓	✓	12	2	0.05	12.5	-
JXPG12R/L15F-15	✓	✓	12	1.5	0.05	12.5	15
JXPG12R/L20F-15	✓	✓	12	2	0.05	12.5	15

✓ : Stocked items  
Note: D<sub>max</sub>: Max. parting-off dia.

### JXPG16R/L-F (Sharp edge)



Designation	Grade SH725		Dimensions (mm)				
	R	L	D <sub>max</sub>	W	r <sub>ε</sub>	L	θ (deg)
JXPG16R/L15F	✓	✓	16	1.5	0.05	14.5	-
JXPG16R/L20F	✓	✓	16	2	0.05	14.5	-
JXPG16R/L15F-15	✓	✓	16	1.5	0.05	14.5	15
JXPG16R/L20F-15	✓	✓	16	2	0.05	14.5	15

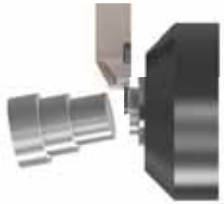

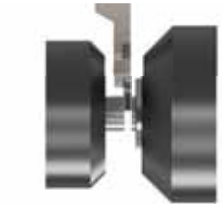

✓ : Stocked items  
Note: D<sub>max</sub>: Max. parting-off dia.

## Standard cutting conditions

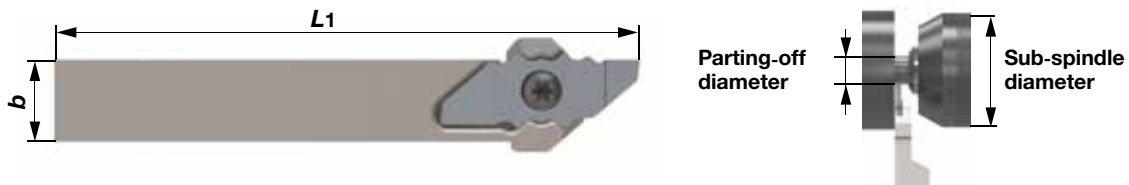
ISO	Workpiece materials	Grades	Cutting speed Vc (m/min)	Feed f (mm/rev)
<b>P</b>	Low carbon steels (C15, C20, etc.)	SH725	50 - 200	0.01 - 0.05
	Carbon steels, Alloy steels (C55, 42CrMoS4, etc.)	SH725	50 - 200	0.01 - 0.05
	Free-cutting steel (SUH22, SUH23, etc.)	SH725	50 - 200	0.01 - 0.05
<b>M</b>	Stainless steels (X5CrNi18-9, X5CrNiMo17-12-2, etc.)	SH725	50 - 200	0.01 - 0.05
<b>N</b>	Aluminum alloy (A5056, A6061, etc.)	SH725	150 - 200	0.01 - 0.05
	Copper alloy (C2600, C280C, etc.)	SH725	100 - 200	0.01 - 0.05
<b>S</b>	Titanium alloys (Ti-6Al-4V, etc.)	SH725	30 - 80	0.01 - 0.05
	Superalloys (Inconel718, etc.)	SH725	30 - 80	0.01 - 0.05



## How to select tools

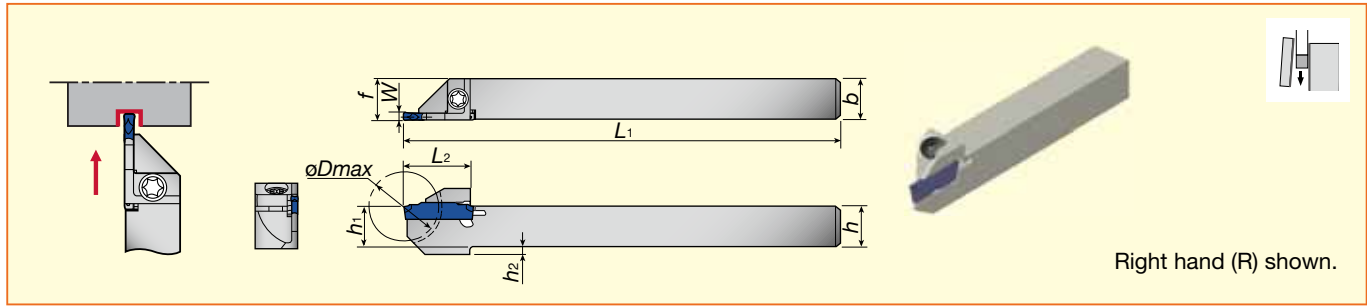
Application	Large-diameter machining of workpiece with rigidity		Small-diameter machining of workpiece with short overhang	
	Main-spindle tooling	Sub-spindle tooling	Sub-spindle tooling	
			Workpiece with long overhang at the side of sub-spindle for the process after parting-off	Short workpiece with low rigidity
 <p>Main spindle</p> <p>Position of parting-off is at the side of the main spindle</p>	 <p>Sub-spindle Main spindle</p> <p>Position of parting-off is at the side of the sub-spindle</p>	 <p>Sub-spindle Main spindle</p> <p>Position of parting-off is at the side of the main spindle</p>	 <p>Sub-spindle Main spindle</p> <p>Position of parting-off is at the side of the sub-spindle</p>	
<b>Toolholder</b>	R-hand (JSXXR type)	L-hand (JSXXL type)	R-hand (JSXXR-S type)	L-hand (JSXXL-S type)
<b>Insert</b>	Right-hand insert with lead angle to remove center core (JXPG**R***-15 type)	Left-hand insert (JXPG**L*** type)	Right-hand insert (JXPG**R*** type)	Left-hand insert (JXPG**L*** type)

## How to select toolholders for sub-spindle



Sub-spindle dia.	Max parting-off dia.	Shank size b	Tool length L1	Insert	Toolholder
ø40	~ ø6	10	116	JXPG06*	JSXXR/L1010X09-S
ø40	~ ø6	12	81	JXPG06*	JSXXR/L1212F09-S
ø40	~ ø12	10	118	JXPG12*	JSXXR/L1010X09-S
ø40	~ ø12	12	83	JXPG12*	JSXXR/L1212F09-S
ø40	~ ø16	10	120	JXPG16*	JSXXR/L1010X09-S
ø40	~ ø16	12	85	JXPG16*	JSXXR/L1212F09-S
ø50	~ ø6	12	116	JXPG06*	JSXXR/L1212X09-S
ø50	~ ø12	12	118	JXPG12*	JSXXR/L1212X09-S
ø50	~ ø16	12	85	JXPG16*	JSXXR/L1212F09-S
ø50	~ ø16	12	120	JXPG16*	JSXXR/L1212X09-S

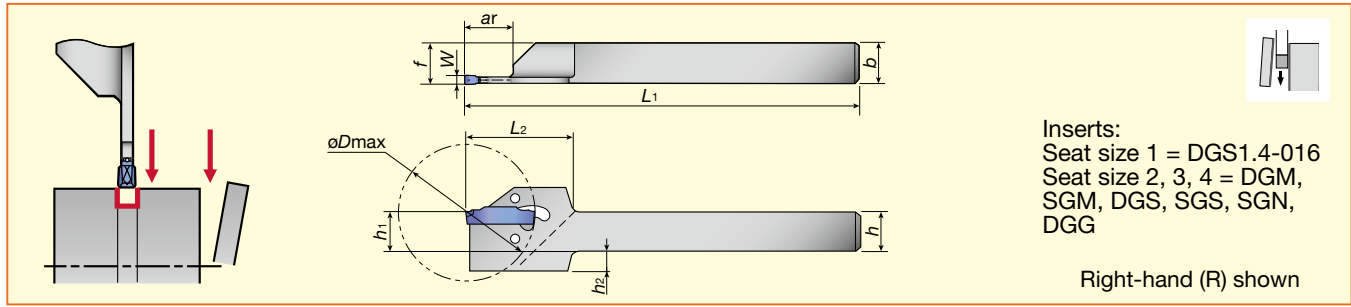
**JCTER/L Parting-off**



Insert seat size	Toolholders Cat. No.	Stock		Max. dia. $\phi D_{max}$ (mm)	Dimensions (mm)								Inserts	Parts	
		R	L		$h$	$b$	$L_1$	$L_2$	$h_1$	$^*f$	$W$	$h_2$		Clamping screw	Wrench
1	JCTER/L1010X-1.4T10	★	★	20	10	10	120	18	10	10.2	1	-	DGS1.4-016	CSHB-4-A	T-15F
1	JCTER/L1010-1.4T10	▲	▲	20	10	10	125	18	10	10.2	1	-	DGS1.4-016	CSHB-4-A	T-15F
1	JCTER/L1212F1.4T12	★	★	24	12	12	85	19.5	12	12.2	1	-	DGS1.4-016	CSHB-4-A	T-15F
1	JCTER/L1212X1.4T12	★	★	24	12	12	120	19.5	12	12.2	1	-	DGS1.4-016	CSHB-4-A	T-15F
1	JCTER/L1212-1.4T12	▲	▲	24	12	12	125	19.5	12	12.2	1	-	DGS1.4-016	CSHB-4-A	T-15F
1	JCTER/L1414-1.4T12	●	●	24	14	14	125	19.5	14	14.2	1	-	DGS1.4-016	CSHB-4-A	T-15F
1	JCTER/L1616X1.4T16	●	●	32	16	16	120	24	16	16.2	1	-	DGS1.4-016	CSHB-4-A	T-15F
2	JCTER/L1010X2T10	●	●	20	10	10	120	18	10	10.2	1	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
2	JCTER/L1212F2T12	●	●	24	12	12	85	19.5	12	12.2	1	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
2	JCTER/L1212X2T12	●	●	24	12	12	120	19.5	12	12.2	1	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
2	JCTER/L1414-2T12	●	●	24	14	14	125	19.5	14	14.2	1	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
2	JCTER/L1616X2T16	●	●	32	16	16	120	24	16	16.2	1	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
3	JCTER/L1212F3T12	★	★	24	12	12	85	19	12	12.3	3	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
3	JCTER/L1212X3T12	★	★	24	12	12	120	19	12	12.3	3	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
3	JCTER/L1212-3T12	▲	▲	24	12	12	125	19	12	12.3	3	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
3	JCTER/L1616X3T16	★	★	32	16	16	120	24	14	16.3	3	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
3	JCTER/L1616-3T16	▲	▲	32	16	16	125	24	14	16.3	3	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
3	JCTER/L2020H3T16	★	★	32	20	20	100	24	16	20.3	3	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F
3	JCTER/L2020-3T16	▲	▲	32	20	20	125	24	16	20.3	3	-	DGM/SGM DGS/SGS DGE DTE	CSHB-4-A	T-15F

\* "f" value in the above table is calculated with groove width "W" shown in the table.

**CGER/L Parting-off**



Inserts:  
Seat size 1 = DGS1.4-016  
Seat size 2, 3, 4 = DGM,  
SGM, DGS, SGS, SGN,  
DGG

Right-hand (R) shown

Insert seat size	Cat. No.	Stock		Max. dia. $\phi D_m$ (mm)	Max. groove depth $ar$ (mm)	Dimensions (mm)							Parts Wrench <sup>(2)</sup>		
		R	L			$DGS/M$	$SGS/M$	$h_1$	$b$	$h$	$L_1$	$f^{(1)}$		$W$	$h_2$
1	CGER/L2020-1.4T14	●	●	29	29	9.7	20	20	20	125	20.2	1.4	-	30	CRW23
2	CGER/L1212-2T17	●	●	35	35	11.8	12	12	12	150	12.1	2	6	30	CRW33
2	CGER/L1616-2T17	●	●	35	35	11.8	16	16	16	150	16.1	2	2	30	CRW33
2	CGER/L2020-2T17	●	●	35	35	9.8	20	20	20	125	20.1	2	-	30	CRW33
3	CGER/L1212-3T19	●	●	38	40	12	12	12	12	150	12.3	3	6	30	CRW33
3	CGER/L1616-3T19	●	●	38	45	14.9	16	16	16	150	16.3	3	2	30	CRW33
3	CGER/L2020-3T19	●	●	38	45	13.2	20	20	20	125	20.3	3	-	30	CRW33
4	CGER/L2020-4T19	●	●	38	55	20.3	20	20	20	125	20.4	4	-	32	CRW33

(1) "f" value in the above table is calculated with groove width "W" shown in the table.

(2) Wrench, CRW□□, should be ordered separately. Please see information below about wrench usage.

**Caution**

**Newly developed wrench**

Insert is clamped by the elastic deformation of upper jaw. Low clamping stress increases the stability and tool life.



● : Stocked items

# Inserts

## Notation of "insert seat size"

Seat size and grooving width are different. The seat size measure is for the specification of the setting insert. Please note this point.

## Insert application

Insert	Application		
	Grooving	Parting off	Turning
	External		External
DGM / SGM	●	●	
DGS / SGS	●	●	
DTE	●	●	●
DGG	●	●	

## DGM External grooving and parting off, 2 corners

Neutral Left hand Right hand	W	r <sub>ε</sub>	κ	L	h	Insert seat size	Cat. No.	Grades						Dimensions (mm)							
								Coated						W±0.05	r <sub>ε</sub>	L	h	κ			
								NEW AH725 GH130													
								R	L	R	L	R	L	R	L						
						2	DGM 2-020	●	●	●			2	0.2	20	5	-				
						2	DGM 2-020-6R/L		●	●	●	●	2	0.2	20	5	6°				
						2	DGM 2-020-8R/L		●	●	●	●	2	0.2	20	5	8°				
						2	DGM 2-020-15R/L		●	●	●	●	2	0.2	20	5	15°				
						2	DGM 2-002-15R/L		●	●	●	●	2	0.02	19.6	5	15°				
						3	DGM 3-020	●	●	●			3	0.2	20	5	-				
						3	DGM 3-020-6R/L		●	●	●	●	3	0.2	20	5	6°				
						3	DGM 3-002-6R/L		●	●	●	●	3	0.02	19.6	5	6°				
						3	DGM 3-020-15R/L		●	●	●	●	3	0.2	20	5	15°				

## SGM External deep grooving and parting off, 1 corner

Neutral Left hand Right hand	W	r <sub>ε</sub>	κ	L	h	Insert seat size	Cat. No.	Grades				Dimensions (mm)								
								Coated				W±0.05	r <sub>ε</sub>	L	h	κ				
								AH725 GH130												
								R	L	R	L									
						2	SGM 2-020	●	●			2	0.2	20	5	-				
						2	SGM 2-020-6R/L	●	●	●	●	2	0.2	20	5	6°				
						3	SGM 3-020	●	●			3	0.2	20	5	-				
						3	SGM 3-020-6R/L	●	●	●	●	3	0.2	20	5	6°				
						3	SGM 3-020-15R/L	●	●	●	●	3	0.2	20	5	15°				

● : Stocked items

**DGS** External grooving and parting off, 2 corners

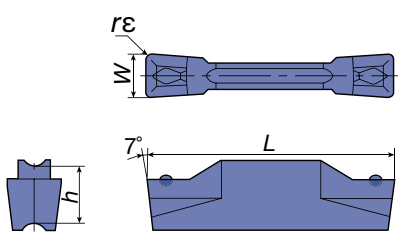
Neutral Left hand Right hand		Insert seat size	Cat. No.	Grades Coated						Dimensions (mm)					
				<b>NEW</b>						$W_{\pm 0.05}$	$r_{\epsilon}$	$L$	$h$	$\kappa$	
				AH7025		AH725		GH130							
				R	L	R	L	R	L						
		1	DGS1.4-016			●		●			1.4	0.16	16	4.3	-
		2	DGS2-020	●		●		●			2	0.2	20	5	-
		2	DGS2-020-6R/L			●	●	●	●		2	0.2	20	5	6°
		2	DGS2-002-6R/L			●	●	●	●		2	0.02	19.6	5	6°
		2	DGS2-020-15R/L			●	●	●	●		2	0.2	20	5	15°
		2	DGS2-002-15R/L			●	●	●	●		2	0.02	19.6	5	15°
		3	DGS3-020	●		●		●			3	0.2	20	5	-
		3	DGS3-020-6R/L			●	●	●	●		3	0.2	20	5	6°
		3	DGS3-002-6R/L			●	●	●	●		3	0.02	19.6	5	6°
		3	DGS3-020-15R/L			●	●	●	●		3	0.2	20	5	15°
		3	DGS3-002-15R/L			●	●	●	●		3	0.02	19.6	5	15°

**SGS** External deep grooving and parting off, 1 corner

Neutral Left hand Right hand		Insert seat size	Cat. No.	Grades Coated				Dimensions (mm)							
				<b>NEW</b>				$W_{\pm 0.05}$	$r_{\epsilon}$	$L$	$h$	$\kappa$			
				AH725		GH130									
				R	L	R	L								
		2	SGS 2-020			●		●			2	0.2	20	5	-
		2	SGS 2-020-6R/L	●	●	●	●				2	0.2	20	5	6°
		2	SGS 2-020-15R/L	●	●	●	●				2	0.2	20	5	15°
		3	SGS 3-020			●		●			3	0.2	20	5	-
		3	SGS 3-020-6R/L	●	●	●	●				3	0.2	20	5	6°
		3	SGS 3-002-6R/L	●	●	●	●				3	0.02	19.8	5	6°
		3	SGS 3-020-15R/L	●	●	●	●				3	0.2	20	5	15°
		3	SGS 3-002-15R/L	●	●	●	●				3	0.02	19.8	5	15°

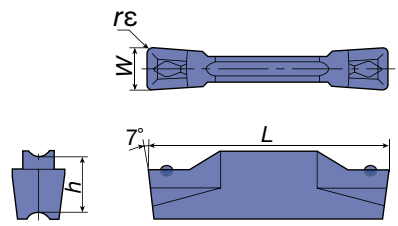
● : Stocked items

**DTE** External, face grooving and turning (Ground)



Insert seat size	Cat. No.	Grades				Dimensions (mm)			
		Coated		Cermet		$W \pm 0.02$	$r_{\epsilon} \pm 0.05$	$L$	$h$
		AH7025	AH725	GH130	NS9530				
3	<b>DTE265-015</b>	●	●	●	●	2.65	0.15	20	5
3	<b>DTE300-020</b>	●	●	●	●	3	0.2	20	5
3	<b>DTE300-040</b>		●	●	●	3	0.4	20	5
3	<b>DTE315-015</b>		●	●	●	3.15	0.15	20	5

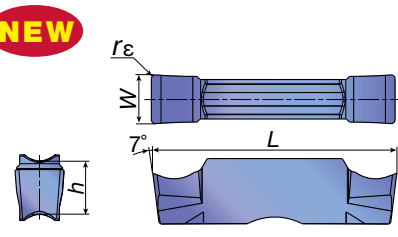
External, face grooving and turning (Molded)



Insert seat size	Cat. No.	Grades				Dimensions (mm)			
		Coated		Cermet		$W \pm 0.05$	$r_{\epsilon}$	$L$	$h$
		AH7025	AH725	GH130	NS9530				
3	<b>DTE3-040</b>	●	●	●	●	3	0.4	20	5

7

**DGG** External, face grooving (Ground)



**NEW**

Insert seat size	Cat. No.	Grades		Dimensions (mm)			
		Cermet	Carbide	$W \pm 0.02$	$r_{\epsilon} \pm 0.05$	$L$	$h$
		NS9530	KS05F				
2	<b>DGG200-020</b>	●	●	2	0.2	20	5.0
3	<b>DGG300-020</b>	●	●	3	0.2	20	5.0
4	<b>DGG400-040</b>	●	●	4	0.4	20	5.0

TAC Parting Tools

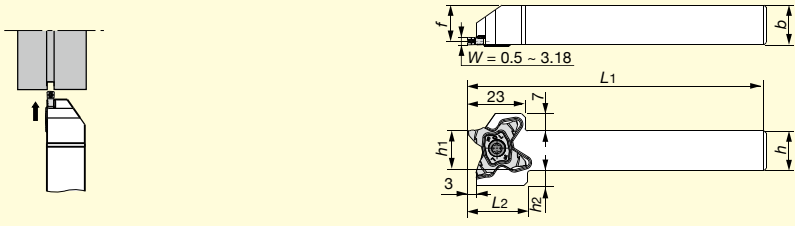
● : Stocked items

## Standard cutting conditions

Insert type	Application	insert seat size	Groove width W (mm)	Feed: f (mm/rev) Depth of cut: ap (mm)	Features
DGM (2 corner) SGM (1 corner)	Parting-off	2	2	f = 0.05 ~ 0.2	<ul style="list-style-type: none"> <li>Smooth chip evacuation</li> <li>Well designed edge with high strength</li> <li>Handed insert available</li> </ul>
		3	3	f = 0.07 ~ 0.25	
DGS (2 corner) SGS (1 corner)	Parting-off	1	1.4	f = 0.02 ~ 0.1	<ul style="list-style-type: none"> <li>Sharper edge, and low cutting force</li> <li>Unique designed edge and chipbreaker</li> <li>Handed insert available</li> </ul>
		2	2	f = 0.03 ~ 0.13	
		3	3	f = 0.03 ~ 0.17	
DTE (2 corner)	Parting-off	3	3 (Grooving)	f = 0.05 ~ 0.25	<ul style="list-style-type: none"> <li>Unique chipbreaker makes chips shorter</li> <li>Molded and ground insert available</li> </ul>
			3 (Turning)	f = 0.1 ~ 0.25 ap = 0.5 ~ 2.2	
DGG	Parting-off	2	2	f = 0.05 ~ 0.15	<ul style="list-style-type: none"> <li>Chipbreaker with low cutting force</li> <li>Sharp cutting edge that prevents vibration and delivers fine surface finish</li> </ul>
		3	3	f = 0.05 ~ 0.15	

ISO	Work materials	Hardness	Cutting speed	
			AH725	Vc (m/min) GH130
<b>P</b>	Steels S45C, SCM435 etc. (C45, 34CrMo4 etc.)	< 300 HB	50 ~ 180	40 ~ 150
<b>M</b>	Stainless steels SUS303, SUS304 etc. (X10CrNiS18-9 etc.)	< 200 HB	50 ~ 120	50 ~ 120
<b>K</b>	Grey cast irons, Ductile cast irons FC250, FCD450 etc. (GG25, GGG45 etc.)	-	-	50 ~ 180
<b>S</b>	Titanium, Titanium alloys (Ti-6Al-4V etc.)	< 40 HRC	20 ~ 80	20 ~ 80

**STCR/L-27 Parting-off**

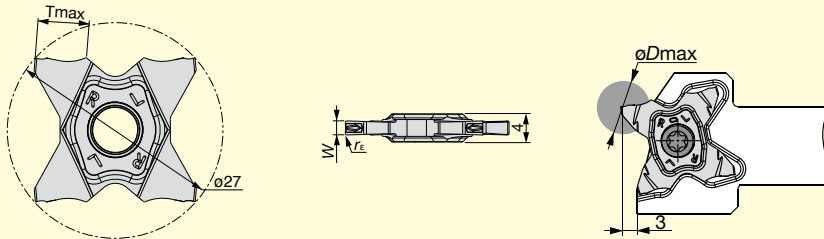


Right hand (R) shown.

Cat. No.	Stock		Dimensions (mm)							Parts		
	R	L	h <sub>1</sub>	b	h	L <sub>1</sub>	f	h <sub>2</sub>	L <sub>2</sub>	Screw		Wrench
STCR/L1010-27	●	●	10	10	10	120	8.5	9.5	24	SR 16-212-01397L	SR 16-212-01397	T-2010/5
STCR/L1212-27	●	●	12	12	12	120	10.5	8	24	SR 16-212-01397L	SR 16-212-01397	T-2010/5
STCR/L1616-27	●	●	16	16	16	120	14.5	6	24	SR 16-212-01397L	SR 16-212-01397	T-2010/5
STCR/L2020-27	●	●	20	20	20	120	18.5	2	24	SR 16-212-01397L	SR 16-212-01397	T-2010/5

**Insert**

4 cornered insert for grooving and parting off



Right hand (R) shown.

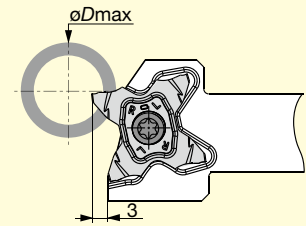
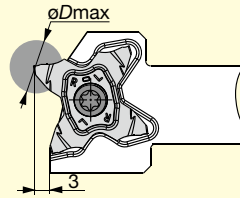
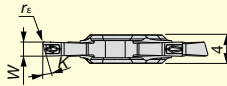
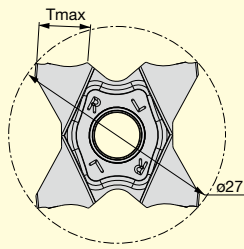
Cat. No.	Stock	Dimensions (mm)				Relation of groove depth (T) and Max. diameter (øDmax)											
	Coating AH725	Cutting edge width W ± 0.02 (mm)	Corner radius r <sub>ε</sub>	Max. grooving depth Tmax	Max. parting off diameter (solid bar)	T≤1.0	T≤2.0	T≤3.0	T≤3.5	T≤4.0	T≤4.5	T≤5.0	T≤5.5	T≤5.7	T≤6.0	T≤6.2	T≤6.4
TCS27-050-000	●	0.50	0.00	1.0	2.0	∞	-	-	-	-	-	-	-	-	-	-	-
TCS27-050-004	●	0.50	0.04	2.5	5.0	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-075-010	●	0.75	0.10	2.5	5.0	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-080-000	●	0.80	0.00	1.6	3.2	∞	-	-	-	-	-	-	-	-	-	-	-
TCS27-100-006	●	1.00	0.06	3.5	7.0	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-100-010	●	1.00	0.10	3.5	7.0	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-104-000	●	1.04	0.00	2.0	4.0	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-120-000	●	1.20	0.00	2.0	4.0	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-125-010	●	1.25	0.10	3.5	7.0	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-125-020	●	1.25	0.20	3.5	7.0	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-140-000	●	1.40	0.00	2.0	4.0	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-147-000	●	1.47	0.00	2.5	5.0	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-150-010	●	1.50	0.10	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-150-020	●	1.50	0.20	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-157-015	●	1.57	0.15	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-170-010	●	1.70	0.10	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-175-010	●	1.75	0.10	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-175-020	●	1.75	0.20	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-178-018	●	1.78	0.18	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-185-020	●	1.85	0.20	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-196-015	●	1.96	0.15	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-200-010	●	2.00	0.10	6.4	12.8	∞	∞	∞	600	280	180	130	105	85	60	50	30
TCS27-200-020	●	2.00	0.20	6.4	12.8	∞	∞	∞	600	280	180	130	105	85	60	50	30
TCS27-222-015	●	2.22	0.15	3.5	7.0	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-230-020	●	2.30	0.20	3.5	7.0	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-239-015	●	2.39	0.15	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-247-020	●	2.47	0.20	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-250-010	●	2.50	0.10	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-250-030	●	2.50	0.30	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-270-010	●	2.70	0.10	6.2	12.4	∞	∞	∞	600	280	180	135	105	95	85	78	-
TCS27-287-020	●	2.87	0.20	6.2	12.4	∞	∞	∞	600	280	180	135	105	95	85	78	-
TCS27-300-000	●	3.00	0.00	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCS27-300-020	●	3.00	0.20	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCS27-300-030	●	3.00	0.30	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCS27-300-040	●	3.00	0.40	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCS27-315-015	●	3.15	0.15	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	68
TCS27-318-020	●	3.18	0.20	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	68

● : Stocked items / Packing Quantity = 5 pcs.



**Insert**

4 cornered & handed inserts for parting off



Right hand (R) shown.

Cat. No.	Stock		Dimensions (mm)			Max. parting off dia. øDmax (mm)	
	Coating	Cutting edge width $W \pm 0.02$ (mm)	Corner radius $r_E$	Max. grooving depth $T_{max}$	Front edge angle $K$	Solid bar	Tube
TCS27-100-15R/L	●	1.00	0.06	3.5	15°	7.0	600
TCS27-150-6R/L	●	1.50	0.06	5.7	6°	11.4	35
TCS27-150-15R/L	●	1.50	0.06	5.7	15°	11.4	35
TCS27-200-6R/L	●	2.00	0.10	6.4	6°	12.8	30
TCS27-200-15R/L	●	2.00	0.10	6.4	15°	12.8	30

● : Stocked items / Packing Quantity = 5 pcs.

**Standard cutting conditions**

ISO	Work materials	Grades	Cutting speed $V_c$ (m/min)	Feed: $f$ (mm/rev)			Depth of cut for profiling (with full radius insert) $a_p$ (mm)
				Grooving, Parting off	Parting off (with hand)	Profiling (with full radius insert)	
<b>P</b>	Steels (S45C / C45 etc.)	AH725	100 ~ 200	0.05 ~ 0.15	0.04 ~ 0.12	0.05 ~ 0.10	Max 0.5
	Alloy steels (SCM435 / 34CrMo4 etc.)	AH725	50 ~ 180	0.05 ~ 0.15	0.04 ~ 0.12	0.05 ~ 0.10	Max 0.5
<b>M</b>	Stainless steels (SUS304 / X5CrNi18-9 etc.)	AH725	50 ~ 150	0.05 ~ 0.15	0.04 ~ 0.12	0.05 ~ 0.10	Max 0.5
<b>K</b>	Grey cast irons (FC250 / 250 / GG25 etc.)	AH725	50 ~ 180	0.05 ~ 0.15	0.04 ~ 0.12	0.05 ~ 0.10	Max 0.5
	Ductile cast irons (FCD400 / 400-15 / GGG400 etc.)	AH725	50 ~ 120	0.05 ~ 0.15	0.04 ~ 0.12	0.05 ~ 0.10	Max 0.5
<b>S</b>	Titanium alloys (Ti-6Al-4V etc.)	AH725	30 ~ 60	0.05 ~ 0.15	0.04 ~ 0.12	0.05 ~ 0.10	Max 0.5

**JSXGR/L Parting-off**

JSXGR type toolholders are also used for front-turning JXF-type inserts and reverse-turning JXR-type inserts.

Without offset Screw-on system

Two corner type

C-type

Can be wrenched from back side with double-socket Torx screw.

Right hand (R) shown.

Cat. No.	Stock		Applicable inserts	Dimensions (mm)						Clamping screw	Wrench (Option)	
	R	L		h	b	L <sub>1</sub>	L <sub>2</sub>	a <sub>r</sub>	h <sub>1</sub>			f
JSXGR/L1010K8-C	●	●	JXGR/L8***	10	10	125	29	6.7	10	9.9	CSTB-4SD	T-8F (T-8L)
JSXGR/L1212K8-C	●	●	JXGR/L8***	12	12	125	29	6.7	12	11.9	CSTB-4SD	T-8F (T-8L)
JSXGR/L1616K8	●	●	JXGR/L8***	16	16	125	29	6.7	16	15.9	CSTB-4SD	T-8F (T-8L)
JSXGR/L2020K8	●	●	JXGR/L8***	20	20	125	29	6.5	20	19.9	CSTB-4SD	T-8F (T-8L)
JSXGR/L2525K8	●	●	JXGR/L8***	25	25	125	29	6.5	25	24.9	CSTB-4SD	T-8F (T-8L)

**Applicable inserts JXG-type inserts (With sharp edges and cutting direction)**

Cat. No.	Dimensions (mm)							Grades					
	ød	T	W <sup>+0.05</sup>	θ	Max. groove depth	r <sub>ε</sub>	Coated	Coated cermet		Cermet		Uncoated	
							J740	J9530	NS9530	TH10	R	L	R
JXGR/L8070FA	8	3.97	0.7	15°	4.5	0	●	●	●	●	●	●	●
JXGR/L8070FA-005	8	3.97	0.7	15°	4.5	0.05	●						
JXGR/L8100FA	8	3.97	1	15°	6	0	●	●		●	●	●	●
JXGR/L8100FA-005	8	3.97	1	15°	6	0.05	●						
JXGR/L8100FA45	8	3.97	1	15°	4.5	0	●			●		●	
JXGR/L8100FA45-005	8	3.97	1	15°	4.5	0.05	●						
JXGR/L8120FA	8	3.97	1.2	15°	6	0							
JXGR/L8150FA	8	3.97	1.5	15°	6	0	●	●		●	●	●	●
JXGR/L8150FA-005	8	3.97	1.5	15°	6	0.05	●						
JXGR/L8150FA50	8	3.97	1.5	15°	5	0	●			●		●	
JXGR/L8150FA50-005	8	3.97	1.5	15°	5	0.05	●						
JXGR/L8180FA	8	3.97	1.8	15°	6	0	●			●		●	
JXGR/L8180FA-005	8	3.97	1.8	15°	6	0.05	●						
JXGR/L8200FA	8	3.97	2	15°	6	0	●	●		●	●	●	●
JXGR/L8200FA-005	8	3.97	2	15°	6	0.05	●						
JXGR/L8200FN	8	3.97	2	0°	6	0	●	●		●	●	●	●
JXGR/L8200FN-005	8	3.97	2	0°	6	0.05	●						

Right hand (R) shown.

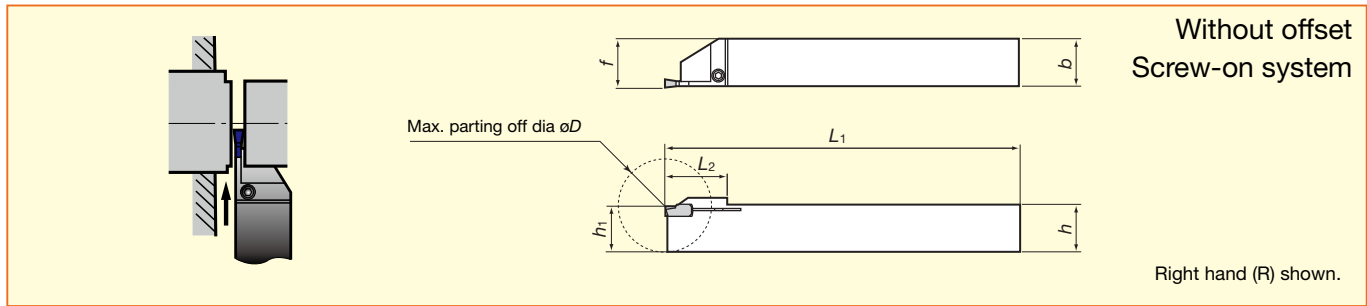
7  
TAC Parting Tools

● : Stocked items

**JXG Standard cutting conditions**

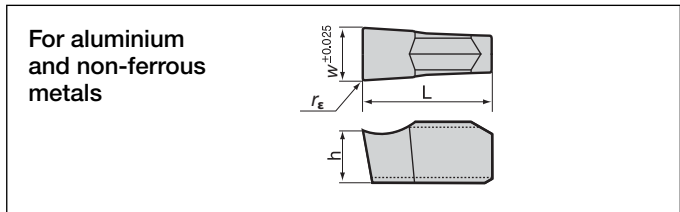
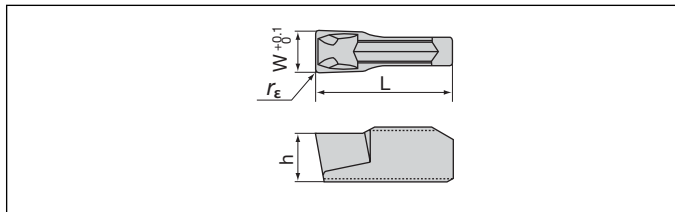
ISO	Work materials	Grades	Cutting speed V <sub>c</sub> (m/min)	Feed f (mm/rev)
<b>P</b>	General steel (S45C / C45, etc.)	<b>J740</b>	10 - 100	0.01 - 0.1
		<b>NS9530</b>	50 - 150	0.01 - 0.1
		<b>J9530</b>	50 - 150	0.01 - 0.1
	Free-cutting steel (SUM22 / 11SMn28, etc.)	<b>J740</b>	10 - 100	0.01 - 0.1
<b>M</b>	Stainless steel (SUS304 / X5CrNi18-9, etc.)	<b>J740</b>	10 - 100	0.01 - 0.1
		<b>NS9530</b>	50 - 150	0.01 - 0.1
		<b>J9530</b>	50 - 150	0.01 - 0.1
<b>N</b>	Aluminium alloys, Brass (Si < 12%, C3604B / CW614N, etc.)	<b>TH10</b>	10 - 200	0.01 - 0.1
<b>S</b>	Difficult-to-cut materials, Titanium alloys (Ti-6Al-4V, etc.)	<b>TH10</b>	10 - 30	0.01 - 0.1

**JCGSSR/L Parting-off**



Groove width (mm)	Cat. No.	Stock		Applicable inserts	Max. parting off dia øD (mm)	Dimensions (mm)					Clamping screw	Wrench	
		R	L			b	h	h <sub>1</sub>	L <sub>1</sub>	f			L <sub>2</sub>
2	JCGSSR/L1010-20	●	●	GE20 GE20-AL	20	10	10	10	125	10.2	15	CSTB-3	T-9F
2	JCGSSR/L1212-20	●	●	GE20 GE20-AL	25	12	12	12	125	12.2	19	CSTB-3	T-9F
2	JCGSSR/L1616-20	●	●	GE20 GE20-AL	32	16	16	16	125	16.2	22.5	CSTB-3	T-9F

**Applicable inserts**



Cat. No.	Grades				Dimensions (mm)			
	Coated		Cermet		W	L	h	r <sub>ε</sub>
	T9125	AH120	GH730	NS9530				
GE20	●	●	●	●	2	10	3.5	0.2

Cat. No.	Grades				Dimensions (mm)			
	Uncoated				W	L	h	r <sub>ε</sub>
	KS05F							
GE20-AL	●				2	10	3.5	0.2

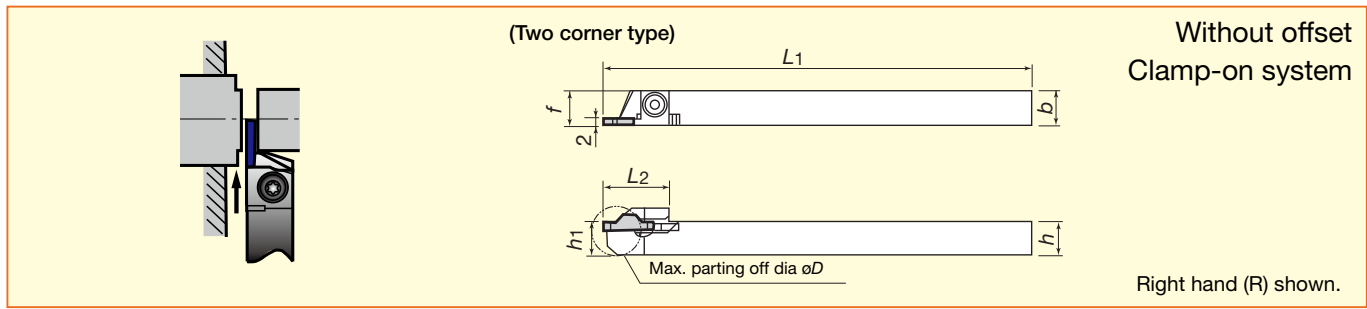
**Standard cutting conditions**

ISO	Work materials	Recommended grade	Cutting speed V <sub>c</sub> (m/min)
<b>P</b>	Low carbon steels Alloy steels (~ 150HB)	T9125	80 ~ 200
		NS9530	100 ~ 200
		GH730	50 ~ 180
	Medium carbon steels Alloy steels (150 ~ 250HB)	T9125	80 ~ 180
		NS9530	80 ~ 180
		GH730	50 ~ 150
	High carbon steels Alloy steels (250HB ~)	T9125	80 ~ 150
		NS9530	80 ~ 150
		GH730	50 ~ 120
<b>M</b>	Stainless steels	T9125	80 ~ 150
		GH730	50 ~ 120
<b>K</b>	Gray and ductile cast irons	T9125	80 ~ 200
		GH730	50 ~ 180
<b>N</b>	Aluminium alloys Non-ferrous metals	KS05F	200 ~ 300

Operation	Feed: f (mm/rev)
	Groove width: W (mm)
	2
Parting off (GE□□R/L)	-
Grooving, Parting off (GE□□)	0.05 ~ 0.14
Grooving, Parting off for Aluminium alloys (GE□□-AL)	0.03 ~ 0.1

● : Stocked items

**JCCWSR/L Parting-off**

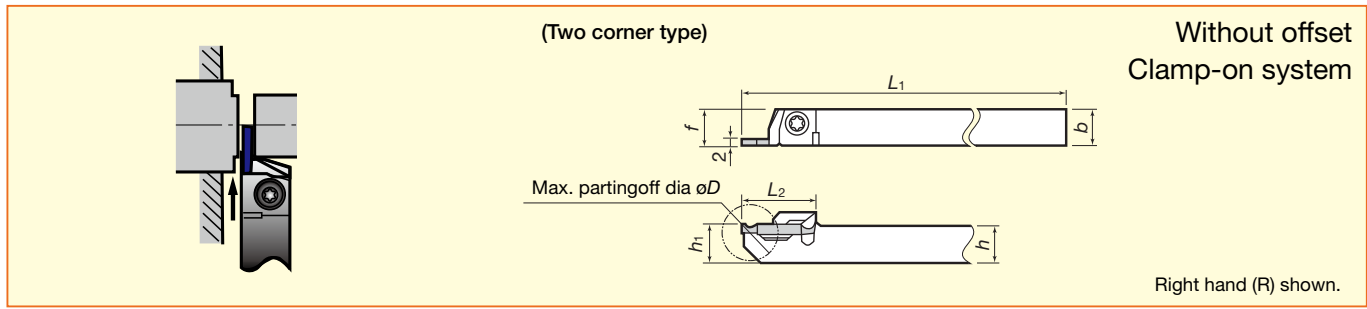


Cat. No.	Stock		Applicable inserts	Dimensions (mm)						Max. parting off øDm (mm)	Clamping screw	Wrench	
	R	L		h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f			(Option)	(Option)
JCCWSR/L1010K2	●	●	JCC*200F	10	10	125	19	10	10	ø20	CSTB-4S	T-15F	(T-15L)
JCCWSR/L1212K2	●	●	JCC*200F	12	12	125	19	12	12	ø20	CSTB-4S	T-15F	(T-15L)
JCCWSR/L1616K2	●	●	JCC*200F	16	16	125	19	16	16	ø20	CSTB-4S	T-15F	(T-15L)
JCCWSR/L2020K2	●	●	JCC*200F	20	20	125	19	20	20	ø20	CSTB-4S	T-15F	(T-15L)
JCCWSR/L2525K2	●	●	JCC*200F	25	25	125	19	25	25	ø20	CSTB-4S	T-15F	(T-15L)

**Applicable inserts JCC-type inserts (With sharp edges)**

Cat. No.	Dimensions (mm)					Grades							
	T	W	L	r <sub>ε</sub>	θ	Coated		Coated Cermet		Cermet		Uncoated	
						J740	J9530	NS9530	TH10	R	L	R	L
JCCN200F	4.8	2	15	0	-	●	●	●	●			●	●
JCCN200F-005	4.8	2	15	0.05	-	●	●						
JCCR/L200F	4.8	2	15	0	15°	●	●	●	●			●	●
JCCR/L200F-005	4.8	2	15	0.05	15°	●	●						

**JCGWSR/L Parting-off**



Cat. No.	Stock		Applicable inserts	Dimensions (mm)						Max. parting off øDm (mm)	Clamping screw	Wrench	
	R	L		h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f			(Option)	(Option)
JCGWSR/L1010K2	●	●	JCGN200*	10	10	125	20	10	10	ø20	CSTB-4S	T-15F	(T-15L)
JCGWSR/L1212K2	●	●	JCGN200*	12	12	125	20	12	12	ø20	CSTB-4S	T-15F	(T-15L)
JCGWSR/L1616K2	●	●	JCGN200*	16	16	125	20	16	16	ø20	CSTB-4S	T-15F	(T-15L)

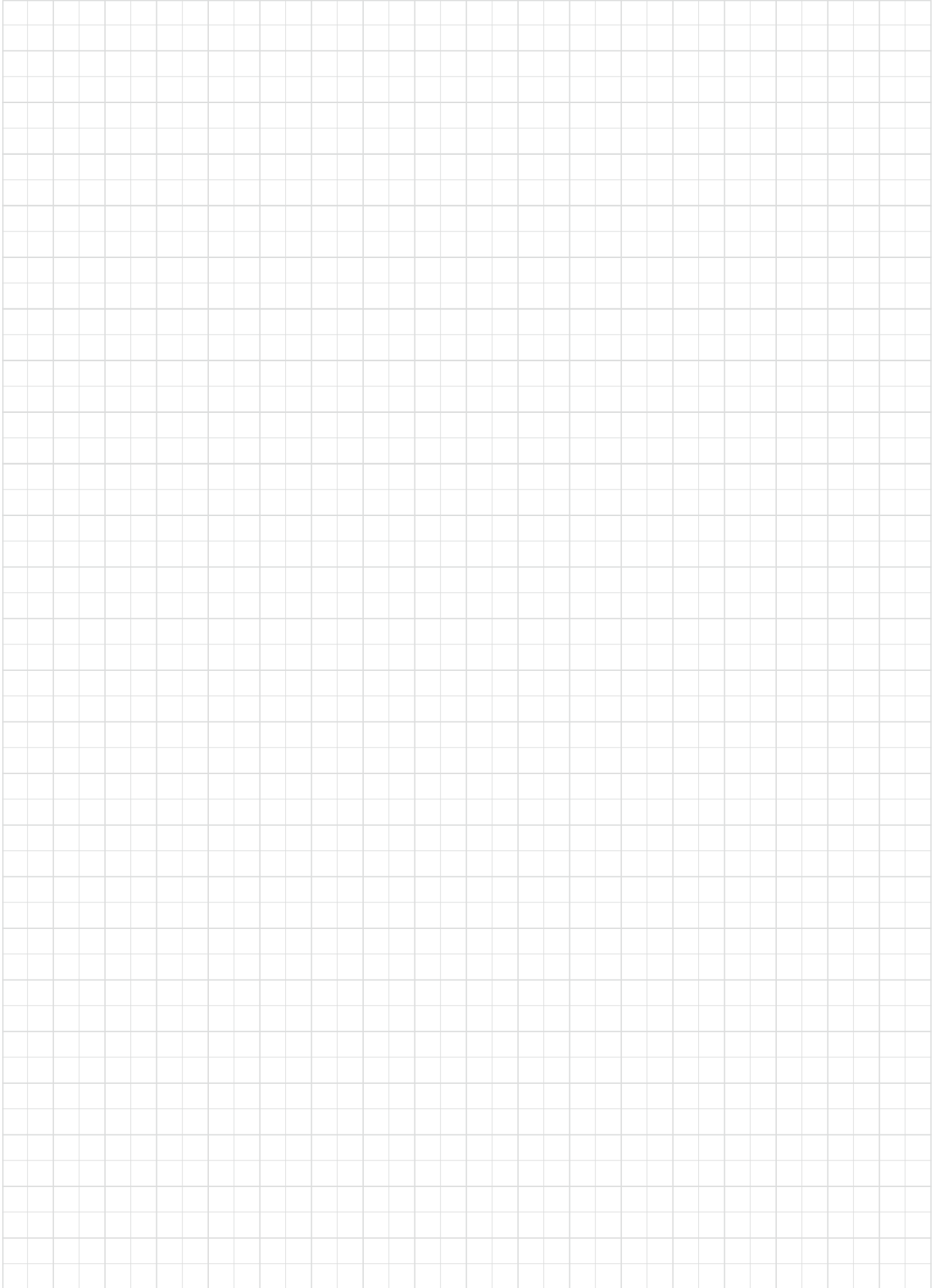
**Applicable inserts JCG-type inserts (With sharp edges)**

Cat. No.	Dimensions (mm)				Grades							
	T	W	L	r <sub>ε</sub>	Coated		Coated Cermet		Cermet		Uncoated	
					J740	J9530	NS9530	TH10	R	L	R	L
JCGN200F	3	2	20	0.05	●	●	●	●			●	●
JCGN200FR/L	3	2	20	0.05	●	●	●	●			●	●

● : Stocked items

**JCC, JCG Standard cutting conditions**

ISO	Work materials	Grades	Cutting speed V <sub>c</sub> (m/min)	Feed f (mm/rev)
<b>P</b>	General steel (S45C / C45, etc.)	<b>J740</b>	10 - 100	0.01 - 0.1
		<b>NS9530</b>	50 - 150	0.01 - 0.1
		<b>J9530</b>	50 - 150	0.01 - 0.1
	Free-cutting steel (SUM22 / 11SMn28, etc.)	<b>J740</b>	10 - 100	0.01 - 0.1
<b>M</b>	Stainless steel (SUS304 / X5CrNi18-9, etc.)	<b>J740</b>	10 - 100	0.01 - 0.1
		<b>NS9530</b>	50 - 150	0.01 - 0.1
		<b>J9530</b>	50 - 150	0.01 - 0.1
<b>N</b>	Aluminium alloys, Brass (Si < 12%, C3604B / CW614N, etc.)	<b>TH10</b>	10 - 200	0.01 - 0.1
<b>S</b>	Difficult-to-cut materials, Titanium alloys (Ti-6Al-4V, etc.)	<b>TH10</b>	10 - 30	0.01 - 0.1



# Chapter Composition of TAC Threading Tools

◆ Series are arranged as follows: TT-type threading tools, ST-type threading tools, SN-type threading tools for internal threads

**Figure of insert shape**

Pitch or number of threads to be machined

Figure of thread to be machined

Thread type

**TUNGTHREAD**  
ISO metric

Right hand insert for external threading shown.  
Right hand insert for internal threading shown.

**Applicable toolholders**

	External	Internal
10	•	•
11	•	•
16	•	•

**Full-profile inserts**

Pitch or Number of Threads	External insert				Internal insert			
	Cat. No.	Grades	Dimensions (mm)	Coated	Cat. No.	Grades	Dimensions (mm)	Coated
10	16ER01ISO	•	9.525 0.5 1.2 0.09	•	16IR01ISO	•	9.525 0.5 1.2 0.09	•
10	16ER10ISO	•	9.525 0.9 0.7 0.10	•	16IR10ISO	•	9.525 0.9 0.7 0.10	•
10	16ER15ISO	•	9.525 0.9 0.7 0.16	•	16IR15ISO	•	9.525 0.9 0.7 0.16	•
10	16ER20ISO	•	9.525 1.6 1.2 0.20	•	16IR20ISO	•	9.525 1.6 1.2 0.20	•
10	16ER30ISO	•	9.525 1.6 1.2 0.30	•	16IR30ISO	•	9.525 1.6 1.2 0.30	•
10	16ER50ISO	•	9.525 1.6 1.2 0.50	•	16IR50ISO	•	9.525 1.6 1.2 0.50	•

Note: There are different dimensions of "L 3" and "L 1" with the M class insert chip breaker (AW25) - ONLY 16 SIZE. Please be aware of these differences.

● Stocked items / Packing Quantity = 5 pcs

Cat. No. of TAC threading inserts

List of applicable toolholders  
Cat. No. of applicable toolholders are shown by insert size and distinction of internal or external use.

**TUNGTHREAD**  
SN R/L Internal threading

ST type toolholder (Screw-on)

Carbide reinforced (Only for Tsuupari-Ichiban)

Pitch No. of threads to be machined  
0.5 - 6.0 mm 48 - 5 3

Right hand (RH) Tsuupari-Ichiban type shown.

**"Tsuupari-Ichiban" shank**

Cat. No.	Stock										Lead Angle	Insert	Clamping screw	Wrench
	R	L	Min. threading dia. aDm	f	L1	L2	ε3	h	b	h1				
TSNR.L001601H	•	•	19	16	10.6	180	40	59	15	-	11°	16IRL****	CSTB-3.5	T-15F

**Steel shank**

Cat. No.	Stock										Lead Angle	Insert	Clamping screw	Wrench
	R	L	Min. threading dia. aDm	f	L1	L2	ε3	h	b	h1				
SNR.L001K11	•	•	12	16	6.6	125	25	-	15	15.5	11°	11IRL****	CSTB-2.5	T-8F
SNR.L001K11-2	•	•	12	16	6.6	125	25	-	15	15.5	11°	11IRL****	CSTB-2.5	T-8F
SNR.L001K11-3	•	•	12	16	6.6	125	25	-	15	15.5	11°	11IRL****	CSTB-2.5	T-8F
SNR.L001K11-1	•	•	15	16	8.2	140	32.5	-	15	15.5	11°	11IRL****	CSTB-2.5	T-8F
SNR.L001K11-2	•	•	15	16	8.2	140	32.5	-	15	15.5	11°	11IRL****	CSTB-2.5	T-8F
SNR.L001K11-3	•	•	15	16	8.2	140	32.5	-	15	15.5	11°	11IRL****	CSTB-2.5	T-8F
SNR.L001M16-1	•	•	19	16	10.6	150	40	-	15	15.5	16°	16IRL****	CSTB-3.5	T-15F
SNR.L001M16-2	•	•	19	16	10.6	150	40	-	15	15.5	16°	16IRL****	CSTB-3.5	T-15F
SNR.L001M16-3	•	•	19	16	10.6	150	40	-	15	15.5	16°	16IRL****	CSTB-3.5	T-15F

**Carbide shank**

Cat. No.	Stock										Lead Angle	Insert	Clamping screw	Wrench
	R	L	Min. threading dia. aDm	f	L1	L2	ε3	h	b	h1				
SNR.L001M11SC	•	•	13	10	7.4	150	24	-	9	-	11°	11IRL****	CSTB-2.5	T-8F
SNR.L001M11SC-2	•	•	13	10	7.4	150	24	-	9	-	11°	11IRL****	CSTB-2.5	T-8F
SNR.L001M11SC-3	•	•	13	10	7.4	150	24	-	9	-	11°	11IRL****	CSTB-2.5	T-8F
SNR.L001S11SC	•	•	15	12	8.5	170	28	-	11	-	11°	11IRL****	CSTB-2.5	T-8F
SNR.L001S11SC-2	•	•	15	12	8.5	170	28	-	11	-	11°	11IRL****	CSTB-2.5	T-8F
SNR.L001S11SC-3	•	•	15	12	8.5	170	28	-	11	-	11°	11IRL****	CSTB-2.5	T-8F
SNR.L001R16SC	•	•	20	16	11.9	200	35	-	15	-	16°	16IRL****	CSTB-3.5	T-15F
SNR.L001R16SC-2	•	•	20	16	11.9	200	35	-	15	-	16°	16IRL****	CSTB-3.5	T-15F
SNR.L001R16SC-3	•	•	20	16	11.9	200	35	-	15	-	16°	16IRL****	CSTB-3.5	T-15F

When using a right or left hand insert, the right hand insert (R-IR\*) type is used for the right hand toolholders (SNR\*) type and left hand insert (L-IR\*) type is used for the left hand toolholders (SNL\*) type.

● Stocked items

List of replacement parts

Lead angle  
When using internal threading toolholders which are not shim-changeable type, select a proper lead angle depending on the thread size and type. **8-27**

## Ordering information

- When ordering a threading toolholder, please specify Cat. No. and quantity.  
Example: **CER1212H16DT 1** piece.
  - Standard packing quantity of threading toolholders is 1 piece.
- When ordering threading inserts, please specify Cat. No., grade, and quantity.  
Example: **16IR175ISO AH725 5** pieces.
  - Standard packing quantity of threading inserts is 5 pieces.





# TAC Threading Tools

## Guidance

■ Designation system for TAC threading tools	8-2
■ Threading tools overview	8-3
■ Thread types and applicable inserts	8-10
■ Fundamentals of screw threads	8-26
■ Shim replacement method	8-27
■ Selection of ST-type toolholders	8-29
■ Standard Cutting Conditions and Infeed Methods	8-35
■ Table of infeed and number of passes	8-36
■ Troubleshooting in threading	8-38

## Products

### ■ threading inserts

● ISO metric	full-profile inserts	8-12
● Unified	full-profile inserts	8-14
● 60° metric	partial-profile inserts	8-15
● 55° Whitworth	full-profile inserts	8-16
● 55°	partial-profile inserts	8-17
● PT	full-profile inserts	8-18
● NPT	full-profile inserts	8-19
● NPTF	full-profile inserts	8-19
● Trapezoidal	full-profile inserts	8-20
● Round	full-profile inserts	8-21
● Aerospace	full-profile inserts	8-21

### ■ threading toolholders

● STCR/L-18, JS-STCL18 type external toolholders and TCT18 type inserts	8-4	
● JSTTR/L, JS-TTL3 type external toolholders and JTTR/L type inserts	8-7	
● JSXBR/L type external toolholders and JXT □ R/L type inserts	8-8	
● CER/L type	external toolholders	8-23
● S/CER/L type	gang tooling	8-23
● SNR/L-2/3 type	internal toolholders	8-24
● SNR/L type	internal toolholders	8-25

# Designation System for TAC Threading Tools

## TUNGTHREAD Inserts

16

I

R

175

ISO

- B

1 Insert size	
Symbol	I. C. dia (mm)
06	-
11	6.35
16	9.525
22	12.7
27	15.875

2 External or Internal	
E	External
I	Internal

3 Hand of insert	
R	Right hand
L	Left hand

4 Pitch (No. of threads)	
<b>Partial-profile inserts</b>	
A	Pitch: 0.5 ~ 1.5 mm TPI: 48 ~ 16
AG	Pitch: 0.5 ~ 3.0 mm TPI: 48 ~ 8
G	Pitch: 1.75 ~ 3.0 mm TPI: 14 ~ 8
N	Pitch: 3.5 ~ 5.0 mm TPI: 7 ~ 5
Z	Pitch: 4.0 ~ 6.0 mm TPI: 6 ~ 4
<b>Full-profile inserts</b>	
Metric thread: pitch (mm)×10 or 100 inch: TPI (TPI / 25.4 mm)	
(Examples) 05: 0.5 mm pitch×10	
175: 1.75 mm pitch×100	
14: 14 TPI / 25.4 mm	

5 Thread type	
<b>Partial-profile inserts</b>	
60°	60° thread angle
55°	55° thread angle
TR	30° trapezoidal
ACME	29° trapezoidal
RAPI	API round
BAPI	API buttress
<b>Full-profile inserts</b>	
ISO	Metric
UN	Unified
W	Whitworth
PT	JIS taper pipe
NPT	National pipe
NPTF	National pipe
RD	Round (DIN405)
UNJ	Aerospace

6 Chipbreaker	
B	With
-	Without

Note: Please identify new designation system for internal inserts. -i.e. "N" → "I"

(Example) Conventional: 16NR15ISO  
New: 16IR15ISO

## Toolholders for external threading

C E R 25 25 M 16 DT

1 Clamping method		3 Hand of tool		4 Height		5 Width		6 Length		7 Insert size		8	
C	Clamp-on	R	Right	Shank size (mm)		Shank size (mm)		H	100	R	200	T	With offset
S	Screw-on	L	Left	Shank size (mm)		K	125	S	250	Symbol I. C. dia (mm)		DT	With offset
				Shank size (mm)		M	150	T	300	06	-	Usable as screw-on or clamp-on type	
				Shank size (mm)		N	160	U	350	11	6.35		
				Shank size (mm)		P	170	V	400	16	9.525		
				Shank size (mm)						22	12.7		
				Shank size (mm)						27	15.875		

## Toolholders for internal threading

S N R 00 10 K 11 -DT SC -2

1 Clamping method		2 External or internal		4		5 Shank dia (mm)		8		9		10 Lead angle	
TC	"Tsuppari-Ichiban", clamp-on	N Internal		00 For internal		Shank dia (mm)		DT With offset. Usable as screw-on or clamp-on type		SC Carbide shank		None	1°
TS	"Tsuppari-Ichiban", screw-on											-2	2°
C	Clamp-on											-3	3°
S	Screw-on												


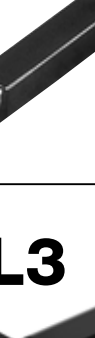
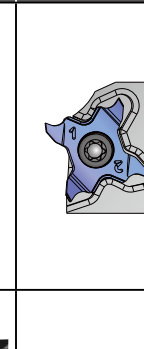
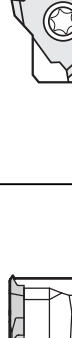

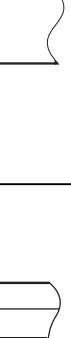

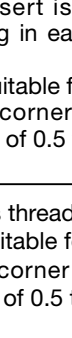

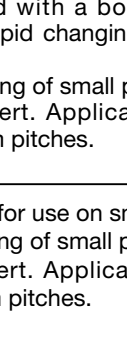

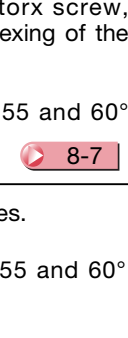
## Toolholders for gang tooling

B- S E R 12 K 16

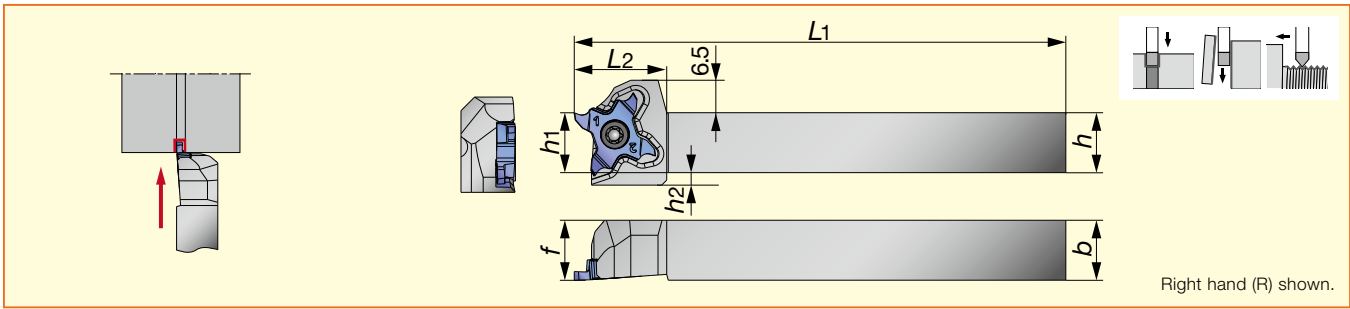
A		B Cutting edge height (mm)	
B-	Single edge type		
BC-	Combination type		

# Threading Tool System

## Clamping Mechanism and Features

Type / Appearance	Clamping mechanism	Features
<p><b>STC-18</b></p> <p>Screw-on type</p> 		<ul style="list-style-type: none"> <li>● Suitable for threading in small parts</li> <li>● 4-cornered insert with innovative shape is applied</li> </ul> <p style="text-align: right;">▶ 8-4</p>
<p><b>JSTT</b></p> <p>Screw-on type</p> 		<ul style="list-style-type: none"> <li>● J series threading tools for use on small lathes.</li> <li>● Toolholders are ground on the four faces to maintain stability and accuracy.</li> <li>● The insert is clamped with a both end torx screw, resulting in easy and rapid changing or indexing of the insert.</li> <li>● Best suitable for threading of small parts.</li> <li>● Three corner type insert. Applicable for 55 and 60° threads of 0.5 to 1.0 mm pitches.</li> </ul> <p style="text-align: right;">▶ 8-7</p>
<p><b>JS-TTL3</b></p> <p>Screw-on type</p> 		<ul style="list-style-type: none"> <li>● J series threading tools for use on small lathes.</li> <li>● Best suitable for threading of small parts.</li> <li>● Three corner type insert. Applicable for 55 and 60° threads of 0.5 to 1.0 mm pitches.</li> </ul> <p style="text-align: right;">▶ 8-7</p>
<p><b>JSXB</b></p> <p>Screw-on type</p> 		<ul style="list-style-type: none"> <li>● J series threading tools for use on small lathes.</li> <li>● Toolholders are ground on the four faces to maintain stability and accuracy.</li> <li>● The insert is clamped with a both end torx screw, resulting in easy and rapid changing or indexing of the insert.</li> <li>● Best suitable for threading of small parts.</li> <li>● Two corner type insert. Applicable for 60° threads of 0.5 to 1.0 mm pitches. Usable for threading to corner.</li> </ul> <p style="text-align: right;">▶ 8-8</p>
<p><b>ST</b></p> <p>Screw-on type Clamp-on type</p> 	 <p>Clamp-on type shown</p>	<ul style="list-style-type: none"> <li>● With the unique combination of the clamp and the mouth shape of the insert hole, the insert is positively held with precision accuracy.</li> <li>● Specially designed chipbreakers are formed on the insert, achieving free flowing chip control for internal and external threading.</li> <li>● A variety of insert shapes and sizes are available from stock.</li> </ul> <p style="text-align: right;">▶ 8-23</p>
<p><b>SN</b></p> <p>Screw-on type</p> 		<ul style="list-style-type: none"> <li>● Can be applied to Internal threads of small diameter (down to M10).</li> <li>● Full-profile inserts for metric (ISO), whitworth, taper pipe (PT) and american pipe (NPT) threads and partial-profile inserts for 60° and 55° thread angles are available as standard.</li> </ul> <p style="text-align: right;">▶ 8-24</p>

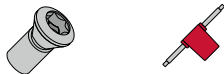
**STCR/L-18 External grooving**



Designation	<i>h</i>	<i>b</i>	<i>L1</i>	<i>L2</i>	<i>h1</i>	<i>f</i>	<i>h2</i>	Insert
STCR/L1010X18	10.0	10.0	120.0	18.5	10.0	10.0	4.5	TC*18*
STCR/L1212F18	12.0	12.0	85.0	18.5	12.0	12.0	2.5	TC*18*
STCR/L1212X18	12.0	12.0	120.0	18.5	12.0	12.0	2.5	TC*18*
STCR/L1616X18	16.0	16.0	120.0	18.5	16.0	16.0	0.0	TC*18*
STCR/L2020H18	20.0	20.0	100.0	18.5	20.0	20.0	0.0	TC*18*
STCR/L2020X18	20.0	20.0	120.0	23.0	20.0	25.0	0.0	TC*18*
STCR/L2525Z18	25.0	25.0	135.0	23.0	25.0	30.0	0.0	TC*18*

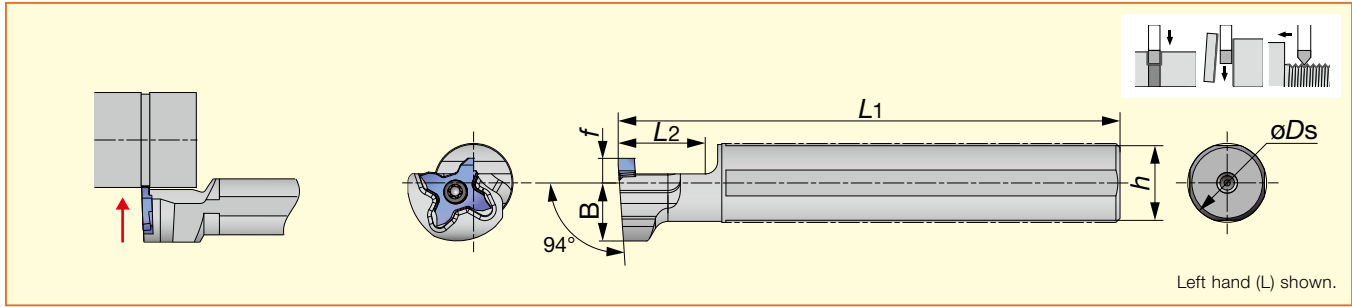
- The right hand insert (TC\*18R\*\*\*) is used for the right hand toolholders (STCR\*\*\*), and the left hand insert (TC\*18L\*\*\*) is used for the left hand toolholders (STCL\*\*\*).

**SPARE PARTS**



Designation	Clamping screw	Wrench
STCR***18	CSTC-4L100DL	T-1008/5
STCL***18	CSTC-4L100DR	T-1008/5

**JS-STCL18** Round shank



Designation	øDs	L1	L2	H	B	f	Insert
JS14H-STCL18	14	100	20	13	14	6	TC*18*
JS159F-STCL18	15.875	85	20	15	14	6	TC*18*
JS16F-STCL18	16	85	20	15	14	6	TC*18*
JS19G-STCL18	19.05	90	20	18	14	6	TC*18*
JS19X-STCL18	19.05	120	20	18	14	6	TC*18*
JS20G-STCL18	20	90	20	19	14	6	TC*18*
JS20X-STCL18	20	120	20	19	14	6	TC*18*
JS22X-STCL18	22	120	20	21	12.25	10	TC*18*
JS25H-STCL18	25	100	20	24	12.25	10	TC*18*
JS254X-STCL18	25.4	120	20	24	12.25	10	TC*18*

- The right-hand insert (TCT18R\*\*) is used for the Left-hand toolholders (JS\*\*-STCL18).

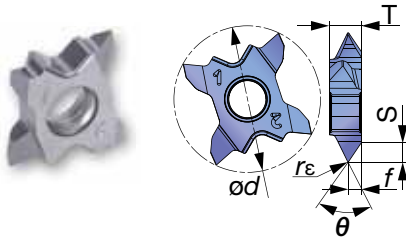
**SPARE PARTS**



Designation	Clamping screw	Wrench
JS***STCL18	CSTC-4L100DL	T-1008/5

## Inserts

TCT18R/L (For Threading)



Designation	Grade AH725		pitch min	pitch max	Dimensions (mm)					
	R	L			f	S	r $\epsilon$	$\theta$ (°)	T	d
TCT18R/L-60N-010	✓	✓	0.8	3	1.6	2.67	0.1	60	4	18
TCT18R/L-60N-020	✓	✓	1.5	3	1.6	2.57	0.2	60	4	18

✓ : Stocked items

## Standard cutting conditions

### Threading

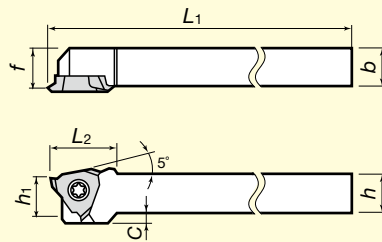
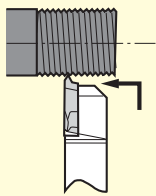
ISO	Workpiece materials	Grades	Cutting speed Vc (m/min)	Pitch (mm)	TPI
<b>P</b>	Low carbon steels (C15, C20 etc.)	AH725	60 - 150	0.8 - 3.0	32 - 8
	Carbon steels, Alloy steels (C55, 42CrMoS4 etc.)	AH725	60 - 150	0.8 - 3.0	32 - 8
	Prehardened steels (NAK80, PX5 etc.)	AH725	60 - 150	0.8 - 3.0	32 - 8
<b>M</b>	Stainless steels (X5CrNi18-9, X5CrNiMo17-12-2 etc)	AH725	50 - 80	0.8 - 3.0	32 - 8
<b>K</b>	Grey cast irons (250, 300 etc.)	AH725	50 - 100	0.8 - 3.0	32 - 8
	Ductile cast irons (400-15, 600-3 etc.)	AH725	50 - 100	0.8 - 3.0	32 - 8
<b>S</b>	Titanium alloys (Ti-6Al-4V, etc.)	AH725	30 - 100	0.8 - 3.0	32 - 8
	Superalloys (Inconel718, etc.)	AH725	30 - 100	0.8 - 3.0	32 - 8

**JSTT R/L**

External threading

J series for Threading Tools ( J-type Screw-on system)

**JSTTR/L**



Without offset

Pitch 0.5~1mm Pitch Number of Threads 48~24 3 No. of corners

Can be wrenched from back side with both-end Torx screw.

Right hand (R) shown.

Cat. No.	Stock		Dimensions (mm)							Applicable inserts	Clamping screw	Wrench	
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f	C				
<b>New</b> JSTTR/L1010X3	●	●	10	10	120	18.5	10	9.5	2	JTTR/L3**	CSTB-4SD	T-8F	(T-8L)
JSTTR/L1010K3	●	●	10	10	125	16.5	10	9.5	2	JTTR/L3**	CSTB-4SD	T-8F	(T-8L)
<b>New</b> JSTTR/L1212F3	●	●	12	12	85	18.5	12	11.5	-	JTTR/L3**	CSTB-4SD	T-8F	(T-8L)
<b>New</b> JSTTR/L1212X3	●	●	12	12	120	18.5	12	11.5	-	JTTR/L3**	CSTB-4SD	T-8F	(T-8L)
JSTTR/L1212K3	●	●	12	12	125	16.5	12	11.5	-	JTTR/L3**	CSTB-4SD	T-8F	(T-8L)
<b>New</b> JSTTR/L1616X3	●	●	16	16	120	18.5	16	15.5	-	JTTR/L3**	CSTB-4SD	T-8F	(T-8L)
JSTTR/L1616K3	●	●	16	16	125	16.5	16	15.5	-	JTTR/L3**	CSTB-4SD	T-8F	(T-8L)

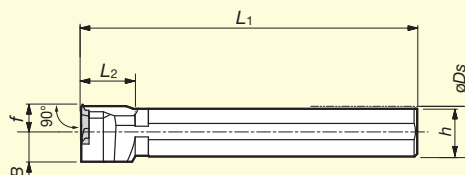
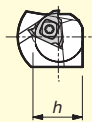
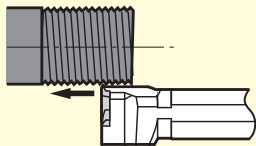
Note: Parts in parenthesis are optional parts.

**JS-TTL3**

External threading

J series for Threading Tools ( J-type Screw-on system)

**JS-TTL3**

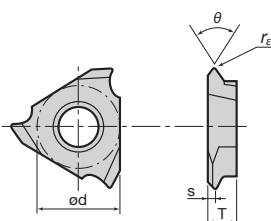


Pitch 0.5~1mm Pitch Number of Threads 48~24 3 No. of corners

Left hand (L) shown.

Cat. No.	Stock	Dimensions (mm)						Applicable inserts	Clamping screw	Wrench
		øDs	f	L <sub>1</sub>	L <sub>2</sub>	h	B			
JS19K-TTL3	●	19.05	10	125	20	18	11.5	JTTR30**F	CSTB-4S	T-15F
JS20K-TTL3	●	20	10	125	20	19	11.5	JTTR30**F	CSTB-4S	T-15F
JS22K-TTL3	●	22	10	125	20	21	11.5	JTTR30**F	CSTB-4S	T-15F
JS25K-TTL3	●	25.4	10	125	20	24	12.7	JTTR30**F	CSTB-4S	T-15F

**JTT-type inserts (sharp edge)**



Right hand (R) shown.

Cat. No.	Dimensions (mm)						Stock				
	θ	ød	T	s	r <sub>E</sub>	Coated		Cermet		Uncoated	
						J740	SH725	NS9530	TH10	R	L
JTTR/L3005F-55	55°	9.525	3.18	0.6	0.05	●	●				
JTTR/L3005F	60°	9.525	3.18	0.9	0.05	●	●	●	●		●
JTTR/L3010F	60°	9.525	3.18	0.9	0.1	●	●	●	●		●

Notes: Left hand holder use right hand insert.  
Machinable pitch range: 0.5 to 1 mm.

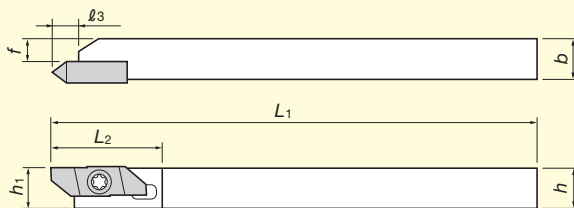
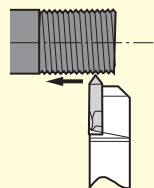
● : Stocked items

**JSXB R/L**

External threading

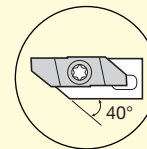
J series for Threading Tools ( J-type Screw-on system)

**JSXBR/L**



Pitch **0.5~1mm**  
 Pitch Number of Threads **48~24**  
**2** No. of corners

JSXB type toolholders are also used for back turning JXB-type inserts.



**C-type**

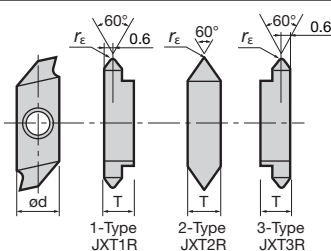
Right hand (R) shown

- Can be wrenched from back side with both end torx screw.
- This toolholder is also compatible with JSXB-type insert for back turning.

Cat. No.	Stock		Dimensions (mm)							Applicable inserts	Clamping screw	Wrench
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	R <sub>3</sub>	h <sub>1</sub>	f			
JSXBR/L1010K8-C	●	●	10	10	125	29	6.4	10	5.7	JXT*R/L*****	CSTB-4SD	T-8F (T-8L)
JSXBR/L1212K8-C	●	●	12	12	125	29	6.4	12	7.7	JXT*R/L*****	CSTB-4SD	T-8F (T-8L)
JSXBR/L1616K8	●	●	16	16	125	29	6.4	16	11.7	JXT*R/L*****	CSTB-4SD	T-8F (T-8L)
JSXBR/L2020K8	●	●	20	20	125	29	6.4	20	15.7	JXT*R/L*****	CSTB-4SD	T-8F (T-8L)
JSXBR/L2525K8	●	●	25	25	125	29	6.4	25	20.7	JXT*R/L*****	CSTB-4SD	T-8F (T-8L)

Note: Parts in parenthesis are optional parts.

**JXT-type inserts (sharp edge)**



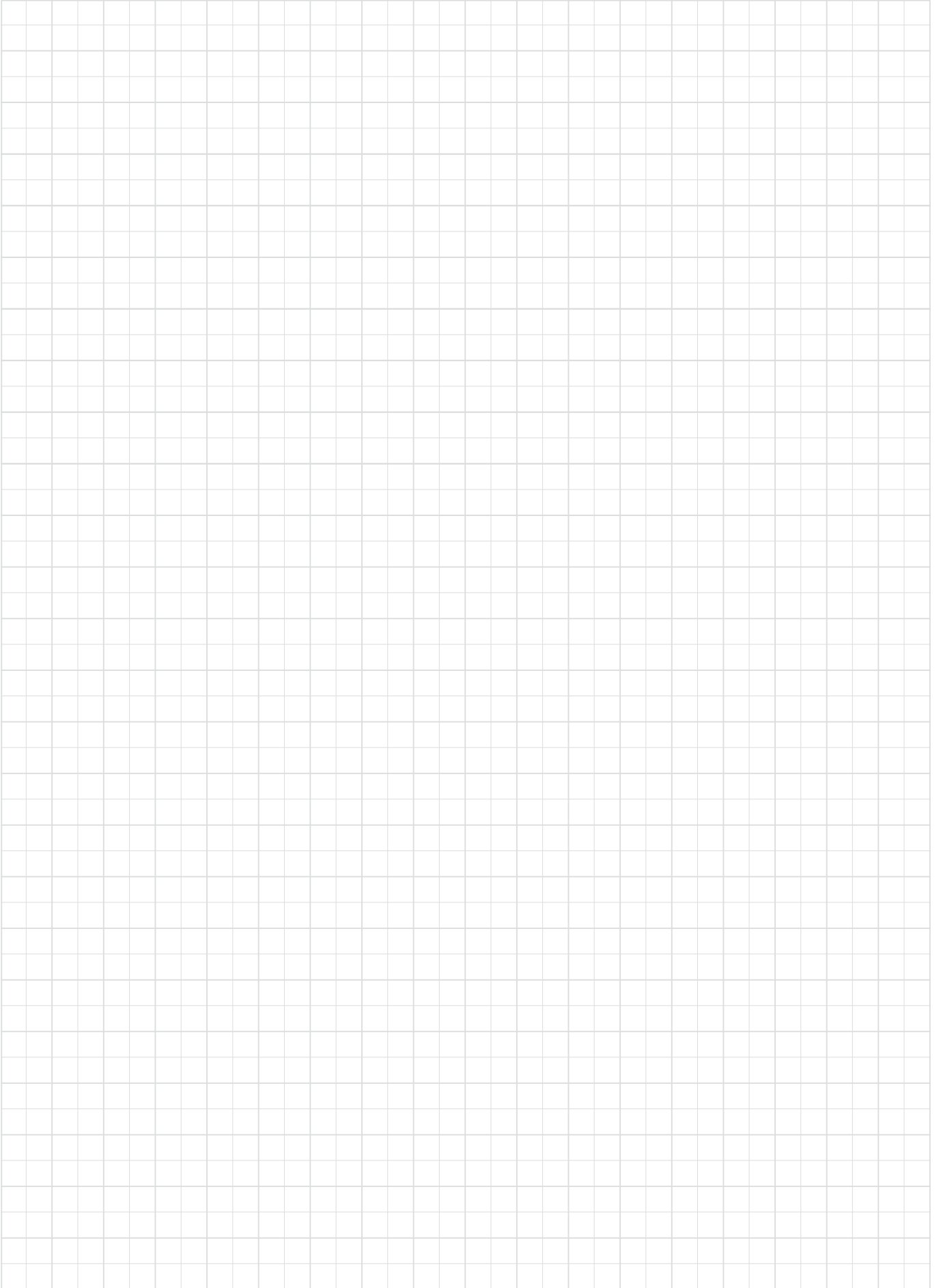
Right hand (R) shown.

Cat. No.	Dimensions (mm)				Stocked grades					
	θ	ød	T	r <sub>E</sub>	Coated J740		Cermet NS530		Uncoated TH10	
					R	L	R	L	R	L
JXT1R/L6000F	60°	8	3.97	0.03	●		●		●	
JXT2R/L6000F	60°	8	3.97	0.03	●		●		●	
JXT3R/L6000F	60°	8	3.97	0.03						

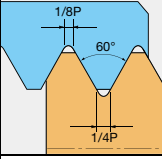
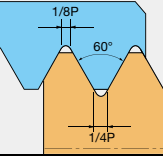
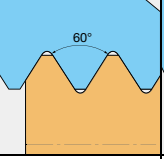
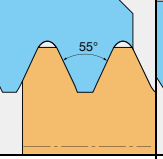
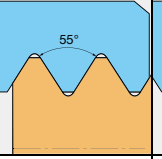
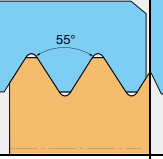
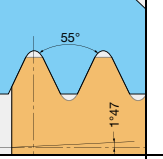
Notes: Right hand holder use right hand insert and left hand holder use left hand insert.  
 Machinable pitch range: 0.5 to 1 mm.

● : Stocked items



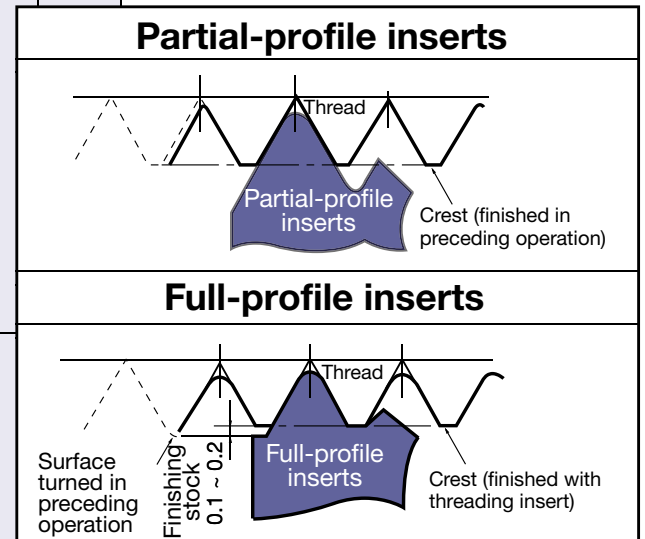


## Thread Types and Applicable Inserts

Thread Types		ISO metric 60°		Unified 60°		General 60°		Whitworth 55°		General 55°		Parallel 55°		JIS taper pipe 55°		
																
		<b>M</b> M8 M8x1		<b>UNC</b> 3/8-16UNC <b>UNF</b> No.8-36UNF <b>UNEF</b> 1/4-32UNEF				<b>W</b> W3/4 W50/7				<b>G</b> G1/2 <b>PF</b> PF7 <b>Rp</b> Rp3/4 <b>PS</b> PS7		<b>R</b> R3/4 <b>PT</b> PT7 <b>Rc</b> Rc3/4		
		Pitch	TPI	Pitch	TPI	Pitch	TPI	Pitch	TPI	Pitch	TPI	Pitch	TPI	Pitch	TPI	
External thread	Partial-profile					0.5~1.5 0.5~3 1.75~3 0.5~3 4~6	48~16 48~8 14~8 7~5 6~4			0.5~1.5 0.5~3 1.75~3 0.5~3	48~16 48~8 14~8 7~5					
	Partial-profile with chip-breaker					0.5~1.5 0.5~3 1.75~3	48~16 48~8 14~8			0.5~3 1.75~3	7~5 14~8					
	Full-profile	0.5			(0.794)	32			(0.907)	28			(0.907)	28	(1.337)	19
		0.75			(0.907)	28			(0.970)	26			(0.970)	26	(1.814)	14
		1			(1.058)	24			(1.270)	20			(1.270)	20	(0.907)	28
		1.25			(1.270)	20			(1.411)	18			(1.411)	18	(2.309)	11
		1.5			(1.411)	18			(1.588)	16			(1.588)	16		
		1.75			(1.588)	16			(1.814)	14			(1.814)	14		
		2			(1.814)	14			(2.117)	12			(2.117)	12		
		2.5			(1.954)	13			(2.309)	11			(2.309)	11		
3				(2.117)	12			(2.540)	10			(2.540)	10			
3.5			(2.309)	11			(2.822)	9			(2.822)	9				
4			(2.540)	10			(3.175)	8			(3.175)	8				
4.5			(2.822)	9			(3.629)	7			(3.629)	7				
5			(3.175)	8			(4.233)	6			(4.233)	6				
6			(3.629)	7			(5.080)	5			(5.080)	5				
5			(4.233)	6												
6			(5.080)	5												
Internal thread	Partial-profile					0.5~1.5 0.5~3 1.75~3 0.5~3 4~6	48~16 48~8 14~8 7~5 6~4			0.5~1.5 0.5~3 1.75~3 0.5~3	48~16 48~8 14~8 7~5					
	Partial-profile with chip-breaker					0.5~1.5 0.5~3 1.75~3	48~16 48~8 14~8			0.5~3 1.75~3	7~5 14~8					
	Full-profile	0.5			(0.794)	32			(1.337)	19	(1.337)	19	(1.337)	19	(1.337)	19
		0.75			(0.907)	28			(1.814)	14			(1.814)	14	(1.814)	14
		1			(1.058)	24			(0.907)	28			(0.907)	28	(0.907)	28
		1.25			(1.270)	20			(0.970)	26			(0.970)	26	(2.309)	11
		1.5			(1.411)	18			(1.270)	20			(1.270)	20		
		1.75			(1.588)	16			(1.411)	18			(1.411)	18		
		2			(1.814)	14			(1.588)	16			(1.588)	16		
		2.5			(1.954)	13			(1.814)	14			(1.814)	14		
3				(2.117)	12			(2.117)	12			(2.117)	12			
3.5			(2.309)	11			(2.309)	11			(2.309)	11				
4			(2.540)	10			(2.540)	10			(2.540)	10				
4.5			(2.822)	9			(2.822)	9			(2.822)	9				
5			(3.175)	8			(3.175)	8			(3.175)	8				
5			(3.629)	7			(3.629)	7			(3.629)	7				
6			(4.233)	6			(4.233)	6			(4.233)	6				
6			(5.080)	5			(5.080)	5			(5.080)	5				
Full-profile with chip-breaker	0.5			(1.058)	20			(1.337)	19			(1.337)	19	(1.337)	19	
	0.75			(1.270)	18			(1.588)	16			(1.588)	16	(1.814)	14	
	1			(1.411)	16			(1.814)	14			(1.814)	14	(2.309)	11	
	1.25			(1.588)	14			(2.309)	11			(2.309)	11			
	1.5			(1.814)	13											
	1.75			(1.954)	12											
	2			(2.117)	8											



American National Pipe 60°		Trapezoidal 30°		Trapezoidal 29°		Aerospace			
<b>NPT</b> 3/8-18NPT		<b>NPTF</b>		<b>Tr</b> Tr10x2 <b>TM</b> TM10		<b>TW</b> TW20 <b>ACME</b> 3/8-12ACME		<b>UNJ</b>	
Pitch	TPI	Pitch	TPI	Pitch	TPI	Pitch	TPI	Pitch	TPI
				1.5 2 3 4 5 6		(2.117) (2.540) (3.175) (4.233) (5.080)	12 10 8 6 5		
(0.941) (1.411) (1.814) (2.209) (3.175)	27 18 14 11.5 8	(0.941) (1.411) (1.814) (2.209) (3.175)	27 18 14 11.5 8						32 28 24 20 18 16 14 12 10 8
(1.411) (1.814) (2.209) (3.175)	18 14 11.5 8								
				1.5 2 3 4 5		(2.117) (2.540) (3.175) (4.233) (5.080)	12 10 8 6 5		
(0.941) (1.411) (1.814) (2.209) (3.175)	27 18 14 11.5 8	(1.814) (2.209) (3.175)	14 11.5 8						
(1.411) (1.814) (2.209) (3.175)	18 14 11.5 8								

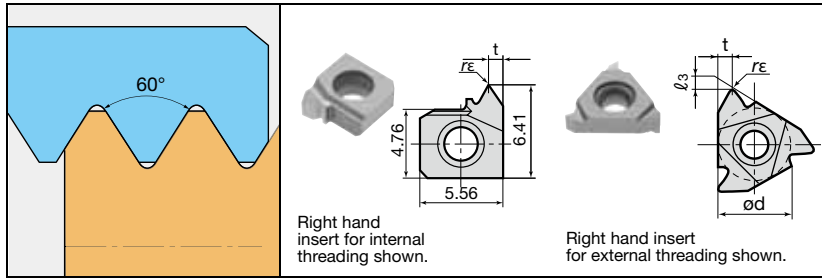








## 60° thread angle



### Applicable toolholders

Insert size	External	Internal
6		SNR/L000*K06SC-* SNR/L000*H06-*
11		SNR/L*****1**
16	CER/L*****16** B-SER/L***16 B-CER/L***16 BC-SER/L***16	TSNR/L*****16 SNR/L*****16**

### Partial-profile inserts

Insert size	Pitch	Number of threads	Hand of cut	External insert				Internal insert														
				Cat. No.	Grades		Dimensions (mm)		Cat. No.	Grades		Dimensions (mm)										
					Coated	Uncoated	ød	t		ℓ <sub>3</sub>	r <sub>ε</sub>	Coated	Uncoated	ød	t	ℓ <sub>3</sub>	r <sub>ε</sub>					
						AH725	T313V	TH10														
6	0.5~1.5	48~16	R																			
11	0.5~1.5	48~16	R																			
11	0.5~1.5	48~16	L																			
16	0.5~1.5	48~16	R	<b>16ERA60</b>	●	●	●	9.525	0.9	0.7	0.06	<b>16IRA60</b>	●	●	●	-	0.9	-	0.04			
16	0.5~1.5	48~16	L	<b>16ELA60</b>	●	●	●	9.525	0.9	0.7	0.06	<b>11IRA60</b>	●	●	●	6.35	0.9	0.7	0.04			
16	0.5~3.0	48~8	R	<b>16ERAG60</b>	●	●	●	9.525	1.6	1.2	0.06	<b>11ILA60</b>	●	●	●	6.35	0.9	0.7	0.04			
16	0.5~3.0	48~8	R	<b>16ERAG60</b>	●	●	●	9.525	1.6	1.2	0.06	<b>16IRAG60</b>	●	●	●	9.525	1.6	1.2	0.04			
16	1.75~3	14~8	R	<b>16ERG60</b>	●	●	●	9.525	1.6	1.2	0.22	<b>16IRG60</b>	●	●	●	9.525	1.6	1.2	0.12			
16	1.75~3	14~8	L	<b>16ELG60</b>	●	●	●	9.525	0.5	1.2	0.22	<b>16ILG60</b>	●	●	●	9.525	1.6	1.2	0.12			

### Partial-profile inserts with chipbreaker

Insert size	Pitch	Number of threads	Hand of cut	External insert				Internal insert														
				Cat. No.	Grades		Dimensions (mm)		Cat. No.	Grades		Dimensions (mm)										
					Coated	Cermet	ød	t		ℓ <sub>3</sub>	r <sub>ε</sub>	Coated	Cermet	ød	t	ℓ <sub>3</sub>	r <sub>ε</sub>					
						AH725	NS730															
11	0.5~1.5	48~16	R																			
16	0.5~1.5	48~16	R	<b>16ERA60-B</b>	◆			9.525	0.9	0.8	0.05	<b>11IRA60-B</b>	●	●	●	6.35	0.9	0.7	0.04			
16	0.5~1.5	48~16	R	<b>16ERA60-B</b>	◆	●		9.525	0.9	0.7	0.06	<b>16IRA60-B</b>	◆		●	9.525	1.6	1.1	0.04			
16	0.5~3.0	48~8	R	<b>16ERAG60-B</b>	◆			9.525	1.7	1.2	0.06	<b>16IRAG60-B</b>	◆			9.525	1.7	1.2	0.05			
16	0.5~3.0	48~8	R	<b>16ERAG60-B</b>	◆	●		9.525	1.6	1.1	0.06	<b>16IRAG60-B</b>	◆		●	9.525	1.6	1.2	0.04			
16	1.75~3.0	14~8	R	<b>16ERG60-B</b>	◆			9.525	1.7	1.2	0.17	<b>16IRG60-B</b>	◆			9.525	1.7	1.2	0.10			
16	1.75~3.0	14~8	R	<b>16ERG60-B</b>	◆	●		9.525	1.6	1.2	0.22	<b>16IRG60-B</b>	◆		●	9.525	1.6	1.2	0.14			

Note: ◆ Please be aware of the different dimensions regarding "t" & "ℓ<sub>3</sub>".

Required to modify the position of the cutting edge.

Target designation for the replacement of shim.

◆● : Stocked items. / Packing Quantity = 5 pcs.



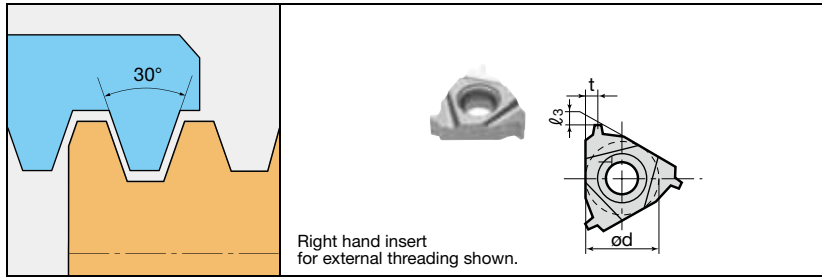








## 30° Trapezoidal (DIN103)

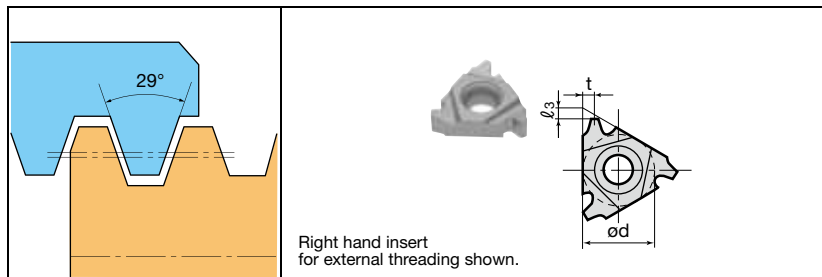


### Applicable toolholders

Insert size	External	Internal
16	CER/L****16** B-SER/L***16 B-CER/L***16 BC-SER/L***16	TSNR/L****16 SNR/L****16** TCNR/L****16** CNR/L****16**

Insert size	Pitch	Number of threads	Hand of cut	External insert					Internal insert								
				Cat. No.	Grades		Dimensions (mm)			Cat. No.	Grades		Dimensions (mm)				
					Coated		ød	t	l <sub>3</sub>		r <sub>E</sub>	Coated		ød	t	l <sub>3</sub>	r <sub>E</sub>
					AH725	T313V						AH725	T313V				
16	1.5	R	<b>16ER15TR</b>	●		9.525	0.9	0.7	-	<b>16IR15TR</b>	●		9.525	0.9	0.7	-	
16	2	R	<b>16ER20TR</b>	●	●	9.525	1.6	1.3	-	<b>16IR20TR</b>	●	●	9.525	1.6	1.3	-	
16	3	R	<b>16ER30TR</b>	●	●	9.525	1.6	1.3	-	<b>16IR30TR</b>	●	●	9.525	1.6	1.3	-	

## 29° Trapezoidal (ACME)



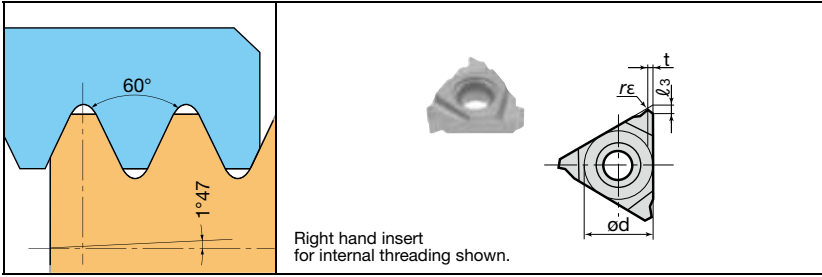
### Applicable toolholders

Insert size	External	Internal
16	CER/L****16** B-SER/L***16 B-CER/L***16 BC-SER/L***16	TSNR/L****16 SNR/L****16**

Insert size	Pitch (Reference)	Number of threads	Hand of cut	External insert					Internal insert								
				Cat. No.	Grades		Dimensions (mm)			Cat. No.	Grades		Dimensions (mm)				
					Coated		ød	t	l <sub>3</sub>		r <sub>E</sub>	Coated		ød	t	l <sub>3</sub>	r <sub>E</sub>
					AH725	T313V						AH725	T313V				
16	(2.117)	12	R	<b>16ER12ACME</b>	●		9.525	1.6	1.3	-	<b>16IR12ACME</b>	●		9.525	1.6	1.3	-
16	(2.540)	10	R	<b>16ER10ACME</b>	●		9.525	1.6	1.3	-	<b>16IR10ACME</b>	●		9.525	1.6	1.3	-
16	(3.175)	8	R	<b>16ER8ACME</b>	●	●	9.525	1.6	1.3	-	<b>16IR8ACME</b>	●	●	9.525	1.6	1.3	-

◆● : Stocked items. / Packing Quantity = 5 pcs.

## ● Round



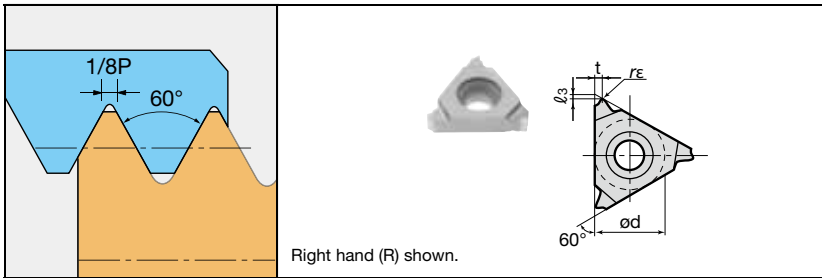
### ■ Applicable toolholders

Insert size	External	Internal
16	CER/L****16** B-SER/L***16 B-CER/L***16 BC-SER/L***16	TSNR/L****16 SNR/L****16**

### ■ Full-profile inserts

Insert size	Pitch (Reference)	Number of threads	Hand of cut	External insert					Internal insert								
				Cat. No.	Grades		Dimensions (mm)			Cat. No.	Grades		Dimensions (mm)				
					Coated		ød	t	l <sub>3</sub>		r <sub>E</sub>	Coated		ød	t	l <sub>3</sub>	r <sub>E</sub>
					AH725	T313V						AH725	T313V				
16	(2.54)	10	R	<b>16ER10RAPI</b>	●	9.525	1.6	1.2	0.36	<b>16IR10RAPI</b>	●	●	9.525	1.6	1.2	0.36	
16	(3.175)	8	R	<b>16ER8RAPI</b>	●	9.525	1.6	1.2	0.43	<b>16IR8RAPI</b>	●	●	9.525	1.6	1.2	0.43	

## ● Aerospace



### ■ Applicable toolholders

Insert size	External
16	CER/L****16** B-SER/L***16 B-CER/L***16 BC-SER/L***16

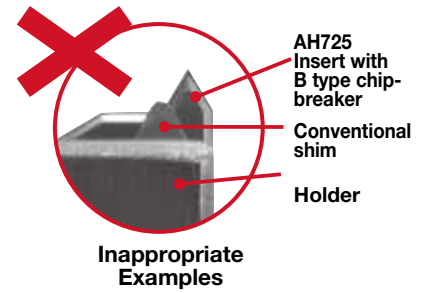
### ■ Full-profile inserts

Insert size	Pitch	Number of threads	Hand of cut	External insert						
				Cat. No.	Grades		Dimensions (mm)			
					Coated		ød	t	l <sub>3</sub>	r <sub>E</sub>
					AH725					
16		32	R	<b>16ER32UNJ</b>	●	9.525	0.5	1.2	0.13	
16		28	R	<b>16ER28UNJ</b>	●	9.525	0.5	1.2	0.15	
16		24	R	<b>16ER24UNJ</b>	●	9.525	0.9	0.7	0.18	
16		20	R	<b>16ER20UNJ</b>	●	9.525	0.9	0.7	0.21	
16		18	R	<b>16ER18UNJ</b>	●	9.525	0.9	0.7	0.24	
16		16	R	<b>16ER16UNJ</b>	●	9.525	0.9	0.7	0.26	
16		14	R	<b>16ER14UNJ</b>	●	9.525	1.6	1.2	0.3	
16		12	R	<b>16ER12UNJ</b>	●	9.525	1.6	1.2	0.35	
16		10	R	<b>16ER10UNJ</b>	●	9.525	1.6	1.2	0.42	
16		8	R	<b>16ER8UNJ</b>	●	9.525	1.6	1.2	0.53	

● : Stocked items.

## IMPORTANT NOTICE Replacement of shim sheet

Please check the items used and replace shims if necessary (see the following list).



### List of interchangeable Shims (Size 16 · Insert).

Holder type	Lead Angle	External Cat. No.		Internal Cat. No.	
		① Conventional	① Standard (New)	② Conventional	② Standard (New)
Dual clamping methods of screw-on and clamp-on	4°	GXE16-4DT	<b>AE16-4DT</b>	GXN16-4DT	<b>AN16-4DT</b>
	3°	GXE16-3DT	<b>AE16-3DT</b>	GXN16-3DT	<b>AN16-3DT</b>
	2°	GXE16-2DT	<b>AE16-2DT</b>	GXN16-2DT	<b>AN16-2DT</b>
	1° (Standard)	GX16-1DT	<b>A16-1DT</b>	GX16-1DT	<b>A16-1DT</b>
	0°	GXE16-0DT	<b>AE16-0DT</b>	GXN16-0DT	<b>AN16-0DT</b>
	-1°	GXE16-99DT	<b>AE16-99DT</b>	GXN16-99DT	<b>AN16-99DT</b>
	-2°	GXE16-98DT	<b>AE16-98DT</b>	GXN16-98DT	<b>AN16-98DT</b>
Clamp-on	4°	GXE16-4	<b>AE16-4</b>	GXN16-4	<b>AN16-4</b>
	3°	GXE16-3	<b>AE16-3</b>	GXN16-3	<b>AN16-3</b>
	2°	GXE16-2	<b>AE16-2</b>	GXN16-2	<b>AN16-2</b>
	1° (Standard)	GXE16-1	<b>A16-1</b>	GXN16-1	<b>A16-1</b>
	0°	GXE16-0	<b>AE16-0</b>	GXN16-0	<b>AN16-0</b>
	-1°	GXE16-99	<b>AE16-99</b>	GXN16-99	<b>AN16-99</b>
	-2°	GXE16-98	<b>AE16-98</b>	GXN16-98	<b>AN16-98</b>

### Target items for the replacement of shims (Size 16 · Insert).

Thread type	External			Internal		
	Cat. No.	Grades	Replacement	Cat. No.	Grades	Replacement
ISO		AH725	① → ②	16IR15ISO-B	AH725	② → ②
				16IR175ISO-B		
				16IR20ISO-B		
55°	16ERAG55-B			16IRAG55-B		
				16IRG55-B		
60°	16ERA60-B			16IRAG60-B		
				16IRA60-B		
				16IRG60-B		
UN				16IR18UN-B		
				16IR16UN-B		
				16IR14UN-B		
W				16IR16W-B		
				16IR14W-B		
PT				16IR14PT-B		
NPT	16ER8NPT-B			16IR14NPT-B		
				16IR115NPT-B		

## CE R/L

External threading ST type toolholders (Dual methods of screw-on and clamp-on clamping)

Pitch	No. of threads	No. of corners
0.5 ~ 6.0 mm	32 ~ 4	3

Right hand (R), carbide shank type shown.

### Steel shank (Dual methods of screw-on and clamp-on clamping)

Cat. No.	Stock		Dimensions (mm)						Insert	Parts				
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f		Clamp set	Shim	Shim screw	Clamping screw	Wrench
CER/L1212H16DT	●	●	12	12	100	24	12	16	16ER/L****	CSP16	A16-1DT	DTS5-3.5	CSTB-3.5ST	T-15F P-3.5
CER/L1616H16DT	●	●	16	16	100	24	16	20	16ER/L****	CSP16	A16-1DT	DTS5-3.5	CSTB-3.5ST	T-15F P-3.5

Note: New shim is used for both right and left hand toolholders.

### Steel shank (Clamp-on type)

Cat. No.	Stock		Dimensions (mm)						Insert	Parts				
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f		Clamp set	Shim Set R	Shim Set L	Clamping screw	Wrench
CER/L1212H16T			12	12	100	22	12	16	16ER/L****	CSP16	A16-1	A16-1	-	T-15F
CER/L1616H16T			16	16	100	22	16	20	16ER/L****	CSP16	A16-1	A16-1	-	T-15F

Note:

A clamp set for CER/L type consists of a clamp and a clamp screw.

A shim set for CER/L type consists of a shim and a shim screw.

Standard shims for CER/L type can be used for both left hand and right hand toolholders. Use either of the sides depending on the hand.

## B-S/C E R/L

External threading ST type toolholders for gang tooling ( Dual methods of screw-on and clamp-on clamping)

Pitch	No. of threads	No. of corners
0.5 ~ 6.0 mm	32 ~ 4	3

Right hand (R) shown.

### Steel shank

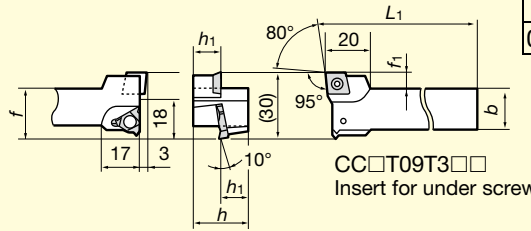
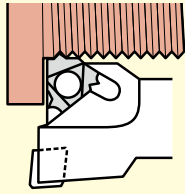
Cat. No.	Stock		Dimensions (mm)						Insert	Parts				
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f		Clamp set	Shim Set R	Shim Set L	Clamping screw	Wrench
B-SER/L10H16	●		20	10	100	15	10	16	16ER/L****	CSP16	-	-	CSTB-3.5	T-15F
B-SER/L12K16	●		24	12	125	18	12	18	16ER/L****	CSP16	A16-1	A16-1	CSTB-3.5	T-15F
B-CER/L16M16	●	●	32	16	150	24	16	22	16ER/L****	CSP16	A16-1	A16-1	-	T-15F

● : Stocked items.

## BC-SE R/L

External threading

ST type toolholders for gang tooling (Screw-on)



Pitch	No. of threads	No. of corners
0.5 ~ 6.0 mm	32 ~ 4	3

Right hand (R), carbide shank type shown.

### Steel shank

Cat. No.	Stock		Dimensions (mm)							Insert	Parts	
	R	L	h	b	L <sub>1</sub>	L <sub>2</sub>	h <sub>1</sub>	f	f <sub>1</sub>		Clamping screw	Wrench
BC-SER/L12K16	●		24	16	125	-	12	23	7	16ER/L**** CC*T09T3**	CSTB-3.5	T-15F
BC-SER/L16M16			32	20	150	-	16	25	5	16ER/L**** CC*T09T3**	CSTB-3.5	T-15F

## SN R/L-2/3

Internal threading

SN type toolholders (Screw-on)

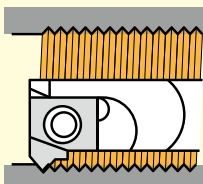


Fig.1

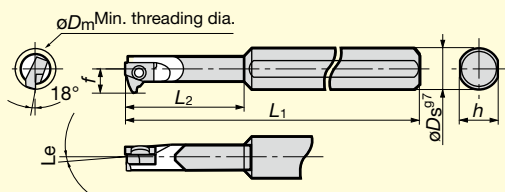
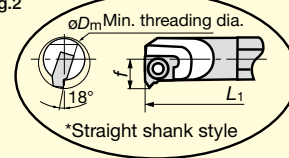


Fig.2



Pitch	No. of threads	No. of corners
0.5 ~ 2.0 mm	48 ~ 16	1

Right hand (R), carbide shank type shown.

### Steel shank

Cat. No.	Stock		Dimensions (mm)						Insert	Parts			
	R	L	Min. threading dia. φDm	φDs	f	L <sub>1</sub>	L <sub>2</sub>	h		Lead Angle Le	Clamping screw	Wrench	Figure
SNR/L0006H06-2	●		8	8	4.7	100	18	7	2°	6IR/L****	CSTB-2L040	T-6F	Fig.1
SNR/L0006H06-3	●		8	8	4.7	100	18	7	3°	6IR/L****	CSTB-2L040	T-6F	Fig.1
SNR/L0008H06-2	●		10	8	5.7	100	-	7	2°	6IR/L****	CSTB-2L	T-6F	Fig.2
SNR/L0008H06-3	●		10	8	5.7	100	-	7	3°	6IR/L****	CSTB-2L	T-6F	Fig.2

### Carbide shank

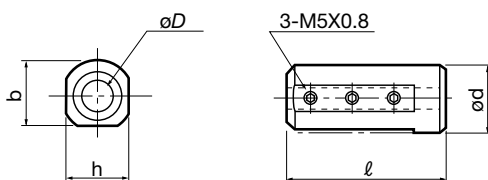
Cat. No.	Stock		Dimensions (mm)						Insert	Parts			
	R	L	Min. threading dia. φDm	φDs	f	L <sub>1</sub>	L <sub>2</sub>	h		Lead Angle Le	Clamping screw	Wrench	Figure
SNR/L0006K06SC-2	●		8	8	4.7	125	30	7	2°	6IR/L****	CSTB-2L040	T-6F	Fig.1
SNR/L0006K06SC-3	●		8	8	4.7	125	30	7	3°	6IR/L****	CSTB-2L040	T-6F	
SNR/L0008K06SC-2	●		10	8	5.7	125	-	7	2°	6IR/L****	CSTB-2L	T-6F	Fig.2
SNR/L0008K06SC-3	●		10	8	5.7	125	-	7	3°	6IR/L****	CSTB-2L	T-6F	

Note: When using a right or left hand insert, the right hand insert (6IR \*\* type), is used for the right hand toolholders (SNR \*\* type).

● : Stocked items

## Sleeves

BLM type (Round shank)



Above drawing shows BLM25-□□□ type.

Cat. No.	Stock	Applicable shank dia. φD	Dimensions (mm)			
			φd	ℓ	h	b
BLM19-08	●	8	19.05	100	18	18
BLM20-08	●	8	20	100	19	18
BLM22-08	●	8	22	125	21	21
BLM254-08	●	8	25.4	125	24	24
BLM25-08C	●	8	25	55	24	23

Note: When setting the toolholder on a tool post, direct clamping on the shank with bolts should be avoided.

Placing the sleeve between the toolholder and tool post is recommended for stable operation.



Carbide reinforced (Only for Tsuppari-Ichiban)

Pitch	No. of threads	No. of corners
0.5 ~ 6.0 mm	48 ~ 5	3

Right hand (R),  
Tsuppari-Ichiban type shown.

### “Tsuppari-Ichiban” shank

Cat. No.	Stock		Dimensions (mm)								Lead Angle Le	Insert	Parts	
	R	L	Min. threading dia. øDm	øDs	f	L <sub>1</sub>	L <sub>2</sub>	ℓ <sub>3</sub>	h	b			Clamping screw	Wrench
TSNR/L0016Q16	●		19	16	10.6	180	40	59	15	-	1°	16IR/L****	CSTB-3.5	T-15F

### Steel shank

Cat. No.	Stock		Dimensions (mm)								Lead Angle Le	Insert	Parts	
	R	L	Min. threading dia. øDm	øDs	f	L <sub>1</sub>	L <sub>2</sub>	ℓ <sub>3</sub>	h	b			Clamping screw	Wrench
SNR/L0010K11	●	●	12	16	6.6	125	25	-	15	15.5	1°	11IR/L****	CSTB-2.5	T-8F
SNR/L0010K11-2	●		12	16	6.6	125	25	-	15	15.5	2°	11IR/L****	CSTB-2.5	T-8F
SNR/L0010K11-3	●		12	16	6.6	125	25	-	15	15.5	3°	11IR/L****	CSTB-2.5	T-8F
SNR/L0013L11	●	●	15	16	8.2	140	32.5	-	15	15.5	1°	11IR/L****	CSTB-2.5	T-8F
SNR/L0013L11-2	●		15	16	8.2	140	32.5	-	15	15.5	2°	11IR/L****	CSTB-2.5	T-8F
SNR/L0013L11-3	●		15	16	8.2	140	32.5	-	15	15.5	3°	11IR/L****	CSTB-2.5	T-8F
SNR/L0016M16	●	●	19	16	10.6	150	40	-	15	15.5	1°	16IR/L****	CSTB-3.5	T-15F
SNR/L0016M16-2	●		19	16	10.6	150	40	-	15	15.5	2°	16IR/L****	CSTB-3.5	T-15F
SNR/L0016M16-3	●		19	16	10.6	150	40	-	15	15.5	3°	16IR/L****	CSTB-3.5	T-15F

### Carbide shank

Cat. No.	Stock		Dimensions (mm)								Lead Angle Le	Insert	Parts	
	R	L	Min. threading dia. øDm	øDs	f	L <sub>1</sub>	L <sub>2</sub>	ℓ <sub>3</sub>	h	b			Clamping screw	Wrench
SNR/L0010M11SC	●		13	10	7.4	150	24	-	9	-	1°	11IR/L****	CSTB-2.5	T-8F
SNR/L0010M11SC-2	●		13	10	7.4	150	24	-	9	-	2°	11IR/L****	CSTB-2.5	T-8F
SNR/L0010M11SC-3	●		13	10	7.4	150	24	-	9	-	3°	11IR/L****	CSTB-2.5	T-8F
SNR/L0012P11SC	●		15	12	8.5	170	28	-	11	-	1°	11IR/L****	CSTB-2.5	T-8F
SNR/L0012P11SC-2	●		15	12	8.5	170	28	-	11	-	2°	11IR/L****	CSTB-2.5	T-8F
SNR/L0012P11SC-3	●		15	12	8.5	170	28	-	11	-	3°	11IR/L****	CSTB-2.5	T-8F
SNR/L0016R16SC	●	●	20	16	11.9	200	35	-	15	-	1°	16IR/L****	CSTB-3.5	T-15F
SNR/L0016R16SC-2	●		20	16	11.9	200	35	-	15	-	2°	16IR/L****	CSTB-3.5	T-15F
SNR/L0016R16SC-3	●		20	16	11.9	200	35	-	15	-	3°	16IR/L****	CSTB-3.5	T-15F

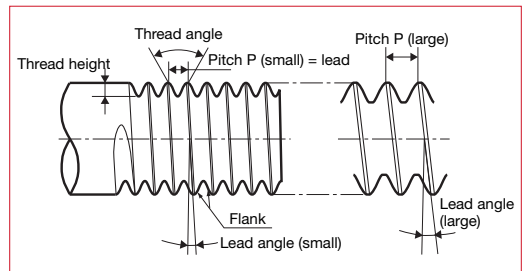
When using a right or left hand insert, the right hand insert (□□IR\*\*type) is used for the right hand toolholders (SNR\*\*type) and left hand insert (□□IL\*\*type) is used for the left hand toolholders (SNL\*\*type).

● : Stocked items.

# Fundamentals of screw threads

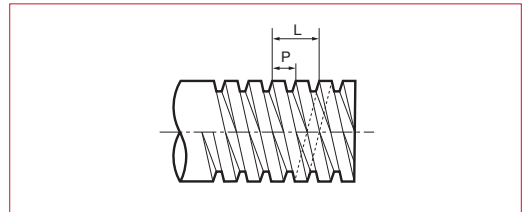
## Relationship between lead, lead angle and pitch

1. Lead is the axial distance a screw advances in one rotation. In single start screw, the lead is equal to the pitch.
2. The inclination angle of a threaded groove is called lead angle. In screws of the same diameter, the lead angle increases as the pitch increases.
3. The side face of a completed thread groove is called flank. The distance between the crest and the root is called thread height.



## Single and multi start thread

1. The single start thread has single groove. Two start thread or three start thread has two grooves or three grooves respectively.
2. When viewing the section of the multi start thread, the pitch is same as that of the single start thread. But, the lead of the two start thread is twice the pitch. The multi start thread is mainly used for trapezoidal threads.



## Tolerance class of threads

Tolerance classes of screw threads are expressed as follows:  
 Metric coarse external thread: 6h, 6g Metric coarse internal thread: 5H, 6H

These classes are ranked with tolerances of thread diameter, pitch, thread angle, etc. For fastening applications, 6H- and 6g-class (former JIS second class) threads, manufactured by

cutting or rolling, are generally used. 5H- and 4h-class threads (former JIS first class) are generally finished by grinding. For example, M8-6g means metric coarse external thread of 6g tolerance class.

## TAC threading inserts

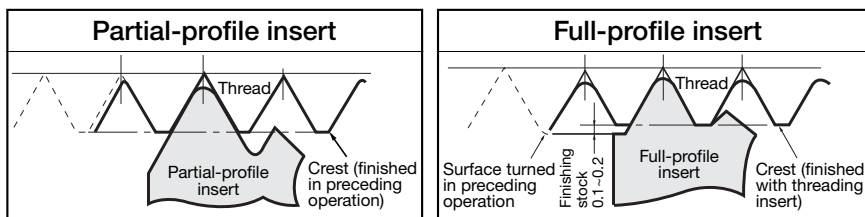
### Difference between full-profile and partial-profile insert

#### Full-profile insert

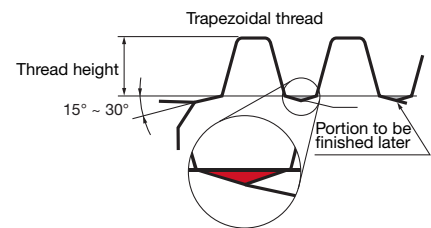
In the full-profile insert, the major diameter of the thread is finished by the profiled finishing edge as shown in Figure below. Therefore, about 0.1 mm of finishing stock must be left on the outer surface of the workpiece before threading. In trapezoidal

threads, since slants of 15° to 30° are left on the crest of the thread as shown in Figure below, these portions must be finished later.

Burrless thread can be produced with the full-profile insert.



#### When machining trapezoidal threads:



#### Partial-profile insert

Partial-profile inserts can not be used for finishing of the crest, but can be applied to a wide range of pitches.

For example

Cat. No.	Pitch	No. of threads	$r_\epsilon$
16ERA60	0.5 ~ 1.5	48 ~ 16	0.06
16ERG60	1.75 ~ 3.0	14 ~ 8	0.22

Corner radii of inserts are fitted to the thread of the smallest pitch.

### Difference between external and internal use inserts

In full-profile inserts for metric and unified threads, the corner radius and thread height are differ from those for the external and internal use insert respectively. Therefore, the right hand insert for external use and the left hand insert for internal use are not the same tool.

Since the rake angles of toolholders are -10° for external toolholders and -15° for internal toolholders, the external / internal toolholders can not be used for machining internal / external thread.

For example

Cat. No.	Applicable inserts	$r_\epsilon$	Thread height
16ER20ISO	External	0.25	1.52
16IL20ISO	Internal	0.14	1.30

And, in whitworth thread, though the external thread and internal thread have the same thread form, the external and internal toolholders are incompatible because of the different rake angle.

# Shim replacement method

## Compensation for the lead angle and tool relief angle

When the pitch is large or the screw diameter is small, the lead angle becomes large and the effective relief angle on the advance flank side  $\beta_2$  becomes small. In particular, this will cause shorter life of the insert in the case of trapezoidal screw with small flank angle. It is ideal without any interference for the thread cutting insert to have an equal relief angle on both right and left. Replace the shim so that the rake face of insert faces the thread groove direction (that is,  $\beta = \beta_3$ ).

### Calculating the lead angle

The lead angle is calculated as follows:

$$\beta = \tan^{-1}(l / \pi d) = \tan^{-1}(nP / \pi d)$$

$\beta$  : Lead angle  
 $l$  : Lead  
 $n$  : No. of threads  
 $P$  : Pitch  
 $d$  : Thread diameter

### Calculating the relief angle

The relief angle  $\beta_1$  is calculated as follows:

$$\beta_1 = \tan^{-1}(\tan \theta \cdot \tan \alpha)$$

The  $\alpha$  of a standard toolholder is  $10^\circ$  for external threading and  $15^\circ$  for internal threading.

Included angle $2\theta$	$\theta$	$\beta_1$	
		External threading tool	Internal threading tool
$60^\circ$	$30^\circ$	$5.8^\circ$	$8.8^\circ$
$55^\circ$	$27.5^\circ$	$5.2^\circ$	$7.9^\circ$
$30^\circ$	$15^\circ$	$2.7^\circ$	$4.1^\circ$
$29^\circ$	$14.5^\circ$	$2.6^\circ$	$4^\circ$

Accordingly, the effective relief angle is calculated as follows:

$$\beta_2 = \beta_1 + \beta_3 - \beta$$

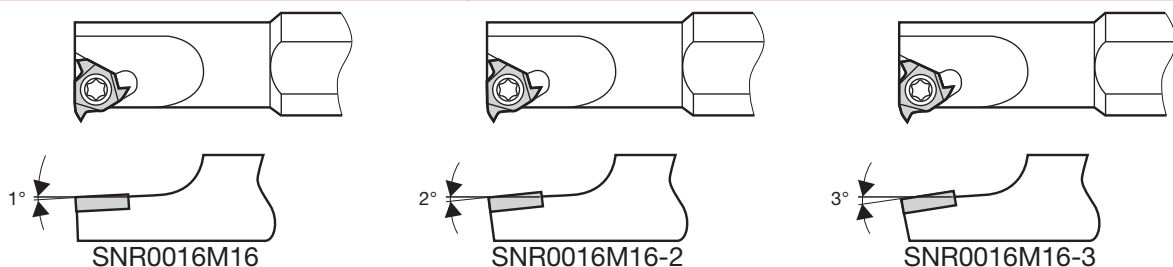
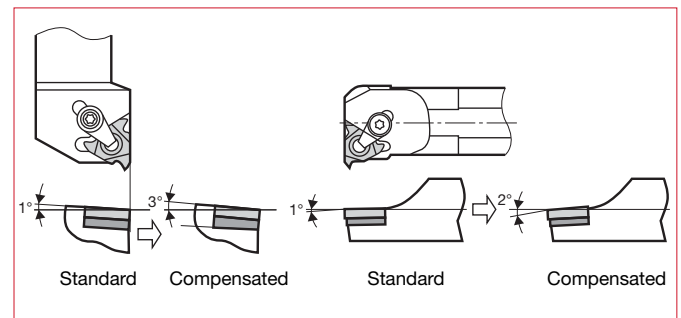
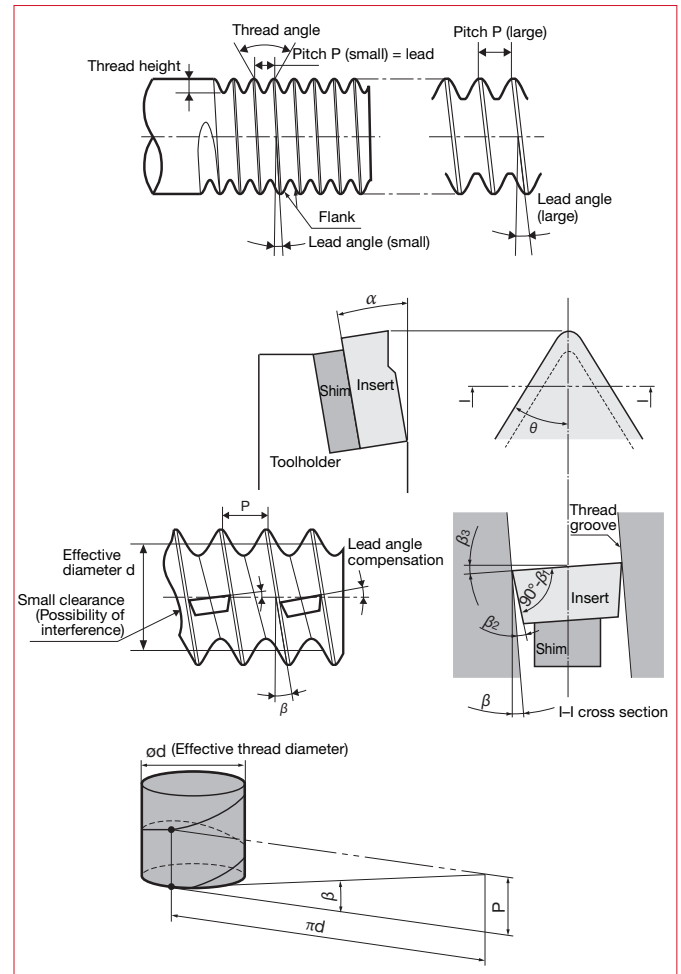
$\beta$  : Lead angle  
 $\beta_2$  : Effective relief angle  
 $\beta_3$  : Lead angle compensation value

In other words,  $\beta_1 = \beta_2$  when the thread lead angle is equal to the compensation value. Namely, the relief angle of the tool itself is equal to the effective relief angle. If the wrong compensation value is used,  $\beta_1 > \beta_2$ . Namely, the effective relief angle becomes smaller. Therefore, carry out compensation of the lead angle so that the following range is obtained:

$\pm 1^\circ$  when the included angle is  $60^\circ$  and  $55^\circ$   
 $\pm 30'$  when the included angle is  $30^\circ$  and  $29^\circ$

### Compensation of lead angle for shim less internal toolholders

When using internal threading toolholders without shim, the abovementioned method can not be applied for lead angle compensation. Therefore, special toolholders for large lead angles are available as shown below. The final figure of the



Cat. No. (-2 or -3) indicates  $2^\circ$  or  $3^\circ$  lead angle to be used respectively. The toolholders without these figures are for  $1^\circ$  lead angle.

# Shim replacement method

## Type of shim

The Cat. No. of the shim and compensated lead angles are shown in the table.

Compensated lead angles	-2°	-1°	0°	1°	2°	3°	4°
Shim	***-98	***-99	***-0	***-1	***-2	***-3	***-4

Note: The last numeral of the shim Cat. No. is the compensated lead angle.

## Toolholders and applicable shims

### Screw-on / clamp-on dual toolholders

Toolholder Cat. No.	Shim	
	R	L
CER/L****16DT	AE16-*DT	AN16-*DT
TCNR/L****16DT	AN16-*DT	AE16-*DT

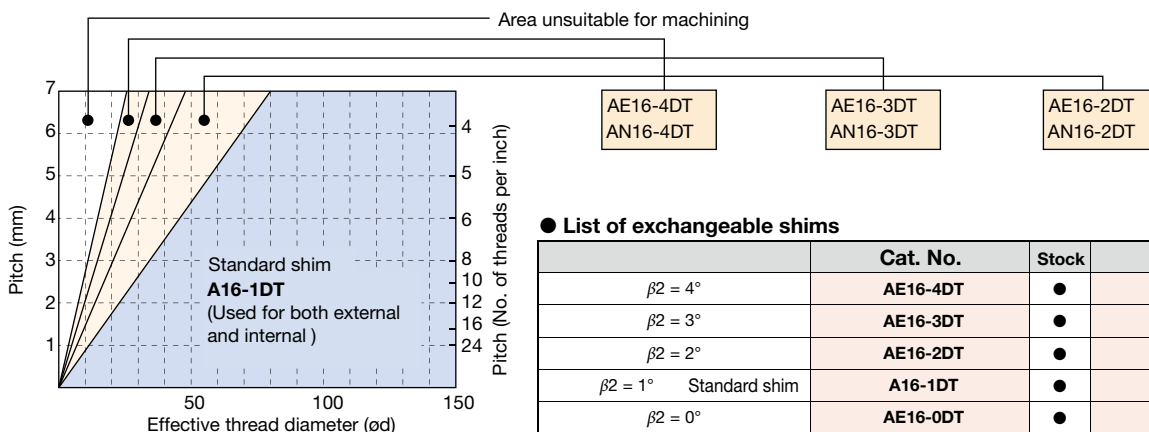
Note: Standard shim is AE16-1DT or GX22-1DT. Other types are optional.

### Clamp-on type toolholders

Toolholder Cat. No.	Shim	
	R	L
CER/L****16-T	AE16-*	AN16-*
CNR/L****16	AN16-*	AE16-*
B-CER/L****16	AE16-*	AN16-*

Note: Standard shim is □□□□-1. Other types are optional.

## Shim selection guide for screw-on / clamp-on dual ST-type tools

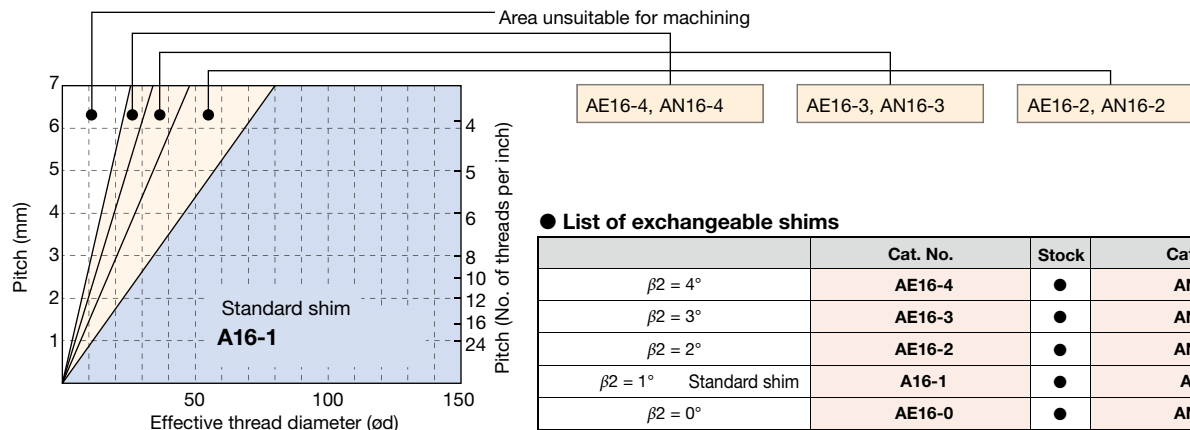


### List of exchangeable shims

(Grade: D30)

	Cat. No.	Stock	Cat. No.	Stock
$\beta_2 = 4^\circ$	AE16-4DT	●	AN16-4DT	●
$\beta_2 = 3^\circ$	AE16-3DT	●	AN16-3DT	●
$\beta_2 = 2^\circ$	AE16-2DT	●	AN16-2DT	●
$\beta_2 = 1^\circ$ Standard shim	A16-1DT	●	A16-1DT	●
$\beta_2 = 0^\circ$	AE16-0DT	●	AN16-0DT	●
$\beta_2 = -1^\circ$	AE16-99DT	●	AN16-99DT	●
$\beta_2 = -2^\circ$	AE16-98DT	●	AN16-98DT	●
Applicable toolholders	CER--16DT TCNL--16DT		CEL--16DT TCNR--16DT	

## Shim selection guide for clamp-on type ST-tools



### List of exchangeable shims

(Grade: D30)

	Cat. No.	Stock	Cat. No.	Stock
$\beta_2 = 4^\circ$	AE16-4	●	AN16-4	●
$\beta_2 = 3^\circ$	AE16-3	●	AN16-3	●
$\beta_2 = 2^\circ$	AE16-2	●	AN16-2	●
$\beta_2 = 1^\circ$ Standard shim	A16-1	●	A16-1	●
$\beta_2 = 0^\circ$	AE16-0	●	AN16-0	●
$\beta_2 = -1^\circ$	AE16-99	●	AN16-99	●
$\beta_2 = -2^\circ$	AE16-98	●	AN16-98	●
Applicable toolholders	CER--16T, CNL--16 B-CER--16		CEL--16T, CNR--16 B-CEL--16	

● : Stocked items.

# Selection of ST-type Toolholders

## Selection of Internal Threading Toolholders

### Relation between internal toolholders and machinable threads

In the tables starting from page 8-30, the relationships between toolholders, inserts, threads to be machined, and shims to be replaced are shown. In these tables, the criteria are set as follows.

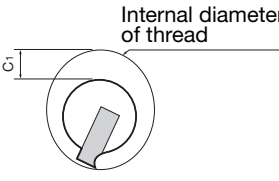
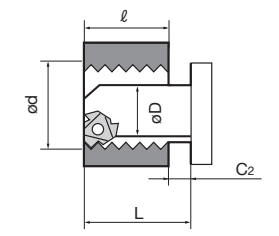
- The minimum machining diameter.
- The L/D ratio of the toolholder.
- The lead angle of the thread.
- Cutting conditions

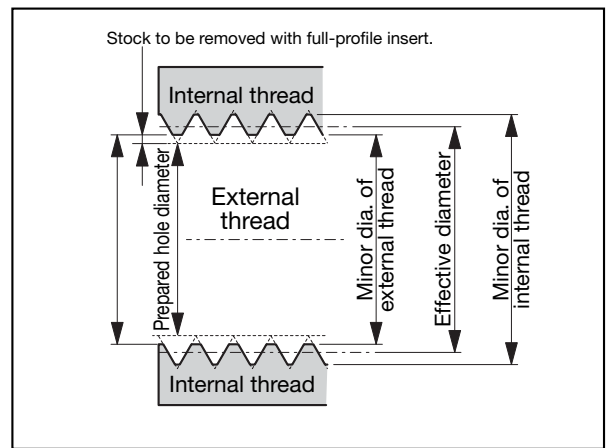
Especially when machining near the minimum machining diameter, the compensation for the lead angle should be done carefully.

Moreover, in threading, because chips generally can not be broken into small pieces, the shank size should be selected in consideration of adequate clearance (C1).

#### Symbols

- Recommended
- Usable
- Needs replacing of the shim.  
"0" indicates "Change to the shim for 0° lead angle".
- Unusable

Clearance C <sub>1</sub>			$C_1 \geq 3 \text{ mm}$ (1 mm for SN-Mini types (6IR))
Overhang ratio L/D		Steel shank	$L/D \leq 2 \rightarrow \text{○}$
		Carbide shank	$L/D \leq 3 \rightarrow \text{○}$



### How to use the tables

- Firstly, find the nominal thread diameter. Example: M14 X 2.0
- The table indicates that the lead angle is 2°52'.
- The Cat. No. of the insert to be used corresponds with IR20ISO.
- By following the row to the right,  and  marks are found. The  mark indicates the optimum toolholder type. The toolholders of  mark are usable, but less rigid because the shank diameter against the threading diameter is smaller than those of  marked toolholder. In this example, SNR0008H06-3 and SNR0008K06SC-3 are the optimum toolholders. The insert Cat.No. is 6IR20ISO.
- For calculation of the lead angle, refer to page 8-27.

### Metric fine screw thread (ISO)

(For full size of this table, see page 8-30.)

Nominal size	Pitch	Effective diameter	Lead angle	Shank material Insert size Holder Cat. No. Insert Cat. No.	Steel shank						Carbide shank								
					6IR		11IR		16IR		6IR		11IR		16IR				
					SNR0006H06-2	SNR0006H06-3	SNR0008H06-2	SNR0008H06-3	SNR0010K11-2	SNR0010K11-3	SNR0013L11-2	SNR0013L11-3	SNR0016M16-2	SNR0016M16-3	SNR0006K06SC-2	SNR0006K06SC-3	SNR0008K06SC-2	SNR0008K06SC-3	SNR0010M11SC-2
M10	1.5	9.03	3°02'	IR15ISO															
M11	1.5	10.03	2°44'	IR15ISO		○								○					
M12	1.75	10.86	2°56'	IR175ISO		○								○					
M14	2	12.7	2°52'	IR20ISO		•		○							○				
M16	2	14.93	2°52'	IR20ISO	•		○							•		○			

# Selection of ST-type Toolholders

## Selection of Internal Toolholders—Relationship between thread sizes, toolholders, and inserts—Part 1

### ■ Metric coarse screw thread (ISO)

Nominal size	Pitch	Effective diameter	Lead angle	Shank material		Steel shank						Carbide shank										
				Insert size	Holder Cat. No.	6IR		11IR			16IR		6IR		11IR		16IR					
						Insert Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.					
M10	1.5	9.03	3°02'	IR15ISO	SNR0006H06-2	SNR0006H06-3	SNR0008H06-2	SNR0008H06-3	SNR0010K11-2	SNR0010K11-3	SNR0013L11-2	SNR0013L11-3	SNR0016M16-2	SNR0016M16-3	SNR0006K06SC-2	SNR0006K06SC-3	SNR0008K06SC-2	SNR0008K06SC-3	SNR0010M11SC-2	SNR0010M11SC-3	SNR0016R16SC-2	SNR0016R16SC-3
M11	1.5	10.03	2°44'	IR15ISO		○										○						
M12	1.75	10.86	2°56'	IR175ISO		○										○						
M14	2	12.7	2°52'	IR20ISO		•		○								•		○				
M16	2	14.7	2°29'	IR20ISO	•		○								•		○					
M18	2.5	16.38	2°47'	IR25ISO																		
M20	2.5	18.38	2°29'	IR25ISO																		
M22	2.5	20.38	2°14'	IR25ISO																		
M24	3	22.05	2°29'	IR30ISO																		
M27	3	25.05	2°11'	IR30ISO									○								○	

### ■ Metric fine screw thread (ISO)

1/2

Nominal size	Pitch	Effective diameter	Lead angle	Shank material		Steel shank						Carbide shank												
				Insert size	Holder Cat. No.	6IR		11IR			6IR		11IR		11IR		11IR							
						Insert Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.	Holder Cat. No.						
M9×0.75	0.75	8.51	1°36'	IR075ISO	SNR0006H06-2	SNR0006H06-3	SNR0008H06-2	SNR0008H06-3	SNR0010K11	SNR0010K11-2	SNR0010K11-3	SNR0013L11	SNR0013L11-2	SNR0013L11-3	SNR0006K06SC-2	SNR0006K06SC-3	SNR0008K06SC-2	SNR0008K06SC-3	SNR0010M11SC	SNR0010M11SC-2	SNR0010M11SC-3	SNR0012P11SC	SNR0012P11SC-2	SNR0012P11SC-3
M9×1	1	8.32	2°11'	IR10ISO																				
M10×0.75	0.75	9.51	1°26'	IR075ISO																				
M10×1	1	9.35	1°57'	IR10ISO	○										○									
M10×1.25	1.25	9.19	2°29'	IR125ISO																				
M11×0.75	0.75	10.51	1°18'	IR075ISO																				
M11×1	1	10.35	1°46'	IR10ISO	○										○									
M12×1	1	11.35	1°36'	IR10ISO	•		○								•		○							
M12×1.25	1.25	11.19	2°02'	IR125ISO	○										○									
M12×1.5	1.5	11.03	2°29'	IR15ISO	○										○									
M14×1	1	13.35	1°22'	IR10ISO																				
M14×1.25	1.25	13.19	1°44'	IR125ISO	•		○								•		○							
M14×1.5	1.5	13.03	2°06'	IR15ISO	•		○								•		○							
M15×1	1	14.35	1°16'	IR10ISO																				
M15×1.5	1.5	14.03	1°57'	IR15ISO	•		○								•		○							
M16×1	1	15.35	1°11'	IR10ISO					○															
M16×1.5	1.5	15.03	1°49'	IR15ISO	•		○								•		○							
M17×1	1	16.35	1°07'	IR10ISO					○										○					
M17×1.5	1.5	16.03	1°42'	IR15ISO	•		•		○						•		○							
M18×1	1	17.35	1°03'	IR10ISO					○										○					
M18×1.5	1.5	17.03	1°36'	IR15ISO	•		•		○						•		•			○				
M18×2	2	16.7	2°11'	IR20ISO	•		•		○						•		•			○				
M20×1	1	19.35	0°57'	IR10ISO					•				○						•			○		
M20×1.5	1.5	19.03	1°26'	IR15ISO					•				○						•			○		
M20×2	2	18.7	1°57'	IR20ISO	•		•		○						•		•			•		○		

Note : The above tables show correspondence of internal toolholders at the time of setting clearance between thread and toolholder to 3 mm (1 mm in case of SN type) and the finishing stock to 0.1 mm.













# Standard Cutting Conditions and Infeed Methods

## Standard cutting conditions

Work material	Hardness	Cutting speed: $v_c$ (m/min)			
		AH725	T313V	NS730	TH10
Carbon steels	< 200HB	80 ~ 180	100 ~ 200	150 ~ 200	–
	> 200HB	60 ~ 160	100 ~ 150	100 ~ 170	–
Stainless steels	–	50 ~ 130	70 ~ 130	–	–
Cast irons	–	–	70 ~ 150	–	70 ~ 90
Non-ferrous metals	–	–	–	–	100 ~ 500
Heat-resisting alloys	–	–	–	–	10 ~ 40
Hard materials	50 ~ 60HRC	–	–	–	10 ~ 30

## Threading Guidelines

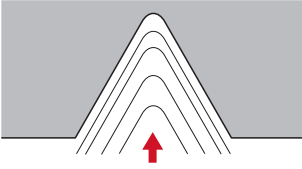

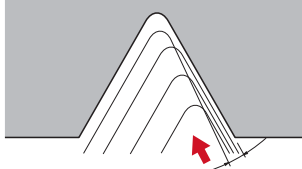

Determine the infeed per pass and number of threads while referring to the table and description below.

Pitch	0.5	0.75	1	1.25	1.5	1.75	2	2.5	3	3.5	4	4.5	5 ~
No. of threads	48	32	24	20	16	14	12	10	8	7	6	5.5	5 ~
No. of passes	4 ~ 6	4 ~ 7	4 ~ 8	5 ~ 9	6 ~ 10	7 ~ 12	7 ~ 12	8 ~ 14	10 ~ 16	11 ~ 18	11 ~ 18	11 ~ 19	12 ~ 24

Note:

- When using the full-profile insert, set the total infeed amount by taking the finish stock of 0.1mm into account.
- Set the first infeed to 150 ~ 200% of nose R and do not allow it to exceed 0.5 mm.
- The infeed amount during the final pass must be a minimum of 0.05 mm. No zero cuts should be made. (Extra small infeed or zero cutting of work hardened surfaces will reduce tool life.)
- The partial-profile insert or inside diameter insert has small nose R. Reduce the infeed per pass and increase the no. of passes.
- Regarding standard infeed per passes and no. of passes, please refer to our catalogue.

## Infeed Methods for ST-type Tools

Infeed method	Features
 <p>Straight infeed (radial infeed)</p>	<ul style="list-style-type: none"> <li>• Most simple and usual method</li> <li>• Suitable for the relatively small pitch threads of easily machinable material.</li> <li>• Chip contact length on right and left is longer, causing chattering, with increased load on the nose end.</li> <li>• When the half included angle is not symmetrical to the right and left, infeeding in the direction of 1/2 of the included angle will ensure equal machining with right and left cutting edges.</li> </ul>
 <p>Single edge infeed (flank infeed)</p>	<ul style="list-style-type: none"> <li>• Suitable for large pitch threads or easy to tear materials. Effectively prevents chattering.</li> <li>• Chips are discharged in one direction only. Satisfactory chip control.</li> <li>• Edge on the right (with zero infeed) tends to be worn heavily.</li> </ul>
 <p>Modified single-edge infeed (flank infeed)</p>	<ul style="list-style-type: none"> <li>• Suitable for large pitch threads or easy to tear materials. Effectively prevents chattering.</li> <li>• Chips are discharged in one direction only. Satisfactory chip control.</li> <li>• Edge on the right performs some cutting, therefore wear of this edge can thus be suppressed.</li> </ul>
 <p>Alternating flank infeed</p>	<ul style="list-style-type: none"> <li>• Suitable for large pitch threads or easy to tear material. Effectively prevents chattering.</li> <li>• Chips are discharged alternately in right and left directions, resulting possibly in entanglement.</li> <li>• Right and left edges are used alternately, ensuring uniform wear and extending tool life.</li> </ul>

# Infeed per Pass and Number of Passes

## ISO metric full-profile inserts (for external)

Pitch	0.5	0.75	1	1.25	1.5	1.75	2	2.5	3
Height of thread	0.32	0.47	0.63	0.79	0.95	1.11	1.27	1.58	1.9
Total depth of cut	0.42	0.57	0.73	0.89	1.05	1.21	1.37	1.68	2
Number of passes	1	0.15	0.18	0.25	0.25	0.3	0.3	0.3	0.35
	2	0.12	0.12	0.2	0.2	0.25	0.25	0.25	0.3
	3	0.1	0.12	0.13	0.15	0.2	0.2	0.2	0.25
	4	0.05	0.1	0.1	0.14	0.15	0.16	0.2	0.23
	5		0.05	0.05	0.1	0.1	0.15	0.15	0.2
	6				0.05	0.05	0.1	0.12	0.15
	7						0.05	0.1	0.15
	8							0.05	0.1
	9								0.05
	10								
	11								
	12								
	13								

## ISO metric full-profile inserts (for internal)

Pitch	0.5	0.75	1	1.25	1.5	1.75	2	2.5	3
Height of thread	0.29	0.43	0.58	0.72	0.87	1.01	1.16	1.45	1.74
Total depth of cut	0.39	0.53	0.68	0.82	0.97	1.11	1.26	1.55	1.84
Number of passes	1	0.08	0.1	0.14	0.15	0.2	0.2	0.2	0.25
	2	0.07	0.09	0.13	0.13	0.16	0.18	0.18	0.22
	3	0.07	0.08	0.11	0.12	0.14	0.16	0.17	0.2
	4	0.06	0.08	0.1	0.11	0.12	0.14	0.16	0.18
	5	0.06	0.07	0.08	0.1	0.12	0.12	0.14	0.16
	6	0.05	0.06	0.07	0.09	0.1	0.1	0.12	0.15
	7		0.05	0.05	0.07	0.08	0.09	0.1	0.1
	8				0.05	0.05	0.07	0.08	0.1
	9						0.05	0.06	0.08
	10							0.05	0.06
	11								0.05
	12								
	13								

## Unified full-profile inserts

No. of thread	For external								For internal							
	24	20	18	16	14	12	8	24	20	18	16	14	12	8		
Height of thread	0.67	0.8	0.89	1.01	1.15	1.34	2.01	0.61	0.74	0.82	0.92	1.05	1.23	1.84		
Total depth of cut	0.77	0.9	0.99	1.11	1.25	1.44	2.11	0.71	0.84	0.92	1.02	1.15	1.33	1.94		
Number of passes	1	0.25	0.25	0.28	0.3	0.3	0.35	0.2	0.2	0.2	0.2	0.25	0.25	0.3		
	2	0.22	0.2	0.23	0.25	0.25	0.25	0.3	0.16	0.16	0.18	0.18	0.2	0.2		
	3	0.15	0.16	0.18	0.18	0.23	0.21	0.25	0.12	0.13	0.15	0.16	0.18	0.18		
	4	0.1	0.14	0.15	0.15	0.18	0.18	0.22	0.1	0.12	0.14	0.14	0.16	0.16		
	5	0.05	0.1	0.1	0.1	0.14	0.15	0.2	0.08	0.1	0.1	0.11	0.13	0.13		
	6		0.05	0.05	0.08	0.1	0.12	0.2	0.05	0.08	0.1	0.1	0.1	0.1		
	7				0.05	0.05	0.1	0.16		0.05	0.05	0.08	0.08	0.1		
	8						0.08	0.16			0.05	0.05	0.08	0.12		
	9						0.05	0.12						0.08		
	10							0.1						0.05		
	11								0.05							
	12															
	13															
	14															

## Whitworth full-profile inserts

No. of thread	For external								For internal							
	20	19	18	16	14	12	11	10	8	20	19	18	16	14		
Height of thread	0.83	0.88	0.92	1.04	1.19	1.39	1.51	1.66	2.08	0.83	0.88	0.92	1.04	1.19		
Total depth of cut	0.93	0.98	1.02	1.14	1.29	1.49	1.61	1.76	2.18	0.93	0.98	1.02	1.14	1.29		
Number of passes	1	0.25	0.28	0.3	0.3	0.3	0.3	0.35	0.35	0.2	0.2	0.22	0.22	0.25		
	2	0.2	0.22	0.24	0.25	0.25	0.25	0.25	0.3	0.3	0.18	0.18	0.18	0.18		
	3	0.18	0.18	0.18	0.18	0.23	0.2	0.2	0.23	0.25	0.16	0.16	0.17	0.17		
	4	0.15	0.15	0.15	0.14	0.2	0.18	0.18	0.2	0.23	0.14	0.16	0.16	0.16		
	5	0.1	0.1	0.1	0.12	0.16	0.15	0.15	0.15	0.22	0.12	0.13	0.14	0.14		
	6	0.05	0.05	0.05	0.1	0.1	0.14	0.14	0.14	0.2	0.08	0.1	0.1	0.12		
	7				0.05	0.05	0.12	0.12	0.12	0.18	0.05	0.05	0.05	0.1		
	8						0.1	0.12	0.12	0.16				0.05		
	9						0.05	0.1	0.1	0.14				0.1		
	10							0.05	0.05	0.1				0.05		
	11								0.05					0.05		
	12															
	13															
	14															
	15															

# Infeed per Pass and Number of Passes

## 30° Trapezoidal inserts

	For external			For internal		
	Pitch	2	3	2	3	
Height of thread	1.25	1.75		1.25	1.75	
Total depth of cut	1.35	1.85		1.35	1.85	
Number of passes	1	0.25	0.25	0.2	0.22	
	2	0.2	0.22	0.18	0.2	
	3	0.2	0.2	0.18	0.18	
	4	0.18	0.18	0.16	0.16	
	5	0.15	0.17	0.15	0.16	
	6	0.12	0.16	0.13	0.16	
	7	0.1	0.14	0.1	0.14	
	8	0.1	0.14	0.1	0.14	
	9	0.05	0.12	0.1	0.12	
	10		0.12	0.05	0.12	
	11		0.1		0.1	
	12		0.05		0.1	
	13				0.05	
	14					
	15					
	16					
	17					
	18					
	19					
	20					
	21					
	22					

## 29° Trapezoidal inserts

	For external			For internal			
	No. of thread	8	6	5	8	6	5
Height of thread	1.88	2.41	2.92	1.88	2.41	2.92	
Total depth of cut	1.98	2.51	3.02	1.98	2.51	3.02	
Number of passes	1	0.25	0.25	0.25	0.22	0.22	0.22
	2	0.22	0.22	0.22	0.2	0.2	0.2
	3	0.2	0.2	0.2	0.18	0.18	0.18
	4	0.18	0.18	0.18	0.16	0.18	0.18
	5	0.16	0.17	0.18	0.16	0.16	0.16
	6	0.16	0.16	0.16	0.16	0.15	0.16
	7	0.16	0.16	0.16	0.15	0.15	0.15
	8	0.14	0.14	0.14	0.14	0.14	0.14
	9	0.14	0.14	0.14	0.14	0.14	0.14
	10	0.12	0.14	0.14	0.12	0.14	0.14
	11	0.1	0.14	0.14	0.1	0.14	0.14
	12	0.1	0.12	0.14	0.1	0.12	0.14
	13	0.05	0.12	0.12	0.1	0.12	0.12
	14		0.12	0.12	0.05	0.12	0.12
	15		0.1	0.12		0.1	0.12
	16		0.1	0.12		0.1	0.12
	17		0.05	0.12		0.1	0.12
	18			0.12		0.05	0.12
	19			0.1			0.1
	20			0.1			0.1
	21			0.05			0.1
	22						0.05

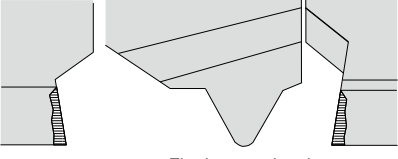
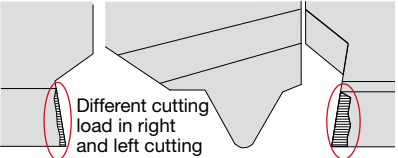
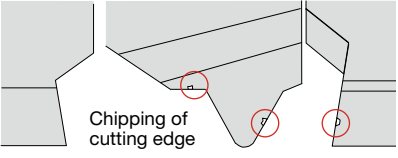
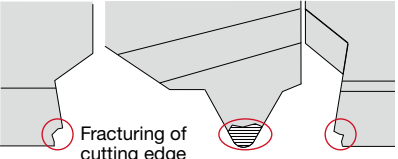
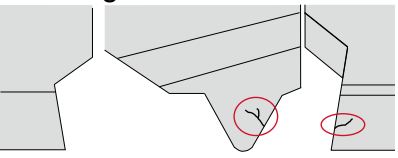
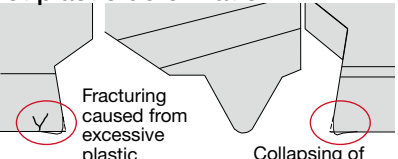
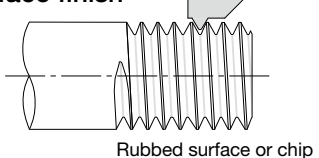
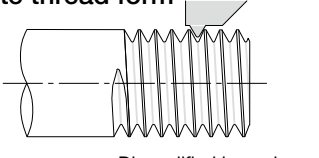
## PT full-profile inserts

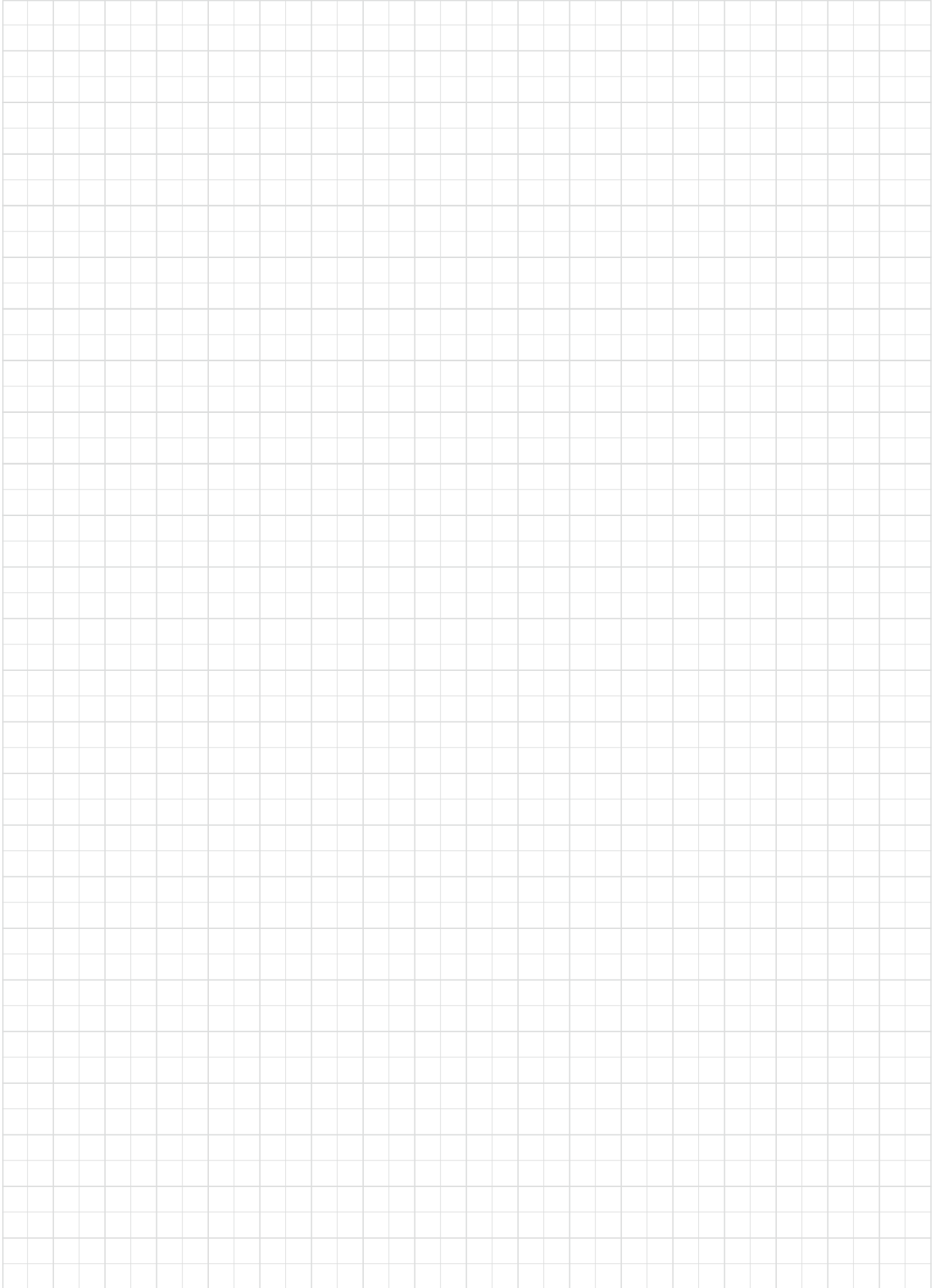
	For external				For internal			
	No. of thread	28	19	14	11	19	14	11
Height of thread	0.6	0.86	1.16	1.48	0.86	1.16	1.48	
Total depth of cut	0.7	0.96	1.26	1.58	0.96	1.26	1.58	
Number of passes	1	0.25	0.28	0.3	0.3	0.22	0.25	0.25
	2	0.2	0.2	0.25	0.25	0.2	0.22	0.22
	3	0.1	0.18	0.2	0.22	0.18	0.18	0.18
	4	0.1	0.15	0.15	0.18	0.16	0.14	0.18
	5	0.05	0.1	0.11	0.15	0.1	0.12	0.15
	6		0.05	0.1	0.12	0.05	0.1	0.13
	7			0.1	0.11	0.05	0.1	0.12
	8			0.05	0.1		0.1	0.1
	9				0.1		0.05	0.1
	10				0.05			0.1
	11							0.05
	12							
	13							
	14							
	15							
	16							
	17							

## NPT full-profile inserts

	For external				For internal			
	No. of thread	18	14	11.5	8	14	11.5	8
Height of thread	1.14	1.47	1.79	2.58	1.47	1.79	2.58	
Total depth of cut	1.24	1.57	1.89	2.68	1.57	1.89	2.68	
Number of passes	1	0.2	0.25	0.25	0.3	0.22	0.22	0.25
	2	0.18	0.22	0.22	0.25	0.2	0.2	0.2
	3	0.17	0.2	0.2	0.2	0.18	0.18	0.2
	4	0.16	0.18	0.18	0.2	0.18	0.18	0.2
	5	0.14	0.17	0.18	0.2	0.16	0.16	0.2
	6	0.12	0.16	0.17	0.2	0.14	0.16	0.2
	7	0.12	0.12	0.16	0.18	0.12	0.16	0.18
	8	0.1	0.12	0.14	0.18	0.12	0.14	0.18
	9	0.05	0.1	0.12	0.16	0.1	0.12	0.16
	10		0.05	0.12	0.16	0.1	0.12	0.16
	11			0.1	0.14	0.05	0.1	0.14
	12			0.05	0.14		0.1	0.14
	13				0.12		0.05	0.12
	14				0.1			0.1
	15				0.1			0.1
	16				0.05			0.1
	17							0.05

# Troubleshooting in Threading for ST-type Tools

Problem	Possible causes	Countermeasures
<b>Excessive wear</b>  <p>Flank wear develops.</p>	<ul style="list-style-type: none"> <li>• Cutting speed too high.</li> <li>• Incorrect carbide grade.</li> <li>• Too many number of passes.</li> <li>• Too small depth of cut in finishing.</li> <li>• Poor coolant supply.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce the cutting speed.</li> <li>• Change to a more wear resistant grade.</li> <li>• Reduce the number of passes.</li> <li>• Increase the depth of cut to at least 0.05 mm or more in final finishing.</li> <li>• Supply sufficient coolant to the cutting point.</li> </ul>
<b>Uneven wear in the left and right flank faces</b>  <p>Different cutting load in right and left cutting edges.</p>	<ul style="list-style-type: none"> <li>• Incorrect relief angles for the thread's lead angle.</li> <li>• Use of flank infeed.</li> <li>• Half angles of the thread are asymmetrical.</li> </ul>	<ul style="list-style-type: none"> <li>• Select a proper shim.</li> <li>• Change to alternative flank infeed.</li> <li>• Coincide the infeed angle of the tool with a half angle of the thread.</li> </ul>
<b>Chipping</b>  <p>Chipping of cutting edge</p>	<ul style="list-style-type: none"> <li>• Too low cutting speed.</li> <li>• Too small honing width.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase the cutting speed.</li> <li>• Increase the honing width.</li> </ul>
<b>Edge breakage</b>  <p>Fracturing of cutting edge</p>	<ul style="list-style-type: none"> <li>• Recutting chips.</li> <li>• Caused from the work shape.</li> <li>• Unstable holding of the workpiece and the tool.</li> </ul>	<ul style="list-style-type: none"> <li>• Supply sufficient coolant to the cutting point.</li> <li>• Chamfer the portion from which the tool enters the cut and add a groove to the portion from which the tool leaves the cut. The chamfer and groove should be larger than the thread height.</li> <li>• Reinforce the holding and select a tougher insert grade.</li> </ul>
<b>Insert cracking</b>  <p>Cracks occur in cutting edge</p>	<ul style="list-style-type: none"> <li>• Inconsistent coolant supply.</li> <li>• Too high cutting speed.</li> <li>• Incorrect grade selection.</li> </ul>	<ul style="list-style-type: none"> <li>• Use constant flood coolant to the cutting point.</li> <li>• Reduce the cutting speed.</li> <li>• Change to a tougher grade.</li> </ul>
<b>Distinct plastic deformation</b>  <p>Fracturing caused from excessive plastic deformation Collapsing of cutting edge</p>	<ul style="list-style-type: none"> <li>• Too large depth of cut per pass.</li> <li>• Insufficient coolant supply.</li> <li>• Too high cutting speed.</li> <li>• Incorrect grade selection.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce the depth of cut per pass.</li> <li>• Supply sufficient coolant to the cutting point.</li> <li>• Reduce the cutting speed.</li> <li>• Use a harder insert grade.</li> </ul>
<b>Poor surface finish</b>  <p>Rubbed surface or chip welding</p>	<ul style="list-style-type: none"> <li>• Improper relief angle.</li> <li>• Too low cutting speed.</li> <li>• Too rapid tool wear.</li> </ul>	<ul style="list-style-type: none"> <li>• Select a proper shim.</li> <li>• Increase the cutting speed.</li> <li>• Change to a more wear resistant grade.</li> </ul>
<b>Inaccurate thread form</b>  <p>Disqualified in gaging.</p>	<ul style="list-style-type: none"> <li>• Inaccurate tool setting.</li> <li>• Insufficient thread height.</li> <li>• Too rapid tool wear.</li> </ul>	<ul style="list-style-type: none"> <li>• Check and correct the cutting edge height and tool inclination by using a dial gage.</li> <li>• Check and correct the depth of cut.</li> <li>• Change to a more wear resistant grade.</li> </ul>



# Chapter Composition of TAC Endmills

Designation of the endmill type  
 Series name of the endmills  
 Applicable work materials are shown.  
 Tables of standard cutting conditions

**TUNEMASTER VEE**

Head of square type

3 Flutes 38° Helix angle

Material: Steel, Stainless, Cast iron, Superalloy, Titanium

Applicable work materials: P, M, K, S, H

For roughing before keyways  
corner radii:  $r = 0.2 - 0.4$  mm

Cat. No.	Grade	No. of flutes	Helix angle	Dimensions (mm)						Whinch	Torque (N·m)
	AH725			aDc	ed1	ap	r	S	L		
VEE071L04.0R03-03805		3	38°	7.7	7.7	4	0.2	S05	10.0	KEYV-S05	7
VEE091L05.0R03-03806		3	38°	9.7	9.7	5	0.3	S06	13.0	KEYV-S06	10
VEE111L07.0R03-03808		3	38°	11.7	11.7	7	0.3	S08	16.5	KEYV-S08	15
VEE131L09.0R03-03810		3	38°	15.7	15.3	8	0.3	S10	20.5	KEYV-S10	28
VEE191L12.0R04-03812		3	38°	19.7	18.3	12	0.4	S12	25.5	KEYV-S12	28

**VEE-I**

Head of square type

4 Flutes 38° Helix angle

Material: Steel, Stainless, Cast iron, Superalloy, Titanium

Applicable work materials: P, M, K, S, H

Irregular pitch

Cat. No.	Grade	No. of flutes	Helix angle	Dimensions (mm)						Whinch	Torque (N·m)
	AH725			aDc	ed1	ap	C	S	Ls		
VEE090L05.0C30R04S05		4	38°	9	7.2	5	0.3	S05	10.0	KEYV-S05	7
VEE100L07.0C40R04S06		4	38°	10	9.7	7	0.4	S06	13.0	KEYV-S06	10
VEE120L09.0C50R04S08		4	38°	12	11.7	9	0.5	S08	16.5	KEYV-S08	15
VEE180L12.0C60R04S10		4	38°	16	15.3	12	0.6	S10	20.5	KEYV-S10	28
VEE200L15.0C60R04S12		4	38°	20	18.3	15	0.6	S12	25.5	KEYV-S12	28

**VEE-R**

Head of square type

4/5/6 Flutes 45° Helix angle

Material: Steel, Stainless, Cast iron, Superalloy, Titanium

Applicable work materials: P, M, K, S, H

For roughing

Cat. No.	Grade	No. of flutes	Helix angle	Dimensions (mm)						Whinch	Torque (N·m)	
	AH725			aDc	ed1	ap	C	S	L	α		
VEE080L05.0C30R04S05		4	45°	9	7.7	5	0.25	S05	10.0	90°	KEYV-S05	7
VEE100L07.0C30R04S06		4	45°	10	9.7	7	0.3	S06	13.0	90°	KEYV-S06	10
VEE120L09.0C30R04S08		4	45°	12	11.7	9	0.35	S08	16.5	90°	KEYV-S08	15
VEE180L12.0C40R04S10		5	45°	16	15.3	12	0.4	S10	20.5	7°	KEYV-S10	28
VEE200L15.0C40R04S12		6	45°	20	18.3	15	0.4	S12	25.5	3°	KEYV-S12	28

• Stocked items / Packing Quantity = 2 pcs

**TUNEMASTER**

Standard cutting conditions: Shoulder milling / Slotting  
(VEE: 3 flutes, VED/VEE: 4 flutes, VEE-A, VEE-I, VEE-R, VEE-C)

Work materials	Hardness	Shoulder milling				Slot milling			
		Cutting speed Vc (m/min)	Tool diameter aDc (mm)	Feed per tooth fz (mm/tooth)	Depth of cut ap (mm)	Cutting speed Vc (m/min)	Tool diameter aDc (mm)	Feed per tooth fz (mm/tooth)	Depth of cut ap (mm)
Low carbon steels S45C, S50C etc. (C45, C55 etc.)	- 300 HB	80 - 180	0.25 x aDc	0.08 - 0.12	0.1 - 0.15	50 - 100	0.25 x aDc	0.05 - 0.08	0.5 x aDc
High carbon steels SCr440, SCr415 etc. (SCr440M4, SCr415M4 etc.)	- 300 HB	60 - 140				40 - 80			
Prehardened steel PX5, NAK80 etc.	30 - 40 HRC	60 - 120	0.6 x aDc	0.08 - 0.12	0.1 - 0.15	40 - 70	0.25 x aDc	0.05 - 0.08	0.5 x aDc
Stainless steels SUS304, SUS316 etc. (FC20, FC300 etc. (GG25, GG30 etc.)	- 200 HB	40 - 100				30 - 60			
Grey cast iron FC250, FC300 etc. (GG25, GG30 etc.)	150 - 250 HB	80 - 200	0.6 x aDc	0.08 - 0.12	0.1 - 0.15	50 - 120	0.25 x aDc	0.05 - 0.08	0.5 x aDc
Ductile cast iron FC250 etc. (GG25 etc.)	-	80 - 200				50 - 120			
Aluminum alloys (Si < 13%)	-	200 - 700	0.6 x aDc	0.08 - 0.12	0.1 - 0.15	130 - 400	0.25 x aDc	0.05 - 0.08	0.5 x aDc
Aluminum alloys (Si > 13%)	-	100 - 300				70 - 200			
Titanium alloys Ti-6Al-4V etc.	-	40 - 80	0.6 x aDc	0.08 - 0.12	0.1 - 0.15	20 - 40	0.25 x aDc	0.05 - 0.08	0.5 x aDc
Heat-resistant alloys Inconel 718 etc.	-	20 - 40				10 - 20			
Hardened steel SSK01, SK14 etc. (X40CrMoV5.1, X52CrMoV5.1 etc.)	40 - 50 HRC	40 - 80	0.6 x aDc	0.08 - 0.12	0.1 - 0.15	25 - 60	0.25 x aDc	0.05 - 0.08	0.5 x aDc
Hardened steel SKD11, SKH9 etc. (X153CrMoV12, HSB18-D1 etc.)	50 - 60 HRC	20 - 60				10 - 30			

Standard cutting conditions: Shoulder milling  
(VED / VEE: 6 flutes, VED / VEE: 8, 10 flutes)


Work materials	Hardness (HRC)	Shoulder milling			
		Cutting speed Vc (m/min)	Tool diameter aDc (mm)	Feed per tooth fz (mm/tooth)	Depth of cut ap (mm)
Titanium alloys Ti-6Al-4V etc.	-	60 - 120	0.6 x aDc	0.05 - 0.09	0.02 x aDc
Heat-resistant alloys Inconel 718 etc.	-	30 - 60			
Hardened steel SKD11, SKH9 etc. (X40CrMoV5.1, X52CrMoV5.1 etc.)	40 - 50	80 - 160	0.6 x aDc	0.05 - 0.15	0.02 x aDc
Hardened steel SKD11, SKH9 etc. (X153CrMoV12, HSB18-D1 etc.)	50 - 60	40 - 90			

Cat. No. of TAC mills  
 Dimensions  
 Symbols of stock status










Features and applications of the endmills

● Tool diameter range      ● Icons indicate corner angle

Diameter  $\phi 10.0 \sim 16.0$  mm



■ Icons showing machining types



## 9

## TAC Endmills

## Guidance

■ Features of TungMeister .....	9-2
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## Products

■ <b>TungMeister (Indexable endmills)</b> .....	9-3
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## Heads

● Square type	VED, VEE .....	9-3
● Drilling type	VCP, VDP, VGC .....	9-8
● Chamfering type	VCA, VCW, VCR .....	9-11
● Slotting type	VST, VTB .....	9-13

## Shanks

● Straight	VSSD .....	9-16
● Straight (Weldon)	VSSD .....	9-17
● Straight (Taper neck)	VTSD .....	9-18
● Straight (for Slotting)	VSC, VSTD .....	9-19

■ **Multifunctional TAC Mills**

● TungForce-Rec .....	9-21
● EPH Hybrid TAC Mill .....	9-26

# TUNGMEISTER Designation System

## Shank

**V** **SS** **D10** **L070** **S** **06** - **W** - **A**

1 2 3 4 5 6 7 8

1 Series	
V	TungMeister

2 Shank type	
SS	Straight neck
TS	Taper neck
SC	Slotting
ST	for T-Slotting
AD	TungFlex adaptor

3 Shank diameter (mm)	
D08	ø8
D10	ø10
D12	ø12
D16	ø16
D20	ø20
D25	ø25
VSC, VAD type	
100	ø10
120	ø12
130	ø13
180	ø18
210	ø21

4 Length (mm)	
L070	70

5 Shape of shank	
S	Cylindrical
W	Weldon

6 Connection screw size	
05	S05
06	S06
08	S08
10	S10
12	S12

7 Shank material	
S	Steel
C	Carbide
W	Tungsten

8 Additional feature	
A	with coolant hole
M	Screw size (TungFlex adapters)

## Head

### • Square endmill

**V** **E** **E** **080** **L05.0** **R00** - **03** **S05**

1 2 3 4 5 6 7 8 9

1 Series	
V	TungMeister

2 Cutting edge	
E	Square
CA	for chamfering
CP	Spot drilling
CW	for chamfering (front and back)
CR	for R chamfering
GC	for counter boring
DP	for centre drilling
S	for slotting
T	for T-slotting

3 Helix angle / Rake face	
B	0°
C	15°
D	30°
E	45°
F	60°
T	Land

4 Diameter (mm)	
060	ø6
200	ø20

5 Cutting edge length (mm)	
Length	
L07.0	7
L15.0	15
Groove width	
W1.50	1.5
W1.57	1.57
W10.0	10

6 Corner shape / Angle	
Nose radius	
R00	Sharp edge
R005	R0.05
R01	R0.1
R05	R0.5
R10	R1.0
Chamfer type	
C15	0.15 x 45°
C30	0.3 x 45°
C60	0.6 x 45°
Chamfering head	
A30	30°
A60	60°
R chamfering head	
R10	R1.0
R16	R1.6
Ball nose	
SG	Sphere / high precision
BM	Ball / general purpose
BG	Ball / high precision

7 Additional feature	
I	Irregular pitch
A	for aluminium
R	for roughing
C	Combined edge

8 The number of flutes	
General	
02	2
06	6
Slotting head VST type	
3	3
4	4

9 Connection screw size	
S05	S05
S06	S06
S08	S08
S10	S10
S12	S12

**VEE**

Heads of square type

**For general purpose**

ap = Max. depth of cut  
S = Connection screw size

Cat. No.	Grade AH725	No. of flutes	Helix angle	Dimensions (mm)						Wrench	Torque (N·m)
				øDc	ød1	ap	r	S	L		
VEE080L05.0R00-03S05	●	3	45°	8	7.7	5	0	S05	10.0	KEYV-S05	7
VEE100L07.0R00-03S06	●	3	45°	10	9.7	7	0	S06	13.0	KEYV-S06	10
VEE120L09.0R00-03S08	●	3	45°	12	11.7	9	0	S08	16.5	KEYV-S08	15

**VED / VEE**

Heads of square type

**For general purpose  
corner radii: r = 0 ~ 4.0 mm**

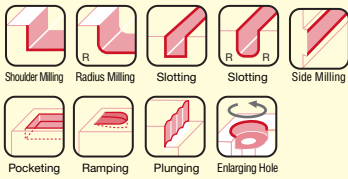
ap = Max. depth of cut  
S = Connection screw size

Cat. No.	Grade AH725	No. of flutes	Helix angle	Dimensions (mm)						Wrench	Torque (N·m)
				øDc	ød1	ap	r	S	L		
VEE060L05.0R00-04S05	●	4	45°	6	8	5	0	S05	10.0	KEYV-S05	7
VEE080L05.0R00-04S05	●	4	45°	8	7.7	5	0	S05	10.0	KEYV-S05	7
VED080L05.0R05-04S05	●	4	30°	8	7.7	5	0.5	S05	10.0	KEYV-S05	7
VED080L05.0R10-04S05	●	4	30°	8	7.7	5	1.0	S05	10.0	KEYV-S05	7
VED080L05.0R15-04S05	●	4	30°	8	7.7	5	1.5	S05	10.0	KEYV-S05	7
VEE100L07.0R00-04S06	●	4	45°	10	9.7	7	0	S06	13.0	KEYV-S06	10
VED100L07.0R05-04S06	●	4	30°	10	9.7	7	0.5	S06	13.0	KEYV-S06	10
VEE100L07.0R05-04S06	●	4	45°	10	9.7	7	0.5	S06	13.0	KEYV-S06	10
VED100L07.0R10-04S06	●	4	30°	10	9.7	7	1.0	S06	13.0	KEYV-S06	10
VEE100L07.0R10-04S06	●	4	45°	10	9.7	7	1.0	S06	13.0	KEYV-S06	10
VEE120L09.0R00-04S08	●	4	45°	12	11.7	9	0	S08	16.5	KEYV-S08	15
VED120L09.0R05-04S08	●	4	30°	12	11.7	9	0.5	S08	16.5	KEYV-S08	15
VEE120L09.0R05-04S08	●	4	45°	12	11.7	9	0.5	S08	16.5	KEYV-S08	15
VED120L09.0R10-04S08	●	4	30°	12	11.7	9	1.0	S08	16.5	KEYV-S08	15
VEE120L09.0R10-04S08	●	4	45°	12	11.7	9	1.0	S08	16.5	KEYV-S08	15
VEE160L12.0R00-04S10	●	4	45°	16	15.3	12	0	S10	20.5	KEYV-S10	28
VED160L12.0R05-04S10	●	4	30°	16	15.3	12	0.5	S10	20.5	KEYV-S10	28
VEE160L12.0R05-04S10	●	4	45°	16	15.3	12	0.5	S10	20.5	KEYV-S10	28
VED160L12.0R10-04S10	●	4	30°	16	15.3	12	1.0	S10	20.5	KEYV-S10	28
VEE160L12.0R10-04S10	●	4	45°	16	15.3	12	1.0	S10	20.5	KEYV-S10	28
VED160L12.0R15-04S10	●	4	30°	16	15.3	12	1.5	S10	20.5	KEYV-S10	28
VEE160L12.0R15-04S10	●	4	45°	16	15.3	12	1.5	S10	20.5	KEYV-S10	28
VED160L12.0R20-04S10	●	4	30°	16	15.3	12	2.0	S10	20.5	KEYV-S10	28
VEE160L12.0R20-04S10	●	4	45°	16	15.3	12	2.0	S10	20.5	KEYV-S10	28
VED160L12.0R30-04S10	●	4	30°	16	15.3	12	3.0	S10	20.5	KEYV-S10	28
VEE160L12.0R30-04S10	●	4	45°	16	15.3	12	3.0	S10	20.5	KEYV-S10	28
VED160L12.0R40-04S10	●	4	30°	16	15.3	12	4.0	S10	20.5	KEYV-S10	28
VEE160L12.0R40-04S10	●	4	45°	16	15.3	12	4.0	S10	20.5	KEYV-S10	28
VED200L15.0R00-04S12	●	4	30°	20	18.3	15	0.5	S12	25.5	KEYV-S12	28
VEE200L15.0R05-04S12	●	4	45°	20	18.3	15	0	S12	25.5	KEYV-S12	28
VED200L15.0R10-04S12	●	4	30°	20	18.3	15	1.0	S12	25.5	KEYV-S12	28
VED200L15.0R20-04S12	●	4	30°	20	18.3	15	2.0	S12	25.5	KEYV-S12	28
VED200L15.0R30-04S12	●	4	30°	20	18.3	15	3.0	S12	25.5	KEYV-S12	28

● : Stocked items / Packing Quantity = 2 pcs.

VEE

Heads of square type

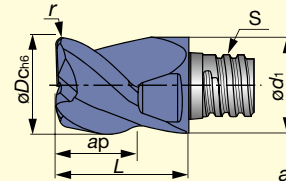


3 No. of flutes  
38° Helix  
Diameter  $\varnothing 7.7 \sim 19.7$  mm



**P** Steel **M** Stainless **K** Cast Iron **S** Superalloys **H** Hard Materials

For roughing before keyways  
corner radii:  $r = 0.2 \sim 0.4$  mm

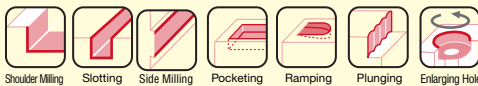


$ap$  = Max. depth of cut  
 $S$  = Connection screw size

Cat. No.	Grade AH725	No. of flutes	Helix angle	Dimensions (mm)						Wrench	Torque (N-m)
				$\varnothing D_c$	$\varnothing d_1$	$ap$	$r$	$S$	$L$		
VEE077L04.0R02-03S05	●	3	38°	7.7	7.7	4	0.2	S05	10.0	KEYV-S05	7
VEE097L05.0R03-03S06	●	3	38°	9.7	9.7	5	0.3	S06	13.0	KEYV-S06	10
VEE117L07.0R03-03S08	●	3	38°	11.7	11.7	7	0.3	S08	16.5	KEYV-S08	15
VEE157L08.0R03-03S10	●	3	38°	15.7	15.3	8	0.3	S10	20.5	KEYV-S10	28
VEE197L12.0R04-03S12	●	3	38°	19.7	18.3	12	0.4	S12	25.5	KEYV-S12	28

VEE-I

Heads of square type

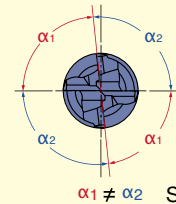
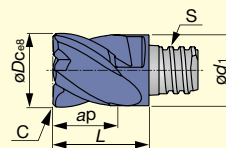


4 No. of flutes  
38° Helix  
Diameter  $\varnothing 8 \sim 20$  mm



**P** Steel **M** Stainless **K** Cast Iron **S** Superalloys **H** Hard Materials

Irregular pitch

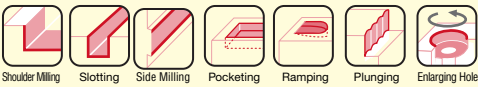


$ap$  = Max. depth of cut  
 $S$  = Connection screw size

Cat. No.	Grade AH725	No. of flutes	Helix angle	Dimensions (mm)						Wrench	Torque (N-m)
				$\varnothing D_c$	$\varnothing d_1$	$ap$	$C$	$S$	$L_s$		
VEE080L05.0C30I04S05	●	4	38°	8	7.7	5	0.3	S05	10.0	KEYV-S05	7
VEE100L07.0C40I04S06	●	4	38°	10	9.7	7	0.4	S06	13.0	KEYV-S06	10
VEE120L09.0C50I04S08	●	4	38°	12	11.7	9	0.5	S08	16.5	KEYV-S08	15
VEE160L12.0C60I04S10	●	4	38°	16	15.3	12	0.6	S10	20.5	KEYV-S10	28
VEE200L15.0C60I04S12	●	4	38°	20	18.3	15	0.6	S12	25.5	KEYV-S12	28

VEE-R

Heads of square type

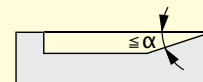
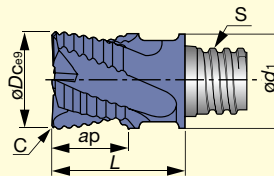


4/5/6 No. of flutes  
45° Helix  
Diameter  $\varnothing 8 \sim 20$  mm



**P** Steel **M** Stainless **K** Cast Iron **S** Superalloys **H** Hard Materials

For roughing



$ap$  = Max. depth of cut  
 $S$  = Connection screw size

Cat. No.	Grade AH725	No. of flutes	Helix angle	Dimensions (mm)						Wrench	Torque (N-m)	
				$\varnothing D_c$	$\varnothing d_1$	$ap$	$C$	$S$	$L$			$\alpha$
VEE080L05.0C25R04S05	●	4	45°	8	7.7	5	0.25	S05	10.0	90°	KEYV-S05	7
VEE100L07.0C30R04S06	●	4	45°	10	9.7	7	0.3	S06	13.0	90°	KEYV-S06	10
VEE120L09.0C35R04S08	●	4	45°	12	11.7	9	0.35	S08	16.5	90°	KEYV-S08	15
VEE160L12.0C40R05S10	●	5	45°	16	15.3	12	0.4	S10	20.5	7°	KEYV-S10	28
VEE200L15.0C40R06S12	●	6	45°	20	18.3	15	0.4	S12	25.5	3°	KEYV-S12	28

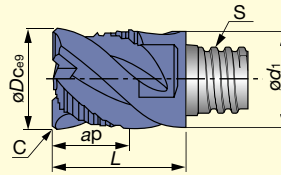
● : Stocked items / Packing Quantity = 2 pcs.

**VEE-C**

Heads of square type

4 No. of flutes
45° Helix
Diameter  $\varnothing 8 \sim 20 \text{mm}$ 
90°
**P** Steel
**M** Stainless
**K** Cast Iron
**S** Superalloys
**H** Hard Materials

Combined edges for finishing & roughing



$ap$  = Max. depth of cut  
 $S$  = Connection screw size

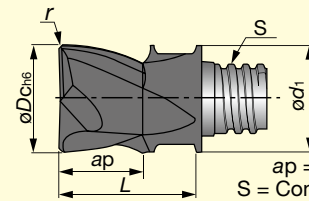
Cat. No.	Grade AH725	No. of flutes	Helix angle	Dimensions (mm)						Wrench	Torque (N·m)
				$\varnothing D_c$	$\varnothing d_1$	$ap$	$C$	$S$	$L$		
VEE080L05.0C30C04S05	●	4	45°	8	7.7	5	0.3	S05	10.0	KEYV-S05	7
VEE100L07.0C30C04S06	●	4	45°	10	9.7	7	0.3	S06	13.0	KEYV-S06	10
VEE120L09.0C40C04S08	●	4	45°	12	11.7	9	0.4	S08	16.5	KEYV-S08	15
VEE160L12.0C60C04S10	●	4	45°	16	15.3	12	0.6	S10	20.5	KEYV-S10	28
VEE200L15.0C60C04S12	●	4	45°	20	18.3	15	0.6	S12	25.5	KEYV-S12	28

**VEE-A**

Heads of square type

2 No. of flutes
45° Helix
Diameter  $\varnothing 10 \sim 12 \text{mm}$ 
90°
**N** Non-ferrous

For aluminium machining  
corner radii:  $r = 0.5 \sim 1.0 \text{ mm}$



$ap$  = Max. depth of cut  
 $S$  = Connection screw size

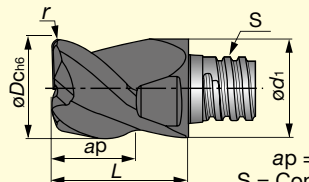
Cat. No.	Grade KS15F	No. of flutes	Helix angle	Dimensions (mm)						Wrench	Torque (N·m)
				$\varnothing D_c$	$\varnothing d_1$	$ap$	$r$	$S$	$L$		
VEE100L07.0R05A02S06	●	2	45°	10	9.7	7	0.5	S06	13.0	KEYV-S06	10
VEE100L07.0R10A02S06	●	2	45°	10	9.7	7	1.0	S06	13.0	KEYV-S06	10
VEE120L09.0R05A02S08	●	2	45°	12	11.7	9	0.5	S08	16.5	KEYV-S08	15

**VEE-A**

Heads of square type

3 No. of flutes
45° Helix
Diameter  $\varnothing 8 \sim 20 \text{mm}$ 
90°
**N** Non-ferrous

For aluminium machining  
corner radii:  $r = 0 \sim 2.0 \text{ mm}$



$ap$  = Max. depth of cut  
 $S$  = Connection screw size

Cat. No.	Grade KS15F	No. of flutes	Helix angle	Dimensions (mm)						Wrench	Torque (N·m)
				$\varnothing D_c$	$\varnothing d_1$	$ap$	$r$	$S$	$L$		
VEE080L05.0R05A03S05	●	3	45°	8	7.7	5	0.5	S05	10.0	KEYV-S05	7
VEE100L06.0R05A03S06	●	3	45°	10	9.7	6	0.5	S06	13.0	KEYV-S06	10
VEE100L06.0R10A03S06	●	3	45°	10	9.7	6	1.0	S06	13.0	KEYV-S06	10
VEE120L08.0R05A03S08	●	3	45°	12	11.7	8	0.5	S08	16.5	KEYV-S08	15
VEE120L08.0R10A03S08	●	3	45°	12	11.7	8	1.0	S08	16.5	KEYV-S08	15
VEE160L10.0R00A03S10	●	3	45°	16	15.3	10	0	S10	20.5	KEYV-S10	28
VEE160L10.0R10A03S10	●	3	45°	16	15.3	10	1.0	S10	20.5	KEYV-S10	28
VEE160L10.0R20A03S10	●	3	45°	16	15.3	10	2.0	S10	20.5	KEYV-S10	28
VEE200L12.0R05A03S12	●	3	45°	20	18.3	12	0.5	S12	25.5	KEYV-S12	28
VEE200L12.0R10A03S12	●	3	45°	20	18.3	12	1.0	S12	25.5	KEYV-S12	28
VEE200L12.0R20A03S12	●	3	45°	20	18.3	12	2.0	S12	25.5	KEYV-S12	28

● : Stocked items / Packing Quantity = 2 pcs.

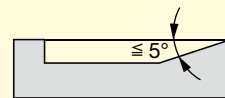
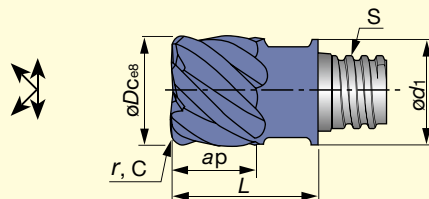
VED / VEE

Heads of square type



6 No. of flutes | 30°/45°/50° Helix | Diameter  $\varnothing 8 \sim 12$  mm | 90° | S Superalloys | H Hard Materials

Without central edge  
corner radii:  $r = 0 \sim 1.5$  mm



$ap$  = Max. depth of cut  
 $S$  = Connection screw size

Cat. No.	Grade		No. of flutes	Helix angle	Dimensions (mm)						Wrench	Torque (N·m)	
	AH725	AH750			$\varnothing D_c$	$\varnothing d_1$	$ap$	$r$	$C$	$S$			$L$
VEE080L05.0R05-06S05	●		6	45°	8	7.7	5	0.5	-	S05	10.0	KEYV-S05	7
VEE080L05.0R10-06S05	●		6	45°	8	7.7	5	1.0	-	S05	10.0	KEYV-S05	7
VEE080L05.0R15-06S05	●		6	45°	8	7.7	5	1.5	-	S05	10.0	KEYV-S05	7
VEE080L05.0C10-06S05		●	6	50°	8	7.7	5	-	0.1	S05	10.0	KEYV-S05	7
VEE100L07.0R00-06S06	●		6	45°	10	9.7	7	0	-	S06	13.0	KEYV-S06	10
VED100L07.0R05-06S06	●		6	30°	10	9.7	7	0.5	-	S06	13.0	KEYV-S06	10
VEE100L07.0R05-06S06	●		6	45°	10	9.7	7	0.5	-	S06	13.0	KEYV-S06	10
VED100L07.0R10-06S06	●		6	30°	10	9.7	7	1.0	-	S06	13.0	KEYV-S06	10
VEE100L07.0R10-06S06	●		6	45°	10	9.7	7	1.0	-	S06	13.0	KEYV-S06	10
VED100L07.0R15-06S06	●		6	30°	10	9.7	7	1.5	-	S06	13.0	KEYV-S06	10
VEE100L07.0R15-06S06	●		6	45°	10	9.7	7	1.5	-	S06	13.0	KEYV-S06	10
VEE100L07.0C10-06S06		●	6	50°	10	9.7	7	-	0.1	S06	13.0	KEYV-S06	10
VEE120L09.0R00-06S08	●		6	45°	12	11.7	9	0	-	S08	16.5	KEYV-S08	15
VED120L09.0R05-06S08	●		6	30°	12	11.7	9	0.5	-	S08	16.5	KEYV-S08	15
VED120L09.0R10-06S08	●		6	30°	12	11.7	9	1.0	-	S08	16.5	KEYV-S08	15
VEE120L09.0R10-06S08	●		6	45°	12	11.7	9	1.0	-	S08	16.5	KEYV-S08	15
VEE120L09.0R15-06S08	●		6	45°	12	11.7	9	1.5	-	S08	16.5	KEYV-S08	15
VEE120L09.0C10-06S08		●	6	50°	12	11.7	9	-	0.1	S08	16.5	KEYV-S08	15

● : Stocked items / Packing Quantity = 2 pcs.

■ Standard cutting conditions: Shoulder milling / Slotting  
(VEE: 3 flutes, VED/VEE: 4 flutes, VEE-A, VEE-I, VEE-R, VEE-C)

Work materials	Hardness	Shoulder milling					Slot milling				
		Cutting speed Vc (m/min)	Tool diameter øDc (mm)	Feed per tooth fz (mm/t)	Depth of cut ap (mm)	Width of cut ae (mm)	Cutting speed Vc (m/min)	Tool diameter øDc (mm)	Feed per tooth fz (mm/t)	Depth of cut ap (mm)	
Low carbon steels S45C, S55C etc (C45, C55 etc)	~ 300 HB	80 - 180	ø6: 0.03 - 0.07 ø8: 0.05 - 0.09 ø10: 0.07 - 0.12 ø12: 0.08 - 0.13 ø16: 0.09 - 0.15 ø20: 0.10 - 0.17	0.6 x øDc	0.25 x øDc	50 - 100	ø6: 0.03 - 0.04 ø8: 0.03 - 0.04 ø10: 0.04 - 0.05 ø12: 0.05 - 0.06 ø16: 0.06 - 0.08 ø20: 0.07 - 0.10	0.5 x øDc	0.5 x øDc		
High carbon steels SCM440, SCr415 etc (42CrMo4, 15Cr3 etc)	~ 300 HB	60 - 140				40 - 80					
Prehardened steel PX5, NAK80 etc	30 ~ 40 HRC	60 - 120				40 - 70					
Stainless steels SUS304, SUS316 etc (X5CrNi18-9, X5CrNiMo17-12-2 etc)	~ 200 HB	40 - 100				30 - 60					
Grey cast irons FC250, FC300 etc (GG25, GG30 etc)	150 ~ 250 HB	80 - 200				50 - 120				130 - 400	
Ductile cast irons FCD400 etc (GGG40 etc)											
Aluminium alloys (Si < 13%)	-	200 - 700				70 - 200				0.05 x øDc	20 - 40
Aluminium alloys (Si ≥ 13%)	-	100 - 300									
Titanium alloys Ti-6Al-4V etc	-	40 - 80				25 - 60				10 - 30	0.2 x øDc
Heat-resistant alloys Inconel 718 etc	-	20 - 40									
Hardened steel SKD61, SKT4 etc (X40CrMoV5 1, 55NiCrMoV6 etc)	40 ~ 50 HRC	40 - 80									
Hardened steel SKD11, SKH etc (X153CrMoV12, HS18-0-1 etc)	50 ~ 60 HRC	20 - 60									

■ Standard cutting conditions: Shoulder milling  
(VED / VEE: 6 flutes, VED / VEE: 8, 10 flutes)

Work materials	Hardness (HRC)	Shoulder milling				
		Cutting speed Vc (m/min)	Tool diameter øDc (mm)	Feed per tooth fz (mm/t)	Depth of cut ap (mm)	Width of cut ae (mm)
Titanium alloys Ti-6Al-4V etc	-	60 - 120	ø8: 0.05 - 0.09 ø10: 0.07 - 0.12 ø12: 0.08 - 0.13 ø16: 0.09 - 0.15 ø20: 0.10 - 0.17	0.6 x øDc	0.02 x øDc	
Heat-resistant alloys Inconel 718 etc	-	30 - 60				
Hardened steel SKD61, SKT4 etc (X40CrMoV5 1, 55NiCrMoV6 etc)	40 ~ 50	80 - 160				
Hardened steel SKD11, SKH etc (X153CrMoV12, HS18-0-1 etc)	50 ~ 60	40 - 90				

2  
No. of  
flutes

0°  
Helix

Diameter  
ø8~16.5mm

60°  
Chamfering

45°  
Chamfering

30°  
Chamfering

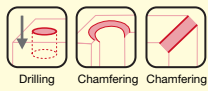
**P**  
Steel

**M**  
Stainless

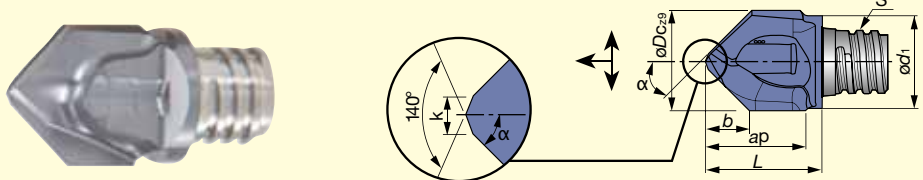
**K**  
Cast Iron

**S**  
Superalloys

**H**  
Hard  
Materials



For spot drilling, chamfering and countersinking



b = Max. hole depth  
ap = Max. depth of cut  
S = Connection screw size

**Point angle = 60°**

Cat. No.	Grade AH725	No. of flutes	Helix angle	Dimensions (mm)								Wrench	Torque (N·m)
				øDc	ød1	ap	b	S	L	k	α		
VCP100L09.5A30-02S06	●	2	0°	10.0	9.5	8.5	7.5	S06	11.75	1.5	30°	KEYV-S06	10
VCP120L12.0A30-02S08	●	2	0°	12.0	11.5	11	9.2	S08	15.4	1.5	30°	KEYV-S08	15
VCP160L15.0A30-02S10	●	2	0°	16.0	15.2	16	12.0	S10	20.2	2.5	30°	KEYV-S10	28

● Min. chamfering: ø1.5 mm

**Point angle = 90°**

Cat. No.	Grade AH725	No. of flutes	Helix angle	Dimensions (mm)								Wrench	Torque (N·m)
				øDc	ød1	ap	b	S	L	k	α		
VCP080L07.7A45-02S05	●	2	0°	8.0	7.6	7.5	3.7	S05	9.75	1.0	45°	KEYV-S05	7
VCP083L07.9A45-02S05	●	2	0°	8.3	7.6	7.5	3.8	S05	10.0	1.0	45°	KEYV-S05	7
VCP100L09.0A45-02S06	●	2	0°	10.0	9.5	9.5	4.4	S06	11.75	1.5	45°	KEYV-S06	10
VCP104L09.0A45-02S06 <sup>(1)</sup>	●	2	0°	10.4	9.5	9.5	4.6	S06	11.75	1.5	45°	KEYV-S06	10
VCP120L12.0A45-02S08	●	2	0°	12.0	11.5	11.5	5.4	S08	15.4	1.5	45°	KEYV-S08	15
VCP124L12.0A45-02S08 <sup>(1)</sup>	●	2	0°	12.4	11.5	11.5	5.6	S08	15.4	1.5	45°	KEYV-S08	15
VCP160L15.0A45-02S10	●	2	0°	16.0	15.2	15	7.1	S10	18.8	1.5	45°	KEYV-S10	28
VCP165L15.0A45-02S10	●	2	0°	16.5	15.2	15	7.1	S10	18.8	1.5	45°	KEYV-S10	28

● Min. chamfering: ø1.5 mm

**Point angle = 120°**

Cat. No.	Grade AH725	No. of flutes	Helix angle	Dimensions (mm)								Wrench	Torque (N·m)
				øDc	ød1	ap	b	S	L	k	α		
VCP100L09.5A60-02S06	●	2	0°	10.0	9.5	9.5	2.7	S06	12.7	1.5	60°	KEYV-S06	10
VCP120L12.0A60-02S08	●	2	0°	12.0	11.5	11.5	3.3	S08	15.2	1.5	60°	KEYV-S08	15
VCP160L15.5A60-02S10	●	2	0°	16.0	15.2	16	4.4	S10	19.9	1.5	60°	KEYV-S10	28

● Min. chamfering: ø1.5 mm

● : Stocked items / Packing Quantity = 2 pcs.



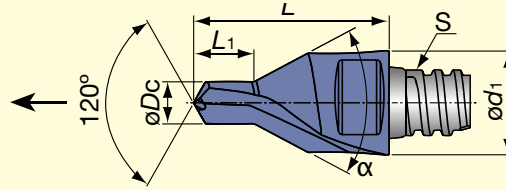
VDP



2 No. of flutes  
Diameter  $\varnothing 3.28 \sim 6.46 \text{ mm}$

**P** Steel **M** Stainless **K** Cast Iron **S** Superalloys **H** Hard Materials

For center drilling (DIN332)



ap = Max. depth of cut  
S = Connection screw size

Cat. No.	Grade	No. of flutes	Helix angle	Dimensions (mm)					Wrench	Torque (N·m)	
				$\varnothing Dc$	$\varnothing d1$	$L1$	S	L			$\alpha$
VDP328L04.6A30-02S05	AH725	2	-	3.28	8	4.6	S05	15.0	59.5°	KEYV-S05	7
VDP412L05.9A30-02S06	AH725	2	-	4.12	10	5.9	S06	19.0	59.5°	KEYV-S06	10
VDP513L07.2A30-02S08	AH725	2	-	5.13	12	7.2	S08	23.0	59.5°	KEYV-S08	15
VDP646L08.9A30-02S10	AH725	2	-	6.46	16	8.9	S10	28.0	59.5°	KEYV-S10	28

Standard cutting conditions: Drilling (VCP, VDP)

Work materials	Hardness	Cutting speed $V_c$ (m/min)	Feed: $f$ (mm/rev)				
			VDP328	VDP412	VDP513	VDP646	VCP
Low carbon steels S45C, S55C etc (C45, C55 etc)	~ 300 HB	40 - 80	0.04 - 0.08	0.05 - 0.10	0.05 - 0.10	0.06 - 0.12	0.06 - 0.12
High carbon steels SCM440, SCr415 etc (42CrMo4, 15Cr3 etc)	~ 300 HB	30 - 50	0.04 - 0.08	0.05 - 0.10	0.05 - 0.10	0.06 - 0.12	0.06 - 0.12
Prehardened steel PX5, NAK80 etc	30 ~ 40 HRC	20 - 30	0.04 - 0.08	0.05 - 0.10	0.05 - 0.10	0.06 - 0.12	0.06 - 0.12
Stainless steels SUS304, SUS316 etc (X5CrNi18-9, X5CrNiMo17-12-2 etc)	~ 200 HB	15 - 25	0.04 - 0.08	0.05 - 0.10	0.05 - 0.10	0.06 - 0.12	0.06 - 0.12
Grey cast irons FC250, FC300 etc (GG25, GG30 etc)	150 ~ 250 HB	60 - 100	0.05 - 0.09	0.07 - 0.12	0.07 - 0.12	0.12 - 0.18	0.12 - 0.18
Ductile cast irons FCD400 etc (GGG40 etc)			0.04 - 0.08	0.05 - 0.10	0.05 - 0.10	0.10 - 0.15	0.10 - 0.15
Titanium alloys Ti-6Al-4V etc	-	15 - 25	0.04 - 0.07	0.04 - 0.07	0.04 - 0.07	0.04 - 0.07	0.04 - 0.07
Heat-resistant alloys Inconel 718 etc	-	10 - 20	0.03 - 0.06	0.03 - 0.06	0.03 - 0.06	0.03 - 0.06	0.03 - 0.06
Hardened steel SKD61, SKT4 etc (X40CrMoV5 1, 55NiCrMoV6 etc)	40~ 50 HRC	15 - 25	0.04 - 0.07	0.04 - 0.07	0.04 - 0.07	0.04 - 0.07	0.04 - 0.07
Hardened steel SKD11, SKH etc (X153CrMoV12, HS18-0-1 etc)	50~ 60 HRC	10 - 20	0.03 - 0.06	0.03 - 0.06	0.03 - 0.06	0.03 - 0.06	0.03 - 0.06



2  
No. of  
flutes

0°  
Helix

Diameter  
ø7.8~16.0mm

90°

P  
Steel

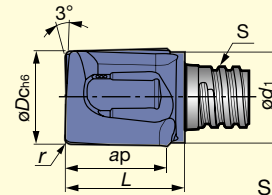
M  
Stainless

K  
Cast Iron

S  
Superalloys

H  
Hard  
Materials

For counter boring  
corner radii:  $r = 0.2 \sim 2.0 \text{ mm}$



ap = Max. depth of cut  
S = Connection screw size

Cat. No.	Grade AH725	No. of flutes	Helix angle	Dimensions (mm)						Wrench	Torque (N·m)
				øDc	ød1	ap	r	S	L		
VGC078L08.0R02-02S05	●	2	10°	7.8	7.6	8	0.2	S05	10.0	KEYV-S05	7
VGC080L08.0R04-02S05	●	2	10°	8.0	7.6	8	0.4	S05	10.0	KEYV-S05	7
VGC080L08.0R10-02S05	●	2	10°	8.0	7.6	8	1.0	S05	10.0	KEYV-S05	7
VGC080L08.0R20-02S05	●	2	10°	8.0	7.6	8	2.0	S05	10.0	KEYV-S05	7
VGC098L09.0R03-02S06	●	2	10°	9.8	9.5	9.5	0.3	S06	12.4	KEYV-S06	10
VGC100L09.0R04-02S06	●	2	10°	10.0	9.5	9.5	0.4	S06	12.4	KEYV-S06	10
VGC100L09.0R10-02S06	●	2	10°	10.0	9.5	9.5	1.0	S06	12.4	KEYV-S06	10
VGC100L09.0R20-02S06	●	2	10°	10.0	9.5	9.5	2.0	S06	12.4	KEYV-S06	10
VGC117L10.0R03-02S08	●	2	10°	11.7	11.5	10	0.3	S08	14.2	KEYV-S08	15
VGC120L10.0R04-02S08	●	2	10°	12.0	11.5	10	0.4	S08	14.2	KEYV-S08	15
VGC120L10.0R10-02S08	●	2	10°	12.0	11.5	10	1.0	S08	14.2	KEYV-S08	15
VGC120L10.0R20-02S08	●	2	10°	12.0	11.5	10	2.0	S08	14.2	KEYV-S08	15
VGC157L15.0R03-02S10	●	2	10°	15.7	15.2	15	0.3	S10	19.0	KEYV-S10	28
VGC160L15.0R04-02S10	●	2	10°	16.0	15.2	15	0.4	S10	19.0	KEYV-S10	28
VGC160L15.0R08-02S10	●	2	10°	16.0	15.2	15	0.8	S10	19.0	KEYV-S10	28

● Can drill with step feed

● : Stocked items / Packing Quantity = 2 pcs.

Standard cutting conditions: Counter boring (VGC)

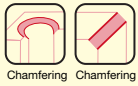
Work materials	Hardness	Cutting speed Vc (m/min)	Feed f (mm/rev)
Low carbon steels S45C, S55C etc (C45, C55 etc)	~ 300 HB	40 - 80	0.04 - 0.08
High carbon steels SCM440, SCr415 etc (42CrMo4, 15Cr3 etc)	~ 300 HB	30 - 50	0.04 - 0.08
Prehardened steel PX5, NAK80 etc	30 ~ 40 HRC	20 - 30	0.04 - 0.08
Stainless steels SUS304, SUS316 etc (X5CrNi18-9, X5CrNiMo17-12-2 etc)	~ 200 HB	15 - 25	0.04 - 0.08
Grey cast irons FC250, FC300 etc (GG25, GG30 etc)	150 ~ 250 HB	60 - 100	0.05 - 0.09
Ductile cast irons FCD400 etc (GGG40 etc)	150 ~ 250 HB	60 - 100	0.04 - 0.08
Titanium alloys Ti-6Al-4V etc	-	15 - 25	0.04 - 0.07
Heat-resistant alloys Inconel 718 etc	-	10 - 20	0.03 - 0.06
Hardened steel SKD61, SKT4 etc (X40CrMoV5 1, 55NiCrMoV6 etc)	40 ~ 50 HRC	15 - 25	0.04 - 0.07
Hardened steel SKD11, SKH etc (X153CrMoV12, HS18-0-1 etc)	50 ~ 60 HRC	10 - 20	0.03 - 0.06

·When drilling, the step feed (woodpeckering feed) operation should be applied with the depth of 0.3 - 0.5 mm per step.

·Apply the same cutting conditions as the VEE type head when conducting shoulder milling or slotting operations.

Heads of chamfering type

VCA



4/6  
No. of  
flutes

0°  
Helix

Diameter  
Ø10~20mm



P Steel

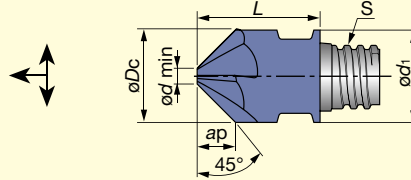
M Stainless

K Cast Iron

S Superalloys

H Hard Materials

Chamfering and countersinking (without centre edge)



ap = Max. depth of cut  
S = Connection screw size

Cat. No.	Grade AH725	No. of flutes	Helix angle	Dimensions (mm)					Wrench	Torque (N·m)	
				øDc	ød1	ap	ødmin	S			L
VCA100L04.0A45-04S06	●	4	0°	10.0	10.0	4	1.95	S06	13.00	KEYV-S06	10
VCA120L05.0A45-04S08	●	4	0°	12.0	12.0	5	1.95	S08	16.50	KEYV-S08	15
VCA127L05.3A45-04S08	●	4	0°	12.7	12.7	5.3	1.98	S08	16.50	KEYV-S08	15
VCA160L06.5A45-06S10	●	6	0°	16.0	16.0	6.5	3.00	S10	20.30	KEYV-S10	28
VCA200L07.5A45-06S12	●	6	0°	20.0	18.3	7.5	5.00	S12	25.50	KEYV-S12	28

VCW

Heads of chamfering type



2  
No. of  
flutes

0°  
Helix

Diameter  
Ø11.8mm



P Steel

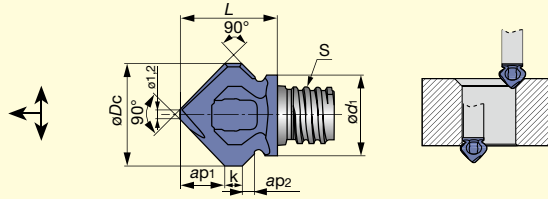
M Stainless

K Cast Iron

S Superalloys

H Hard Materials

For double chamfering



ap = Max. depth of cut  
S = Connection screw size

Cat. No.	Grade AH725	No. of flutes	Helix angle	Dimensions (mm)					Wrench	Torque (N·m)		
				øDc	ød1	ap1	ap2	k			S	L
VCW118L05.0A45-02S06	●	2	0°	11.8	9.3	5.0	1.2	2.0	S06	11.20	*KEYV-S08	10

● Available for chamfering of reverse side  
\* Some heads require different size of wrench.

VCR

Heads of chamfering type



2  
No. of  
flutes

0°  
Helix

Diameter  
Ø8~20mm



P Steel

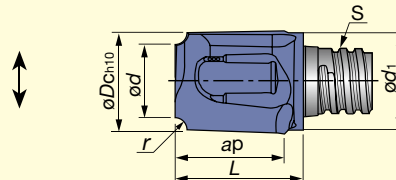
M Stainless

K Cast Iron

S Superalloys

H Hard Materials

For concave radii milling



ap = Max. depth of cut  
S = Connection screw size

Cat. No.	Grade AH725	No. of flutes	Helix angle	Dimensions (mm)					Wrench	Torque (N·m)		
				øDc	ød1	ød	ap	r			S	L
VCR080L07.5R10-02S05	●	2	0°	8.0	7.6	5.8	7.5	1.0	S05	10.5	KEYV-S05	7
VCR100L09.5R16-02S06	●	2	0°	10.0	9.5	6.8	9.5	1.6	S06	12.5	KEYV-S06	10
VCR100L09.5R25-02S06	●	2	0°	10.0	9.5	5.1	9.5	2.5	S06	12.5	KEYV-S06	10
VCR127L12.0R30-02S08	●	2	0°	12.7	12.2	6.5	12	3.0	S08	15.6	KEYV-S08	15
VCR127L12.0R40-02S08	●	2	0°	12.7	12.2	4.7	12	4.0	S08	15.6	KEYV-S08	15
VCR160L15.0R50-02S10	●	2	0°	16.0	15.2	6.2	15	5.0	S10	19.1	KEYV-S10	28
VCR200L07.0R60-02S12	●	2	0°	20.0	18.3	8.0	7.0	6.0	S12	17.4	KEYV-S12	28

● : Stocked items / Packing Quantity = 2 pcs.

■ Standard cutting conditions: Chamfering and countersinking (VCA, VCW, VCR, VCP)

Work materials	Hardness	Cutting speed Vc (m/min)	Feed per tooth fz (mm/t)
Low carbon steels S45C, S55C etc (C45, C55 etc)	~ 300 HB	60 - 100	0.06 - 0.12
High carbon steels SCM440, SCr415 etc (42CrMo4, 15Cr3 etc)	~ 300 HB	50 - 80	0.06 - 0.12
Prehardened steel PX5, NAK80 etc	30 ~ 40 HRC	40 - 70	0.06 - 0.12
Stainless steels SUS304, SUS316 etc (X5CrNi18-9, X5CrNiMo17-12-2 etc)	~ 200 HB	30 - 50	0.06 - 0.12
Grey cast irons FC250, FC300 etc (GG25, GG30 etc)	150 ~ 250 HB	80 - 120	0.06 - 0.12
Ductile cast irons FCD400 etc (GGG40 etc)			0.06 - 0.12
Aluminium alloys	-	100 - 200	0.08 - 0.15
Titanium alloys Ti-6Al-4V etc	-	30 - 50	0.05 - 0.10
Heat-resistant alloys Inconel 718 etc	-	20 - 40	0.04 - 0.08
Hardened steel SKD61, SKT4 etc (X40CrMoV5 1, 55NiCrMoV6 etc)	40 ~ 50 HRC	30 - 50	0.05 - 0.10
Hardened steel SKD11, SKH etc (X153CrMoV12, HS18-0-1 etc)	50 ~ 60 HRC	20 - 40	0.04 - 0.08

■ Tolerance of tool diameter

Basic dimensions (mm)		Permissible dimensional deviations (µm)						
>	≤	e8	e9	h6	h7	h9	h10	z9
6	10	-25 -47	-25 -61	0 -9	0 -15	0 -36	0 -58	+78 +42
10	14	-32 -59	-32 -75	0 -11	0 -18	0 -43	0 -70	+93 +50
14	18	-32 -59	-32 -75	0 -11	0 -18	0 -43	0 -70	+103 +60
18	30	-40 -73	-40 -92	0 -13	0 -21	0 -52	0 -84	-

● JISB0401-2: 1998 (ISO286-2: 1988) extract

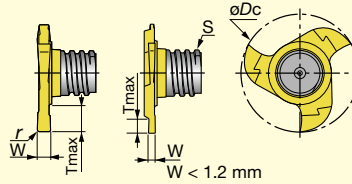
VST

Heads of slotting type



3 No. of flutes  
Diameter  $\phi 15.7, 17.7\text{mm}$

**P** Steel  
**M** Stainless  
**K** Cast Iron  
**S** Superalloys



For slotting

S = Connection screw size

Cat. No.	Grade GH130	No. of flutes	Helix angle	Dimensions (mm)					Wrench	Torque (N·m)
				$\phi Dc$	$W_{\pm 0.02}$	$r$	S	Tmax		
VST157W1.50R010-3S06	●	3	-	15.7	1.50	0.10	S06	2.8	KEYV-177	10
VST157W1.57R020-3S06	●	3	-	15.7	1.57	0.20	S06	2.8	KEYV-177	10
VST157W2.00R020-3S06	●	3	-	15.7	2.00	0.20	S06	2.8	KEYV-177	10
VST157W2.39R020-3S06	●	3	-	15.7	2.39	0.20	S06	2.8	KEYV-177	10
VST157W2.50R020-3S06	●	3	-	15.7	2.50	0.20	S06	2.8	KEYV-177	10
VST157W3.00R020-3S06	●	3	-	15.7	3.00	0.20	S06	2.8	KEYV-177	10
VST157W3.17R020-3S06	●	3	-	15.7	3.17	0.20	S06	2.8	KEYV-177	10
VST177W1.20R005-3S06	●	3	-	17.7	1.20 <sup>(1)</sup>	0.05	S06	3.8	KEYV-177	10
VST177W1.40R005-3S06	●	3	-	17.7	1.40 <sup>(1)</sup>	0.05	S06	3.8	KEYV-177	10
VST177W1.50R010-3S06	●	3	-	17.7	1.50	0.10	S06	3.8	KEYV-177	10
VST177W1.57R020-3S06	●	3	-	17.7	1.57	0.20	S06	3.8	KEYV-177	10
VST177W1.70R005-3S06	●	3	-	17.7	1.70 <sup>(1)</sup>	0.05	S06	3.8	KEYV-177	10
VST177W2.00R020-3S06	●	3	-	17.7	2.00	0.20	S06	3.8	KEYV-177	10
VST177W2.20R110-3S06	●	3	-	17.7	2.20	1.10	S06	3.8	KEYV-177	10
VST177W2.39R020-3S06	●	3	-	17.7	2.39	0.20	S06	3.8	KEYV-177	10
VST177W2.50R020-3S06	●	3	-	17.7	2.50	0.20	S06	3.8	KEYV-177	10
VST177W3.00R020-3S06	●	3	-	17.7	3.00	0.20	S06	3.8	KEYV-177	10
VST177W3.17R020-3S06	●	3	-	17.7	3.17	0.20	S06	3.8	KEYV-177	10

(1) W is based on DIN471 / 472

● : Stocked items / Packing Quantity = 2 pcs.

VST

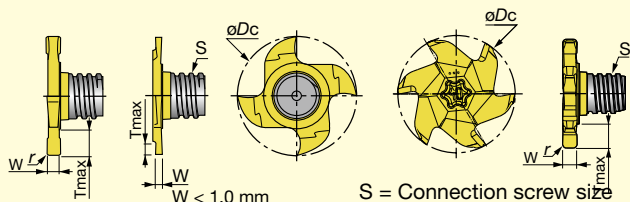
Heads of slotting type



4/6 No. of flutes Diameter  $\phi 21.7, 27.7$  mm

**P** **M** **K** **S**  
Steel Stainless Cast Iron Superalloys

For slotting



Cat. No.	Grade GH130	No. of flutes	Helix angle	Dimensions (mm)				Wrench	Torque (N-m)	
				$\phi Dc$	$W^{+0.02}$	$r$	S			Tmax
VST217W0.76R000-4S08	●	4	-	21.7	0.76 <sup>(1)</sup>	0.00	S08	1.5	KEYV-217	15
VST217W0.86R000-4S08	●	4	-	21.7	0.86 <sup>(1)</sup>	0.00	S08	1.7	KEYV-217	15
VST217W0.96R000-4S08	●	4	-	21.7	0.96 <sup>(1)</sup>	0.00	S08	1.9	KEYV-217	15
VST217W1.00R005-4S08	●	4	-	21.7	1.00	0.05	S08	2.0	KEYV-217	15
VST217W1.20R005-4S08	●	4	-	21.7	1.20 <sup>(1)</sup>	0.05	S08	4.5	KEYV-217	15
VST217W1.40R005-4S08	●	4	-	21.7	1.40 <sup>(1)</sup>	0.05	S08	4.5	KEYV-217	15
VST217W1.57R000-4S08	●	4	-	21.7	1.57	0.00	S08	4.5	KEYV-217	15
VST217W1.70R010-4S08	●	4	-	21.7	1.70 <sup>(1)</sup>	0.10	S08	4.5	KEYV-217	15
VST217W1.95R020-4S08	●	4	-	21.7	1.95 <sup>(1)</sup>	0.20	S08	4.5	KEYV-217	15
VST217W2.00R020-4S08	●	4	-	21.7	2.00	0.20	S08	4.5	KEYV-217	15
VST217W2.25R020-4S08	●	4	-	21.7	2.25 <sup>(1)</sup>	0.20	S08	4.5	KEYV-217	15
VST217W2.39R020-4S08	●	4	-	21.7	2.39	0.20	S08	4.5	KEYV-217	15
VST217W2.50R020-4S08	●	4	-	21.7	2.50	0.20	S08	4.5	KEYV-217	15
VST217W2.75R020-4S08	●	4	-	21.7	2.75 <sup>(1)</sup>	0.20	S08	4.5	KEYV-217	15
VST217W3.00R020-4S08	●	4	-	21.7	3.00	0.20	S08	4.5	KEYV-217	15
VST217W3.17R020-4S08	●	4	-	21.7	3.17	0.20	S08	4.5	KEYV-217	15
VST217W3.25R020-4S08	●	4	-	21.7	3.25 <sup>(1)</sup>	0.20	S08	4.5	KEYV-217	15
VST217W4.00R020-4S08	●	4	-	21.7	4.00	0.20	S08	4.5	KEYV-217	15
VST217W4.25R020-4S08	●	4	-	21.7	4.25 <sup>(1)</sup>	0.20	S08	4.5	KEYV-217	15
VST217W4.75R020-4S08	●	4	-	21.7	4.75	0.20	S08	4.5	KEYV-217	15
VST217W5.25R020-4S08	●	4	-	21.7	5.25 <sup>(1)</sup>	0.20	S08	4.5	KEYV-217	15
VST277W2.50R020-6S10	●	6	-	27.7	2.50	0.20	S10	6.0	KEYV-T40L	28
VST277W5.25R020-6S10	●	6	-	27.7	5.25	0.20	S10	6.0	KEYV-T40L	28
VST277W10.0R020-6S10	●	6	-	27.7	10.00	0.20	S10	6.0	KEYV-T40L	28

(1) W is based on DIN471 / 472

VST-A45

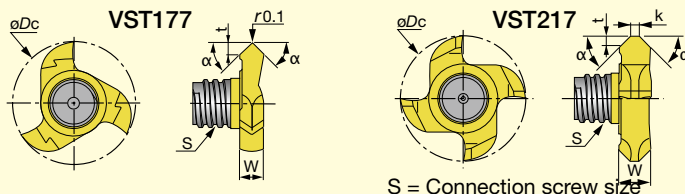
Heads of slotting type



3/4 No. of flutes Diameter  $\phi 17.7, 21.7$  mm

**P** **M** **K** **S**  
Steel Stainless Cast Iron Superalloys

For chamfering



Cat. No.	Grade GH130	No. of flutes	Helix angle	Dimensions (mm)					Wrench	Torque (N-m)	
				$\phi Dc$	W	$\alpha$	S	t			k
VST177L01.40A45-3S06	●	3	-	17.7	3.40	45°	S06	1.4	-	KEYV-177	10
VST217L01.70A45-4S08	●	4	-	21.7	5.50	45°	S08	1.7	1.5	KEYV-217	15

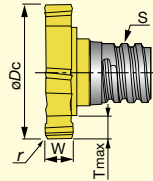
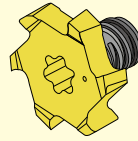
● : Stocked items / Packing Quantity = 2 pcs.

**VTB**

Heads of slotting type



For slotting

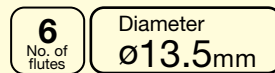


S = Connection screw size

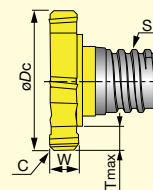
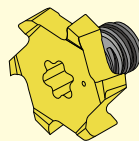
Cat. No.	Grade GH130	No. of flutes	Helix angle	Dimensions (mm)					Wrench	Torque (N·m)
				$\phi Dc$ <sub>0</sub> <sup>-0.05</sup>	$W$ <sub>±0.02</sub>	$T_{max}$	S	r		
VTB135W3.00R04-06S05	●	6	-	13.5	3	2.65	S05	0.4	KEYV-T20	7
VTB135W4.00R04-06S05	●	6	-	13.5	4	2.65	S05	0.4	KEYV-T20	7
VTB160W2.00R04-06S06	●	6	-	16.0	2	3.00	S06	0.4	KEYV-T20	10
VTB160W3.00R04-06S06	●	6	-	16.0	3	3.00	S06	0.4	KEYV-T25	10
VTB160W4.00R04-06S06	●	6	-	16.0	4	3.00	S06	0.4	KEYV-T25	10
VTB165W2.00R04-06S06	●	6	-	16.5	2	3.25	S06	0.4	KEYV-T20	10
VTB165W3.00R04-06S06	●	6	-	16.5	3	3.25	S06	0.4	KEYV-T25	10
VTB165W4.00R04-06S06	●	6	-	16.5	4	3.25	S06	0.4	KEYV-T25	10
VTB195W4.00R04-06S08	●	6	-	19.5	4	3.45	S08	0.4	KEYV-T30L	15
VTB195W5.00R04-06S08	●	6	-	19.5	5	3.45	S08	0.4	KEYV-T30L	15
VTB195W6.00R04-06S08	●	6	-	19.5	6	3.45	S08	0.4	KEYV-T30L	15
VTB225W5.00R04-06S08	●	6	-	22.5	5	4.95	S08	0.4	KEYV-T40L	15
VTB225W6.00R04-06S08	●	6	-	22.5	6	4.95	S08	0.4	KEYV-T40L	15
VTB225W8.00R04-06S08	●	6	-	22.5	8	4.95	S08	0.4	KEYV-T40L	15
VTB250W6.00R04-06S08	●	6	-	25.0	6	5.90	S08	0.4	KEYV-T50L	15
VTB250W8.00R04-06S08	●	6	-	25.0	8	5.90	S08	0.4	KEYV-T50L	15
VTB250W5.00R04-06S10	●	6	-	25.0	5	4.30	S10	0.4	KEYV-T50L	28
VTB250W6.00R04-06S10	●	6	-	25.0	6	4.30	S10	0.4	KEYV-T50L	28
VTB250W8.00R04-06S10	●	6	-	25.0	8	4.30	S10	0.4	KEYV-T50L	28

**VTB-15**

Heads of slotting type



For chamfered slotting



S = Connection screw size

Cat. No.	Grade GH130	No. of flutes	Helix angle	Dimensions (mm)					Wrench	Torque (N·m)
				$\phi Dc$ <sub>0</sub> <sup>-0.05</sup>	$W$ <sub>±0.05</sub>	$T_{max}$	S	C		
VTB135W2.00C15-06S05	●	6	-	13.5	2.5	2.65	S05	0.15	KEYV-T20	7

● : Stocked items / Packing Quantity = 2 pcs.

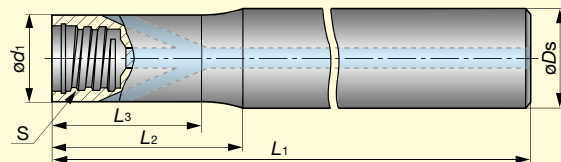
■ Standard cutting conditions: Slotting (VST, VTB)

Work materials	Hardness (HB)	VST type		VTB type	
		Cutting speed Vc (m/min)	Feed per tooth fz (mm/t)	Cutting speed Vc (m/min)	Feed per tooth fz (mm/t)
Low carbon steels S45C, S55C etc (C45, C55 etc)	~ 300	80 - 180	0.05 - 0.15	80 - 180	0.08 - 0.18
High carbon steels SCM440, SCr415 etc (42CrMo4, 15Cr3 etc)	~ 300	60 - 120	0.04 - 0.12	60 - 120	0.05 - 0.15
Stainless steels SUS304, SUS316 etc X5CrNi18-9, X5CrNiMo17-12-2 etc)	~ 200	50 - 120	0.04 - 0.12	50 - 120	0.05 - 0.15
Grey cast irons FC250, FC300 etc (GG25, GG30 etc)	150 ~ 250	100 - 200	0.05 - 0.15	100 - 200	0.08 - 0.18
Ductile cast irons FCD400 etc (GGG40 etc)	150 ~ 250	100 - 200	0.04 - 0.12	100 - 200	0.05 - 0.15
Aluminium alloys (Si < 13%)	-	200 - 600	0.05 - 0.15	200 - 600	0.08 - 0.18
Aluminium alloys (Si ≥ 13%)	-	100 - 300	0.03 - 0.13	100 - 300	0.05 - 0.15
Titanium alloys Ti-6Al-4V etc	-	40 - 60	0.04 - 0.12	40 - 60	0.05 - 0.15
Heat-resistant alloys Inconel 718 etc	-	15 - 35	0.02 - 0.10	15 - 35	0.02 - 0.10

**VSSD-W-A**

**Shanks**

Straight shank and neck with coolant hole



S = Connection screw size

Cat. No.	Stock	Dimensions (mm)						Shank material
		$\phi D_s$	$\phi d_1$	$L_1$	$L_2$	$L_3$	S	
VSSD10L070S06-W-A	●	10	9.6	70	20	19	S06	Tungsten
VSSD10L090S06-W-A	●	10	9.6	90	40	39	S06	Tungsten
VSSD10L110S06-W-A	●	10	9.6	110	60	59	S06	Tungsten
VSSD12L070S08-W-A	●	12	11.5	70	20	19	S08	Tungsten
VSSD12L090S08-W-A	●	12	11.5	90	40	39	S08	Tungsten
VSSD12L110S08-W-A	●	12	11.5	110	60	59	S08	Tungsten
VSSD12L130S08-W-A	●	12	11.5	130	80	79	S08	Tungsten
VSSD16L070S10-W-A	●	16	15.2	70	20	18.5	S10	Tungsten
VSSD16L090S10-W-A	●	16	15.2	90	40	36.5	S10	Tungsten
VSSD16L110S10-W-A	●	16	15.2	110	60	58.5	S10	Tungsten
VSSD16L130S10-W-A	●	16	15.2	130	80	78.5	S10	Tungsten
VSSD20L090S12-W-A	●	20	18.3	90	40	37	S12	Tungsten
VSSD20L130S12-W-A	●	20	18.3	130	80	77	S12	Tungsten

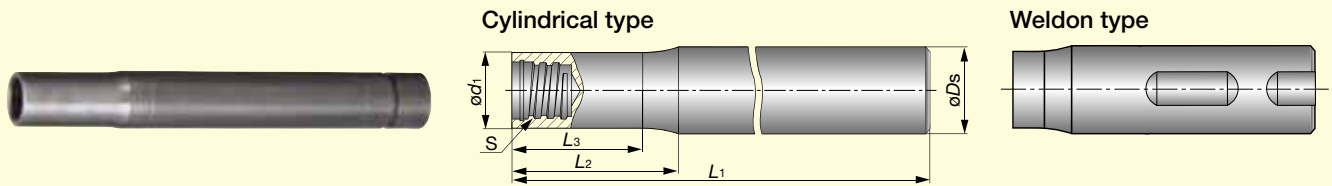
● : Stocked items.



VSSD

Shanks

Straight shank and neck



S = Connection screw size

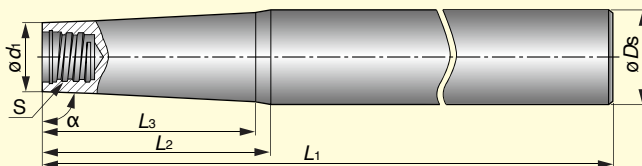
Cat. No.	Stock	Dimensions (mm)						Shank style	Shank material
		øDs	ød1	L1	L2	L3	S		
VSSD08L060S05-S	●	8	7.6	60	15	12.5	S05	Cylindrical	Steel
VSSD10L075S06-S	●	10	9.6	75	20	17.5	S06	Cylindrical	Steel
VSSD12L090S08-S	●	12	11.5	90	16	13.5	S08	Cylindrical	Steel
VSSD16L100S10-S	●	16	15.2	100	20	18	S10	Cylindrical	Steel
VSSD20L120S12-S	●	20	18.3	120	25	20.5	S12	Cylindrical	Steel
VSSD08L070S05-C	●	8	7.6	70	20	18.5	S05	Cylindrical	Carbide
VSSD08L090S05-C	●	8	7.6	90	40	38.5	S05	Cylindrical	Carbide
VSSD08L110S05-C	●	8	7.6	110	60	58.5	S05	Cylindrical	Carbide
VSSD10L070S06-C	●	10	9.6	70	20	18.5	S06	Cylindrical	Carbide
VSSD10L090S06-C	●	10	9.6	90	40	38.5	S06	Cylindrical	Carbide
VSSD10L110S06-C	●	10	9.6	110	60	58.5	S06	Cylindrical	Carbide
VSSD10L150S06-C	●	10	9.6	150	100	98.5	S06	Cylindrical	Carbide
VSSD12L070S08-C	●	12	11.5	70	20	18	S08	Cylindrical	Carbide
VSSD12L090S08-C	●	12	11.5	90	40	38	S08	Cylindrical	Carbide
VSSD12L110S08-C	●	12	11.5	110	60	58	S08	Cylindrical	Carbide
VSSD12L130S08-C	●	12	11.5	130	80	78	S08	Cylindrical	Carbide
VSSD16L090S10-C	●	16	15.2	90	40	38	S10	Cylindrical	Carbide
VSSD16L110S10-C	●	16	15.2	110	60	58	S10	Cylindrical	Carbide
VSSD16L130S10-C	●	16	15.2	130	80	78	S10	Cylindrical	Carbide
VSSD16L150S10-C	●	16	15.2	150	100	98	S10	Cylindrical	Carbide
VSSD20L090S12-C	●	20	18.3	90	40	37	S12	Cylindrical	Carbide
VSSD20L130S12-C	●	20	18.3	130	80	77	S12	Cylindrical	Carbide
VSSD20L200S12-C	●	20	18.3	200	120	117	S12	Cylindrical	Carbide
VSSD12L055W05-S	●	12	7.6	55	3.8	-	S05	Weldon	Steel
VSSD16L065W06-S	●	16	9.5	65	6	-	S06	Weldon	Steel
VSSD16L065W08-S	●	16	11.5	65	4	-	S08	Weldon	Steel
VSSD20L070W10-S	●	20	15.2	70	4	-	S10	Weldon	Steel
VSSD25L075W12-S	●	25	18.3	75	7.2	-	S12	Weldon	Steel

● : Stocked items.

**VTSD**

**Shanks**

Straight shank and taper neck



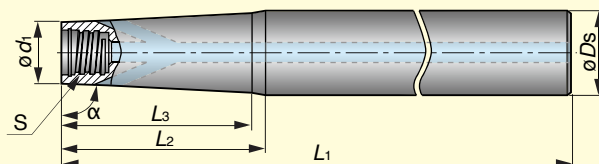
S = Connection screw size

Cat. No.	Stock	Dimensions (mm)							Shank material
		$\alpha$	$\phi D_s$	$\phi d_1$	$L_1$	$L_2$	$L_3$	S	
VTSD12L080S05-S	●	85	12	7.6	80	25	-	S05	Steel
VTSD12L100S05-S	●	89	12	7.6	100	35	31.0	S05	Steel
VTSD12L110S05-C	●	89	12	7.6	110	60	58.0	S05	Carbide
VTSD12L130S05-C	●	89	12	7.6	130	80	79.0	S05	Carbide
VTSD16L125S06-S	●	85	16	9.6	125	34	31.6	S06	Steel
VTSD16L130S08-C	●	89	16	11.5	130	80	78.8	S08	Carbide
VTSD16L140S08-S	●	85	16	11.5	140	22	19.3	S08	Steel
VTSD16L150S05-C	●	89	16	7.6	150	100	96.0	S05	Carbide
VTSD16L150S06-C	●	89	16	9.6	150	100	98.0	S06	Carbide
VTSD16L150S08-C	●	89	16	11.5	150	100	-	S08	Carbide
VTSD16L160S06-S	●	89	16	9.6	160	55	45.9	S06	Steel
VTSD16L170S06-C	●	89	16	9.6	170	120	119.0	S06	Carbide
VTSD20L140S10-S	●	85	20	15.2	140	27.5	-	S10	Steel
VTSD20L170S08-C	●	89	20	11.5	170	120	117.0	S08	Carbide
VTSD20L170S08-S	●	89	20	11.5	170	80	68.6	S08	Steel
VTSD20L170S10-C	●	89	20	15.2	170	120	-	S10	Carbide
VTSD20L190S10-C	●	89	20	15.2	190	140	-	S10	Carbide
VTSD20L190S10-S	●	89	20	15.2	190	80	73.0	S10	Steel
VTSD20L210S10-C	●	89	20	15.2	210	160	-	S10	Carbide
VTSD25L160S12-S	●	85	25	18.3	160	40	-	S12	Steel
VTSD25L170S10-S	●	85	25	15.2	170	56	-	S10	Steel
VTSD25L180S12-C	●	89	25	18.3	180	120	-	S12	Carbide
VTSD25L210S12-S	●	89	25	18.3	210	100	91.0	S12	Steel
VTSD25L250S12-C	●	89	25	18.3	250	140	-	S12	Carbide
VTSD32L190S12-S	●	85	32	18.3	190	80	-	S12	Steel

**VTSD-W-A**

**Shanks**

Straight shank and taper neck with coolant hole



S = Connection screw size

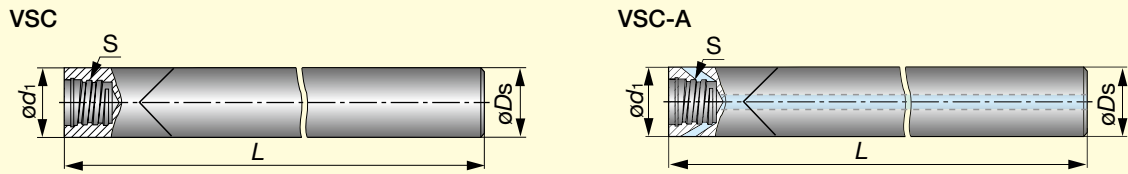
Cat. No.	Stock	Dimensions (mm)							Shank material
		$\alpha$	$\phi D_s$	$\phi d_1$	$L_1$	$L_2$	$L_3$	S	
VTSD12L110S06-W-A	●	89°	12	9.6	110	60	59	S06	Tungsten
VTSD16L170S06-W-A	●	89°	16	9.6	170	120	116	S06	Tungsten

● : Stocked items.

**VSC**

**Shanks**

Straight shank for VST type slotting heads



S = Connection screw size

Cat. No.	Stock	Dimensions (mm)				Coolant hole	Shank material
		øDs	ød1	L	S		
VSC100L100S06-C	●	10	10	100	S06	without	Carbide
VSC120L100S08-C-A	●	12	12	100	S08	with	Carbide

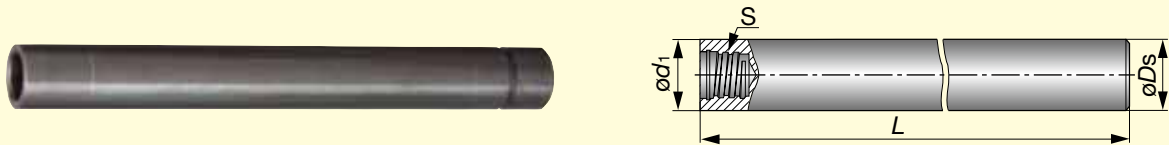
Note:

- For VSC-C type shank, just VST slotting head is recommended. If other heads are used on the VSC-C shank, the depth of cut must be smaller than the max. ap in each head. The VSC-C type shank does not have external clearance, so the shank may interfere with the work piece.

**VSTD**

**Shanks**

Straight shank for VTB type slotting heads



S = Connection screw size




Cat. No.	Stock	Dimensions (mm)				Shank material
		øDs	ød1	L	S	
VSTD08L070S05-S	●	8	8	70	S05	Steel
VSTD10L080S06-S	●	10	10	80	S06	Steel
VSTD12L090S08-S	●	12	12	90	S08	Steel
VSTD16L100S10-S	●	16	16	100	S10	Steel

Note:

- For VSTD type shank, only VTB slotting head is recommended. If other heads are used on the VSTD shank, the depth of cut must be smaller than the max. ap in each head. The VSTD type shank does not have external clearance, so the shank may interfere with the work piece.

● : Stocked items.

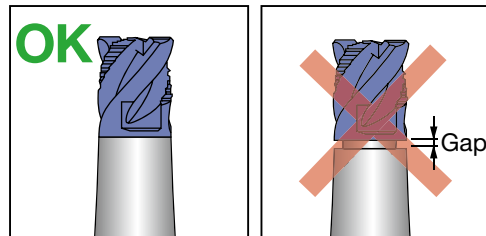
# Wrench

Appearance	Cat. No.	Stock	Connection screw size	Torque (N·m)	Applicable head
	KEYV-S05	●	S05	7	Square Ball Radius Drilling Chamfering Counter boring
	KEYV-S06	●	S06	10	
	KEYV-S08	●	S08	15	
	KEYV-S10	●	S10	28	
	KEYV-S12	●	S12	28	
	KEYV-177	●	S06	10	Slotting VST type
	KEYV-217	●	S08	15	
	KEYV-T40L	●	S08 / S10	15	Slotting VST and VTB type
	KEYV-T20	●	S05	7	Slotting VTB type
			S06	10	
	KEYV-T25	●	S06	10	
	KEYV-T30L	●	S08	15	
KEYV-T50L	●	S08	28		
		S10			

Note: Optional parts

### CAUTIONARY POINTS IN USE

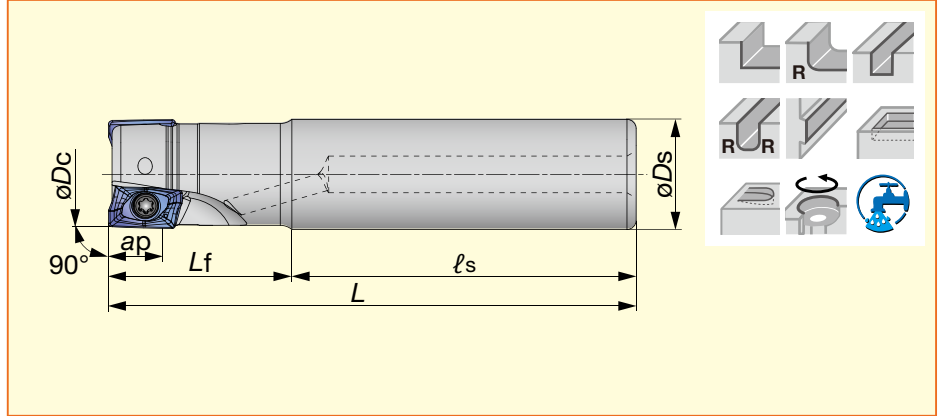
- The cutting heads specified by Tungaloy must be used. Avoid using alternate heads that are not Tungaloy products as this will damage the shank and can cause severe accident or injury.
- Before setting the head, clean the connection screw with an air blast or a wiping cloth to remove chips and other foreign matter that may remain.
- Do not apply the lubricant to the connection screw.
- Please use the correct "Wrench" with the correct cutting head. Tighten the head slowly until the face of the head contacts the shank. (Please refer to the picture shown on the right.) Re-tightening or over-tightening is not required. Excessive tightening may cause the cutting head to break.
- Do not apply excessive force or a hammer when tightening or exchanging the cutting heads.



● : Stocked items.

**EPAV**

**Shank type**



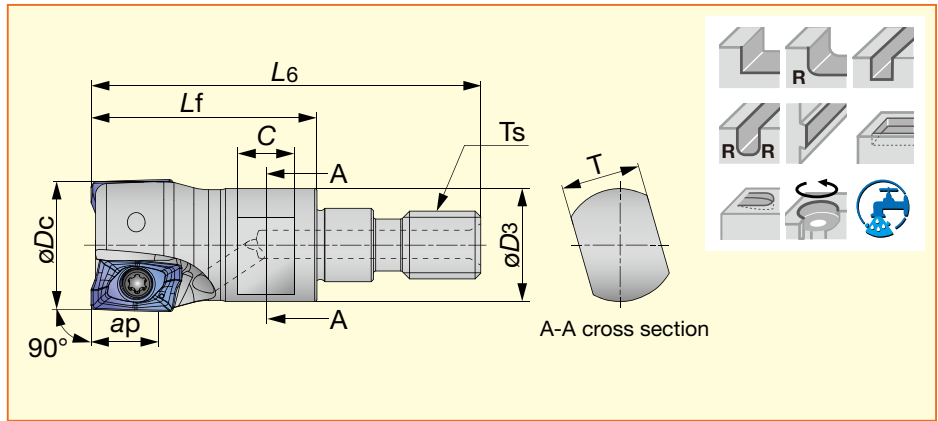
Designation	Stock	Max. $a_p$	$\phi D_c$	$z$	$\phi D_s$	$l_s$	$L_f$	$L$	Weight (kg)	Insert
EPAV06M008C10.0R01	●	6	8.00	1	10.0	60.0	20.0	80.0	0.04	AVGT06**
EPAV06M010C10.0R02	●	6	10.00	2	10.0	60.0	20.0	80.0	0.04	AVGT06**
EPAV06M010C10.0R02L	●	6	10.00	2	10.0	65.0	35.0	100.0	0.06	AVGT06**
EPAV06M012C12.0R02	●	6	12.00	2	12.0	60.0	20.0	80.0	0.06	AVGT06**
EPAV06M012C12.0R03	●	6	12.00	3	12.0	60.0	20.0	80.0	0.06	AVGT06**
EPAV06M012C12.0R02L	●	6	12.00	2	12.0	85.0	35.0	120.0	0.09	AVGT06**
EPAV06M016C16.0R03	●	6	16.00	3	16.0	70.0	20.0	90.0	0.12	AVGT06**
EPAV06M016C16.0R04	●	6	16.00	4	16.0	70.0	20.0	90.0	0.12	AVGT06**
EPAV06M016C16.0R03L	●	6	16.00	3	16.0	105.0	35.0	140.0	0.20	AVGT06**

**SPARE PARTS**



Clamping screw	Mono block type wrench
CSPB-2H	IP-6DB

**HPAV-M** Modular type - metric thread



Designation	Stock	Max. ap	øDc	z	L6	Lf	C	T	øD3	Ts	Weight (kg)	Insert
HPAV06M010M06R02	●	6	10.00	2	34.5	20.0	5.0	7.0	9.5	M6	0.01	AVGT06**
HPAV06M012M06R02	●	6	12.00	2	34.5	20.0	5.0	7.0	10.0	M6	0.01	AVGT06**
HPAV06M012M06R03	●	6	12.00	3	34.5	20.0	5.0	7.0	10.0	M6	0.01	AVGT06**
HPAV06M016M08R03	●	6	16.00	3	42.0	25.0	8.0	10.0	13.0	M8	0.03	AVGT06**
HPAV06M016M08R04	●	6	16.00	4	42.0	25.0	8.0	10.0	13.0	M8	0.03	AVGT06**

For details of metric shank, please refer to TungFlex series in TR413 TungHold

**SPARE PARTS**



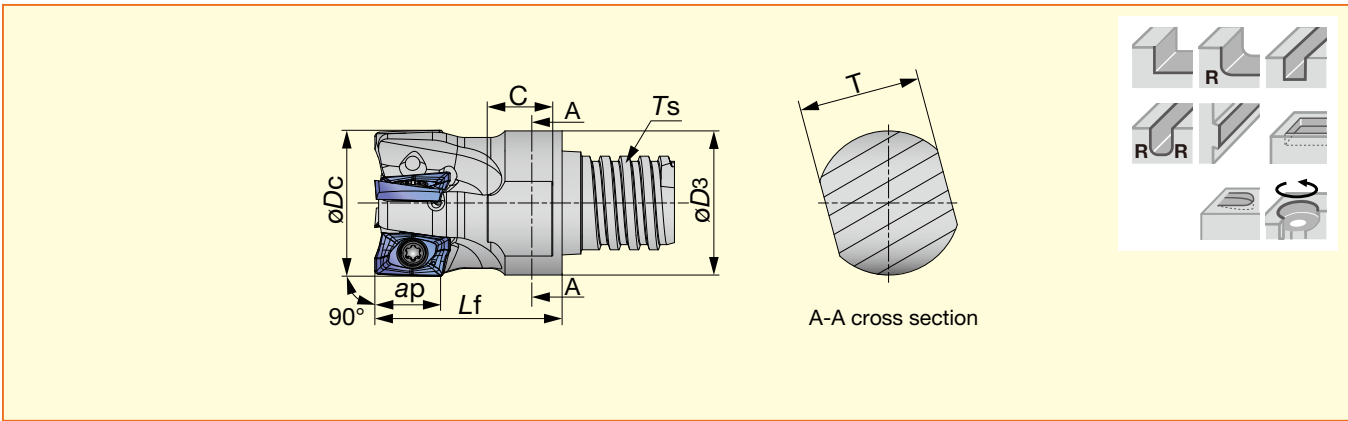
Clamping screw	Mono block type wrench
CSPB-2H	IP-6DB



TAC Endmills

● : Stocked items

**HPAV06-S** Modular head - TungMeister thread



Designation	Stock	Max. ap	$\varnothing D_c$	z	$L_f$	C	T	$\varnothing D_3$	Ts	Weight (kg)	Insert
HPAV06M010S06R02	★	6	10	2	16	5	8	9.8	S06	0.01	AVGT06**
HPAV06M012S08R02	★	6	12	2	18	5	10	11.7	S08	0.02	AVGT06**
HPAV06M012S08R03	★	6	12	3	18	5	10	11.7	S08	0.02	AVGT06**
HPAV06M016S10R03	★	6	16	3	20	7	13	15.4	S10	0.03	AVGT06**
HPAV06M016S10R04	★	6	16	4	20	7	13	15.4	S10	0.03	AVGT06**

- For details of shanks, please refer to TR381 TungMeister  
Shank types: VSSD, VTSD, VSC, VSTD  
- For connections between metric shank and TungMeister thread, please use VAD-M type connector

Spanner for clamping	Cat. No.	Connection screw size
	KEYV-S06	S06
	KEYV-S08	S08
	KEYV-S10	S10

Optional- to be ordered separately.

**SPARE PARTS**



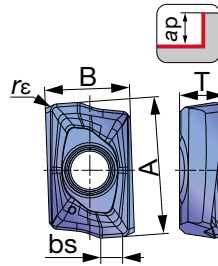
Clamping screw	Mono block type wrench
CSPB-2H	IP-6DB

★ : Available in 2016

## Inserts

AVGT-MJ

AVGT-AJ



Designation	Max. ap	A	B	T	r <sub>ε</sub>	bs	AH3135				AH120				KS05F
							P	M	S	H	P	K	S	H	N
AVGT060302PBER-MJ	6	8	5	2.7	0.2	1.5	●	●			○	●	●	●	
AVGT060304PBER-MJ	6	8	5	2.7	0.4	1.3	●	●			○	●	●	●	
AVGT060308PBER-MJ	6	8	5	2.6	0.8	0.9	●	●			○	●	●	●	
AVGT060302PBFR-AJ	6	8	5	2.7	0.2	1.5									●
AVGT060304PBFR-AJ	6	8	5	2.7	0.4	1.3									●
AVGT060308PBFR-AJ	6	8	5	2.6	0.8	0.9									●

● First choice

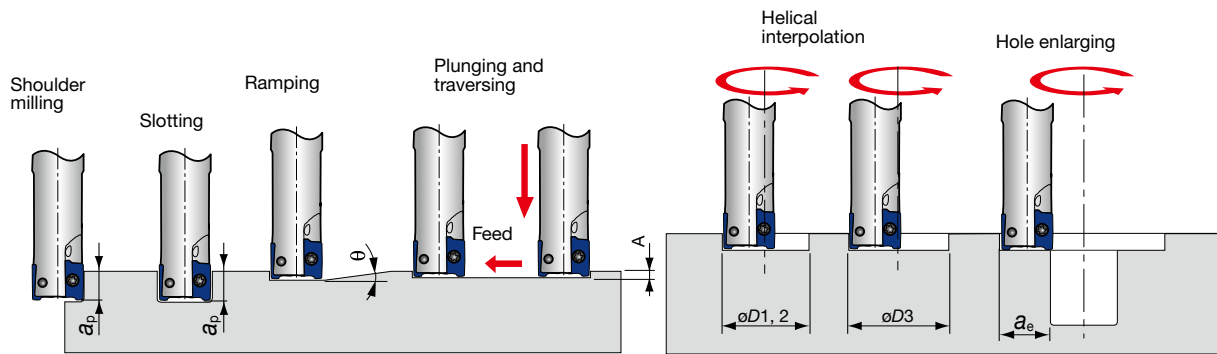
## Standard cutting conditions

ISO	Workpiece materials	Hardness	Priority	Grades	Chip-breaker	Cutting speed V <sub>c</sub> (m/min)	Feed per tooth fz (mm/t)	
<b>P</b>	Low carbon steel (S15C / C15E4, SS400 / E275A, etc.)	- 300 HB	First choice	AH3135	MJ	230 - 430	0.07 - 0.12	
	Carbon steel and alloy steel (S55C / C55, SCM440 / 42CrMo4, etc.)	- 300 HB	First choice	AH3135	MJ	150 - 350	0.07 - 0.12	
	Prehardened steel (NAK80, PX5, etc.)	30 - 40 HRC	First choice	AH120	MJ	100 - 230	0.07 - 0.12	
<b>M</b>	Stainless steel (SUS304 / X5CrNi18-9, SUS316 / X5CrNiMo17-12-3, etc.)	-	First choice	AH3135	MJ	150 - 220	0.06 - 0.1	
<b>K</b>	Grey cast iron (FC250 / 250, FC300 / 300, etc.)	150 - 250 HB	First choice	AH120	MJ	200 - 330	0.07 - 0.12	
	Ductile cast iron (FC400, FCD600 / 600-3, etc.)	150 - 250 HB	First choice	AH120	MJ	150 - 240	0.07 - 0.12	
<b>N</b>	Aluminium alloys (Si < 13%)	-	First choice	KS05F	AJ	650 - 1000	0.07 - 0.12	
<b>S</b>	Titanium alloys (Ti-6Al-4V, etc.)	-	First choice	AH120	MJ	70 - 90	0.06 - 0.10	
	Superalloys (Inconel718, etc.)	-	First choice	AH120	MJ	45 - 65	0.06 - 0.09	
<b>H</b>	Hardened steel	(SKD61 / X40CrMoV5-1, etc.)	40 - 50 HRC	First choice	AH120	MJ	45 - 70	0.05 - 0.08
		(SKD11 / X153CrMoV12, etc.)	50 - 60 HRC	First choice	AH120	MJ	40 - 65	0.04 - 0.06

TAC Endmills



## Machining applications



Designation	$\phi Dc$	Max. depth of cut	Max. ramping angle	Max. plunging	Min. machining	Max. machining		Max. cutting width in enlarging
		$ap$	$\theta$	$A$	$\phi D1$	$\phi D2$	$\phi D3^*$	$ae$
EPAV06_008...	8	6	-	-	-	-	-	-
EPAV/HPAV06_010...	10	6	3°	0.3	15	19	18	9.5
EPAV/HPAV06_012...	12	6	3°	0.5	18	23	22	11.5
EPAV/HPAV06_016...	16	6	2.5°	0.6	25	31	30	15.5

\*Flat bottom hole

# HYBRIDTACMILL

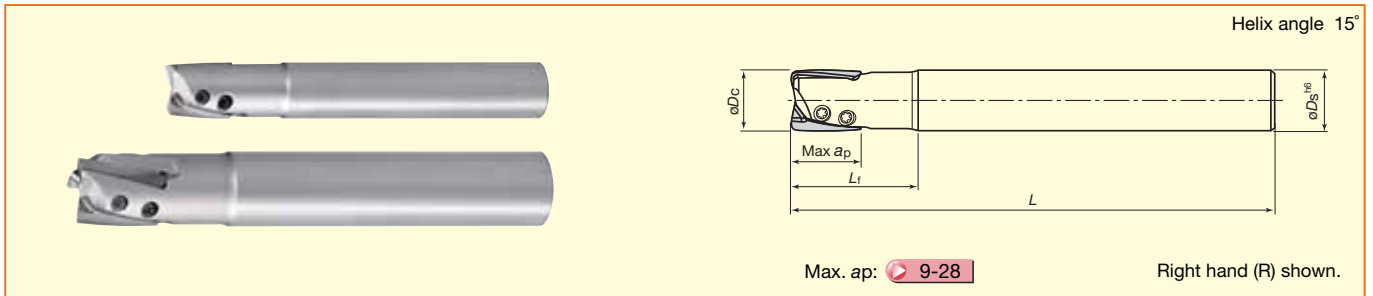
## EPH type



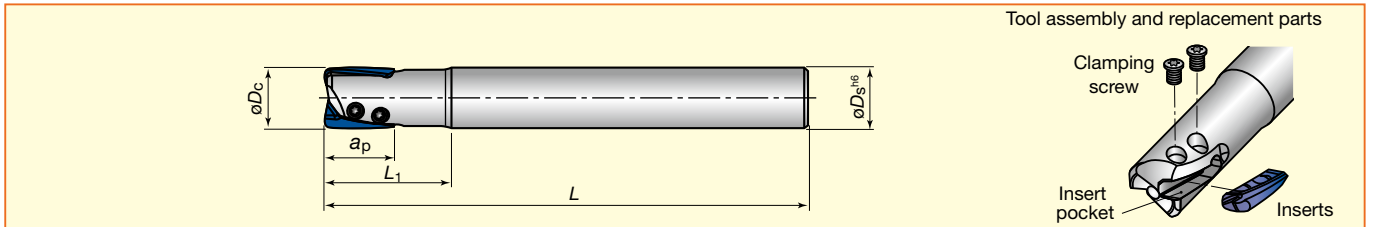
Diameter  
 $\varnothing 10 \sim 26$  mm



For multi-functional milling of steels, stainless steels, cast irons and aluminum alloys

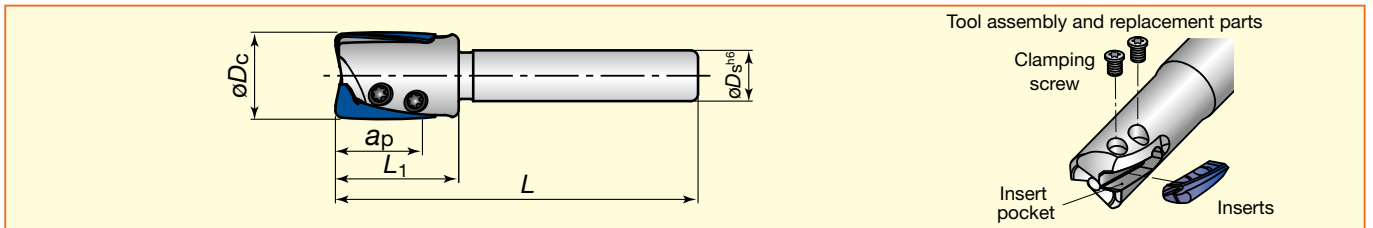


### ● Straight type



Cat. No.	Stock	No. of inserts	Dimensions (mm)					Clamping screw (Std. fastening torque)	Wrench	Applicable inserts
			$\varnothing D_c$	$\varnothing D_s$	Max. $a_p$	$L$	$L_1$			
EPH11R010M10.0-2	●	2	10	10	10	80	21	CSP-2L033 (0.7 N·m)	IP-6F	XHGR1102***R-**
EPH13R012M12.0-2	●	2	12	12	12	80	25	CSPB-2.2SH (1.1 N·m)	IP-7D	XHGR1302***R-**
EPH18R016M16.0-2	●	2	16	16	16	100	33	CSPB-2.5SH (1.1 N·m)	IP-7D	XHGR18T2***R-**
EPH18R016M16.0-3	●	3	16	16	16	100	33	CSPB-2.5SH (1.1 N·m)	IP-7D	XHGR18T2***R-**
EPH18R020M20.0-3	●	3	20	20	16	110	41	CSPB-2.5SH (1.1 N·m)	IP-7D	XHGR18T2***R-**
EPH18R025M25.0-4	●	4	25	25	16	120	51	CSPB-2.5SH (1.1 N·m)	IP-7D	XHGR18T2***R-**

### ● Reduced shank for automatic lathes

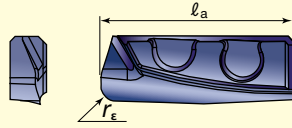


Cat. No.	Stock	No. of inserts	Dimensions (mm)					Clamping screw (Std. fastening torque)	Wrench	Applicable inserts
			$\varnothing D_c$	$\varnothing D_s$	Max. $a_p$	$L$	$L_1$			
EPH11R010M06.0-2	●	2	10	6	10	50	15	CSP-2L033 (0.7 N·m)	IP-6F	XHGR1102***R-**
EPH13R012M07.0-2	●	2	12	7	12	50	17	CSPB-2.2SH (1.1 N·m)	IP-7D	XHGR1302***R-**
EPH18R016M10.0-3	●	3	16	10	16	60	22	CSPB-2.5SH (1.1 N·m)	IP-7D	XHGR18T2***R-**
EPH18R020M10.0-3	●	3	20	10	16	60	22	CSPB-2.5SH (1.1 N·m)	IP-7D	XHGR18T2***R-**

● : Stocked items.

## EPH type

### Inserts



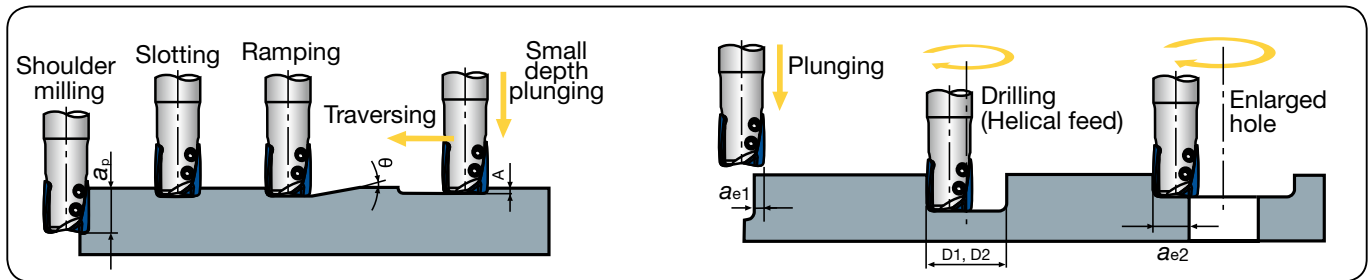
Cat. No.	Grade	Dimensions (mm)		Applica-tions	Applicable cutter
	AH730	l <sub>a</sub>	Corner R r <sub>ε</sub>		
XHGR110202ER-MJ	●	11	0.2	P Steel	EPH11R**
XHGR110204ER-MJ	●		0.4		
XHGR110205ER-MJ	●		0.5		
XHGR110208ER-MJ	●		0.8		
XHGR110210ER-MJ	●		1.0		
XHGR110212ER-MJ	●		1.2		
XHGR110215ER-MJ	●		1.5		
XHGR110216ER-MJ	●		1.6		
XHGR110220ER-MJ	●		2.0		
XHGR130202ER-MJ	●	13	0.2	M Stainless	EPH13R**
XHGR130204ER-MJ	●		0.4		
XHGR130205ER-MJ	●		0.5		
XHGR130208ER-MJ	●		0.8		
XHGR130210ER-MJ	●		1.0		
XHGR130212ER-MJ	●		1.2		
XHGR130215ER-MJ	●		1.5		
XHGR130216ER-MJ	●		1.6		
XHGR130220ER-MJ	●		2.0		
XHGR18T202ER-MJ	●	18	0.2	K Cast Iron	EPH18R**
XHGR18T204ER-MJ	●		0.4		
XHGR18T205ER-MJ	●		0.5		
XHGR18T208ER-MJ	●		0.8		
XHGR18T210ER-MJ	●		1.0		
XHGR18T212ER-MJ	●		1.2		
XHGR18T215ER-MJ	●		1.5		
XHGR18T216ER-MJ	●		1.6		
XHGR18T220ER-MJ	●		2.0		
Cat. No.	Grade	Dimensions (mm)		Applica-tions	Applicable cutter
	DS1200	l <sub>a</sub>	Corner R r <sub>ε</sub>		
XHGR110200FR-AJ	●	11	0	N Non-ferrous	EPH11R**
XHGR110202FR-AJ	●		0.2		
XHGR110204FR-AJ	●		0.4		
XHGR110205FR-AJ	●		0.5		
XHGR110208FR-AJ	●		0.8		
XHGR110210FR-AJ	●		1.0		
XHGR110212FR-AJ	●		1.2		
XHGR110215FR-AJ	●		1.5		
XHGR110216FR-AJ	●		1.6		
XHGR110220FR-AJ	●	2.0			
XHGR130200FR-AJ	●	13	0	N Non-ferrous	EPH13R**
XHGR130202FR-AJ	●		0.2		
XHGR130204FR-AJ	●		0.4		
XHGR130205FR-AJ	●		0.5		
XHGR130208FR-AJ	●		0.8		
XHGR130210FR-AJ	●		1.0		
XHGR130212FR-AJ	●		1.2		
XHGR130215FR-AJ	●		1.5		
XHGR130216FR-AJ	●		1.6		
XHGR130220FR-AJ	●	2.0			
XHGR18T200FR-AJ	●	18	0	N Non-ferrous	EPH18R**
XHGR18T202FR-AJ	●		0.2		
XHGR18T204FR-AJ	●		0.4		
XHGR18T205FR-AJ	●		0.5		
XHGR18T208FR-AJ	●		0.8		
XHGR18T210FR-AJ	●		1.0		
XHGR18T212FR-AJ	●		1.2		
XHGR18T215FR-AJ	●		1.5		
XHGR18T216FR-AJ	●		1.6		
XHGR18T220FR-AJ	●	2.0			

Note: When using inserts with a corner radius in excess of 1mm, additional work to the cutter body is needed.

● : Stocked items.

## EPH type

### Machining modes



type	Cat. No.	Tool $\phi$ $\phi D_c$ (mm)	Max. depth of cut $a_p$ (mm)	Max. ramping angle $\theta$	Max. plunging depth A (mm)	Max. cutting width in plunging $a_{e1}$ (mm)	Min. machinable hole $\phi$ $\phi D_1$ (mm)	Max. machinable hole $\phi$ $\phi D_2^*$ (mm)	Max. cutting width in enlarged hole $a_{e2}^*$ (mm)
Straight	EPH11R010M10.0-2	$\phi 10$	10	$3^\circ$	0.3	3	13	19.5	9.7
	EPH13R012M12.0-2	$\phi 12$	12	$3.5^\circ$	0.3	3	16	23.5	11.7
	EPH18R016M16.0-2	$\phi 16$	16	$3.5^\circ$	0.3	4	22	31.5	15.7
	EPH18R016M16.0-3	$\phi 16$	16	$3.5^\circ$	0.3	4	22	31.5	15.7
	EPH18R020M20.0-3	$\phi 20$	16	$2^\circ$	0.3	4	29	39.5	19.7
	EPH18R025M25.0-4	$\phi 25$	16	$1.5^\circ$	0.3	4	39	49.5	24.7
For automatic lathes	EPH11R010M06.0-2	$\phi 10$	10	$3^\circ$	0.3	3	13	19.5	9.7
	EPH13R012M07.0-2	$\phi 12$	12	$3.5^\circ$	0.3	3	16	23.5	11.7
	EPH18R016M10.0-3	$\phi 16$	16	$3.5^\circ$	0.3	4	22	31.5	15.7
	EPH18R020M10.0-3	$\phi 20$	16	$2^\circ$	0.3	4	29	39.5	19.7

\*Where the insert corner radius  $\leq 0.2$  mm

### Replacement parts

	Cat. No.	Clamping screw	Wrench
	EPH11R010**	CSP-2L033	IP-6F
	EPH13R012**	CSPB-2.2SH	IP-7D
	EPH18R016**	CSPB-2.5SH	IP-7D

### Notes on using large radius inserts

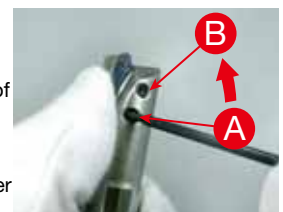
When using the inserts which have a large corner radius in excess of 1.0 mm, additional work is needed to the corner of the body.

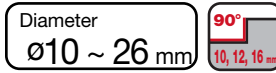
Insert corner R $r_\epsilon$ (mm)	Required rework to body corner (mm)
$0 \leq r_\epsilon \leq 1.0$	No additional work
$1.0 < r_\epsilon \leq 2.0$	R2.0

### Insert mounting procedure (EPH-type)

Fasten the inserts in order of **A** to **B**

- After loosening the clamping screws, insert the insert in the insert pocket of the body while pushing it with your finger.
- Lightly fasten the clamping screws in order of **A** and **B**.
- For all the inserts, carry out the above steps ① and ②.
- Securely tighten the clamping screws in order of **A** and **B**.  
(Refer to the standard tightening torque values.)
- For all the inserts, carry out the above step ④.
- Check the condition of insert seating, clearance between the insert and insert pocket, the tool diameter, and the peripheral edge runoff.





### ● Standard cutting conditions

● Shoulder milling	Work material	Cutting speed $V_c$ (m/min)	Feed rate $f_z$ (mm/t)	Axial and Radial depth of cut		
				$\phi 10 \leq \phi D_c < \phi 12$	$\phi 12 \leq \phi D_c < \phi 16$	$\phi 16 \leq \phi D_c \leq \phi 26$
<p><math>a_p</math>: Axial depth of cut <math>a_e</math>: Radial depth of cut</p>	Carbon steels Alloy steels (< 30HRC)	120 (60 ~ 180)	0.08 (0.03 ~ 0.1)	$a_p \leq 7.5$ mm $a_e \leq 1.5$ mm	$a_p \leq 9.0$ mm $a_e \leq 1.5$ mm	$a_p \leq 12.0$ mm $a_e \leq 2.0$ mm
	Alloy steels prehardened steels (30 ~ 40HRC)	100 (50 ~ 150)	0.05 (0.03 ~ 0.08)	$a_p \leq 5.5$ mm $a_e \leq 1.5$ mm	$a_p \leq 6.5$ mm $a_e \leq 1.5$ mm	$a_p \leq 9.0$ mm $a_e \leq 2.0$ mm
	Stainless steels (< 250HB)	100 (50 ~ 150)	0.04 (0.03 ~ 0.06)	$a_p \leq 4.5$ mm $a_e \leq 1.5$ mm	$a_p \leq 5.5$ mm $a_e \leq 1.5$ mm	$a_p \leq 7.5$ mm $a_e \leq 2.0$ mm
	Cast irons	140 (80 ~ 200)	0.08 (0.03 ~ 0.1)	$a_p \leq 9.5$ mm $a_e \leq 2.0$ mm	$a_p \leq 11.5$ mm $a_e \leq 2.0$ mm	$a_p \leq 15.5$ mm $a_e \leq 3.0$ mm
	Aluminium alloys (Si < 13%)	200 (100 ~ 300)	0.07 (0.03 ~ 0.1)	$a_p \leq 9.5$ mm $a_e \leq 2.0$ mm	$a_p \leq 11.5$ mm $a_e \leq 2.0$ mm	$a_p \leq 15.5$ mm $a_e \leq 3.0$ mm
	Aluminium alloys (Si $\geq$ 13%)	130 (80 ~ 180)	0.06 (0.03 ~ 0.08)	$a_p \leq 9.5$ mm $a_e \leq 2.0$ mm	$a_p \leq 11.5$ mm $a_e \leq 2.0$ mm	$a_p \leq 15.5$ mm $a_e \leq 3.0$ mm

● Slotting	Work material	Cutting speed $V_c$ (m/min)	Feed rate $f_z$ (mm/t)	Axial depth of cut				
				$\phi 10 \leq \phi D_c < \phi 12$	$\phi 12 \leq \phi D_c < \phi 16$	$\phi 16 \leq \phi D_c \leq \phi 18$	$\phi 18 < \phi D_c \leq \phi 21$	$\phi 21 < \phi D_c \leq \phi 26$
	Carbon steels Alloy steels (< 30HRC)	100 (60 ~ 180)	0.06 (0.03 ~ 0.1)	$a_p \leq 1.5$ mm	$a_p \leq 2.0$ mm	$a_p \leq 3.0$ mm	$a_p \leq 2.5$ mm	$a_p \leq 2.5$ mm
	Alloy steels prehardened steels (30 ~ 40HRC)	70 (50 ~ 150)	0.05 (0.03 ~ 0.08)	$a_p \leq 1.0$ mm	$a_p \leq 1.5$ mm	$a_p \leq 2.0$ mm	$a_p \leq 1.5$ mm	$a_p \leq 1.5$ mm
	Stainless steels (< 250HB)	70 (50 ~ 150)	0.04 (0.03 ~ 0.06)	$a_p \leq 1.0$ mm	$a_p \leq 1.0$ mm	$a_p \leq 1.5$ mm	$a_p \leq 1.5$ mm	$a_p \leq 1.5$ mm
	Cast irons	120 (80 ~ 200)	0.07 (0.03 ~ 0.1)	$a_p \leq 3.5$ mm	$a_p \leq 4.0$ mm	$a_p \leq 4.5$ mm	$a_p \leq 3.5$ mm	$a_p \leq 3.0$ mm
	Aluminium alloys (Si < 13%)	150 (100 ~ 300)	0.07 (0.03 ~ 0.1)	$a_p \leq 3.5$ mm	$a_p \leq 4.0$ mm	$a_p \leq 4.5$ mm	$a_p \leq 3.5$ mm	$a_p \leq 3.0$ mm
	Aluminium alloys (Si $\geq$ 13%)	110 (80 ~ 180)	0.06 (0.03 ~ 0.08)	$a_p \leq 3.5$ mm	$a_p \leq 4.0$ mm	$a_p \leq 4.5$ mm	$a_p \leq 3.5$ mm	$a_p \leq 3.0$ mm

Notes:

- When slotting, use a rigid machine.
- When chips stay in the cutting zone during slotting or pocketing, use air to remove chips from the work area.
- If chips tend to stick to the cutting edge (such as aluminium alloy machining), use a water soluble cutting fluid.
- If cutting a casting skin or heavily interrupted work surface, decrease the feed per tooth and maximum depth of cut to 1/2 to 2/3 times the values shown in the table.
- Tool overhang length must be as short as possible to avoid chatter. When the tool overhang length is long, decrease the number of revolutions and feed.
- Cutting conditions are generally limited by the rigidity and power of the machine and the rigidity of the workpiece. When setting the conditions, start from half of the values of the standard cutting conditions and then increase the value gradually while making sure the machine is running normally.



## 10

## Drilling Tools

## Guidance



■ Types and application of Drilling Tools .....	10-2
■ Feature of GigaMiniDrill .....	10-11
■ Feature of TungdrillTwisted .....	10-15
■ Feature of DrillMeister .....	10-27

























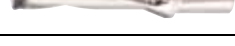







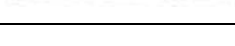







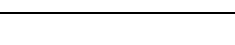







## Products

## ■ Small dia. solid drills

● DSW SoridDrill .....	10-3
● DSM GigaMiniDrills .....	10-12
● DSM-CP GigaMiniDrills Starting Drills .....	10-14
● TungdrillTwisted .....	10-16
● DrillMeister .....	10-28
● SD Gun Drills Solid gun drills for very small diameter .....	10-41

# Types and application of Drilling Tools

Notes : • Shaded bands  in drill diameter ranges show stocked ranges.  
• White bands  in drill diameter ranges show unstocked ranges.

Operation	Tool name	Type	Appearance	Work materials						Machinable L/D ratio	Drill diameter range (mm)												
				Mild steels	Steels	High Hardened steels	Stainless steels	Cast irons	Aluminium alloys		0.4	1.0	2.0	3.0	5.0	10	15	20	30	50	100		
General drilling	Coated or uncoated solid carbide drills for small diameter drilling	<b>DSW</b>								3, 5, 8		$\phi 3.0$										$\phi 16$	
	For Steels Giga Jet Drill	<b>DSX</b>								3, 5, 8		$\phi 3.0$										$\phi 20$	
	For Steels Giga Mini Drills	<b>DSM</b>								5, 10		$\phi 0.1$										$\phi 3.0$	
	Tungdrill Twisted	<b>TDX</b>								2, 3, 4, 5												$\phi 12.5$	$\phi 32$
	DrillMeister	<b>TID</b>								1.5, 3, 5, 8												$\phi 10.0$	$\phi 25.9$
Deep hole drilling	SD gun drills	<b>SD Gun Drills</b>								Max 40		$\phi 0.9$										$\phi 3.0$	





Diameter  
ø3.0 ~ 16.0 mm

IT9-10  
IT class

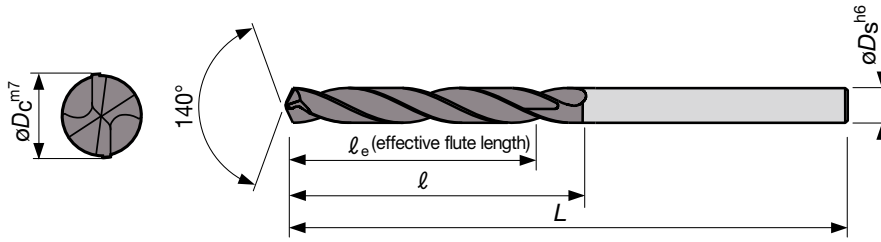


Steel Stainless Cast Iron Non-ferrous Superalloys Hard materials

25°~30°  
Helix

3/5/8  
L/D

140°  
Point angle



**For High Efficient Drilling of Steels  
Coated Solid Carbide Drills**

Drill dia. øDc (mm)	Tolerance m7 (mm)
3.00 ~ 6	0.004 ~ 0.016
6.01 ~ 10	0.006 ~ 0.021
10.01 ~ 18	0.007 ~ 0.025
18.01 ~ 21	0.008 ~ 0.029

Drill dia. øDc	Drilling depth L/D	Coolant Supply	Cat. No.	Stock	Dimensions (mm)			
					øDs	le	l	L
3.0	3	Ext.	DSW030-014-06DE3	●	6	14	20	62
3.0	5	Ext.	DSW030-023-06DE5	●	6	23	28	66
3.0	5	Int.	DSW030-023-06DI5	●	6	23	28	66
3.0	8	Int.	DSW030-029-06DI8	●	6	29	34	72
3.1	3	Ext.	DSW031-014-06DE3	●	6	14	20	62
3.1	5	Ext.	DSW031-023-06DE5	●	6	23	28	66
3.1	5	Int.	DSW031-023-06DI5	●	6	23	28	66
3.1	8	Int.	DSW031-029-06DI8	●	6	29	34	72
3.2	3	Ext.	DSW032-014-06DE3	●	6	14	20	62
3.2	5	Ext.	DSW032-023-06DE5	●	6	23	28	66
3.2	5	Int.	DSW032-023-06DI5	●	6	23	28	66
3.2	8	Int.	DSW032-029-06DI8	●	6	29	34	72
3.3	3	Ext.	DSW033-014-06DE3	●	6	14	20	62
3.3	5	Ext.	DSW033-023-06DE5	●	6	23	28	66
3.3	5	Int.	DSW033-023-06DI5	●	6	23	28	66
3.3	8	Int.	DSW033-029-06DI8	●	6	29	34	72
3.4	3	Ext.	DSW034-014-06DE3	●	6	14	20	62
3.4	5	Ext.	DSW034-023-06DE5	●	6	23	28	66
3.4	5	Int.	DSW034-023-06DI5	●	6	23	28	66
3.4	8	Int.	DSW034-029-06DI8	●	6	29	34	72
3.5	3	Ext.	DSW035-014-06DE3	●	6	14	20	62
3.5	5	Ext.	DSW035-023-06DE5	●	6	23	28	66
3.5	5	Int.	DSW035-023-06DI5	●	6	23	28	66
3.5	8	Int.	DSW035-029-06DI8	●	6	29	34	72
3.6	3	Ext.	DSW036-014-06DE3	●	6	14	20	62
3.6	5	Ext.	DSW036-023-06DE5	●	6	23	28	66
3.6	5	Int.	DSW036-023-06DI5	●	6	23	28	66
3.6	8	Int.	DSW036-029-06DI8	●	6	29	34	72
3.7	3	Ext.	DSW037-014-06DE3	●	6	14	20	62
3.7	5	Ext.	DSW037-023-06DE5	●	6	23	28	66
3.7	5	Int.	DSW037-023-06DI5	●	6	23	28	66
3.7	8	Int.	DSW037-029-06DI8	●	6	29	34	72
3.8	3	Ext.	DSW038-017-06DE3	●	6	17	24	66
3.8	5	Ext.	DSW038-029-06DE5	●	6	29	36	74
3.8	5	Int.	DSW038-029-06DI5	●	6	29	36	74
3.8	8	Int.	DSW038-036-06DI8	●	6	36	43	81
3.9	3	Ext.	DSW039-017-06DE3	●	6	17	24	66
3.9	5	Ext.	DSW039-029-06DE5	●	6	29	36	74
3.9	5	Int.	DSW039-029-06DI5	●	6	29	36	74
3.9	8	Int.	DSW039-036-06DI8	●	6	36	43	81

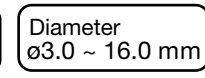
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4.0	5	Ext.	DSW040-029-06DE5	●	6	29	36	74
4.0	5	Int.	DSW040-029-06DI5	●	6	29	36	74
4.0	8	Int.	DSW040-036-06DI8	●	6	36	43	81
4.1	3	Ext.	DSW041-017-06DE3	●	6	17	24	66
4.1	5	Ext.	DSW041-029-06DE5	●	6	29	36	74
4.1	5	Int.	DSW041-029-06DI5	●	6	29	36	74
4.1	8	Int.	DSW041-036-06DI8	●	6	36	43	81
4.2	3	Ext.	DSW042-017-06DE3	●	6	17	24	66
4.2	5	Ext.	DSW042-029-06DE5	●	6	29	36	74
4.2	5	Int.	DSW042-029-06DI5	●	6	29	36	74
4.2	8	Int.	DSW042-036-06DI8	●	6	36	43	81
4.3	3	Ext.	DSW043-017-06DE3	●	6	17	24	66
4.3	5	Ext.	DSW043-029-06DE5	●	6	29	36	74
4.3	5	Int.	DSW043-029-06DI5	●	6	29	36	74
4.3	8	Int.	DSW043-036-06DI8	●	6	36	43	81
4.4	3	Ext.	DSW044-017-06DE3	●	6	17	24	66
4.4	5	Ext.	DSW044-029-06DE5	●	6	29	36	74
4.4	5	Int.	DSW044-029-06DI5	●	6	29	36	74
4.4	8	Int.	DSW044-036-06DI8	●	6	36	43	81
4.5	3	Ext.	DSW045-017-06DE3	●	6	17	24	66
4.5	5	Ext.	DSW045-029-06DE5	●	6	29	36	74
4.5	5	Int.	DSW045-029-06DI5	●	6	29	36	74
4.5	8	Int.	DSW045-036-06DI8	●	6	36	43	81
4.6	3	Ext.	DSW046-017-06DE3	●	6	17	24	66
4.6	5	Ext.	DSW046-029-06DE5	●	6	29	36	74
4.6	5	Int.	DSW046-029-06DI5	●	6	29	36	74
4.6	8	Int.	DSW046-036-06DI8	●	6	36	43	81
4.7	3	Ext.	DSW047-017-06DE3	●	6	17	24	66
4.7	5	Ext.	DSW047-029-06DE5	●	6	29	36	74
4.7	5	Int.	DSW047-029-06DI5	●	6	29	36	74
4.7	8	Int.	DSW047-036-06DI8	●	6	36	43	81
4.8	3	Ext.	DSW048-020-06DE3	●	6	20	28	66
4.8	5	Ext.	DSW048-035-06DE5	●	6	35	44	82
4.8	5	Int.	DSW048-035-06DI5	●	6	35	44	82
4.8	8	Int.	DSW048-048-06DI8	●	6	48	57	95
4.9	3	Ext.	DSW049-020-06DE3	●	6	20	28	66
4.9	5	Ext.	DSW049-035-06DE5	●	6	35	44	82
4.9	5	Int.	DSW049-035-06DI5	●	6	35	44	82
4.9	8	Int.	DSW049-048-06DI8	●	6	48	57	95

● : Stocked items

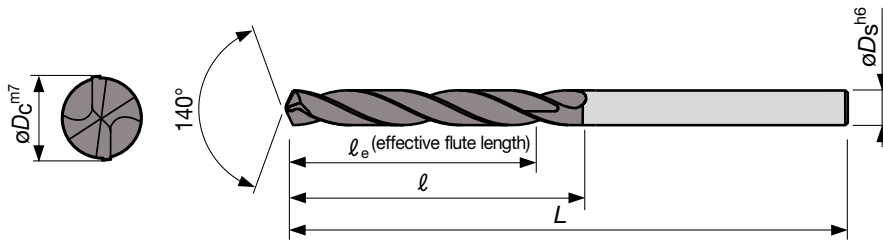
Drill dia. øDc	Drilling depth L/D	Coolant Supply	Cat. No.	Stock	Dimensions (mm)			
					øDs	ℓe	ℓ	L
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5.0	5	Ext.	DSW050-035-06DE5	●	6	35	44	82
5.0	5	Int.	DSW050-035-06DI5	●	6	35	44	82
5.0	8	Int.	DSW050-048-06DI8	●	6	48	57	95
5.1	3	Ext.	DSW051-020-06DE3	●	6	20	28	66
5.1	5	Ext.	DSW051-035-06DE5	●	6	35	44	82
5.1	5	Int.	DSW051-035-06DI5	●	6	35	44	82
5.1	8	Int.	DSW051-048-06DI8	●	6	48	57	95
5.2	3	Ext.	DSW052-020-06DE3	●	6	20	28	66
5.2	5	Ext.	DSW052-035-06DE5	●	6	35	44	82
5.2	5	Int.	DSW052-035-06DI5	●	6	35	44	82
5.2	8	Int.	DSW052-048-06DI8	●	6	48	57	95
5.3	3	Ext.	DSW053-020-06DE3	●	6	20	28	66
5.3	5	Ext.	DSW053-035-06DE5	●	6	35	44	82
5.3	5	Int.	DSW053-035-06DI5	●	6	35	44	82
5.3	8	Int.	DSW053-048-06DI8	●	6	48	57	95
5.4	3	Ext.	DSW054-020-06DE3	●	6	20	28	66
5.4	5	Ext.	DSW054-035-06DE5	●	6	35	44	82
5.4	5	Int.	DSW054-035-06DI5	●	6	35	44	82
5.4	8	Int.	DSW054-048-06DI8	●	6	48	57	95
5.5	3	Ext.	DSW055-020-06DE3	●	6	20	28	66
5.5	5	Ext.	DSW055-035-06DE5	●	6	35	44	82
5.5	5	Int.	DSW055-035-06DI5	●	6	35	44	82
5.5	8	Int.	DSW055-048-06DI8	●	6	48	57	95
5.6	3	Ext.	DSW056-020-06DE3	●	6	20	28	66
5.6	5	Ext.	DSW056-035-06DE5	●	6	35	44	82
5.6	5	Int.	DSW056-035-06DI5	●	6	35	44	82
5.6	8	Int.	DSW056-048-06DI8	●	6	48	57	95
5.7	3	Ext.	DSW057-020-06DE3	●	6	20	28	66
5.7	5	Ext.	DSW057-035-06DE5	●	6	35	44	82
5.7	5	Int.	DSW057-035-06DI5	●	6	35	44	82
5.7	8	Int.	DSW057-048-06DI8	●	6	48	57	95
5.8	3	Ext.	DSW058-020-06DE3	●	6	20	28	66
5.8	5	Ext.	DSW058-035-06DE5	●	6	35	44	82
5.8	5	Int.	DSW058-035-06DI5	●	6	35	44	82
5.8	8	Int.	DSW058-048-06DI8	●	6	48	57	95
5.9	3	Ext.	DSW059-020-06DE3	●	6	20	28	66
5.9	5	Ext.	DSW059-035-06DE5	●	6	35	44	82
5.9	5	Int.	DSW059-035-06DI5	●	6	35	44	82
5.9	8	Int.	DSW059-048-06DI8	●	6	48	57	95
6.0	3	Ext.	DSW060-020-06DE3	●	6	20	28	66
6.0	5	Ext.	DSW060-035-06DE5	●	6	35	44	82
6.0	5	Int.	DSW060-035-06DI5	●	6	35	44	82
6.0	8	Int.	DSW060-048-06DI8	●	6	48	57	95
6.1	3	Ext.	DSW061-024-08DE3	●	8	24	34	79
6.1	5	Ext.	DSW061-043-08DE5	●	8	43	53	91
6.1	5	Int.	DSW061-043-08DI5	●	8	43	53	91
6.1	8	Int.	DSW061-064-08DI8	●	8	64	76	114

Drill dia. øDc	Drilling depth L/D	Coolant Supply	Cat. No.	Stock	Dimensions (mm)			
					øDs	ℓe	ℓ	L
6.2	3	Ext.	DSW062-024-08DE3	●	8	24	34	79
6.2	5	Ext.	DSW062-043-08DE5	●	8	43	53	91
6.2	5	Int.	DSW062-043-08DI5	●	8	43	53	91
6.2	8	Int.	DSW062-064-08DI8	●	8	64	76	114
6.3	3	Ext.	DSW063-024-08DE3	●	8	24	34	79
6.3	5	Ext.	DSW063-043-08DE5	●	8	43	53	91
6.3	5	Int.	DSW063-043-08DI5	●	8	43	53	91
6.3	8	Int.	DSW063-064-08DI8	●	8	64	76	114
6.4	3	Ext.	DSW064-024-08DE3	●	8	24	34	79
6.4	5	Ext.	DSW064-043-08DE5	●	8	43	53	91
6.4	5	Int.	DSW064-043-08DI5	●	8	43	53	91
6.4	8	Int.	DSW064-064-08DI8	●	8	64	76	114
6.5	3	Ext.	DSW065-024-08DE3	●	8	24	34	79
6.5	5	Ext.	DSW065-043-08DE5	●	8	43	53	91
6.5	5	Int.	DSW065-043-08DI5	●	8	43	53	91
6.5	8	Int.	DSW065-064-08DI8	●	8	64	76	114
6.6	3	Ext.	DSW066-024-08DE3	●	8	24	34	79
6.6	5	Ext.	DSW066-043-08DE5	●	8	43	53	91
6.6	5	Int.	DSW066-043-08DI5	●	8	43	53	91
6.6	8	Int.	DSW066-064-08DI8	●	8	64	76	114
6.7	3	Ext.	DSW067-024-08DE3	●	8	24	34	79
6.7	5	Ext.	DSW067-043-08DE5	●	8	43	53	91
6.7	5	Int.	DSW067-043-08DI5	●	8	43	53	91
6.7	8	Int.	DSW067-064-08DI8	●	8	64	76	114
6.8	3	Ext.	DSW068-024-08DE3	●	8	24	34	79
6.8	5	Ext.	DSW068-043-08DE5	●	8	43	53	91
6.8	5	Int.	DSW068-043-08DI5	●	8	43	53	91
6.8	8	Int.	DSW068-064-08DI8	●	8	64	76	114
6.9	3	Ext.	DSW069-024-08DE3	●	8	24	34	79
6.9	5	Ext.	DSW069-043-08DE5	●	8	43	53	91
6.9	5	Int.	DSW069-043-08DI5	●	8	43	53	91
6.9	8	Int.	DSW069-064-08DI8	●	8	64	76	114
7.0	3	Ext.	DSW070-024-08DE3	●	8	24	34	79
7.0	5	Ext.	DSW070-043-08DE5	●	8	43	53	91
7.0	5	Int.	DSW070-043-08DI5	●	8	43	53	91
7.0	8	Int.	DSW070-064-08DI8	●	8	64	76	114
7.1	3	Ext.	DSW071-029-08DE3	●	8	29	41	79
7.1	5	Ext.	DSW071-043-08DE5	●	8	43	53	91
7.1	5	Int.	DSW071-043-08DI5	●	8	43	53	91
7.1	8	Int.	DSW071-064-08DI8	●	8	64	76	114
7.2	3	Ext.	DSW072-029-08DE3	●	8	29	41	79
7.2	5	Ext.	DSW072-043-08DE5	●	8	43	53	91
7.2	5	Int.	DSW072-043-08DI5	●	8	43	53	91
7.2	8	Int.	DSW072-064-08DI8	●	8	64	76	114
7.3	3	Ext.	DSW073-029-08DE3	●	8	29	41	79
7.3	5	Ext.	DSW073-043-08DE5	●	8	43	53	91
7.3	5	Int.	DSW073-043-08DI5	●	8	43	53	91
7.3	8	Int.	DSW073-064-08DI8	●	8	64	76	114

● : Stocked items



Steel Stainless Cast Iron Non-ferrous Superalloys Hard materials



Drill dia. øDc (mm)	Tolerance m7 (mm)
3.00 ~ 6	0.004 ~ 0.016
6.01 ~ 10	0.006 ~ 0.021
10.01 ~ 18	0.007 ~ 0.025
18.01 ~ 21	0.008 ~ 0.029

Drill dia. øDc	Drilling depth L/D	Coolant Supply	Cat. No.	Stock	Dimensions (mm)			
					øDs	le	l	L
7.4	3	Ext.	DSW074-029-08DE3	●	8	29	41	79
7.4	5	Ext.	DSW074-043-08DE5	●	8	43	53	91
7.4	5	Int.	DSW074-043-08DI5	●	8	43	53	91
7.4	8	Int.	DSW074-064-08DI8	●	8	64	76	114
7.5	3	Ext.	DSW075-029-08DE3	●	8	29	41	79
7.5	5	Ext.	DSW075-043-08DE5	●	8	43	53	91
7.5	5	Int.	DSW075-043-08DI5	●	8	43	53	91
7.5	8	Int.	DSW075-064-08DI8	●	8	64	76	114
7.6	3	Ext.	DSW076-029-08DE3	●	8	29	41	79
7.6	5	Ext.	DSW076-043-08DE5	●	8	43	53	91
7.6	5	Int.	DSW076-043-08DI5	●	8	43	53	91
7.6	8	Int.	DSW076-064-08DI8	●	8	64	76	114
7.7	3	Ext.	DSW077-029-08DE3	●	8	29	41	79
7.7	5	Ext.	DSW077-043-08DE5	●	8	43	53	91
7.7	5	Int.	DSW077-043-08DI5	●	8	43	53	91
7.7	8	Int.	DSW077-064-08DI8	●	8	64	76	114
7.8	3	Ext.	DSW078-029-08DE3	●	8	29	41	79
7.8	5	Ext.	DSW078-043-08DE5	●	8	43	53	91
7.8	5	Int.	DSW078-043-08DI5	●	8	43	53	91
7.8	8	Int.	DSW078-064-08DI8	●	8	64	76	114
7.9	3	Ext.	DSW079-029-08DE3	●	8	29	41	79
7.9	5	Ext.	DSW079-043-08DE5	●	8	43	53	91
7.9	5	Int.	DSW079-043-08DI5	●	8	43	53	91
7.9	8	Int.	DSW079-064-08DI8	●	8	64	76	114
8.0	3	Ext.	DSW080-029-08DE3	●	8	29	41	79
8.0	5	Ext.	DSW080-043-08DE5	●	8	43	53	91
8.0	5	Int.	DSW080-043-08DI5	●	8	43	53	91
8.0	8	Int.	DSW080-064-08DI8	●	8	64	76	114
8.1	3	Ext.	DSW081-035-10DE3	●	10	35	47	89
8.0	5	Ext.	DSW081-049-10DE5	●	10	49	61	103
8.0	5	Int.	DSW081-049-10DI5	●	10	49	61	103
8.0	8	Int.	DSW081-080-10DI8	●	10	80	95	142
8.2	3	Ext.	DSW082-035-10DE3	●	10	35	47	89
8.2	5	Ext.	DSW082-049-10DE5	●	10	49	61	103
8.2	5	Int.	DSW082-049-10DI5	●	10	49	61	103
8.2	8	Int.	DSW082-080-10DI8	●	10	80	95	142
8.3	3	Ext.	DSW083-035-10DE3	●	10	35	47	89
8.3	5	Ext.	DSW083-049-10DE5	●	10	49	61	103
8.3	5	Int.	DSW083-049-10DI5	●	10	49	61	103
8.3	8	Int.	DSW083-080-10DI8	●	10	80	95	142

Drill dia. øDc	Drilling depth L/D	Coolant Supply	Cat. No.	Stock	Dimensions (mm)			
					øDs	le	l	L
8.4	3	Ext.	DSW084-035-10DE3	●	10	35	47	89
8.4	5	Ext.	DSW084-049-10DE5	●	10	49	61	103
8.4	5	Int.	DSW084-049-10DI5	●	10	49	61	103
8.4	8	Int.	DSW084-080-10DI8	●	10	80	95	142
8.5	3	Ext.	DSW085-035-10DE3	●	10	35	47	89
8.5	5	Ext.	DSW085-049-10DE5	●	10	49	61	103
8.5	5	Int.	DSW085-049-10DI5	●	10	49	61	103
8.5	8	Int.	DSW085-080-10DI8	●	10	80	95	142
8.6	3	Ext.	DSW086-035-10DE3	●	10	35	47	89
8.6	5	Ext.	DSW086-049-10DE5	●	10	49	61	103
8.6	5	Int.	DSW086-049-10DI5	●	10	49	61	103
8.6	8	Int.	DSW086-080-10DI8	●	10	80	95	142
8.7	3	Ext.	DSW087-035-10DE3	●	10	35	47	89
8.7	5	Ext.	DSW087-049-10DE5	●	10	49	61	103
8.7	5	Int.	DSW087-049-10DI5	●	10	49	61	103
8.7	8	Int.	DSW087-080-10DI8	●	10	80	95	142
8.8	3	Ext.	DSW088-035-10DE3	●	10	35	47	89
8.8	5	Ext.	DSW088-049-10DE5	●	10	49	61	103
8.8	5	Int.	DSW088-049-10DI5	●	10	49	61	103
8.8	8	Int.	DSW088-080-10DI8	●	10	80	95	142
8.9	3	Ext.	DSW089-035-10DE3	●	10	35	47	89
8.9	5	Ext.	DSW089-049-10DE5	●	10	49	61	103
8.9	5	Int.	DSW089-049-10DI5	●	10	49	61	103
8.9	8	Int.	DSW089-080-10DI8	●	10	80	95	142
9.0	3	Ext.	DSW090-035-10DE3	●	10	35	47	89
9.0	5	Ext.	DSW090-049-10DE5	●	10	49	61	103
9.0	5	Int.	DSW090-049-10DI5	●	10	49	61	103
9.0	8	Int.	DSW090-080-10DI8	●	10	80	95	142
9.1	3	Ext.	DSW091-035-10DE3	●	10	35	47	89
9.1	5	Ext.	DSW091-049-10DE5	●	10	49	61	103
9.1	5	Int.	DSW091-049-10DI5	●	10	49	61	103
9.1	8	Int.	DSW091-080-10DI8	●	10	80	95	142
9.2	3	Ext.	DSW092-035-10DE3	●	10	35	47	89
9.2	5	Ext.	DSW092-049-10DE5	●	10	49	61	103
9.2	5	Int.	DSW092-049-10DI5	●	10	49	61	103
9.2	8	Int.	DSW092-080-10DI8	●	10	80	95	142
9.3	3	Ext.	DSW093-035-10DE3	●	10	35	47	89
9.3	5	Ext.	DSW093-049-10DE5	●	10	49	61	103
9.3	5	Int.	DSW093-049-10DI5	●	10	49	61	103
9.3	8	Int.	DSW093-080-10DI8	●	10	80	95	142

● : Stocked items

Drill dia. øDc	Drilling depth L/D	Coolant Supply	Cat. No.	Stock	Dimensions (mm)			
					øDs	ℓ <sub>e</sub>	ℓ	L
9.4	3	Ext.	DSW094-035-10DE3	●	10	35	47	89
9.4	5	Ext.	DSW094-049-10DE5	●	10	49	61	103
9.4	5	Int.	DSW094-049-10DI5	●	10	49	61	103
9.4	8	Int.	DSW094-080-10DI8	●	10	80	95	142
9.5	3	Ext.	DSW095-035-10DE3	●	10	35	47	89
9.5	5	Ext.	DSW095-049-10DE5	●	10	49	61	103
9.5	5	Int.	DSW095-049-10DI5	●	10	49	61	103
9.5	8	Int.	DSW095-080-10DI8	●	10	80	95	142
9.6	3	Ext.	DSW096-035-10DE3	●	10	35	47	89
9.6	5	Ext.	DSW096-049-10DE5	●	10	49	61	103
9.6	5	Int.	DSW096-049-10DI5	●	10	49	61	103
9.6	8	Int.	DSW096-080-10DI8	●	10	80	95	142
9.7	3	Ext.	DSW097-035-10DE3	●	10	35	47	89
9.7	5	Ext.	DSW097-049-10DE5	●	10	49	61	103
9.7	5	Int.	DSW097-049-10DI5	●	10	49	61	103
9.7	8	Int.	DSW097-080-10DI8	●	10	80	95	142
9.8	3	Ext.	DSW098-035-10DE3	●	10	35	47	89
9.8	5	Ext.	DSW098-049-10DE5	●	10	49	61	103
9.8	5	Int.	DSW098-049-10DI5	●	10	49	61	103
9.8	8	Int.	DSW098-080-10DI8	●	10	80	95	142
9.9	3	Ext.	DSW099-035-10DE3	●	10	35	47	89
9.9	5	Ext.	DSW099-049-10DE5	●	10	49	61	103
9.9	5	Int.	DSW099-049-10DI5	●	10	49	61	103
9.9	8	Int.	DSW099-080-10DI8	●	10	80	95	142
10.0	3	Ext.	DSW100-035-10DE3	●	10	35	47	89
10.0	5	Ext.	DSW100-049-10DE5	●	10	49	61	103
10.0	5	Int.	DSW100-049-10DI5	●	10	49	61	103
10.0	8	Int.	DSW100-080-10DI8	●	10	80	95	142
10.1	3	Ext.	DSW101-040-12DE3	●	12	40	55	102
10.1	5	Ext.	DSW101-056-12DE5	●	12	56	71	118
10.1	5	Int.	DSW101-056-12DI5	●	12	56	71	118
10.2	3	Ext.	DSW102-040-12DE3	●	12	40	55	102
10.2	5	Ext.	DSW102-056-12DE5	●	12	56	71	118
10.2	5	Int.	DSW102-056-12DI5	●	12	56	71	118
10.3	3	Ext.	DSW103-040-12DE3	●	12	40	55	102
10.3	5	Ext.	DSW103-056-12DE5	●	12	56	71	118
10.3	5	Int.	DSW103-056-12DI5	●	12	56	71	118
10.4	3	Ext.	DSW104-040-12DE3	●	12	40	55	102
10.4	5	Ext.	DSW104-056-12DE5	●	12	56	71	118
10.4	5	Int.	DSW104-056-12DI5	●	12	56	71	118
10.5	3	Ext.	DSW105-040-12DE3	●	12	40	55	102
10.5	5	Ext.	DSW105-056-12DE5	●	12	56	71	118
10.5	5	Int.	DSW105-056-12DI5	●	12	56	71	118
10.6	3	Ext.	DSW106-040-12DE3	●	12	40	55	102
10.6	5	Ext.	DSW106-056-12DE5	●	12	56	71	118
10.6	5	Int.	DSW106-056-12DI5	●	12	56	71	118
10.7	3	Ext.	DSW107-040-12DE3	●	12	40	55	102
10.7	5	Ext.	DSW107-056-12DE5	●	12	56	71	118
10.7	5	Int.	DSW107-056-12DI5	●	12	56	71	118

Drill dia. øDc	Drilling depth L/D	Coolant Supply	Cat. No.	Stock	Dimensions (mm)			
					øDs	ℓ <sub>e</sub>	ℓ	L
10.8	3	Ext.	DSW108-040-12DE3	●	12	40	55	102
10.8	5	Ext.	DSW108-056-12DE5	●	12	56	71	118
10.8	5	Int.	DSW108-056-12DI5	●	12	56	71	118
10.9	3	Ext.	DSW109-040-12DE3	●	12	40	55	102
10.9	5	Ext.	DSW109-056-12DE5	●	12	56	71	118
10.9	5	Int.	DSW109-056-12DI5	●	12	56	71	118
11.0	3	Ext.	DSW110-040-12DE3	●	12	40	55	102
11.0	5	Ext.	DSW110-056-12DE5	●	12	56	71	118
11.0	5	Int.	DSW110-056-12DI5	●	12	56	71	118
11.1	3	Ext.	DSW111-040-12DE3	●	12	40	55	102
11.1	5	Ext.	DSW111-056-12DE5	●	12	56	71	118
11.1	5	Int.	DSW111-056-12DI5	●	12	56	71	118
11.2	3	Ext.	DSW112-040-12DE3	●	12	40	55	102
11.2	5	Ext.	DSW112-056-12DE5	●	12	56	71	118
11.2	5	Int.	DSW112-056-12DI5	●	12	56	71	118
11.3	3	Ext.	DSW113-040-12DE3	●	12	40	55	102
11.3	5	Ext.	DSW113-056-12DE5	●	12	56	71	118
11.3	5	Int.	DSW113-056-12DI5	●	12	56	71	118
11.4	3	Ext.	DSW114-040-12DE3	●	12	40	55	102
11.4	5	Ext.	DSW114-056-12DE5	●	12	56	71	118
11.4	5	Int.	DSW114-056-12DI5	●	12	56	71	118
11.5	3	Ext.	DSW115-040-12DE3	●	12	40	55	102
11.5	5	Ext.	DSW115-056-12DE5	●	12	56	71	118
11.5	5	Int.	DSW115-056-12DI5	●	12	56	71	118
11.6	3	Ext.	DSW116-040-12DE3	●	12	40	55	102
11.6	5	Ext.	DSW116-056-12DE5	●	12	56	71	118
11.6	5	Int.	DSW116-056-12DI5	●	12	56	71	118
11.7	3	Ext.	DSW117-040-12DE3	●	12	40	55	102
11.7	5	Ext.	DSW117-056-12DE5	●	12	56	71	118
11.7	5	Int.	DSW117-056-12DI5	●	12	56	71	118
11.8	3	Ext.	DSW118-040-12DE3	●	12	40	55	102
11.8	5	Ext.	DSW118-056-12DE5	●	12	56	71	118
11.8	5	Int.	DSW118-056-12DI5	●	12	56	71	118
11.9	3	Ext.	DSW119-040-12DE3	●	12	40	55	102
11.9	5	Ext.	DSW119-056-12DE5	●	12	56	71	118
11.9	5	Int.	DSW119-056-12DI5	●	12	56	71	118
12.0	3	Ext.	DSW120-040-12DE3	●	12	40	55	102
12.0	5	Ext.	DSW120-056-12DE5	●	12	56	71	118
12.0	5	Int.	DSW120-056-12DI5	●	12	56	71	118
12.1	3	Ext.	DSW121-043-14DE3	●	14	43	60	107
12.1	5	Ext.	DSW121-060-14DE5	●	14	60	77	124
12.1	5	Int.	DSW121-060-14DI5	●	14	60	77	124
12.2	3	Ext.	DSW122-043-14DE3	●	14	43	60	107
12.2	5	Ext.	DSW122-060-14DE5	●	14	60	77	124
12.2	5	Int.	DSW122-060-14DI5	●	14	60	77	124
12.3	3	Ext.	DSW123-043-14DE3	●	14	43	60	107
12.3	5	Ext.	DSW123-060-14DE5	●	14	60	77	124
12.3	5	Int.	DSW123-060-14DI5	●	14	60	77	124

● : Stocked items

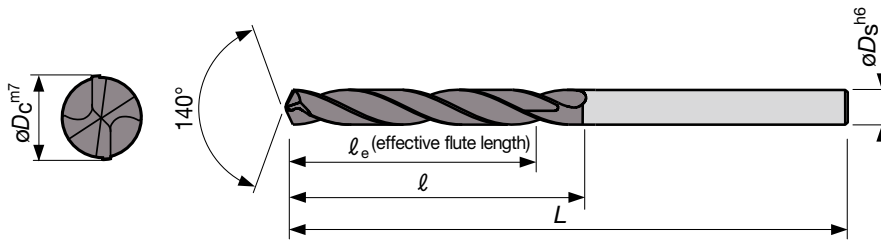


Diameter  
ø3.0 ~ 16.0 mm

IT9-10  
IT class



Steel Stainless Cast Iron Non-ferrous Superalloys Hard materials



Drill dia. øDc (mm)	Tolerance m7 (mm)
3.00 ~ 6	0.004 ~ 0.016
6.01 ~ 10	0.006 ~ 0.021
10.01 ~ 18	0.007 ~ 0.025
18.01 ~ 21	0.008 ~ 0.029

Drill dia. øDc	Drilling depth L/D	Coolant Supply	Cat. No.	Stock	Dimensions (mm)			
					øDs	le	l	L
12.4	3	Ext.	DSW124-043-14DE3	●	14	43	60	107
12.4	5	Ext.	DSW124-060-14DE5	●	14	60	77	124
12.4	5	Int.	DSW124-060-14DI5	●	14	60	77	124
12.5	3	Ext.	DSW125-043-14DE3	●	14	43	60	107
12.5	5	Ext.	DSW125-060-14DE5	●	14	60	77	124
12.5	5	Int.	DSW125-060-14DI5	●	14	60	77	124
12.6	3	Ext.	DSW126-043-14DE3	●	14	43	60	107
12.6	5	Ext.	DSW126-060-14DE5	●	14	60	77	124
12.6	5	Int.	DSW126-060-14DI5	●	14	60	77	124
12.7	3	Ext.	DSW127-043-14DE3	●	14	43	60	107
12.7	5	Ext.	DSW127-060-14DE5	●	14	60	77	124
12.7	5	Int.	DSW127-060-14DI5	●	14	60	77	124
12.8	3	Ext.	DSW128-043-14DE3	●	14	43	60	107
12.8	5	Ext.	DSW128-060-14DE5	●	14	60	77	124
12.8	5	Int.	DSW128-060-14DI5	●	14	60	77	124
12.9	3	Ext.	DSW129-043-14DE3	●	14	43	60	107
12.9	5	Ext.	DSW129-060-14DE5	●	14	60	77	124
12.9	5	Int.	DSW129-060-14DI5	●	14	60	77	124
13.0	3	Ext.	DSW130-043-14DE3	●	14	43	60	107
13.0	5	Ext.	DSW130-060-14DE5	●	14	60	77	124
13.0	5	Int.	DSW130-060-14DI5	●	14	60	77	124
13.1	3	Ext.	DSW131-043-14DE3	●	14	43	60	107
13.1	5	Ext.	DSW131-060-14DE5	●	14	60	77	124
13.1	5	Int.	DSW131-060-14DI5	●	14	60	77	124
13.2	3	Ext.	DSW132-043-14DE3	●	14	43	60	107
13.2	5	Ext.	DSW132-060-14DE5	●	14	60	77	124
13.2	5	Int.	DSW132-060-14DI5	●	14	60	77	124
13.3	3	Ext.	DSW133-043-14DE3	●	14	43	60	107
13.3	5	Ext.	DSW133-060-14DE5	●	14	60	77	124
13.3	5	Int.	DSW133-060-14DI5	●	14	60	77	124
13.4	3	Ext.	DSW134-043-14DE3	●	14	43	60	107
13.4	5	Ext.	DSW134-060-14DE5	●	14	60	77	124
13.4	5	Int.	DSW134-060-14DI5	●	14	60	77	124
13.5	3	Ext.	DSW135-043-14DE3	●	14	43	60	107
13.5	5	Ext.	DSW135-060-14DE5	●	14	60	77	124
13.5	5	Int.	DSW135-060-14DI5	●	14	60	77	124
13.6	3	Ext.	DSW136-043-14DE3	●	14	43	60	107
13.6	5	Ext.	DSW136-060-14DE5	●	14	60	77	124
13.6	5	Int.	DSW136-060-14DI5	●	14	60	77	124

Drill dia. øDc	Drilling depth L/D	Coolant Supply	Cat. No.	Stock	Dimensions (mm)			
					øDs	le	l	L
13.7	3	Ext.	DSW137-043-14DE3	●	14	43	60	107
13.7	5	Ext.	DSW137-060-14DE5	●	14	60	77	124
13.7	5	Int.	DSW137-060-14DI5	●	14	60	77	124
13.8	3	Ext.	DSW138-043-14DE3	●	14	43	60	107
13.8	5	Ext.	DSW138-060-14DE5	●	14	60	77	124
13.8	5	Int.	DSW138-060-14DI5	●	14	60	77	124
13.9	3	Ext.	DSW139-043-14DE3	●	14	43	60	107
13.9	5	Ext.	DSW139-060-14DE5	●	14	60	77	124
13.9	5	Int.	DSW139-060-14DI5	●	14	60	77	124
14.0	3	Ext.	DSW140-043-14DE3	●	14	43	60	107
14.0	5	Ext.	DSW140-060-14DE5	●	14	60	77	124
14.0	5	Int.	DSW140-060-14DI5	●	14	60	77	124
14.1	3	Ext.	DSW141-045-16DE3	●	16	45	65	115
14.1	5	Ext.	DSW141-063-16DE5	●	16	63	83	133
14.1	5	Int.	DSW141-063-16DI5	●	16	63	83	133
14.2	3	Ext.	DSW142-045-16DE3	●	16	45	65	115
14.2	5	Ext.	DSW142-063-16DE5	●	16	63	83	133
14.2	5	Int.	DSW142-063-16DI5	●	16	63	83	133
14.3	3	Ext.	DSW143-045-16DE3	●	16	45	65	115
14.3	5	Ext.	DSW143-063-16DE5	●	16	63	83	133
14.3	5	Int.	DSW143-063-16DI5	●	16	63	83	133
14.4	3	Ext.	DSW144-045-16DE3	●	16	45	65	115
14.4	5	Ext.	DSW144-063-16DE5	●	16	63	83	133
14.4	5	Int.	DSW144-063-16DI5	●	16	63	83	133
14.5	3	Ext.	DSW145-045-16DE3	●	16	45	65	115
14.5	5	Ext.	DSW145-063-16DE5	●	16	63	83	133
14.5	5	Int.	DSW145-063-16DI5	●	16	63	83	133
14.6	3	Ext.	DSW146-045-16DE3	●	16	45	65	115
14.6	5	Ext.	DSW146-063-16DE5	●	16	63	83	133
14.6	5	Int.	DSW146-063-16DI5	●	16	63	83	133
14.7	3	Ext.	DSW147-045-16DE3	●	16	45	65	115
14.7	5	Ext.	DSW147-063-16DE5	●	16	63	83	133
14.7	5	Int.	DSW147-063-16DI5	●	16	63	83	133
14.8	3	Ext.	DSW148-045-16DE3	●	16	45	65	115
14.8	5	Ext.	DSW148-063-16DE5	●	16	63	83	133
14.8	5	Int.	DSW148-063-16DI5	●	16	63	83	133
14.9	3	Ext.	DSW149-045-16DE3	●	16	45	65	115
14.9	5	Ext.	DSW149-063-16DE5	●	16	63	83	133
14.9	5	Int.	DSW149-063-16DI5	●	16	63	83	133

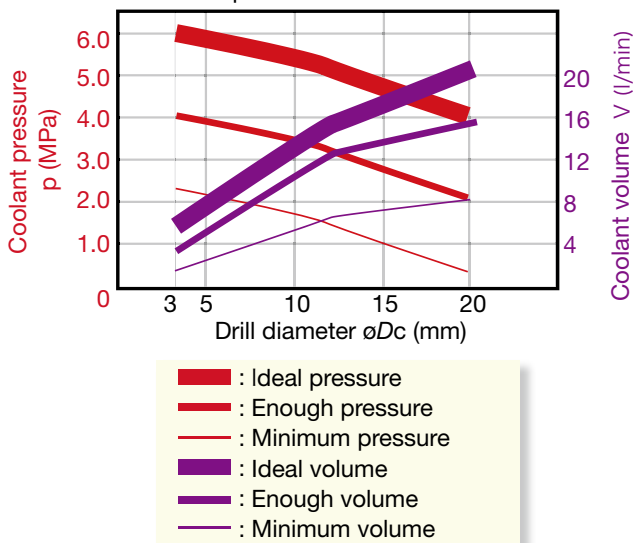
Drill dia. $\phi D_c$	Drilling depth L/D	Coolant Supply	Cat. No.	Stock	Dimensions (mm)			
					$\phi D_s$	$l_e$	$l$	L
15.0	3	Ext.	DSW150-045-16DE3	●	16	45	65	115
15.0	5	Ext.	DSW150-063-16DE5	●	16	63	83	133
15.0	5	Int.	DSW150-063-16DI5	●	16	63	83	133
15.1	3	Ext.	DSW151-045-16DE3	●	16	45	65	115
15.1	5	Ext.	DSW151-063-16DE5	●	16	63	83	133
15.1	5	Int.	DSW151-063-16DI5	●	16	63	83	133
15.2	3	Ext.	DSW152-045-16DE3	●	16	45	65	115
15.2	5	Ext.	DSW152-063-16DE5	●	16	63	83	133
15.2	5	Int.	DSW152-063-16DI5	●	16	63	83	133
15.3	3	Ext.	DSW153-045-16DE3	●	16	45	65	115
15.3	5	Ext.	DSW153-063-16DE5	●	16	63	83	133
15.3	5	Int.	DSW153-063-16DI5	●	16	63	83	133
15.4	3	Ext.	DSW154-045-16DE3	●	16	45	65	115
15.4	5	Ext.	DSW154-063-16DE5	●	16	63	83	133
15.4	5	Int.	DSW154-063-16DI5	●	16	63	83	133
15.5	3	Ext.	DSW155-045-16DE3	●	16	45	65	115
15.5	5	Ext.	DSW155-063-16DE5	●	16	63	83	133
15.5	5	Int.	DSW155-063-16DI5	●	16	63	83	133

Drill dia. $\phi D_c$	Drilling depth L/D	Coolant Supply	Cat. No.	Stock	Dimensions (mm)			
					$\phi D_s$	$l_e$	$l$	L
15.6	3	Ext.	DSW156-045-16DE3	●	16	45	65	115
15.6	5	Ext.	DSW156-063-16DE5	●	16	63	83	133
15.6	5	Int.	DSW156-063-16DI5	●	16	63	83	133
15.7	3	Ext.	DSW157-045-16DE3	●	16	45	65	115
15.7	5	Ext.	DSW157-063-16DE5	●	16	63	83	133
15.7	5	Int.	DSW157-063-16DI5	●	16	63	83	133
15.8	3	Ext.	DSW158-045-16DE3	●	16	45	65	115
15.8	5	Ext.	DSW158-063-16DE5	●	16	63	83	133
15.8	5	Int.	DSW158-063-16DI5	●	16	63	83	133
15.9	3	Ext.	DSW159-045-16DE3	●	16	45	65	115
15.9	5	Ext.	DSW159-063-16DE5	●	16	63	83	133
15.9	5	Int.	DSW159-063-16DI5	●	16	63	83	133
16.0	3	Ext.	DSW160-045-16DE3	●	16	45	65	115
16.0	5	Ext.	DSW160-063-16DE5	●	16	63	83	133
16.0	5	Int.	DSW160-063-16DI5	●	16	63	83	133

● : Stocked items

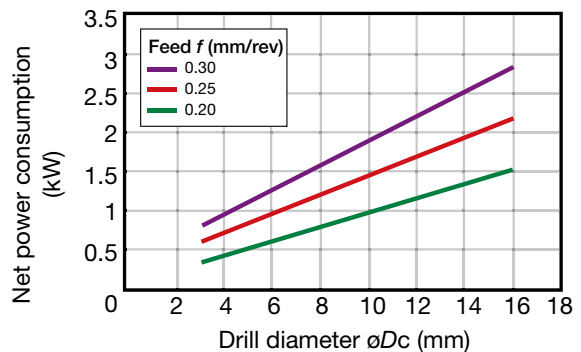
■ Recommended coolant pressure and volume for internal coolant supply:

The following graph is a reference guide for pressure and volume. Values should be adjusted according to work material and actual chip evacuation.



■ Reference for required spindle power:

The required spindle power may vary depending on the type of work material or hardness. A spindle with sufficient power should be used when referring to the below graph.



Work material : Alloy steel (SNCM439)  
Cutting speed :  $V_c = 100$  m/min

● Designation system

The designation for the solid drill series includes tool dimensions for easy product identification.



<b>1 Series</b>	<b>DSW</b> Series name of solid drill
<b>2 Drill dia. <math>\phi D_c</math> (mm)</b>	<b>088</b> $\phi 8.8$
<b>3 Effective flute length <math>l_e</math> (mm)</b>	<b>035</b> 35

<b>4 Shank diameter <math>\phi D_s</math> (mm)</b>	<b>10</b> $\phi 10$
<b>5 DIN 6535 - Form HA</b>	
<b>6 Coolant Supply</b>	<b>E</b> External (without coolant hole) <b>I</b> Internal (with coolant hole)

<b>7 Drilling depth</b>	<b>Approximate value of L/D ratio.</b> Caution: Code may be different from the actual length. This is dependent upon the tool diameter.
-------------------------	--

Caution: "Effective flute length" shows the maximum flute length for effective chip evacuation. The actual drilling depth may be shorter than described depending on the work material or cutting conditions.

## ● Standard cutting conditions

### ■ DSW-DE (External supply)

Work materials	Brinell hardness (HB)	Cutting Speed: Vc (m/min)			Feed: f (mm/rev)		
		ø3 ~ ø6	ø6 ~ ø10	ø10 ~ ø16	ø3 ~ ø6	ø6 ~ ø10	ø10 ~ ø16
Low carbon steels (C < 0.3) SS400, SM490, S25C etc. (St42-1, St52-3, C25 etc.)	~ 180	40 - 100	60 - 120	60 - 130	0.15 - 0.30	0.15 - 0.35	0.20 - 0.50
Carbon steels (C > 0.3) S45C, S55C etc. (C45, C55 etc.)	180 ~ 300	40 - 90	50 - 120	60 - 130	0.15 - 0.30	0.15 - 0.35	0.20 - 0.40
High alloy steels SCM440 etc. (42CrMo4 etc.)	250 ~ 350	40 - 80	50 - 100	50 - 100	0.10 - 0.20	0.15 - 0.20	0.15 - 0.35
Stainless steels SUS304 etc. (X5CrNi18-9 etc.)	~ 200	10 - 20	10 - 20	10 - 20	0.05 - 0.15	0.05 - 0.15	0.05 - 0.15
Grey cast irons FC300 etc. (GG30 etc.)	~ 200	40 - 90	50 - 95	50 - 100	0.15 - 0.30	0.20 - 0.40	0.20 - 0.50
Ductile cast irons FCD450 etc. (GGG45 etc.)	~ 300	30 - 80	40 - 90	45 - 90	0.10 - 0.30	0.20 - 0.40	0.20 - 0.40
Aluminium alloys ADC12 etc.	-	40 - 90	50 - 100	50 - 100	0.15 - 0.30	0.20 - 0.40	0.20 - 0.50
Titanium alloys Ti-6Al-4V etc.	-	20 - 40	20 - 40	20 - 40	0.10 - 0.20	0.15 - 0.25	0.15 - 0.40
Heat-resistant alloys, Inconel Inconel 718 etc.	250 ~	10 - 30	10 - 30	10 - 30	0.03 - 0.07	0.05 - 0.10	0.07 - 0.12
High hardened steels SKD11 etc.	~ 40HRC	10 - 30	10 - 30	10 - 30	0.05 - 0.15	0.05 - 0.15	0.05 - 0.20

· The cutting parameters shown in the table are merely a starting guideline for general machining. Values should be varied depending on the power or rigidity of the machine to be used. Optimum conditions should be selected depending on the actual chip control or damage on edges.

· When using the smaller diameter tools in each range, set the feed "f"

to the lower recommended values.

· The coolant supply is critical for the provision of stable machining conditions and enhanced tool life. A large coolant volume should be supplied, especially when drilling difficult-to-cut materials.

· When drilling stainless steel with low machinability such as austenitic stainless steel with a depth deeper than L/D = 3, a pecking cycle or internal coolant supply is recommended.

### ■ DSW-DI (Internal supply)

Work materials	Brinell hardness (HB)	Cutting Speed: Vc (m/min)			Feed: f (mm/rev)		
		ø3 ~ ø6	ø6 ~ ø10	ø10 ~ ø16	ø3 ~ ø6	ø6 ~ ø10	ø10 ~ ø16
Low carbon steels (C < 0.3) SS400, SM490, S25C etc. (St42-1, St52-3, C25 etc.)	~ 180	70 - 140	80 - 160	90 - 190	0.15 - 0.30	0.15 - 0.35	0.20 - 0.50
Carbon steels (C > 0.3) S45C, S55C etc. (C45, C55 etc.)	180 ~ 300	40 - 90	40 - 90	60 - 130	0.15 - 0.30	0.15 - 0.35	0.20 - 0.40
High alloy steels SCM440 etc. (42CrMo4 etc.)	250 ~ 350	40 - 80	50 - 100	50 - 100	0.10 - 0.20	0.15 - 0.20	0.15 - 0.35
Stainless steels SUS304 etc. (X5CrNi18-9 etc.)	~ 200	25 - 75	25 - 75	25 - 75	0.05 - 0.15	0.05 - 0.15	0.10 - 0.30
Grey cast irons FC300 etc. (GG30 etc.)	~ 200	70 - 90	70 - 90	70 - 90	0.15 - 0.30	0.20 - 0.40	0.20 - 0.50
Ductile cast irons FCD450 etc. (GGG45 etc.)	~ 300	40 - 90	40 - 90	40 - 90	0.10 - 0.30	0.20 - 0.40	0.20 - 0.40
Aluminium alloys ADC12 etc.	-	60 - 200	60 - 200	60 - 200	0.15 - 0.30	0.20 - 0.40	0.20 - 0.50
Titanium alloys Ti-6Al-4V etc.	-	20 - 40	20 - 40	20 - 40	0.10 - 0.20	0.15 - 0.25	0.15 - 0.40
Heat-resistant alloys, Inconel Inconel 718 etc.	250 ~	10 - 30	10 - 30	10 - 30	0.03 - 0.07	0.05 - 0.10	0.07 - 0.12
High hardened steels SKD11 etc.	~ 40HRC	10 - 30	10 - 30	10 - 30	0.05 - 0.15	0.05 - 0.15	0.05 - 0.20

· The cutting parameters shown in the table are merely a starting guideline for general machining. Values should be varied depending on the power or rigidity of the machine to be used. Optimum conditions should be selected depending on the actual chip control or damage on edges.

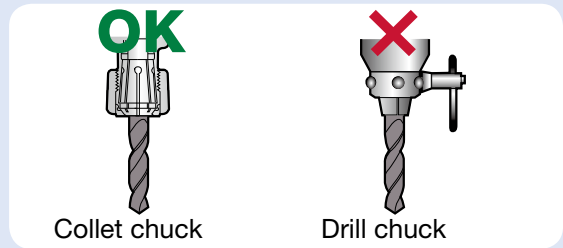
· When using the smaller diameter tools in each range, set the feed "f" to the lower recommended values.

· Oil holes that become blocked may cause drill breakages. A filter to prevent the circulation of chips must be used on the coolant supply system.

## ● Guidelines for correct usage of carbide drills

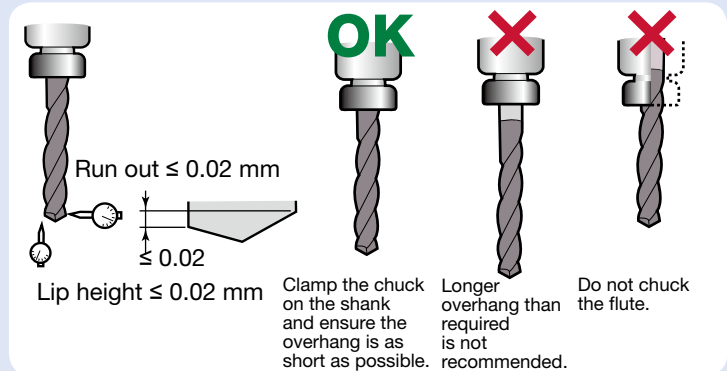
### ● Holders for solid carbide drills:

A collet chuck holder is recommended for use with carbide drills. When using a milling chuck holder, a collet chuck with a straight shank or straight collet should be used.



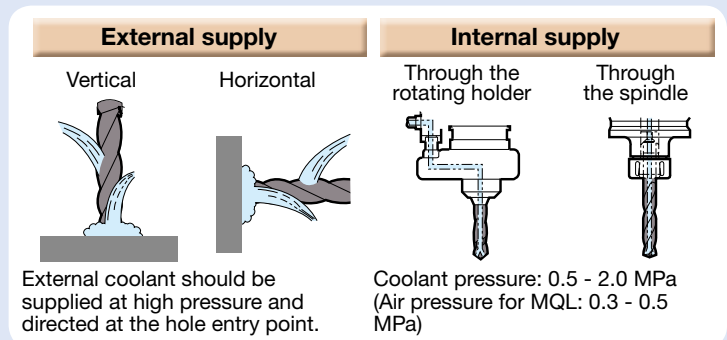
### ● Chucking drills:

- Radial run out and lip height should be less than 0.02mm. If run out or lip height is larger (close to 0.05mm), machining is possible. However, less accurate holes or short tool life may be a result.
- Overhang length should be as short as possible.



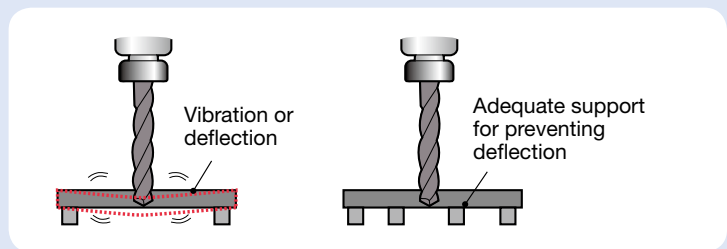
### ● Coolant Supply:

When using a drill without a coolant hole, such as the DSW-DE type, coolant should always be directed to the entrance of the hole. Maintaining this supplying is very important for stable drilling performance.



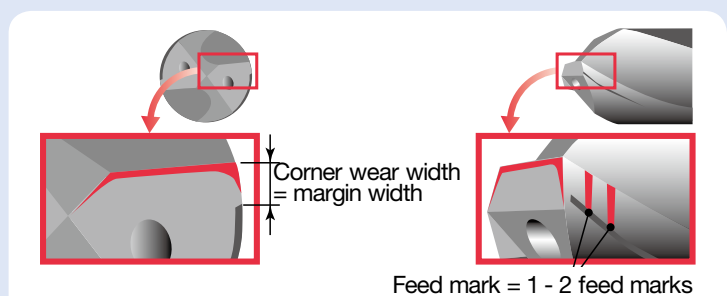
### ● Clamping workpieces:

As solid carbide drills have a higher thrust force, machining with low rigidity or inadequate support can cause fractures or breakages through vibration. It is important the workpiece is rigidly clamped and has adequate support.



### ● The criteria of tool life:

- Corner wear width: equal to margin width
- Feed mark: 1 - 2 feed marks on the margin
- Spindle load increase: 30% higher than starting level
- Irregular situation: worse chip control, hole diameter change, worse surface finish, larger burrs, bigger sound.





# GIGAMINIDRILL DSM type

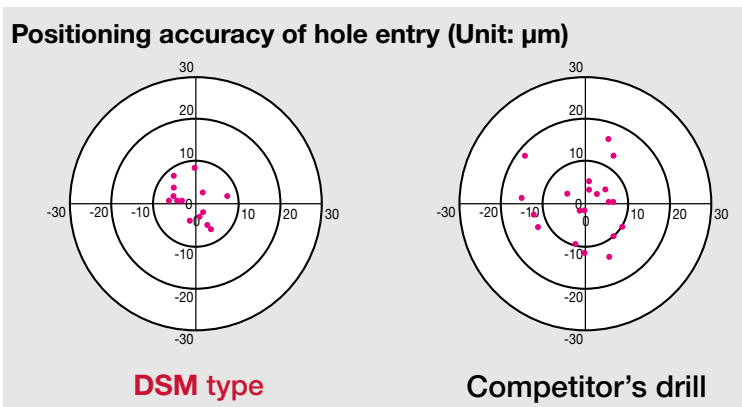
Excellent Performance for Small Diameter and Deep Hole Drilling of General Steels and Stainless Steels !

## ● Excellent high precision drilling

Web-thinned point from  $\varnothing 0.3$  mm for precision drilling.

### ● Cutting conditions

- Drill diameter :  $\varnothing 0.3$  mm
- Work material : Stainless steel  
SUS304 (X5CrNi18-10)
- Machine : Vertical machining center
- Coolant: : Water soluble  
(Chlorine free)
- Cutting speed :  $V_c = 10$  m/min
- Feed :  $f = 0.003$  mm/rev
- Step length : 0.03 mm
- Drilling depth : 3.5 mm through-hole
- No. of holes : 20 holes



**DSM type, which excels in concentricity, showed higher hole-positioning accuracy than the competitor's drill.**

## ● Deep hole drilling capability

Allows deep hole drilling up to 5 ~ 15 times the drill diameter.

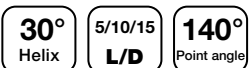
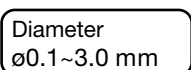
## ● Variety of dimensions

Available as standard items  
from  $\varnothing 0.1$  to  $\varnothing 3.0$  mm in  
0.01 mm increments.

Shank diameters are all unified to  $\varnothing 3$  mm.

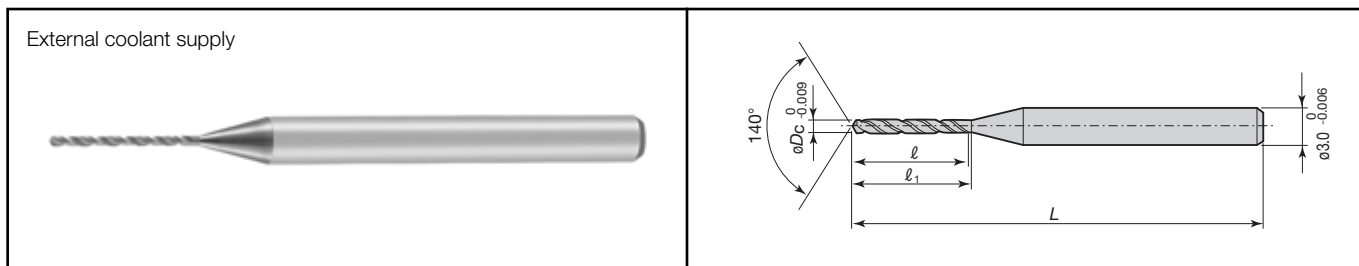


# GIGAMINI DRILL DSM type



For Steels

Coated solid carbide drills



Drill dia. øDc	L/D	Cat. No.	Stock	Dimensions (mm)			Drill dia. øDc	L/D	Cat. No.	Stock	Dimensions (mm)			Drill dia. øDc	L/D	Cat. No.	Stock	Dimensions (mm)		
				L	ℓ	ℓ1					L	ℓ	ℓ1					L	ℓ	ℓ1
0.10	10	DSM0010G10	●	38	1.15	1.4	0.59	10	DSM0059G10	●	38	7.3	7.9	1.08	5	DSM0108G05	●	38	8.0	8.6
0.11	10	DSM0011G10	●	38	1.25	1.5	0.60	10	DSM0060G10	●	38	7.3	7.9	1.09	5	DSM0109G05	●	38	8.0	8.6
0.12	10	DSM0012G10	●	38	1.35	1.6	0.61	10	DSM0061G10	●	38	7.9	8.5	1.10	5	DSM0110G05	●	38	8.0	8.6
0.13	10	DSM0013G10	●	38	1.55	1.8	0.62	10	DSM0062G10	●	38	7.9	8.5	1.11	5	DSM0111G05	●	38	8.9	9.5
0.14	10	DSM0014G10	●	38	1.65	1.9	0.63	10	DSM0063G10	●	38	7.9	8.5	1.12	5	DSM0112G05	●	38	8.9	9.5
0.15	10	DSM0015G10	●	38	1.75	2.0	0.64	10	DSM0064G10	●	38	7.9	8.5	1.13	5	DSM0113G05	●	38	8.9	9.5
0.16	10	DSM0016G10	●	38	1.85	2.1	0.65	10	DSM0065G10	●	38	7.9	8.5	1.14	5	DSM0114G05	●	38	8.9	9.5
0.17	10	DSM0017G10	●	38	1.95	2.2	0.66	10	DSM0066G10	●	38	8.6	9.2	1.15	5	DSM0115G05	●	38	8.9	9.5
0.18	10	DSM0018G10	●	38	2.15	2.4	0.67	10	DSM0067G10	●	38	8.6	9.2	1.16	5	DSM0116G05	●	38	8.9	9.5
0.19	10	DSM0019G10	●	38	2.25	2.5	0.68	10	DSM0068G10	●	38	8.6	9.2	1.17	5	DSM0117G05	●	38	8.9	9.5
0.20	10	DSM0020G10	●	38	2.35	2.6	0.69	10	DSM0069G10	●	38	8.6	9.2	1.18	5	DSM0118G05	●	38	8.9	9.5
0.21	10	DSM0021G10	●	38	2.45	2.7	0.70	10	DSM0070G10	●	38	8.6	9.2	1.19	5	DSM0119G05	●	38	8.9	9.5
0.22	10	DSM0022G10	●	38	2.55	2.8	0.71	10	DSM0071G10	●	38	9.2	9.8	1.20	5	DSM0120G05	●	38	8.9	9.5
0.23	10	DSM0023G10	●	38	2.75	3.0	0.72	10	DSM0072G10	●	38	9.2	9.8	1.21	5	DSM0121G05	●	38	9.7	10.3
0.24	10	DSM0024G10	●	38	2.85	3.1	0.73	10	DSM0073G10	●	38	9.2	9.8	1.22	5	DSM0122G05	●	38	9.7	10.3
0.25	10	DSM0025G10	●	38	3.0	3.3	0.74	10	DSM0074G10	●	38	9.2	9.8	1.23	5	DSM0123G05	●	38	9.7	10.3
0.26	10	DSM0026G10	●	38	3.1	3.4	0.75	10	DSM0075G10	●	38	9.2	9.8	1.24	5	DSM0124G05	●	38	9.7	10.3
0.27	10	DSM0027G10	●	38	3.2	3.5	0.76	10	DSM0076G10	●	38	9.9	10.5	1.25	5	DSM0125G05	●	38	9.7	10.3
0.28	10	DSM0028G10	●	38	3.4	3.7	0.77	10	DSM0077G10	●	38	9.9	10.5	1.26	5	DSM0126G05	●	38	9.7	10.3
0.29	10	DSM0029G10	●	38	3.5	3.8	0.78	10	DSM0078G10	●	38	9.9	10.5	1.27	5	DSM0127G05	●	38	9.7	10.3
0.30	10	DSM0030G10	●	38	3.9	4.2	0.79	10	DSM0079G10	●	38	9.9	10.5	1.28	5	DSM0128G05	●	38	9.7	10.3
0.31	15	DSM0031G15	●	38	5.6	5.9	0.80	10	DSM0080G10	●	38	9.9	10.5	1.29	5	DSM0129G05	●	38	9.7	10.3
0.32	15	DSM0032G15	●	38	5.6	5.9	0.81	10	DSM0081G10	●	38	10.5	11.1	1.30	5	DSM0130G05	●	38	9.7	10.3
0.33	15	DSM0033G15	●	38	5.6	5.9	0.82	10	DSM0082G10	●	38	10.5	11.1	1.31	5	DSM0131G05	●	38	10.5	11.1
0.34	15	DSM0034G15	●	38	5.6	5.9	0.83	10	DSM0083G10	●	38	10.5	11.1	1.32	5	DSM0132G05	●	38	10.5	11.1
0.35	15	DSM0035G15	●	38	5.6	5.9	0.84	10	DSM0084G10	●	38	10.5	11.1	1.33	5	DSM0133G05	●	38	10.5	11.1
0.36	15	DSM0036G15	●	38	5.6	6.8	0.85	10	DSM0085G10	●	38	10.5	11.1	1.34	5	DSM0134G05	●	38	10.5	11.1
0.37	15	DSM0037G15	●	38	6.5	6.8	0.86	10	DSM0086G10	●	38	9.9	10.5	1.35	5	DSM0135G05	●	38	10.5	11.1
0.38	15	DSM0038G15	●	38	6.5	6.8	0.87	10	DSM0087G10	●	38	9.9	10.5	1.36	5	DSM0136G05	●	38	10.5	11.1
0.39	15	DSM0039G15	●	38	6.5	6.8	0.88	10	DSM0088G10	●	38	9.9	10.5	1.37	5	DSM0137G05	●	38	10.5	11.1
0.40	15	DSM0040G15	●	38	6.5	6.8	0.89	10	DSM0089G10	●	38	9.9	10.5	1.38	5	DSM0138G05	●	38	10.5	11.1
0.41	15	DSM0041G15	●	38	7.4	7.7	0.90	10	DSM0090G10	●	38	9.9	10.5	1.39	5	DSM0139G05	●	38	10.5	11.1
0.42	15	DSM0042G15	●	38	7.4	7.7	0.91	10	DSM0091G10	●	38	10.5	11.1	1.40	5	DSM0140G05	●	38	10.5	11.1
0.43	15	DSM0043G15	●	38	7.4	7.7	0.92	10	DSM0092G10	●	38	10.5	11.1	1.41	5	DSM0141G05	●	38	11.3	11.9
0.44	15	DSM0044G15	●	38	7.4	7.7	0.93	10	DSM0093G10	●	38	10.5	11.1	1.42	5	DSM0142G05	●	38	11.3	11.9
0.45	15	DSM0045G15	●	38	7.4	7.7	0.94	10	DSM0094G10	●	38	10.5	11.1	1.43	5	DSM0143G05	●	38	11.3	11.9
0.46	15	DSM0046G15	●	38	8.1	8.7	0.95	10	DSM0095G10	●	38	10.5	11.1	1.44	5	DSM0144G05	●	38	11.3	11.9
0.47	15	DSM0047G15	●	38	8.1	8.7	0.96	10	DSM0096G10	●	38	11.0	11.6	1.45	5	DSM0145G05	●	38	11.3	11.9
0.48	15	DSM0048G15	●	38	8.1	8.7	0.97	10	DSM0097G10	●	38	11.0	11.6	1.46	5	DSM0146G05	●	38	11.3	11.9
0.49	15	DSM0049G15	●	38	8.1	8.7	0.98	10	DSM0098G10	●	38	11.0	11.6	1.47	5	DSM0147G05	●	38	11.3	11.9
0.50	15	DSM0050G15	●	38	8.1	8.7	0.99	10	DSM0099G10	●	38	11.0	11.6	1.48	5	DSM0148G05	●	38	11.3	11.9
0.51	10	DSM0051G10	●	38	6.6	7.2	1.00	10	DSM0100G10	●	38	11.5	12.1	1.49	5	DSM0149G05	●	38	11.3	11.9
0.52	10	DSM0052G10	●	38	6.6	7.2	1.01	5	DSM0101G05	●	38	8.0	8.6	1.50	5	DSM0150G05	●	38	11.3	11.9
0.53	10	DSM0053G10	●	38	6.6	7.2	1.02	5	DSM0102G05	●	38	8.0	8.6	1.51	5	DSM0151G05	●	45	12.1	12.7
0.54	10	DSM0054G10	●	38	6.6	7.2	1.03	5	DSM0103G05	●	38	8.0	8.6	1.52	5	DSM0152G05	●	45	12.1	12.7
0.55	10	DSM0055G10	●	38	6.6	7.2	1.04	5	DSM0104G05	●	38	8.0	8.6	1.53	5	DSM0153G05	●	45	12.1	12.7
0.56	10	DSM0056G10	●	38	7.3	7.9	1.05	5	DSM0105G05	●	38	8.0	8.6	1.54	5	DSM0154G05	●	45	12.1	12.7
0.57	10	DSM0057G10	●	38	7.3	7.9	1.06	5	DSM0106G05	●	38	8.0	8.6	1.55	5	DSM0155G05	●	45	12.1	12.7
0.58	10	DSM0058G10	●	38	7.3	7.9	1.07	5	DSM0107G05	●	38	8.0	8.6	1.56	5	DSM0156G05	●	45	12.1	12.7

● : Stocked items.

# DSM type

Drill dia. øDc	L/D	Cat. No.	Stock	Dimensions (mm)			Drill dia. øDc	L/D	Cat. No.	Stock	Dimensions (mm)			Drill dia. øDc	L/D	Cat. No.	Stock	Dimensions (mm)		
				L	ℓ	ℓ1					L	ℓ	ℓ1					L	ℓ	ℓ1
1.57	5	DSM0157G05		45	12.1	12.7	2.06	5	DSM0206G05		45	16.1	16.7	2.55	5	DSM0255G05		55	20.1	20.7
1.58	5	DSM0158G05		45	12.1	12.7	2.07	5	DSM0207G05		45	16.1	16.7	2.56	5	DSM0256G05		55	20.1	20.7
1.59	5	DSM0159G05		45	12.1	12.7	2.08	5	DSM0208G05		45	16.1	16.7	2.57	5	DSM0257G05		55	20.1	20.7
1.60	5	DSM0160G05	●	45	12.1	12.7	2.09	5	DSM0209G05		45	16.1	16.7	2.58	5	DSM0258G05		55	20.1	20.7
1.61	5	DSM0161G05		45	12.9	13.6	2.10	5	DSM0210G05	●	45	16.1	16.7	2.59	5	DSM0259G05		55	20.1	20.7
1.62	5	DSM0162G05		45	12.9	13.6	2.11	5	DSM0211G05		45	16.9	17.5	2.60	5	DSM0260G05	●	55	20.1	20.7
1.63	5	DSM0163G05		45	12.9	13.6	2.12	5	DSM0212G05		45	16.9	17.5	2.61	5	DSM0261G05		55	20.9	21.5
1.64	5	DSM0164G05		45	12.9	13.6	2.13	5	DSM0213G05		45	16.9	17.5	2.62	5	DSM0262G05		55	20.9	21.5
1.65	5	DSM0165G05	●	45	12.9	13.6	2.14	5	DSM0214G05		45	16.9	17.5	2.63	5	DSM0263G05		55	20.9	21.5
1.66	5	DSM0166G05		45	12.9	13.6	2.15	5	DSM0215G05		45	16.9	17.5	2.64	5	DSM0264G05		55	20.9	21.5
1.67	5	DSM0167G05		45	12.9	13.6	2.16	5	DSM0216G05		45	16.9	17.5	2.65	5	DSM0265G05		55	20.9	21.5
1.68	5	DSM0168G05		45	12.9	13.6	2.17	5	DSM0217G05		45	16.9	17.5	2.66	5	DSM0266G05		55	20.9	21.5
1.69	5	DSM0169G05		45	12.9	13.6	2.18	5	DSM0218G05		45	16.9	17.5	2.67	5	DSM0267G05		55	20.9	21.5
1.70	5	DSM0170G05	●	45	12.9	13.6	2.19	5	DSM0219G05		45	16.9	17.5	2.68	5	DSM0268G05		55	20.9	21.5
1.71	5	DSM0171G05		45	13.7	14.3	2.20	5	DSM0220G05	●	45	16.9	17.5	2.69	5	DSM0269G05		55	20.9	21.5
1.72	5	DSM0172G05		45	13.7	14.3	2.21	5	DSM0221G05		45	17.7	18.3	2.70	5	DSM0270G05	●	55	20.9	21.5
1.73	5	DSM0173G05		45	13.7	14.3	2.22	5	DSM0222G05		45	17.7	18.3	2.71	5	DSM0271G05		55	21.7	22.3
1.74	5	DSM0174G05		45	13.7	14.3	2.23	5	DSM0223G05		45	17.7	18.3	2.72	5	DSM0272G05		55	21.7	22.3
1.75	5	DSM0175G05		45	13.7	14.3	2.24	5	DSM0224G05		45	17.7	18.3	2.73	5	DSM0273G05		55	21.7	22.3
1.76	5	DSM0176G05		45	13.7	14.3	2.25	5	DSM0225G05		45	17.7	18.3	2.74	5	DSM0274G05		55	21.7	22.3
1.77	5	DSM0177G05		45	13.7	14.3	2.26	5	DSM0226G05		45	17.7	18.3	2.75	5	DSM0275G05		55	21.7	22.3
1.78	5	DSM0178G05		45	13.7	14.3	2.27	5	DSM0227G05		45	17.7	18.3	2.76	5	DSM0276G05		55	21.7	22.3
1.79	5	DSM0179G05		45	13.7	14.3	2.28	5	DSM0228G05		45	17.7	18.3	2.77	5	DSM0277G05		55	21.7	22.3
1.80	5	DSM0180G05	●	45	13.7	14.3	2.29	5	DSM0229G05		45	17.7	18.3	2.78	5	DSM0278G05		55	21.7	22.3
1.81	5	DSM0181G05		45	14.5	15.1	2.30	5	DSM0230G05	●	45	17.7	18.3	2.79	5	DSM0279G05		55	21.7	22.3
1.82	5	DSM0182G05	●	45	14.5	15.1	2.31	5	DSM0231G05		55	18.5	19.1	2.80	5	DSM0280G05	●	55	21.7	22.3
1.83	5	DSM0183G05		45	14.5	15.1	2.32	5	DSM0232G05		55	18.5	19.1	2.81	5	DSM0281G05		55	22.5	23.1
1.84	5	DSM0184G05		45	14.5	15.1	2.33	5	DSM0233G05		55	18.5	19.1	2.82	5	DSM0282G05		55	22.5	23.1
1.85	5	DSM0185G05		45	14.5	15.1	2.34	5	DSM0234G05		55	18.5	19.1	2.83	5	DSM0283G05		55	22.5	23.1
1.86	5	DSM0186G05		45	14.5	15.1	2.35	5	DSM0235G05		55	18.5	19.1	2.84	5	DSM0284G05		55	22.5	23.1
1.87	5	DSM0187G05		45	14.5	15.1	2.36	5	DSM0236G05		55	18.5	19.1	2.85	5	DSM0285G05		55	22.5	23.1
1.88	5	DSM0188G05		45	14.5	15.1	2.37	5	DSM0237G05		55	18.5	19.1	2.86	5	DSM0286G05		55	22.5	23.1
1.89	5	DSM0189G05		45	14.5	15.1	2.38	5	DSM0238G05		55	18.5	19.1	2.87	5	DSM0287G05		55	22.5	23.1
1.90	5	DSM0190G05	●	45	14.5	15.1	2.39	5	DSM0239G05		55	18.5	19.1	2.88	5	DSM0288G05		55	22.5	23.1
1.91	5	DSM0191G05		45	15.3	15.9	2.40	5	DSM0240G05	●	55	18.5	19.1	2.89	5	DSM0289G05		55	22.5	23.1
1.92	5	DSM0192G05		45	15.3	15.9	2.41	5	DSM0241G05		55	19.3	19.9	2.90	5	DSM0290G05	●	55	22.5	23.1
1.93	5	DSM0193G05		45	15.3	15.9	2.42	5	DSM0242G05		55	19.3	19.9	2.91	5	DSM0291G05		55	23.3	23.9
1.94	5	DSM0194G05		45	15.3	15.9	2.43	5	DSM0243G05		55	19.3	19.9	2.92	5	DSM0292G05		55	23.3	23.9
1.95	5	DSM0195G05	●	45	15.3	15.9	2.44	5	DSM0244G05		55	19.3	19.9	2.93	5	DSM0293G05		55	23.3	23.9
1.96	5	DSM0196G05		45	15.3	15.9	2.45	5	DSM0245G05		55	19.3	19.9	2.94	5	DSM0294G05		55	23.3	23.9
1.97	5	DSM0197G05		45	15.3	15.9	2.46	5	DSM0246G05		55	19.3	19.9	2.95	5	DSM0295G05		55	23.3	23.9
1.98	5	DSM0198G05		45	15.3	15.9	2.47	5	DSM0247G05		55	19.3	19.9	2.96	5	DSM0296G05		55	23.3	23.9
1.99	5	DSM0199G05		45	15.3	15.9	2.48	5	DSM0248G05		55	19.3	19.9	2.97	5	DSM0297G05		55	23.3	23.9
2.00	5	DSM0200G05	●	45	15.3	15.9	2.49	5	DSM0249G05		55	19.3	19.9	2.98	5	DSM0298G05		55	23.3	23.9
2.01	5	DSM0201G05		45	16.1	16.7	2.50	5	DSM0250G05	●	55	19.3	19.9	2.99	5	DSM0299G05		55	23.3	23.9
2.02	5	DSM0202G05		45	16.1	16.7	2.51	5	DSM0251G05		55	20.1	20.7	3.00	5	DSM0300G05	●	55	23.3	23.9
2.03	5	DSM0203G05		45	16.1	16.7	2.52	5	DSM0252G05		55	20.1	20.7							
2.04	5	DSM0204G05		45	16.1	16.7	2.53	5	DSM0253G05		55	20.1	20.7							
2.05	5	DSM0205G05		45	16.1	16.7	2.54	5	DSM0254G05		55	20.1	20.7							

Note: L/D = Hole depth / Drill diameter

● : Stocked items.

# DSM type

## Standard cutting conditions

Work materials	Cutting speed: Vc (m/min)			Feed: f (mm/rev)				
	ø0.1 ~ ø0.3	ø0.3 ~ ø0.5	ø0.5 ~ ø3.0	ø0.1 ~ ø0.3	ø0.3 ~ ø0.5	ø0.5 ~ ø1.0	ø1.0 ~ ø2.0	ø2.0 ~ ø3.0
Carbon and alloy steels	5-15-20	15-25-30	25-40-60	0.001- <b>0.002</b> -0.004	0.002- <b>0.005</b> -0.01	0.005- <b>0.01</b> -0.05	0.03- <b>0.06</b> -0.09	0.05- <b>0.08</b> -0.1
Stainless steels	2-6-12	6-12-18	10-15-20	0.0005- <b>0.002</b> -0.004	0.002- <b>0.005</b> -0.008	0.005- <b>0.01</b> -0.03	0.01- <b>0.02</b> -0.04	0.02- <b>0.03</b> -0.05
Grey cast irons	5-10-15	10-20-25	20-35-50	0.0005- <b>0.002</b> -0.004	0.002- <b>0.005</b> -0.012	0.005- <b>0.01</b> -0.03	0.01- <b>0.03</b> -0.06	0.03- <b>0.05</b> -0.12
Ductile cast irons	5-10-15	10-20-25	20-35-50	0.001- <b>0.002</b> -0.003	0.002- <b>0.005</b> -0.01	0.005- <b>0.01</b> -0.02	0.01- <b>0.03</b> -0.05	0.03- <b>0.05</b> -0.1
Aluminium alloys	10-15-20	10-20-30	20-35-50	0.001- <b>0.005</b> -0.01	0.005- <b>0.01</b> -0.03	0.01- <b>0.03</b> -0.05	0.04- <b>0.05</b> -0.15	0.06- <b>0.1</b> -0.2
Copper / Brass	10-15-20	10-20-30	20-35-50	0.001- <b>0.005</b> -0.01	0.005- <b>0.01</b> -0.03	0.01- <b>0.03</b> -0.05	0.04- <b>0.05</b> -0.15	0.06- <b>0.1</b> -0.2
Hard materials	4-6-8	6-8-10	6-10-16	0.0005- <b>0.001</b> -0.002	0.001- <b>0.003</b> -0.005	0.005- <b>0.01</b> -0.02	0.01- <b>0.02</b> -0.03	0.02- <b>0.04</b> -0.06
Heat-resistant alloys	2-4-6	6-8-10	8-15-20	0.0005- <b>0.001</b> -0.003	0.002- <b>0.003</b> -0.004	0.002- <b>0.003</b> -0.004	0.002- <b>0.003</b> -0.004	Not recommended

Notes : • When the drilling depth is deeper than L/D = 5, use drill pecking every 10 to 50% of the drill diameter. • The above cutting conditions are applied to when a water soluble cutting fluid is used. For drilling a hole smaller than ø0.3 mm, use of a starting drill is recommended. • When setting the drill, the drill run out should be within 0.002 mm on the taper. (Especially for the drill diameter smaller than ø0.5 mm)

### GIGAMINIDRILL · Center Drills

# DSM-CP



Diameter ø0.1~3.0 mm



Coated Center Drills  
Coated solid carbide drills

0° Helix  
90/140° Point angle

External coolant supply

Application Dia. (mm)	Cat. No.	Stock	Dimensions (mm)	
			øDc	L
ø0.1 ~ 3.0	<b>DSM-CP90</b>		3.0	38.1

External coolant supply

Application Dia. (mm)	Cat. No.	Stock	Dimensions (mm)	
			øDc	L
ø0.1 ~ 3.0	<b>DSM-CP140</b>	●	3.0	38.1

## Standard cutting conditions

Work materials	Cutting speed Vc (m/min)	Feed: f (mm/rev)	
		DSM-CP90	DSM-CP140
Carbon, Mild and Alloy steels	30 - <b>50</b> - 80	0.01 - <b>0.03</b> - 0.06	0.03 - <b>0.05</b> - 0.08
Grey and ductile cast irons	30 - <b>60</b> - 80	0.02 - <b>0.04</b> - 0.06	0.05 - <b>0.08</b> - 0.10
Aluminium alloys	60 - <b>80</b> - 120	0.02 - <b>0.04</b> - 0.10	0.05 - <b>0.08</b> - 0.15
Stainless steels	15 - <b>30</b> - 40	0.01 - <b>0.02</b> - 0.03	0.02 - <b>0.04</b> - 0.06
Hard materials (~45HRC)	10 - <b>20</b> - 40	Not recommended	0.01 - <b>0.03</b> - 0.05

Notes : • For hard materials and stainless steels which have work-hardening nature, DSM-CP140 is recommended. • Above cutting conditions are of using a water-soluble cutting fluid. When using a water-insoluble type, set the cutting speed to lower side.

# TUNGDRILLTWISTED

TUNGALOY

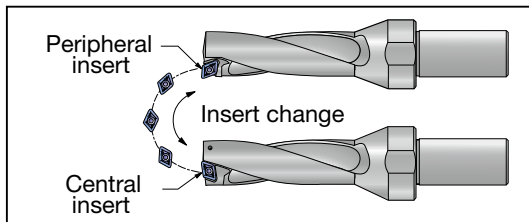
## Rich line-up of drills

Drill diameter:  $\varnothing 12.5 - \varnothing 54.0$  mm

L/D = 2, 3, 4, 5

### High stability

Stable machining and reduced tool cost due to parallelogram-shaped insert with 4 cutting edges



### Suitable for various applications

A wide variety of chipbreakers and grades offers high versatility.



DJ type



DS type



DW type

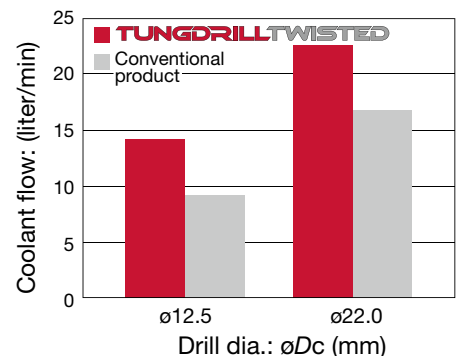


DG type



### Excellent chip evacuation

Twisted coolant hole in the drill body increases coolant flow by 1.5 times, which improves chip evacuation, resulting in excellent surface finish.



Machine : Vertical machining center  
Coolant pressure : 2 MPa

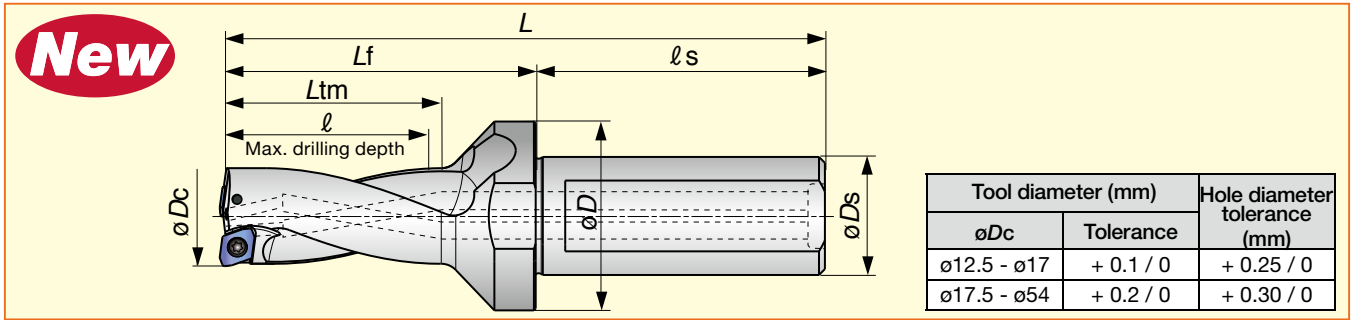


### Extremely durable drill body

Special tool steel with high hardness increases durability.

## Drills

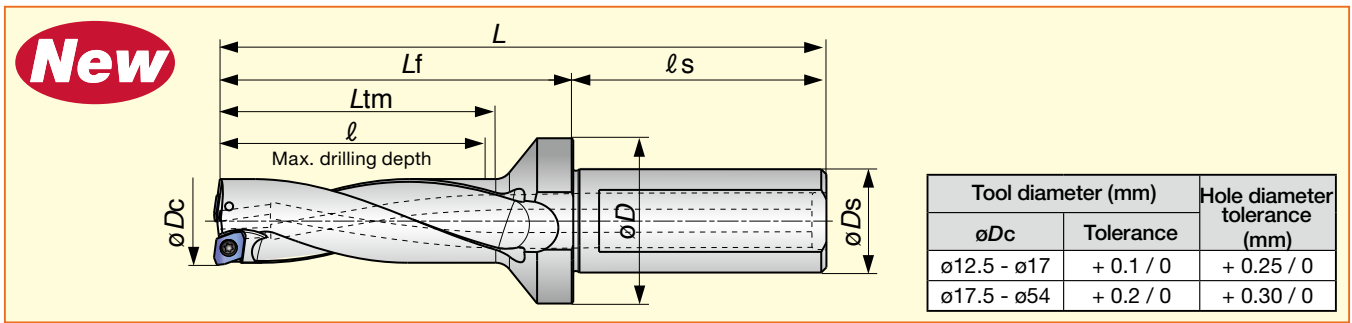
L/D = 2



Tool diameter (mm)		Hole diameter tolerance (mm)
øDc	Tolerance	
ø12.5 - ø17	+ 0.1 / 0	+ 0.25 / 0
ø17.5 - ø54	+ 0.2 / 0	+ 0.30 / 0

Drill dia. øDc(mm)	Cat. No.	Stock	Dimensions (mm)							Max offset	Weight (kg)	Applicable inserts	Clamping screw	Torx driver
			øDs	øD	l	Ltm	Lf	l s	L					
12.5	TDX125F20-2	●	20	25	25	28.0	41.0	49	90.0	0.8	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.0	TDX130F20-2	●	20	25	26	29.0	42.0	49	91.0	0.7	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.5	TDX135F20-2	●	20	25	27	30.0	43.0	49	92.0	0.6	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.0	TDX140F20-2	●	20	25	28	31.0	44.0	49	93.0	0.5	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.5	TDX145F20-2	●	20	25	29	32.0	46.0	49	95.0	0.4	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
15.0	TDX150F20-2	●	20	25	30	33.0	47.0	49	96.0	0.9	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
15.5	TDX155F20-2	●	20	32	31	34.0	49.0	49	98.0	0.8	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.0	TDX160F20-2	●	20	32	32	35.0	51.0	49	100.0	0.6	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.5	TDX165F20-2	●	20	32	33	36.0	52.0	49	101.0	0.5	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.0	TDX170F20-2	●	20	32	34	37.0	53.0	49	102.0	0.4	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.5	TDX175F25-2	●	25	32	35	38.0	55.0	54	109.0	1.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.0	TDX180F25-2	●	25	32	36	39.0	56.0	54	110.0	1.1	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.5	TDX185F25-2	●	25	32	37	40.0	57.0	54	111.0	0.9	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.0	TDX190F25-2	●	25	32	38	41.0	58.0	54	112.0	0.8	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.5	TDX195F25-2	●	25	32	39	42.0	60.0	54	114.0	0.7	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.0	TDX200F25-2	●	25	32	40	45.0	61.0	54	115.0	0.5	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.5	TDX205F25-2	●	25	32	41	46.0	62.5	54	116.5	0.4	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.0	TDX210F25-2	●	25	32	42	47.0	64.0	54	118.0	0.3	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.5	TDX215F25-2	●	25	32	43	48.0	65.0	54	119.0	0.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
22.0	TDX220F25-2	●	25	32	44	49.0	66.0	54	120.0	1.2	0.3	XPMT07H308R-D*	CSPB-2.5	IP-8D
22.5	TDX225F25-2	●	25	37	45	50.0	67.5	54	121.5	1.1	0.3	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.0	TDX230F25-2	●	25	37	46	51.0	69.0	54	123.0	0.9	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.5	TDX235F25-2	●	25	37	47	52.0	70.0	54	124.0	0.8	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.0	TDX240F25-2	●	25	37	48	53.0	71.0	54	125.0	0.7	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.5	TDX245F25-2	●	25	37	49	54.0	72.5	54	126.5	0.5	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.0	TDX250F25-2	●	25	37	50	55.0	74.0	54	128.0	0.4	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.5	TDX255F25-2	●	25	37	51	56.0	75.5	54	129.5	0.3	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
26.0	TDX260F25-2	●	25	37	52	57.0	77.0	54	131.0	0.2	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
27.0	TDX270F32-2	●	32	40	54	59.0	79.0	59	138.0	1.5	0.6	XPMT08T308R-D*	CSTB-3	T-9D
28.0	TDX280F32-2	●	32	40	56	60.3	82.3	59	141.3	1.2	0.6	XPMT08T308R-D*	CSTB-3	T-9D
29.0	TDX290F32-2	●	32	40	58	62.3	84.3	59	143.3	1.0	0.7	XPMT08T308R-D*	CSTB-3	T-9D
30.0	TDX300F32-2	●	32	40	60	64.3	87.3	59	146.3	0.7	0.7	XPMT08T308R-D*	CSTB-3	T-9D
31.0	TDX310F32-2	●	32	40	62	66.3	90.3	59	149.3	0.4	0.7	XPMT08T308R-D*	CSTB-3	T-9D
32.0	TDX320F32-2	●	32	40	64	68.3	92.3	59	151.3	0.2	0.8	XPMT08T308R-D*	CSTB-3	T-9D

L/D = 3

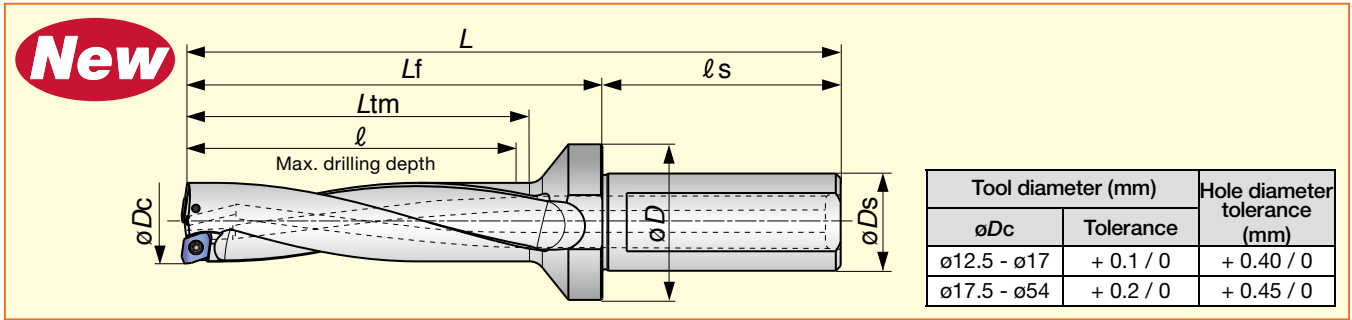


Tool diameter (mm)		Hole diameter tolerance (mm)
øDc	Tolerance	
ø12.5 - ø17	+ 0.1 / 0	+ 0.25 / 0
ø17.5 - ø54	+ 0.2 / 0	+ 0.30 / 0

Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm)							Max offset	Weight (kg)	Applicable inserts	Clamping screw	Torx driver
			øDs	øD	l	Ltm	Lf	l <sub>s</sub>	L					
12.5	TDX125F20-3	●	20	25	37.5	40.5	53.0	49	102.0	0.8	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.0	TDX130F20-3	●	20	25	39.0	42.0	55.0	49	104.0	0.7	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.5	TDX135F20-3	●	20	25	40.5	43.5	56.0	49	105.0	0.5	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.0	TDX140F20-3	●	20	25	42.0	45.0	58.0	49	107.0	0.4	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.5	TDX145F20-3	●	20	25	43.5	46.5	60.0	49	109.0	0.3	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
15.0	TDX150F20-3	●	20	25	45.0	48.0	62.0	49	111.0	0.9	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
15.5	TDX155F20-3	●	20	32	46.5	49.5	64.0	49	113.0	0.8	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.0	TDX160F20-3	●	20	32	48.0	51.0	66.0	49	115.0	0.6	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.5	TDX165F20-3	●	20	32	49.5	52.5	68.0	49	117.0	0.5	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.0	TDX170F20-3	●	20	32	51.0	54.0	69.0	49	118.0	0.4	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.5	TDX175F25-3	●	25	32	52.5	55.5	72.0	54	126.0	1.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.0	TDX180F25-3	●	25	32	54.0	57.0	73.0	54	127.0	1.1	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.5	TDX185F25-3	●	25	32	55.5	58.5	75.0	54	129.0	0.9	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.0	TDX190F25-3	●	25	32	57.0	60.0	76.0	54	130.0	0.8	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.5	TDX195F25-3	●	25	32	58.5	61.5	79.0	54	133.0	0.7	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.0	TDX200F25-3	●	25	32	60.0	65.0	81.0	54	135.0	0.5	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.5	TDX205F25-3	●	25	32	61.5	66.5	82.0	54	136.0	0.4	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.0	TDX210F25-3	●	25	32	63.0	68.0	84.0	54	138.0	0.3	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.5	TDX215F25-3	●	25	32	64.5	69.5	86.0	54	140.0	0.2	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
22.0	TDX220F25-3	●	25	32	66.0	71.0	87.0	54	141.0	1.2	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
22.5	TDX225F25-3	●	25	37	67.5	72.5	90.0	54	144.0	1.1	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.0	TDX230F25-3	●	25	37	69.0	74.0	91.0	54	145.0	0.9	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.5	TDX235F25-3	●	25	37	70.5	75.5	93.0	54	147.0	0.8	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.0	TDX240F25-3	●	25	37	72.0	77.0	95.0	54	149.0	0.7	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.5	TDX245F25-3	●	25	37	73.5	78.5	97.0	54	151.0	0.5	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.0	TDX250F25-3	●	25	37	75.0	80.0	99.0	54	153.0	0.4	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.5	TDX255F25-3	●	25	37	76.5	81.5	100.0	54	154.0	0.3	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D
26.0	TDX260F25-3	●	25	37	78.0	83.0	102.0	54	156.0	0.2	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D
27.0	TDX270F32-3	●	32	40	81.0	86.0	105.0	59	164.0	1.5	0.6	XPMT08T308R-D*	CSTB-3	T-9D
28.0	TDX280F32-3	●	32	40	84.0	88.3	109.3	59	168.3	1.2	0.7	XPMT08T308R-D*	CSTB-3	T-9D
29.0	TDX290F32-3	●	32	40	87.0	91.3	112.3	59	171.3	1.0	0.7	XPMT08T308R-D*	CSTB-3	T-9D
30.0	TDX300F32-3	●	32	40	90.0	94.3	117.3	59	176.3	0.7	0.8	XPMT08T308R-D*	CSTB-3	T-9D
31.0	TDX310F32-3	●	32	40	93.0	97.3	121.3	59	180.3	0.4	0.8	XPMT08T308R-D*	CSTB-3	T-9D
32.0	TDX320F32-3	●	32	40	96.0	100.3	124.3	59	183.3	0.2	0.9	XPMT08T308R-D*	CSTB-3	T-9D

● : Stocked items

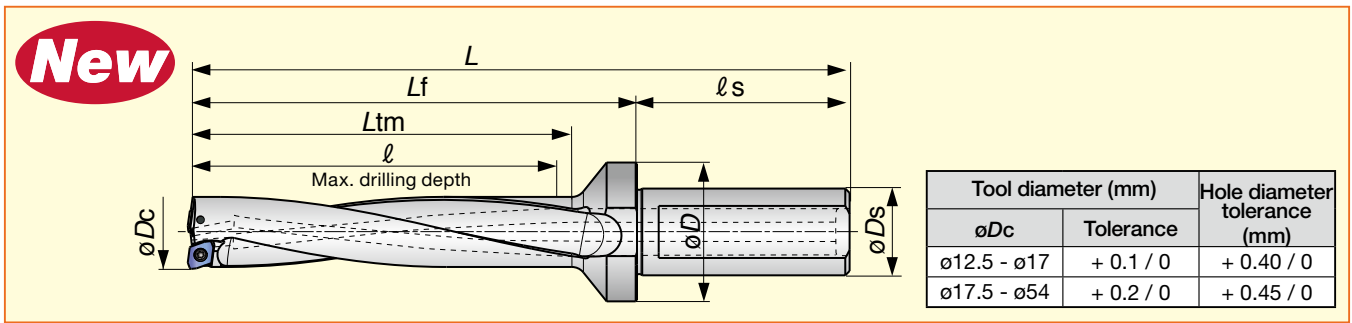
L/D = 4



Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm)							Max offset	Weight (kg)	Applicable inserts	Clamping screw	Torx driver
			øDs	øD	l	Ltm	Lf	ls	L					
12.5	TDX125F20-4	●	20	25	50	53	66	49	115.0	0.8	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.0	TDX130F20-4	●	20	25	52	55	68	49	117.0	0.7	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.5	TDX135F20-4	●	20	25	54	57	70	49	119.0	0.6	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.0	TDX140F20-4	●	20	25	56	59	72	49	121.0	0.5	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.5	TDX145F20-4	●	20	25	58	61	75	49	124.0	0.4	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
15.0	TDX150F20-4	●	20	25	60	63	77	49	126.0	0.9	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
15.5	TDX155F20-4	●	20	32	62	65	79	49	128.0	0.8	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.0	TDX160F20-4	●	20	32	64	67	82	49	131.0	0.6	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.5	TDX165F20-4	●	20	32	66	69	84	49	133.0	0.5	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.0	TDX170F20-4	●	20	32	68	71	86	49	135.0	0.4	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.5	TDX175F25-4	●	25	32	70	73	89	54	143.0	1.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.0	TDX180F25-4	●	25	32	72	75	91	54	145.0	1.1	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.5	TDX185F25-4	●	25	32	74	77	93	54	147.0	0.9	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.0	TDX190F25-4	●	25	32	76	79	95	54	149.0	0.8	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.5	TDX195F25-4	●	25	32	78	81	99	54	153.0	0.7	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.0	TDX200F25-4	●	25	32	80	84	101	54	155.0	0.5	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.5	TDX205F25-4	●	25	32	82	86	103	54	157.0	0.4	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.0	TDX210F25-4	●	25	32	84	88	105	54	159.0	0.3	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.5	TDX215F25-4	●	25	32	86	90	107	54	161.0	0.2	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
22.0	TDX220F25-4	●	25	32	88	92	109	54	163.0	1.2	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D
22.5	TDX225F25-4	●	25	37	90	94	111	54	165.5	1.1	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.0	TDX230F25-4	●	25	37	92	96	114	54	168.0	0.9	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.5	TDX235F25-4	●	25	37	94	98	116	54	170.5	0.8	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.0	TDX240F25-4	●	25	37	96	100	119	54	173.0	0.7	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.5	TDX245F25-4	●	25	37	98	102	121	54	175.5	0.5	0.6	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.0	TDX250F25-4	●	25	37	100	104	124	54	178.0	0.4	0.6	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.5	TDX255F25-4	●	25	37	102	106	126	54	180.0	0.3	0.6	XPMT07H308R-D*	CSPB-2.5	IP-8D
26.0	TDX260F25-4	●	25	37	104	108	128	54	182.0	0.2	0.6	XPMT07H308R-D*	CSPB-2.5	IP-8D
27.0	TDX270F32-4	●	32	40	108	112	132	59	191.0	1.5	0.6	XPMT08T308R-D*	CSTB-3	T-9D
28.0	TDX280F32-4	●	32	40	112	116	137	59	196.0	1.2	0.8	XPMT08T308R-D*	CSTB-3	T-9D
29.0	TDX290F32-4	●	32	40	116	120	141	59	200.0	1.0	0.7	XPMT08T308R-D*	CSTB-3	T-9D
30.0	TDX300F32-4	●	32	40	120	124	147	59	206.0	0.7	0.9	XPMT08T308R-D*	CSTB-3	T-9D
31.0	TDX310F32-4	●	32	40	124	128	152	59	211.0	0.4	0.9	XPMT08T308R-D*	CSTB-3	T-9D
32.0	TDX320F32-4	●	32	40	128	130	156	59	215.0	0.2	1.0	XPMT08T308R-D*	CSTB-3	T-9D



L/D = 5

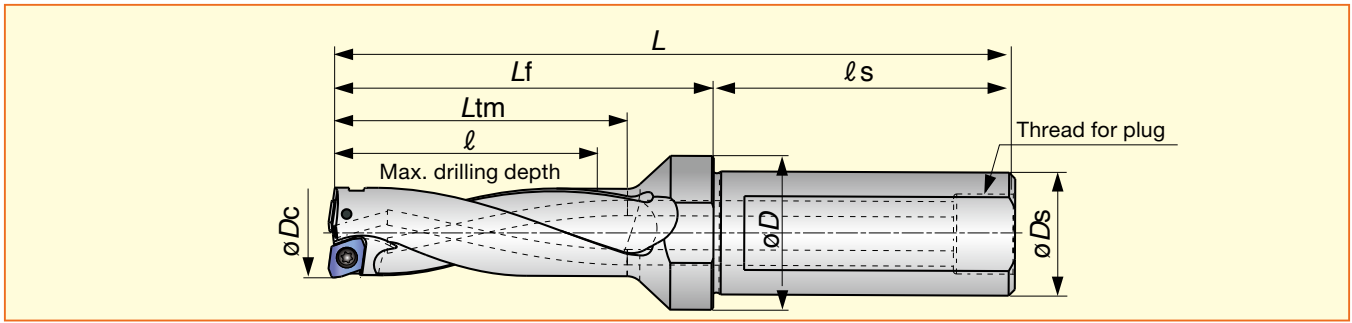


Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm)							Max offset	Weight (kg)	Applicable inserts	Clamping screw	Torx driver
			øDs	øD	l	Ltm	Lf	l <sub>s</sub>	L					
12.5	TDX125F20-5	●	20	25	62.5	65.5	78.5	49	127.5	0.8	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.0	TDX130F20-5	●	20	25	65.0	68.0	81.0	49	130.0	0.7	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.5	TDX135F20-5	●	20	25	67.5	70.5	83.5	49	132.5	0.6	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.0	TDX140F20-5	●	20	25	70.0	73.0	86.0	49	135.0	0.5	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.5	TDX145F20-5	●	20	25	72.5	75.5	89.5	49	138.5	0.4	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
15.0	TDX150F20-5	●	20	25	75.0	78.0	92.0	49	141.0	0.9	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
15.5	TDX155F20-5	●	20	32	77.5	80.5	94.5	49	143.5	0.8	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.0	TDX160F20-5	●	20	32	80.0	83.0	98.0	49	147.0	0.6	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.5	TDX165F20-5	●	20	32	82.5	85.5	100.5	49	149.5	0.5	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.0	TDX170F20-5	●	20	32	85.0	88.0	103.0	49	152.0	0.4	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.5	TDX175F25-5	●	25	32	87.5	90.5	106.5	54	160.5	1.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.0	TDX180F25-5	●	25	32	90.0	93.0	109.0	54	163.0	1.1	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.5	TDX185F25-5	●	25	32	92.5	95.5	111.5	54	165.5	0.9	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.0	TDX190F25-5	●	25	32	95.0	98.0	114.0	54	168.0	0.8	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.5	TDX195F25-5	●	25	32	97.5	100.5	118.5	54	172.5	0.7	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.0	TDX200F25-5	●	25	32	100.0	104.0	121.0	54	175.0	0.5	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.5	TDX205F25-5	●	25	32	102.5	106.5	123.5	54	177.5	0.4	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.0	TDX210F25-5	●	25	32	105.0	109.0	126.0	54	180.0	0.3	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.5	TDX215F25-5	●	25	32	107.5	111.5	128.5	54	182.5	0.2	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
22.0	TDX220F25-5	●	25	32	110.0	114.0	131.0	54	185.0	1.2	0.6	XPMT07H308R-D*	CSPB-2.5	IP-8D
22.5	TDX225F25-5	●	25	37	112.5	116.5	134.0	54	188.0	1.1	0.6	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.0	TDX230F25-5	●	25	37	115.0	119.0	137.0	54	191.0	0.9	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.5	TDX235F25-5	●	25	37	117.5	121.5	140.0	54	194.0	0.8	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.0	TDX240F25-5	●	25	37	120.0	124.0	143.0	54	197.0	0.7	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.5	TDX245F25-5	●	25	37	122.5	126.5	146.0	54	200.0	0.5	0.7	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.0	TDX250F25-5	●	25	37	125.0	129.0	149.0	54	203.0	0.4	0.7	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.5	TDX255F25-5	●	25	37	127.5	131.5	151.5	54	205.5	0.3	0.7	XPMT07H308R-D*	CSPB-2.5	IP-8D
26.0	TDX260F25-5	●	25	37	130.0	134.0	154.0	54	208.0	0.2	0.7	XPMT07H308R-D*	CSPB-2.5	IP-8D
27.0	TDX270F32-5	●	32	40	135.0	139.0	159.0	59	218.0	1.5	0.6	XPMT08T308R-D*	CSTB-3	T-9D
28.0	TDX280F32-5	●	32	40	140.0	144.0	165.0	59	224.0	1.2	0.9	XPMT08T308R-D*	CSTB-3	T-9D
29.0	TDX290F32-5	●	32	40	145.0	149.0	170.0	59	229.0	1.0	0.7	XPMT08T308R-D*	CSTB-3	T-9D
30.0	TDX300F32-5	●	32	40	150.0	154.0	177.0	59	236.0	0.7	1.0	XPMT08T308R-D*	CSTB-3	T-9D
31.0	TDX310F32-5	●	32	40	155.0	159.0	183.0	59	242.0	0.4	1.0	XPMT08T308R-D*	CSTB-3	T-9D
32.0	TDX320F32-5	●	32	40	160.0	164.0	188.0	59	247.0	0.2	1.1	XPMT08T308R-D*	CSTB-3	T-9D

● : Stocked items

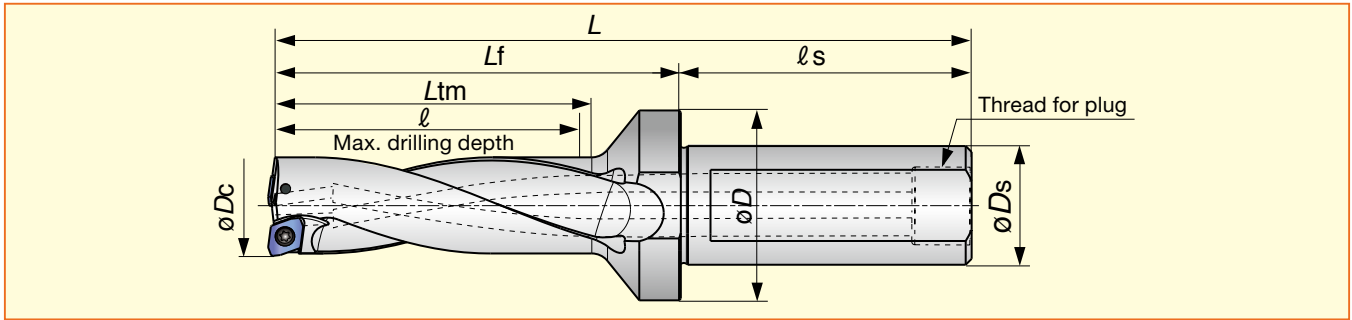
## Drills with back-port for automatic lathes

L/D = 2

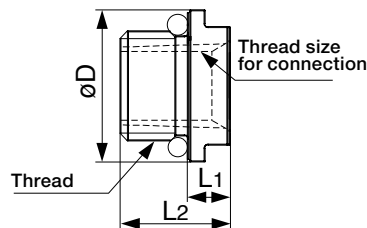
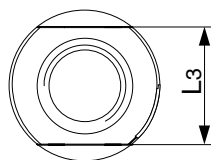


Drill dia. $\phi_{Dc}$ (mm)	Cat. No.	Stock	Dimensions (mm)							Max offset	Weight (kg)	Applicable inserts	Clamping screw	Torx driver	Plug
			$\phi_{Ds}$	$\phi_D$	$l$	$L_{tm}$	$L_f$	$l_s$	$L$						
12.5	TDX125F20J-2		20	25	25.0	28.0	41.0	49	90.0	0.8	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
13.0	TDX130F20J-2		20	25	26.0	29.0	42.0	49	91.0	0.7	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
13.5	TDX135F20J-2		20	25	27.0	30.0	43.0	49	92.0	0.6	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
14.0	TDX140F20J-2		20	25	28.0	31.0	44.0	49	93.0	0.5	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
14.5	TDX145F20J-2		20	25	29.0	32.0	46.0	49	95.0	0.4	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
15.0	TDX150F20J-2		20	25	30.0	33.0	47.0	49	96.0	0.9	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
15.5	TDX155F20J-2		20	32	31.0	34.0	49.0	49	98.0	0.8	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
16.0	TDX160F20J-2		20	32	32.0	35.0	51.0	49	100.0	0.6	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
16.5	TDX165F20J-2		20	32	33.0	36.0	52.0	49	101.0	0.5	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
17.0	TDX170F20J-2		20	32	34.0	37.0	53.0	49	102.0	0.4	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
17.5	TDX175F25J-2		25	32	35.0	38.0	55.0	54	109.0	1.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
18.0	TDX180F25J-2		25	32	36.0	39.0	56.0	54	110.0	1.1	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
18.5	TDX185F25J-2		25	32	37.0	40.0	57.0	54	111.0	0.9	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
19.0	TDX190F25J-2		25	32	38.0	41.0	58.0	54	112.0	0.8	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
19.5	TDX195F25J-2		25	32	39.0	42.0	60.0	54	114.0	0.7	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
20.0	TDX200F25J-2		25	32	40.0	45.0	61.0	54	115.0	0.5	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
20.5	TDX205F25J-2		25	32	41.0	46.0	62.5	54	116.5	0.4	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
21.0	TDX210F25J-2		25	32	42.0	47.0	64.0	54	118.0	0.3	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
21.5	TDX215F25J-2		25	32	43.0	48.0	65.0	54	119.0	0.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
22.0	TDX220F25J-2		25	32	44.0	49.0	66.0	54	120.0	1.2	0.3	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
22.5	TDX225F25J-2		25	37	45.0	50.0	67.5	54	121.5	1.1	0.3	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
23.0	TDX230F25J-2		25	37	46.0	51.0	69.0	54	123.0	0.9	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
23.5	TDX235F25J-2		25	37	47.0	52.0	70.0	54	124.0	0.8	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
24.0	TDX240F25J-2		25	37	48.0	53.0	71.0	54	125.0	0.7	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
24.5	TDX245F25J-2		25	37	49.0	54.0	72.5	54	126.5	0.5	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
25.0	TDX250F25J-2		25	37	50.0	55.0	74.0	54	128.0	0.4	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
25.5	TDX255F25J-2		25	37	51.0	56.0	75.5	54	129.5	0.3	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
26.0	TDX260F25J-2		25	37	52.0	57.0	77.0	54	131.0	0.2	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
27.0	TDX270F32J-2		32	40	54.0	59.0	79.0	59	138.0	1.5	0.6	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
28.0	TDX280F32J-2		32	40	56.0	60.3	82.3	59	141.3	1.2	0.6	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
29.0	TDX290F32J-2		32	40	58.0	62.3	84.3	59	143.3	1.0	0.7	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
30.0	TDX300F32J-2		32	40	60.0	64.3	87.3	59	146.3	0.7	0.7	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
31.0	TDX310F32J-2		32	40	62.0	66.3	90.3	59	149.3	0.4	0.7	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
32.0	TDX320F32J-2		32	40	64.0	68.3	92.3	59	151.3	0.2	0.8	XPMT08T308R-D*	CSTB-3	T-9D	SL32M

L/D = 3



Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm)							Max offset	Weight (kg)	Applicable inserts	Clamping screw	Torx driver	Plug
			øDs	øD	l	Ltm	Lf	ls	L						
12.5	TDX125F20J-3		20	25	37.5	40.5	53.0	49	102.0	0.8	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
13.0	TDX130F20J-3		20	25	39.0	42.0	55.0	49	104.0	0.7	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
13.5	TDX135F20J-3		20	25	40.5	43.5	56.0	49	105.0	0.6	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
14.0	TDX140F20J-3		20	25	42.0	45.0	58.0	49	107.0	0.5	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
14.5	TDX145F20J-3		20	25	43.5	46.5	60.0	49	109.0	0.4	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
15.0	TDX150F20J-3		20	25	45.0	48.0	62.0	49	111.0	0.9	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
15.5	TDX155F20J-3		20	32	46.5	49.5	64.0	49	113.0	0.8	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
16.0	TDX160F20J-3		20	32	48.0	51.0	66.0	49	115.0	0.6	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
16.5	TDX165F20J-3		20	32	49.5	52.5	68.0	49	117.0	0.5	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
17.0	TDX170F20J-3		20	32	51.0	54.0	69.0	49	118.0	0.4	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
17.5	TDX175F25J-3		25	32	52.5	55.5	72.0	54	126.0	1.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
18.0	TDX180F25J-3		25	32	54.0	57.0	73.0	54	127.0	1.1	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
18.5	TDX185F25J-3		25	32	55.5	58.5	75.0	54	129.0	0.9	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
19.0	TDX190F25J-3		25	32	57.0	60.0	76.0	54	130.0	0.8	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
19.5	TDX195F25J-3		25	32	58.5	61.5	79.0	54	133.0	0.7	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
20.0	TDX200F25J-3		25	32	60.0	65.0	81.0	54	135.0	0.5	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
20.5	TDX205F25J-3		25	32	61.5	66.5	82.0	54	136.0	0.4	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
21.0	TDX210F25J-3		25	32	63.0	68.0	84.0	54	138.0	0.3	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
21.5	TDX215F25J-3		25	32	64.5	69.5	86.0	54	140.0	0.2	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
22.0	TDX220F25J-3		25	32	66.0	71.0	87.0	54	141.0	1.2	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
22.5	TDX225F25J-3		25	37	67.5	72.5	90.0	54	144.0	1.1	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
23.0	TDX230F25J-3		25	37	69.0	74.0	91.0	54	145.0	0.9	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
23.5	TDX235F25J-3		25	37	70.5	75.5	93.0	54	147.0	0.8	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
24.0	TDX240F25J-3		25	37	72.0	77.0	95.0	54	149.0	0.7	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
24.5	TDX245F25J-3		25	37	73.5	78.5	97.0	54	151.0	0.5	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
25.0	TDX250F25J-3		25	37	75.0	80.0	99.0	54	153.0	0.4	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
25.5	TDX255F25J-3		25	37	76.5	81.5	100.0	54	154.0	0.3	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
26.0	TDX260F25J-3		25	37	78.0	83.0	102.0	54	156.0	0.2	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
27.0	TDX270F32J-3		32	40	81.0	86.0	105.0	59	164.0	1.5	0.6	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
28.0	TDX280F32J-3		32	40	84.0	88.3	109.3	59	168.3	1.2	0.7	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
29.0	TDX290F32J-3		32	40	87.0	91.3	112.3	59	171.3	1.0	0.7	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
30.0	TDX300F32J-3		32	40	90.0	94.3	117.3	59	176.3	0.7	0.8	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
31.0	TDX310F32J-3		32	40	93.0	97.3	121.3	59	180.3	0.4	0.8	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
32.0	TDX320F32J-3		32	40	96.0	100.3	124.3	59	183.3	0.2	0.9	XPMT08T308R-D*	CSTB-3	T-9D	SL32M



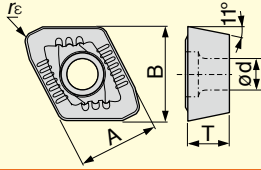
### Plug

Applicable drill dia. øDc (mm)	Cat. No.	Stock	Thread size on plug	Thread size for connection	Dimensions (mm)			
					øD	L1	L2	L3
ø12.5 - ø17.0	SL20M	●	M13x1.0	Rc 1/8	18	5	13	14
ø17.5 - ø26.0	SL25M	●	M16x1.5	Rc 1/8	22	5	17	17
ø27.0 - ø32.0	SL32M	●	M22x2.0	Rc 1/4	29	6	21	22

● : Stocked items

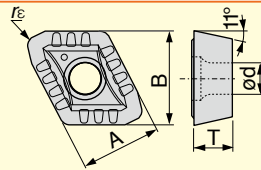
## Inserts

### DJ



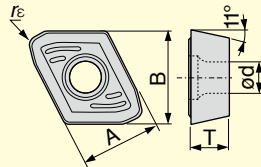
Cat. No.	Grades					Dimensions (mm)					Applicable drill diameters øDc (mm)
	PREMIUMTEC AH9030	PREMIUMTEC AH6030	PREMIUMTEC AH725	PREMIUMTEC T1115	▲ AH740	A	B	T	ød	rε	
XPMT040104R-DJ	●	●	●	●	▲	4.3	4.5	1.59	2.3	0.4	ø12.5 - ø14.5
XPMT050204R-DJ	●	●	●	●	▲	5.2	5.4	2.38	2.3	0.4	ø15.0 - ø17.0
XPMT06X308R-DJ	●	●	●	●	▲	6.0	7.0	3.00	2.5	0.8	ø17.5 - ø21.5
XPMT07H308R-DJ	●	●	●	●	▲	7.0	8.2	3.60	2.8	0.8	ø22.0 - ø26.0
XPMT08T308R-DJ	●	●	●	●	▲	8.5	9.9	3.97	3.4	0.8	ø27.0 - ø32.0
XPMT110412R-DJ	●	●	●	●	▲	11.2	12.5	4.76	4.4	1.2	ø33.0 - ø41.0
XPMT150512R-DJ	●	●	●	●	▲	15.0	16.1	5.56	5.5	1.2	ø42.0 - ø54.0

### DS



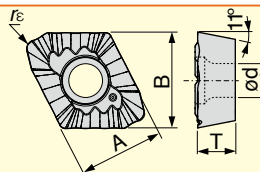
Cat. No.	Grades			Dimensions (mm)					Applicable drill diameters øDc (mm)
	PREMIUMTEC AH6030	PREMIUMTEC AH725	▲ AH120	A	B	T	ød	rε	
XPMT040104R-DS	●	●	▲	4.3	4.5	1.59	2.3	0.4	ø12.5 - ø14.5
XPMT050204R-DS	●	●	▲	5.2	5.4	2.38	2.3	0.4	ø15.0 - ø17.0
XPMT06X308R-DS	●	●	▲	6.0	7.0	3.00	2.5	0.8	ø17.5 - ø21.5
XPMT07H308R-DS	●	●	▲	7.0	8.2	3.60	2.8	0.8	ø22.0 - ø26.0
XPMT08T308R-DS	●	●	▲	8.5	9.9	3.97	3.4	0.8	ø27.0 - ø32.0
XPMT110412R-DS	●	●	▲	11.2	12.5	4.76	4.4	1.2	ø33.0 - ø41.0
XPMT150512R-DS	●	●	▲	15.0	16.1	5.56	5.5	1.2	ø42.0 - ø54.0

### DW



Cat. No.	Grades					Dimensions (mm)					Applicable drill diameters øDc (mm)
	PREMIUMTEC AH9030	PREMIUMTEC AH6030	PREMIUMTEC AH725	▲ AH740	▲ AH120	A	B	T	ød	rε	
XPMT040104R-DW	●	●	●	▲	▲	4.3	4.5	1.59	2.3	0.4	ø12.5 - ø14.5
XPMT050204R-DW	●	●	●	▲	▲	5.2	5.4	2.38	2.3	0.4	ø15.0 - ø17.0
XPMT06X308R-DW	●	●	●	▲	▲	6.0	7.0	3.00	2.5	0.8	ø17.5 - ø21.5
XPMT07H308R-DW	●	●	●	▲	▲	7.0	8.2	3.60	2.8	0.8	ø22.0 - ø26.0
XPMT08T308R-DW	●	●	●	▲	▲	8.5	9.9	3.97	3.4	0.8	ø27.0 - ø32.0
XPMT110412R-DW	●	●	●	▲	▲	11.2	12.5	4.76	4.4	1.2	ø33.0 - ø41.0
XPMT150512R-DW	●	●	●	▲	▲	15.0	16.1	5.56	5.5	1.2	ø42.0 - ø54.0

### DG



Cat. No.	Grades	Dimensions (mm)					Applicable drill diameters øDc (mm)
	PREMIUMTEC AH725	A	B	T	ød	rε	
XPMT08T308R-DG	●	8.5	9.9	3.97	3.4	0.8	ø27.0 - ø32.0
XPMT110412R-DG	●	11.2	12.5	4.76	4.4	1.2	ø33.0 - ø41.0
XPMT150512R-DG	●	15.0	16.1	5.56	5.5	1.2	ø42.0 - ø54.0

● : Stocked items  
▲ : Phase-out items

## Recommended inserts

ISO	Workpiece materials	First choice	High feed	High speed	Troubleshooting			
					Chipping resistance	Wear resistance	Surface finish	Chip control
<b>P</b>	Low carbon steel (C ≤ 0.3%)	DS, AH6030	-	-	DS, AH725	-	DW, AH6030	DG, AH725
	Carbon steel (C > 0.3%) Alloy steels	DJ, AH6030	DW, AH6030	DJ, AH9030	DW, AH725	DJ, AH9030	DW, AH6030	-
	Low alloy steel	DS, AH6030	-	-	DS, AH725	-	DW, AH6030	-
<b>M</b>	Stainless steel	DS, AH6030	-	-	DS, AH725	-	DW, AH6030	DG, AH725
<b>K</b>	Grey cast iron	DJ, AH9030	DW, AH9030	DJ, T1115	DW, AH725	-	DW, AH9030	-
	Ductile cast iron	DJ, AH9030	DW, AH9030	-	DW, AH725	-	DW, AH9030	-
<b>N</b>	Aluminium alloys	DJ, AH725	DW, AH725	DS, AH6030	-	DW, AH725	DG, AH725	
<b>S</b>	Titanium alloys Heat-resistant alloys	DS, AH6030	-	-	DW, AH725	-	DW, AH725	DG, AH725
<b>H</b>	Hardened steel	DJ, AH9030	DW, AH9030	-	DW, AH725	-	DW, AH9030	-

## Standard cutting conditions

ISO	Workpiece materials	Series L/D	Cutting speed Vc (m/min)	Feed: f (mm/rev)				
				ø12.5 - ø14.5	ø15.0 - ø17.0	ø17.5 - ø26.0	ø27.0 - ø32.0	ø33.0 - ø54.0
<b>P</b>	Low carbon steel (C ≤ 0.3%) SS400, SM490, S25C, etc. (St42-1, St52-3, C25, etc.)	2D, 3D	160 - 320	0.02 - 0.06	0.02 - 0.06	0.04 - 0.10	0.04 - 0.10	0.04 - 0.10
		4D, 5D	160 - 320	0.02 - 0.06	0.02 - 0.06	0.04 - 0.10	0.04 - 0.10	0.04 - 0.10
	Carbon steel (C > 0.3%) S45C, S55C, etc. (C45, C55, etc.)	2D, 3D	80 - 250	0.04 - 0.10	0.04 - 0.12	0.06 - 0.13	0.06 - 0.15	0.08 - 0.18
		4D, 5D	80 - 250	0.04 - 0.08	0.04 - 0.08	0.06 - 0.10	0.06 - 0.12	0.08 - 0.14
	Low alloy steel SCM415, etc.	2D, 3D	160 - 250	0.04 - 0.08	0.04 - 0.08	0.06 - 0.12	0.06 - 0.12	0.06 - 0.14
		4D, 5D	160 - 250	0.04 - 0.08	0.04 - 0.08	0.06 - 0.12	0.06 - 0.12	0.06 - 0.14
<b>M</b>	Alloy steel SCM440, SCr420, etc. (42CrMo4, 20Cr4, etc.)	2D, 3D	80 - 200	0.04 - 0.10	0.04 - 0.12	0.06 - 0.13	0.06 - 0.15	0.08 - 0.18
		4D, 5D	80 - 200	0.04 - 0.08	0.04 - 0.08	0.06 - 0.10	0.06 - 0.12	0.08 - 0.14
	Stainless steel (Austenitic) SUS304, SUS316, etc. (X5CrNi18-9, X5CrNiMo17-12-2, etc.)	2D, 3D	100 - 200	0.02 - 0.08	0.02 - 0.08	0.04 - 0.10	0.04 - 0.12	0.04 - 0.12
		4D, 5D	100 - 200	0.02 - 0.08	0.02 - 0.08	0.04 - 0.10	0.04 - 0.12	0.04 - 0.12
	Stainless steel (Martensitic, Ferritic) SUS430, SUS416, etc. (X5CrNi18-9, X5CrNiMo17-12-2, etc.)	2D, 3D	100 - 220	0.02 - 0.08	0.02 - 0.08	0.04 - 0.10	0.04 - 0.12	0.04 - 0.12
		4D, 5D	100 - 220	0.02 - 0.08	0.02 - 0.08	0.04 - 0.10	0.04 - 0.12	0.04 - 0.12
Stainless steel (Precipitation hardening) SUS630, etc. (X5CrNiCuNb16-4, etc.)	2D, 3D	80 - 120	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08	0.04 - 0.10	0.06 - 0.10	
	4D, 5D	80 - 120	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08	0.04 - 0.10	0.06 - 0.10	
<b>K</b>	Grey cast iron FC250, etc. (GG25, etc.)	2D, 3D	80 - 250	0.06 - 0.12	0.06 - 0.12	0.06 - 0.15	0.06 - 0.18	0.08 - 0.20
		4D, 5D	80 - 250	0.06 - 0.10	0.06 - 0.10	0.06 - 0.12	0.06 - 0.14	0.08 - 0.16
	Ductile cast iron FCD700, etc. (GGG70, etc.)	2D, 3D	80 - 200	0.04 - 0.12	0.04 - 0.12	0.06 - 0.15	0.06 - 0.18	0.08 - 0.20
		4D, 5D	80 - 200	0.04 - 0.10	0.04 - 0.10	0.06 - 0.12	0.06 - 0.14	0.08 - 0.16
<b>N</b>	Aluminium alloys A2017, ADC12, etc.	2D, 3D	200 - 400	0.10 - 0.12	0.10 - 0.15	0.15 - 0.20	0.15 - 0.20	0.15 - 0.25
		4D, 5D	200 - 400	0.08 - 0.12	0.08 - 0.12	0.12 - 0.16	0.12 - 0.16	0.12 - 0.20
<b>S</b>	Heat-resistant alloys Inconel 718, etc.	2D, 3D	20 - 60	0.04 - 0.08	0.04 - 0.08	0.04 - 0.10	0.04 - 0.10	0.04 - 0.10
		4D, 5D	20 - 60	0.04 - 0.08	0.04 - 0.08	0.04 - 0.10	0.04 - 0.10	0.04 - 0.10
	Titanium alloys Ti-6Al-4V, etc.	2D, 3D	40 - 120	0.06 - 0.10	0.06 - 0.10	0.06 - 0.12	0.06 - 0.12	0.06 - 0.12
		4D, 5D	40 - 120	0.06 - 0.08	0.06 - 0.08	0.06 - 0.10	0.06 - 0.10	0.06 - 0.10
<b>H</b>	Hardened steel ≥ 40HRC	2D, 3D	40 - 100	0.04 - 0.08	0.04 - 0.08	0.04 - 0.10	0.04 - 0.10	0.04 - 0.10
		4D, 5D	40 - 100	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08

## Standard cutting conditions for DG type chipbreaker

ISO	Workpiece materials	Series L/D	Cutting speed Vc (m/min)	Feed: f (mm/rev)	
				ø27.0 - ø32.0	ø33.0 - ø54.0
<b>P</b>	Low carbon steel (C ≤ 0.3%) SS400, SM490, S25C, etc. (st42-1, St52-3, C25, etc.)	2D, 3D 4D, 5D	60 - 180	0.04 - 0.10	0.04 - 0.10

- For small drill diameters, lower feed rate should be applied.
- In case of workpiece materials with hardness of more than 40 HRC, the feed rate should be less than 50% of the recommended feed.
- For difficult-to-cut materials, such as heat-resistant alloys, that generate high volume of cutting heat during machining, the cutting speed should be less than 20% of the recommended value for carbon steel.
- For high-feed machining with DW type chipbreaker, the feed rate should be

- approximately 1.5 times higher than the standard rate shown above.
- High-speed machining applies to operation with the cutting speed more than 150 m/min.
- When using DW type chipbreaker for troubleshooting, the operation should be within the range of standard cutting conditions.
- DG type chipbreaker is suitable for large-sized machines with low-RPM spindle. If chattering occurs, the feed rate should be lowered.

## EZ sleeve (Eccentric sleeve for TungdrillTwisted)

### The function of EZ sleeve

#### Hole diameter adjustment on the milling machine

Adjusting the hole diameter in tool-rotating applications on machining centers, milling machines, etc.

Drilling diameter can be adjusted in the range from +0.6 mm to -0.2 mm.



Scale for adjusting drilling diameter on machining center (on the side of the sleeve)

#### Adjusting the cutting edge height on lathes

Adjusting the cutting edge height in work-rotating applications on lathes.

Height of cutting edge can be adjusted in the range from +0.3 mm to -0.2 mm, which eliminates troubles caused by improper setting.



Scale for adjusting cutting edge height on lathes (on the front face of the sleeve)

## Directions on setting EZ sleeve on the machine

### Adjusting hole diameter on M/C

Set EZ sleeve between the drill shank and the toolholder. Align the scale on the side of the sleeve to the center of the flat area on the flange. (Fig. 1)

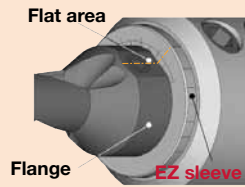


Fig. 1

In Fig.2, the sleeve is set so that the hole diameter will be increased by 0.4 mm.

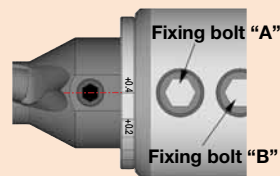
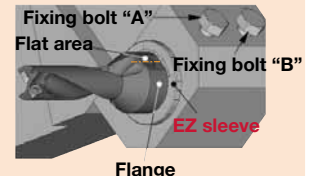


Fig. 2

### Adjusting cutting edge height on lathes

Set EZ sleeve between the drill shank and the tool block. Align the scale on the front face of the sleeve to the center of the flat area on the flange. (Fig.3)



Flange  
Fig. 3

In Fig.4, the sleeve is set so that the center of the drill will shift by 0.1 mm in the plus (+) direction.

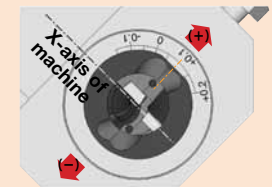


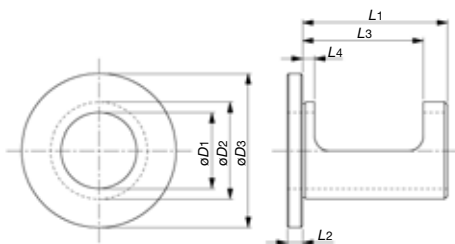
Fig. 4

When rotating EZ sleeve, fixing bolts A and B have to be loosened. After setting the hole diameter, fix the drill body with bolt A. Then, lightly tighten the bolt B to fix the sleeve. If the bolt B is overtightened, EZ sleeve may be damaged.

### Caution

- The scale is only a rough guide, so be sure to measure the actual drilling diameter to confirm the result. Especially in turning, test machining is recommended as the drilling diameter will vary according to the adjustment.
- For operations on the machining center, use side-lock holders. Collet chuck holders and milling chucks are not applicable.
- If severe vibration occurs during machining, reduce the feed rate (ex. drilling with L/D = 4 or over, machining with large adjustment, etc.)
- If there is an excessive adjustment of drilling diameter in the minus (-) direction, the drill body may interfere with the machined hole. The adjustment in the minus (-) direction should be used only when the drilling diameter is larger than the drill diameter and small changes are needed.

## Specifications



Sleeve Cat. No.	Stock	$\phi D_1$	$\phi D_2$	$\phi D_3$	L1	L2	L3	L4	Adjusting range of finishing diameter	Adjusting range of cutting edge height
EZ2025	●	20	25	46	49	5	32.5	4	+0.4 - -0.2	+0.2 - -0.15
EZ2532	●	25	32	51	52	5	38.0	4	+0.4 - -0.2	+0.2 - -0.15
EZ3240	●	32	40	54	62	5	43.0	4	+0.4 - -0.2	+0.2 - -0.15
EZ4050	●	40	50	69	63	5	55.0	4	+0.6 - -0.2	+0.3 - -0.2

※Note: The diameters of the drill body ( $\phi D_s$ ) and EZ sleeve ( $\phi D_1$ ) need to be the same.

### Caution

#### Using TungdrillTwisted

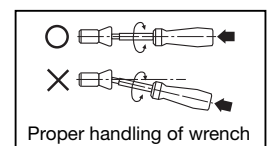
- Use a machine that has enough rigidity and motor output for the operation.
- Do not drill stacked plates as tool may be damaged.
- Proper alignment is necessary in case of work-rotating operations.

#### Coolant

- Use internal coolant supply.
- Use water-soluble coolant.
- Coolant pressure needs to be over 1 MPa and flow rate around 7 liter/min. For 4D and 5D types, it is recommended to use coolant pressure over 1.5 MPa and flow rate over 10 liter/min.

#### Setting inserts

- Clear chips and dust from the pocket before attaching the insert on the drill body.
- Do not leave any gap between the bottom face of the insert and the insert pocket.
- Wrench must be used in line with the screw. Misalignment may result in deformation of the screw or the tip of the wrench.
- If the screw has excessive wear and deformation due to long-term use, replace it with a new one.



## Drilling with an offset on the lathe

### Holes larger than the drill diameter can be machined!

#### ● Drilling with offset

- For work-rotating operations, the hole diameter can be adjusted by offsetting the drill body along the X-axis of the machine.
- Set the drill body so that the cutting edge of the inserts are located parallel to the X-axis of the machine.

**Interference**

Offset for small diameters

Offset value must be less than 0.1 mm.

Central insert  
Peripheral insert

X-axis of machine

Small diameters

Large diameters

Offset value (+) depends on the drill diameter.

Offset for large diameters

Approximate hole diameter =  
Drill diameter + offset value x 2

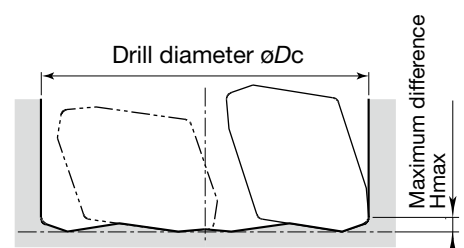
Example:  
Drill diameter: ø30 mm  
Offset value: 0.2 mm  
Drilled hole diameter = 30 + 0.2 x 2 = ø30.4 mm

## Shape of the hole bottom

The shape of the hole bottom machined with TungdrillTwisted is closer to being flat compared to the result of HSS drills.

■ Bottom shape of the hole machined with TungdrillTwisted

Drill diameter øDc (mm)	ø12.5 - 14.5	ø15 - 17	ø17.5 - 21.5	ø22 - 26	ø27 - 32
Insert	XPMT 04...	XPMT 05...	XPMT 06...	XPMT 07...	XPMT 08...
Hmax (mm)	0.6	0.8	1.0	1.1	1.3





# DRILLMEISTER

TUNGALOY

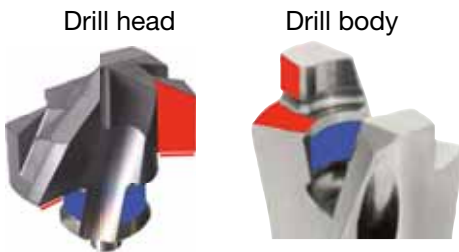
## Head-changeable drill with easy setup!

Outstanding cutting performance delivers remarkable increase in productivity!

Drilling and chamfering in one operation!

### ● High accuracy, rigidity, and productivity

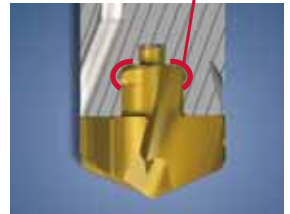
- Unique clamping structure provides high reliability and repeatability..
- Heads can be replaced on the machine without checking tool length offset, leading to quick tool change.
- No need for regrinding effectively reduces extra tool inventory.



■ Contact area that supports the drill head against cutting force

■ Contact area that maintains the accurate drill position

Groove to prevent the head from falling off



### ● Improved durability in drill body

New clamping system:

- Increases the number of times the head can be replaced on one drill body
- Significantly reduces damage on the cutting edge
- Prevents the head from falling off

### Flange type TID

- High helical flute angle improves chip evacuation in deep hole drilling.
- Twisted coolant holes supply large volume of coolant.
- Central flange prevents the movement of the drill body during machining.

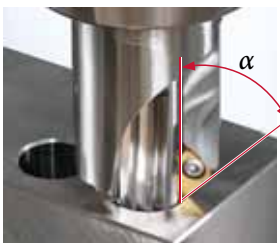
**New**



Drilling Tools

### Straight type TIDC

- Straight shank design allows easy setup with the component for chamfering.
- No need to change holders when replacing solid carbide drills



■ Drilling and chamfering in ONE operation

Applicable for 3 chamfering angles

$\alpha = 60^\circ$

$\alpha = 45^\circ$

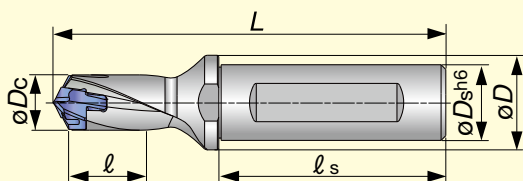
$\alpha = 30^\circ$



10

## ● Drill body TID type

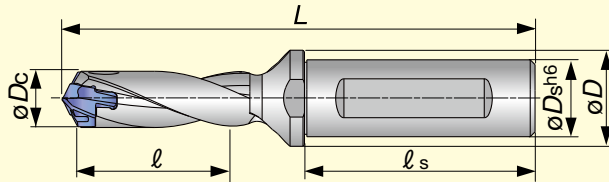
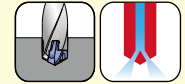
L/D = 1.5



Tool diameter (mm)	$\varnothing 10.0 - \varnothing 17.9$	$\varnothing 18.0 - \varnothing 25.9$
Hole diameter tolerance	+0.05 / 0	+0.05 / 0

Drill dia. $\varnothing D_c$ (mm)	Cat. No.	Stock	Dimensions (mm)					Pocket size	Clamping key (included)	Applicable head
			$\varnothing D_s$	$\varnothing D$	$\ell$	$\ell_s$	$L$			
10.0 - 10.9	TID100F16-1.5	●	16	20	15	48	79.2	10	K-TID10-19.99	DMP100 - DMP109
11.0 - 11.9	TID110F16-1.5	●	16	20	17	48	81.1	11	K-TID10-19.99	DMP110 - DMP119
12.0 - 12.9	TID120F16-1.5	●	16	20	18	48	83.0	12	K-TID10-19.99	DMP120 - DMP129
13.0 - 13.9	TID130F16-1.5	●	16	20	20	48	85.1	13	K-TID10-19.99	DMP130 - DMP139
14.0 - 14.9	TID140F16-1.5	●	16	20	21	48	89.1	14	K-TID10-19.99	DMP140 - DMP149
15.0 - 15.9	TID150F20-1.5	●	20	25	23	50	96.2	15	K-TID10-19.99	DMP150 - DMP159
16.0 - 16.9	TID160F20-1.5	●	20	25	24	50	99.3	16	K-TID10-19.99	DMP160 - DMP169
17.0 - 17.9	TID170F20-1.5	●	20	25	26	50	102.4	17	K-TID10-19.99	DMP170 - DMP179
18.0 - 18.9	TID180F25-1.5	●	25	32	27	56	111.5	18	K-TID10-19.99	DMP180 - DMP189
19.0 - 19.9	TID190F25-1.5	●	25	32	29	56	114.5	19	K-TID10-19.99	DMP190 - DMP199
<b>New</b> 20 - 20.9	TID200F25-1.5	●	25	32	30	56	117.6	20	K-TID20-26.99	DMP200 - DMP209
<b>New</b> 21 - 21.9	TID210F25-1.5	●	25	32	32	56	120.7	21	K-TID20-26.99	DMP210 - DMP219
<b>New</b> 22 - 22.9	TID220F25-1.5	●	25	32	33	56	123.8	22	K-TID20-26.99	DMP220 - DMP229
<b>New</b> 23 - 23.9	TID230F32-1.5	●	32	42	35	60	130.8	23	K-TID20-26.99	DMP230 - DMP239
<b>New</b> 24 - 24.9	TID240F32-1.5	●	32	42	36	60	133.9	24	K-TID20-26.99	DMP240 - DMP249
<b>New</b> 25 - 25.9	TID250F32-1.5	●	32	42	38	60	137	25	K-TID20-26.99	DMP250 - DMP259

**L/D = 3**

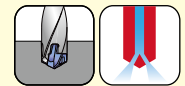
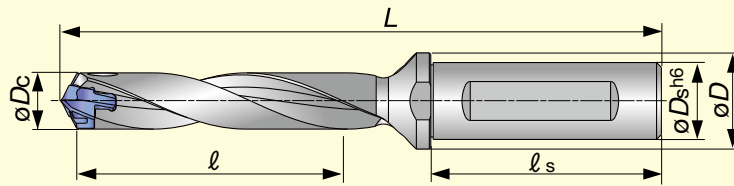


Tool diameter (mm)	ø10.0 - ø17.9	ø18.0 - ø25.9
Hole diameter tolerance	+0.05 / 0	+0.05 / 0

Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm)					Pocket size	Clamping key (included)	Applicable head
			øDs	øD	l	ls	L			
10.0 - 10.4	TID100F16-3	●	16	20	30	48	94.2	10	K-TID10-19.99	DMP100 - DMP104
10.5 - 10.9	TID105F16-3	●	16	20	32	48	95.7	10	K-TID10-19.99	DMP105 - DMP109
11.0 - 11.4	TID110F16-3	●	16	20	33	48	97.6	11	K-TID10-19.99	DMP110 - DMP114
11.5 - 11.9	TID115F16-3	●	16	20	35	48	99.1	11	K-TID10-19.99	DMP115 - DMP119
12.0 - 12.4	TID120F16-3	●	16	20	36	48	101.0	12	K-TID10-19.99	DMP120 - DMP124
12.5 - 12.9	TID125F16-3	●	16	20	37	48	102.5	12	K-TID10-19.99	DMP125 - DMP129
13.0 - 13.4	TID130F16-3	●	16	20	39	48	104.6	13	K-TID10-19.99	DMP130 - DMP134
13.5 - 13.9	TID135F16-3	●	16	20	41	48	106.1	13	K-TID10-19.99	DMP135 - DMP139
14.0 - 14.4	TID140F16-3	●	16	20	42	48	110.1	14	K-TID10-19.99	DMP140 - DMP144
14.5 - 14.9	TID145F16-3	●	16	20	44	48	111.6	14	K-TID10-19.99	DMP145 - DMP149
15.0 - 15.9	TID150F20-3	●	20	25	45	50	118.7	15	K-TID10-19.99	DMP150 - DMP159
16.0 - 16.9	TID160F20-3	●	20	25	48	50	123.3	16	K-TID10-19.99	DMP160 - DMP169
17.0 - 17.9	TID170F20-3	●	20	25	51	50	127.9	17	K-TID10-19.99	DMP170 - DMP179
18.0 - 18.9	TID180F25-3	●	25	32	54	56	138.5	18	K-TID10-19.99	DMP180 - DMP189
19.0 - 19.9	TID190F25-3	●	25	32	57	56	143.0	19	K-TID10-19.99	DMP190 - DMP199
<b>New</b> 20 - 20.9	TID200F25-3	●	25	32	60	56	147.6	20	K-TID20-26.99	DMP200 - DMP209
<b>New</b> 21 - 21.9	TID210F25-3	●	25	32	63	56	152.2	21	K-TID20-26.99	DMP210 - DMP219
<b>New</b> 22 - 22.9	TID220F25-3	●	25	32	66	56	156.8	22	K-TID20-26.99	DMP220 - DMP229
<b>New</b> 23 - 23.9	TID230F32-3	●	32	42	69	60	165.3	23	K-TID20-26.99	DMP230 - DMP239
<b>New</b> 24 - 24.9	TID240F32-3	●	32	42	72	60	169.9	24	K-TID20-26.99	DMP240 - DMP249
<b>New</b> 25 - 25.9	TID250F32-3	●	32	42	75	60	174.5	25	K-TID20-26.99	DMP250 - DMP259

● : Stocked items

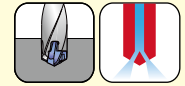
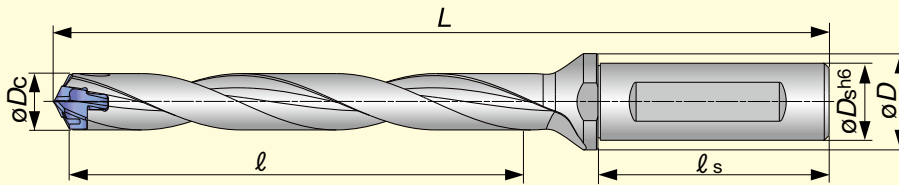
**L/D = 5**



Tool diameter (mm)	ø10.0 - ø17.9	ø18.0 - ø25.9
Hole diameter tolerance	+0.06 / 0	+0.065 / 0

Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm)					Pocket size	Clamping key (included)	Applicable head
			øDs	øD	l	ls	L			
10.0 - 10.4	TID100F16-5	●	16	20	50	48	114.2	10	K-TID10-19.99	DMP100 - DMP104
10.5 - 10.9	TID105F16-5	●	16	20	53	48	116.7	10	K-TID10-19.99	DMP105 - DMP109
11.0 - 11.4	TID110F16-5	●	16	20	55	48	119.6	11	K-TID10-19.99	DMP110 - DMP114
11.5 - 11.9	TID115F16-5	●	16	20	58	48	122.1	11	K-TID10-19.99	DMP115 - DMP119
12.0 - 12.4	TID120F16-5	●	16	20	60	48	125.0	12	K-TID10-19.99	DMP120 - DMP124
12.5 - 12.9	TID125F16-5	●	16	20	62	48	127.5	12	K-TID10-19.99	DMP125 - DMP129
13.0 - 13.4	TID130F16-5	●	16	20	65	48	130.6	13	K-TID10-19.99	DMP130 - DMP134
13.5 - 13.9	TID135F16-5	●	16	20	68	48	133.1	13	K-TID10-19.99	DMP135 - DMP139
14.0 - 14.4	TID140F16-5	●	16	20	70	48	138.2	14	K-TID10-19.99	DMP140 - DMP144
14.5 - 14.9	TID145F16-5	●	16	20	73	48	140.7	14	K-TID10-19.99	DMP145 - DMP149
15.0 - 15.9	TID150F20-5	●	20	25	75	50	148.7	15	K-TID10-19.99	DMP150 - DMP159
16.0 - 16.9	TID160F20-5	●	20	25	80	50	155.3	16	K-TID10-19.99	DMP160 - DMP169
17.0 - 17.9	TID170F20-5	●	20	25	85	50	161.9	17	K-TID10-19.99	DMP170 - DMP179
18.0 - 18.9	TID180F25-5	●	25	32	90	56	174.5	18	K-TID10-19.99	DMP180 - DMP189
19.0 - 19.9	TID190F25-5	●	25	32	95	56	181.0	19	K-TID10-19.99	DMP190 - DMP199
<b>New</b> 20 - 20.9	TID200F25-5	●	25	32	100	56	187.6	20	K-TID20-26.99	DMP200 - DMP209
<b>New</b> 21 - 21.9	TID210F25-5	●	25	32	105	56	194.2	21	K-TID20-26.99	DMP210 - DMP219
<b>New</b> 22 - 22.9	TID220F25-5	●	25	32	110	56	200.8	22	K-TID20-26.99	DMP220 - DMP229
<b>New</b> 23 - 23.9	TID230F32-5	●	32	42	115	60	211.3	23	K-TID20-26.99	DMP230 - DMP239
<b>New</b> 24 - 24.9	TID240F32-5	●	32	42	120	60	217.9	24	K-TID20-26.99	DMP240 - DMP249
<b>New</b> 25 - 25.9	TID250F32-5	●	32	42	125	60	224.5	25	K-TID20-26.99	DMP250 - DMP259

**L/D = 8**



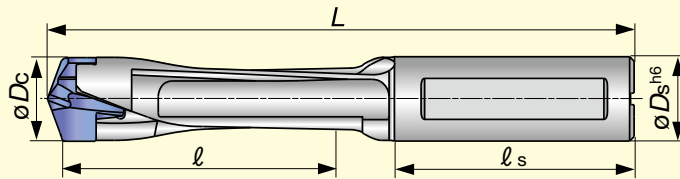
Tool diameter (mm)	ø10.0 - ø17.9	ø18.0 - ø25.9
Hole diameter tolerance	+0.07 / 0	+0.085 / 0

Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm)					Pocket size	Clamping key (included)	Applicable head
			øDs	øD	l	l <sub>s</sub>	L			
10.0 - 10.4	TID100F16-8	●	16	20	80	48	144.2	10	K-TID10-19.99	DMP100 - DMP104
10.5 - 10.9	TID105F16-8	●	16	20	84	48	148.2	10	K-TID10-19.99	DMP105 - DMP109
11.0 - 11.4	TID110F16-8	●	16	20	88	48	152.6	11	K-TID10-19.99	DMP110 - DMP114
11.5 - 11.9	TID115F16-8	●	16	20	92	48	156.6	11	K-TID10-19.99	DMP115 - DMP119
12.0 - 12.4	TID120F16-8	●	16	20	96	48	161.0	12	K-TID10-19.99	DMP120 - DMP124
12.5 - 12.9	TID125F16-8	●	16	20	100	48	165.0	12	K-TID10-19.99	DMP125 - DMP129
13.0 - 13.4	TID130F16-8	●	16	20	104	48	169.6	13	K-TID10-19.99	DMP130 - DMP134
13.5 - 13.9	TID135F16-8	●	16	20	108	48	173.6	13	K-TID10-19.99	DMP135 - DMP139
14.0 - 14.4	TID140F16-8	●	16	20	112	48	180.1	14	K-TID10-19.99	DMP140 - DMP144
14.5 - 14.9	TID145F16-8	●	16	20	116	48	184.2	14	K-TID10-19.99	DMP145 - DMP149
15.0 - 15.9	TID150F20-8	●	20	25	120	50	193.7	15	K-TID10-19.99	DMP150 - DMP159
16.0 - 16.9	TID160F20-8	●	20	25	128	50	203.3	16	K-TID10-19.99	DMP160 - DMP169
17.0 - 17.9	TID170F20-8	●	20	25	136	50	212.9	17	K-TID10-19.99	DMP170 - DMP179
18.0 - 18.9	TID180F25-8	●	25	32	144	56	228.5	18	K-TID10-19.99	DMP180 - DMP189
19.0 - 19.9	TID190F25-8	●	25	32	152	56	238.0	19	K-TID10-19.99	DMP190 - DMP199
<b>New</b> 20 - 20.9	TID200F25-8	●	25	32	160	56	247.6	20	K-TID20-26.99	DMP200 - DMP209
<b>New</b> 21 - 21.9	TID210F25-8	●	25	32	168	56	257.2	21	K-TID20-26.99	DMP210 - DMP219
<b>New</b> 22 - 22.9	TID220F25-8	●	25	32	176	56	266.8	22	K-TID20-26.99	DMP220 - DMP229
<b>New</b> 23 - 23.9	TID230F32-8	●	32	42	184	60	280.3	23	K-TID20-26.99	DMP230 - DMP239
<b>New</b> 24 - 24.9	TID240F32-8	●	32	42	192	60	289.9	24	K-TID20-26.99	DMP240 - DMP249
<b>New</b> 25 - 25.9	TID250F32-8	●	32	42	200	60	299.5	25	K-TID20-26.99	DMP250 - DMP259

● : Stocked items

## ● Drill body TIDC type

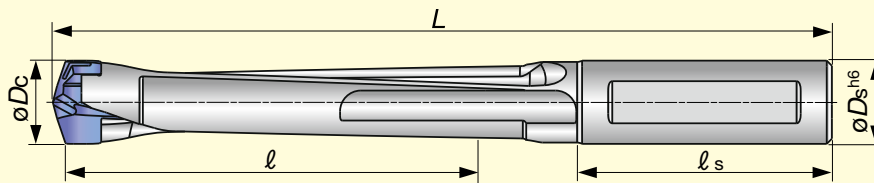
**L/D = 3**



Tool diameter (mm)	ø10.0 - ø19.9
Hole diameter tolerance	+0.05 / 0

Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm)				Pocket size	Clamping key (included)	Applicable head
			øDs	l	l <sub>s</sub>	L			
10.0 - 10.4	TIDC100C10-3	●	10	30.0	43	85.0	10	K-TID10-19.99	DMP100 - DMP104
10.5 - 10.9	TIDC105C11-3	●	11	31.5	43	87.1	10	K-TID10-19.99	DMP105 - DMP109
11.0 - 11.4	TIDC110C11-3	●	11	33.0	43	89.2	11	K-TID10-19.99	DMP110 - DMP114
11.5 - 11.9	TIDC115C12-3	●	12	34.5	43	91.3	11	K-TID10-19.99	DMP115 - DMP119
12.0 - 12.4	TIDC120C12-3	●	12	36.0	43	95.0	12	K-TID10-19.99	DMP120 - DMP124
12.5 - 12.9	TIDC125C13-3	●	13	37.5	43	95.5	12	K-TID10-19.99	DMP125 - DMP129
13.0 - 13.4	TIDC130C13-3	●	13	39.0	45	99.6	13	K-TID10-19.99	DMP130 - DMP134
13.5 - 13.9	TIDC135C14-3	●	14	40.5	45	101.7	13	K-TID10-19.99	DMP135 - DMP139
14.0 - 14.4	TIDC140C14-3	●	14	42.0	45	103.8	14	K-TID10-19.99	DMP140 - DMP144
14.5 - 14.9	TIDC145C15-3	●	15	43.5	45	105.9	14	K-TID10-19.99	DMP145 - DMP149
15.0 - 15.9	TIDC150C15-3	●	15	45.0	45	108.0	15	K-TID10-19.99	DMP150 - DMP159
16.0 - 16.9	TIDC160C16-3	●	16	48.0	48	117.7	16	K-TID10-19.99	DMP160 - DMP169
17.0 - 17.9	TIDC170C17-3	●	17	51.0	48	119.4	17	K-TID10-19.99	DMP170 - DMP179
18.0 - 18.9	TIDC180C18-3	●	18	54.0	48	123.3	18	K-TID10-19.99	DMP180 - DMP189
19.0 - 19.9	TIDC190C19-3	●	19	57.0	54	132.2	19	K-TID10-19.99	DMP190 - DMP199

**L/D = 5**



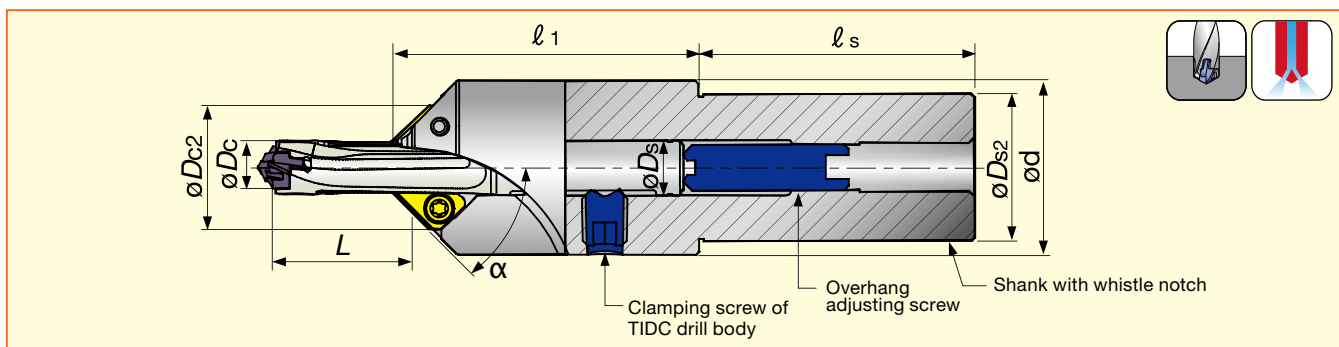
Tool diameter (mm)	ø10.0 - ø19.9
Hole diameter tolerance	+0.05 / 0

Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm)				Pocket size	Clamping key (included)	Applicable head
			øDs	l	l <sub>s</sub>	L			
10.0 - 10.4	TIDC100C10-5	●	10	50.0	43	105.0	10	K-TID10-19.99	DMP100 - DMP104
10.5 - 10.9	TIDC105C11-5	●	11	52.5	43	108.1	10	K-TID10-19.99	DMP105 - DMP109
11.0 - 11.4	TIDC110C11-5	●	11	55.0	43	111.2	11	K-TID10-19.99	DMP110 - DMP114
11.5 - 11.9	TIDC115C12-5	●	12	57.5	43	114.3	11	K-TID10-19.99	DMP115 - DMP119
12.0 - 12.4	TIDC120C12-5	●	12	60.0	43	119.0	12	K-TID10-19.99	DMP120 - DMP124
12.5 - 12.9	TIDC125C13-5	●	13	62.5	43	120.5	12	K-TID10-19.99	DMP125 - DMP129
13.0 - 13.4	TIDC130C13-5	●	13	65.0	45	125.6	13	K-TID10-19.99	DMP130 - DMP134
13.5 - 13.9	TIDC135C14-5	●	14	67.5	45	128.7	13	K-TID10-19.99	DMP135 - DMP139
14.0 - 14.4	TIDC140C14-5	●	14	70.0	45	131.8	14	K-TID10-19.99	DMP140 - DMP144
14.5 - 14.9	TIDC145C15-5	●	15	72.5	45	134.9	14	K-TID10-19.99	DMP145 - DMP149
15.0 - 15.9	TIDC150C15-5	●	15	75.0	45	138.0	15	K-TID10-19.99	DMP150 - DMP159
16.0 - 16.9	TIDC160C16-5	●	16	80.0	48	149.7	16	K-TID10-19.99	DMP160 - DMP169
17.0 - 17.9	TIDC170C17-5	●	17	85.0	48	153.4	17	K-TID10-19.99	DMP170 - DMP179
18.0 - 18.9	TIDC180C18-5	●	18	90.0	48	159.6	18	K-TID10-19.99	DMP180 - DMP189
19.0 - 19.9	TIDC190C19-5	●	19	95.0	54	170.2	19	K-TID10-19.99	DMP190 - DMP199

● Applicable drill heads for the drilling diameter øDc are shown in the above table.

● : Stocked items

## ● Chamfer adaptor TIDCF type

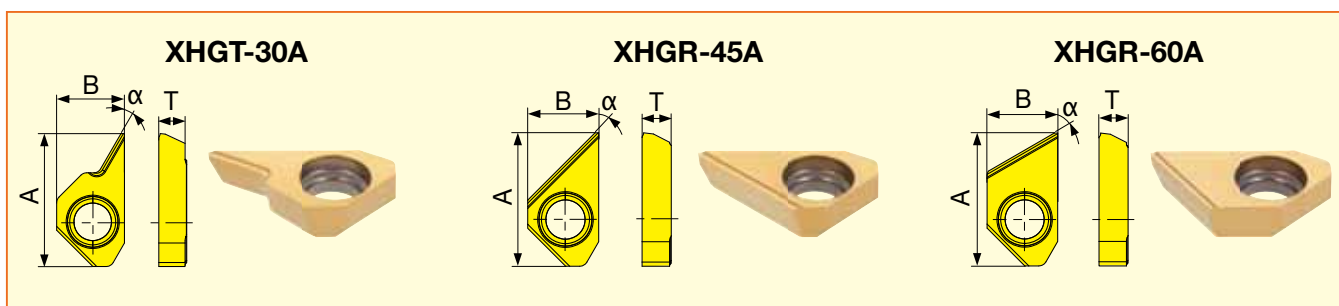


Drill dia. $\varnothing D_c$ (mm)	Cat. No.	Stock	Dimensions (mm)							Applicable drill body	
			$\varnothing D_{s2}$	$\varnothing d$	$\varnothing D_{c2}$	$\ell_1$	$\ell_s$	$L^*$		Cat. No.	$\varnothing D_s$ (mm)
10.0 - 10.4	TIDCF100-W32	●	32	38	24.9	67.3	60	14.5 - 31.8	31.7 - 51.8	TIDC100C10-...	10
10.5 - 10.9	TIDCF110-W32	●	32	38	25.9	67.3	60	15.7 - 33.3	31.2 - 54.2	TIDC105C11-...	11
11.0 - 11.4	TIDCF110-W32	●	32	38	25.9	67.3	60	16.2 - 35.3	34.1 - 57.3	TIDC110C11-...	11
11.5 - 11.9	TIDCF120-W32	●	32	38	26.9	67.3	60	15.1 - 36.7	33.8 - 59.4	TIDC115C12-...	12
12.0 - 12.4	TIDCF120-W32	●	32	38	26.9	67.3	60	16.5 - 37.7	36.6 - 61.6	TIDC120C12-...	12
12.5 - 12.9	TIDCF130-W32	●	32	38	27.9	67.3	60	16.1 - 39.6	39.7 - 64.8	TIDC125C13-...	13
13.0 - 13.4	TIDCF130-W32	●	32	38	27.9	67.3	60	17.5 - 41.5	42.7 - 68.0	TIDC130C13-...	13
13.5 - 13.9	TIDCF140-W32	●	32	38	28.4	67.3	60	17.7 - 42.9	41.4 - 70.3	TIDC135C14-...	14
14.0 - 14.4	TIDCF140-W32	●	32	38	28.4	67.3	60	18.1 - 45.0	44.8 - 73.1	TIDC140C14-...	14
14.5 - 14.9	TIDCF150-W32	●	32	38	29.4	67.3	60	19.2 - 44.6	44.0 - 73.9	TIDC145C15-...	15
15.0 - 15.9	TIDCF150-W32	●	32	38	29.4	67.3	60	19.7 - 47.4	47.6 - 80.7	TIDC150C15-...	15
16.0 - 16.9	TIDCF160-W32	●	32	38	30.4	67.3	60	19.5 - 55.3	57.0 - 87.5	TIDC160C16-...	16
17.0 - 17.9	TIDCF170-W32	●	32	38	31.4	67.3	60	21.4 - 54.9	55.9 - 88.5	TIDC170C17-...	17
18.0 - 18.9	TIDCF180-W32	●	32	38	32.4	67.3	60	24.2 - 65.2	60.0 - 93.0	TIDC180C18-...	18
19.0 - 19.9	TIDCF190-W32	●	32	38	33.4	75.0	60	28.5 - 62.3	67.0 - 100.0	TIDC190C19-...	19

$L^*$  is the dimension when using 45° chamfer insert.

● : Stocked items

## ● Chamfer insert



Cat. No.	Stock GH730	Dimensions (mm)			Chamfering angle $\alpha$	Maximum width of chamfer ** (mm)
		A	B	T		
XHGT090300-30A	●	16	8.8	3.3	30°	1.5
XHGR090300-45A	●	16	8.8	3.3	45°	6.0
XHGR090300-60A	●	16	8.8	3.3	60°	3.5

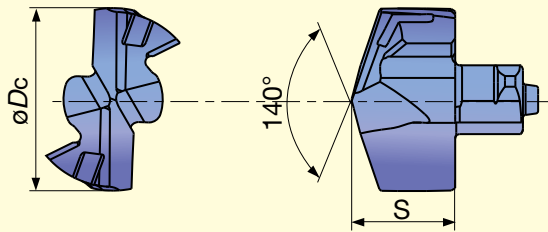
\*\*Please reduce the feed rate by half when chamfering over 60% of maximum chamfer width.

Package Quantity = 2 pcs.

● : Stocked items

## ● Drill head DMP type

DMP100 ~  
DMP199



Tool diameter (mm)	ø10.0 - ø17.9	ø18.0 - ø25.9
Head diameter tolerance	+0.018 / 0	+0.021 / 0

Drill dia. øDc (mm)	Cat. No.	Stock AH725	S (mm)	Pocket size	Applicable body	Drill dia. øDc (mm)	Cat. No.	Stock AH725	S (mm)	Pocket size	Applicable body
10.0	DMP100	●	6.05	10	TID*100*	15.0	DMP150	●	8.53	15	TID*150*
10.1	DMP101	●	6.05	10	TID*100*	15.1	DMP151	●	8.53	15	TID*150*
10.2	DMP102	●	6.05	10	TID*100*	15.2	DMP152	●	8.53	15	TID*150*
10.3	DMP103	●	6.05	10	TID*100*	15.3	DMP153	●	8.53	15	TID*150*
10.4	DMP104	●	6.05	10	TID*100*	15.4	DMP154	●	8.53	15	TID*150*
10.5	DMP105	●	6.05	10	TID*105*	15.5	DMP155	●	8.53	15	TID*150*
10.6	DMP106	●	6.05	10	TID*105*	15.6	DMP156	●	8.53	15	TID*150*
10.7	DMP107	●	6.05	10	TID*105*	15.7	DMP157	●	8.53	15	TID*150*
10.8	DMP108	●	6.05	10	TID*105*	15.8	DMP158	●	8.53	15	TID*150*
10.9	DMP109	●	6.05	10	TID*105*	15.9	DMP159	●	8.53	15	TID*150*
11.0	DMP110	●	6.45	11	TID*110*	16.0	DMP160	●	9.10	16	TID*160*
11.1	DMP111	●	6.45	11	TID*110*	16.1	DMP161	●	9.10	16	TID*160*
11.2	DMP112	●	6.45	11	TID*110*	16.2	DMP162	●	9.10	16	TID*160*
11.3	DMP113	●	6.45	11	TID*110*	16.3	DMP163	●	9.10	16	TID*160*
11.4	DMP114	●	6.45	11	TID*110*	16.4	DMP164	●	9.10	16	TID*160*
11.5	DMP115	●	6.45	11	TID*115*	16.5	DMP165	●	9.10	16	TID*160*
11.6	DMP116	●	6.45	11	TID*115*	16.6	DMP166	●	9.10	16	TID*160*
11.7	DMP117	●	6.45	11	TID*115*	16.7	DMP167	●	9.10	16	TID*160*
11.8	DMP118	●	6.45	11	TID*115*	16.8	DMP168	●	9.10	16	TID*160*
11.9	DMP119	●	6.45	11	TID*115*	16.9	DMP169	●	9.10	16	TID*160*
12.0	DMP120	●	6.80	12	TID*120*	17.0	DMP170	●	9.70	17	TID*170*
12.1	DMP121	●	6.80	12	TID*120*	17.1	DMP171	●	9.70	17	TID*170*
12.2	DMP122	●	6.80	12	TID*120*	17.2	DMP172	●	9.70	17	TID*170*
12.3	DMP123	●	6.80	12	TID*120*	17.3	DMP173	●	9.70	17	TID*170*
12.4	DMP124	●	6.80	12	TID*120*	17.4	DMP174	●	9.70	17	TID*170*
12.5	DMP125	●	6.80	12	TID*125*	17.5	DMP175	●	9.70	17	TID*170*
12.6	DMP126	●	6.80	12	TID*125*	17.6	DMP176	●	9.70	17	TID*170*
12.7	DMP127	●	6.80	12	TID*125*	17.7	DMP177	●	9.70	17	TID*170*
12.8	DMP128	●	6.80	12	TID*125*	17.8	DMP178	●	9.70	17	TID*170*
12.9	DMP129	●	6.80	12	TID*125*	17.9	DMP179	●	9.70	17	TID*170*
13.0	DMP130	●	7.40	13	TID*130*	18.0	DMP180	●	10.30	18	TID*180*
13.1	DMP131	●	7.40	13	TID*130*	18.1	DMP181	●	10.30	18	TID*180*
13.2	DMP132	●	7.40	13	TID*130*	18.2	DMP182	●	10.30	18	TID*180*
13.3	DMP133	●	7.40	13	TID*130*	18.3	DMP183	●	10.30	18	TID*180*
13.4	DMP134	●	7.40	13	TID*130*	18.4	DMP184	●	10.30	18	TID*180*
13.5	DMP135	●	7.40	13	TID*135*	18.5	DMP185	●	10.30	18	TID*180*
13.6	DMP136	●	7.40	13	TID*135*	18.6	DMP186	●	10.30	18	TID*180*
13.7	DMP137	●	7.40	13	TID*135*	18.7	DMP187	●	10.30	18	TID*180*
13.8	DMP138	●	7.40	13	TID*135*	18.8	DMP188	●	10.30	18	TID*180*
13.9	DMP139	●	7.40	13	TID*135*	18.9	DMP189	●	10.30	18	TID*180*
14.0	DMP140	●	7.95	14	TID*140*	19.0	DMP190	●	10.80	19	TID*190*
14.1	DMP141	●	7.95	14	TID*140*	19.1	DMP191	●	10.80	19	TID*190*
14.2	DMP142	●	7.95	14	TID*140*	19.2	DMP192	●	10.80	19	TID*190*
14.3	DMP143	●	7.95	14	TID*140*	19.3	DMP193	●	10.80	19	TID*190*
14.4	DMP144	●	7.95	14	TID*140*	19.4	DMP194	●	10.80	19	TID*190*
14.5	DMP145	●	7.95	14	TID*145*	19.5	DMP195	●	10.80	19	TID*190*
14.6	DMP146	●	7.95	14	TID*145*	19.6	DMP196	●	10.80	19	TID*190*
14.7	DMP147	●	7.95	14	TID*145*	19.7	DMP197	●	10.80	19	TID*190*
14.8	DMP148	●	7.95	14	TID*145*	19.8	DMP198	●	10.80	19	TID*190*
14.9	DMP149	●	7.95	14	TID*145*	19.9	DMP199	●	10.80	19	TID*190*

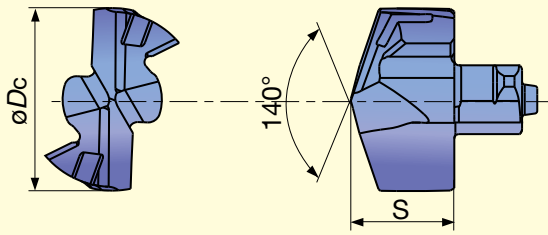
Package Quantity: ø10.0 - ø19.9 = 2 pcs.

● : Stocked items



# DMP200 ~ DMP259

**New**



Tool diameter (mm)	$\phi 10.0 - \phi 17.9$	$\phi 18.0 - \phi 25.9$
Head diameter tolerance	+0.018 / 0	+0.021 / 0

Drill dia. $\phi D_c$ (mm)	Cat. No.	Stock AH725	S (mm)	Pocket size	Applicable body
20.0	DMP200	●	11.40	20	TID*200*
20.1	DMP201	●	11.40	20	TID*200*
20.2	DMP202	●	11.40	20	TID*200*
20.3	DMP203	●	11.40	20	TID*200*
20.4	DMP204	●	11.40	20	TID*200*
20.5	DMP205	●	11.40	20	TID*200*
20.6	DMP206	●	11.40	20	TID*200*
20.7	DMP207	●	11.40	20	TID*200*
20.8	DMP208	●	11.40	20	TID*200*
20.9	DMP209	●	11.40	20	TID*200*
21.0	DMP210	●	11.98	21	TID*210*
21.1	DMP211	●	11.98	21	TID*210*
21.2	DMP212	●	11.98	21	TID*210*
21.3	DMP213	●	11.98	21	TID*210*
21.4	DMP214	●	11.98	21	TID*210*
21.5	DMP215	●	11.98	21	TID*210*
21.6	DMP216	●	11.98	21	TID*210*
21.7	DMP217	●	11.98	21	TID*210*
21.8	DMP218	●	11.98	21	TID*210*
21.9	DMP219	●	11.98	21	TID*210*
22.0	DMP220	●	12.56	22	TID*220*
22.1	DMP221	●	12.56	22	TID*220*
22.2	DMP222	●	12.56	22	TID*220*
22.3	DMP223	●	12.56	22	TID*220*
22.4	DMP224	●	12.56	22	TID*220*
22.5	DMP225	●	12.56	22	TID*220*
22.6	DMP226	●	12.56	22	TID*220*
22.7	DMP227	●	12.56	22	TID*220*
22.8	DMP228	●	12.56	22	TID*220*
22.9	DMP229	●	12.56	22	TID*220*
23.0	DMP230	●	13.13	23	TID*230*
23.1	DMP231	●	13.13	23	TID*230*
23.2	DMP232	●	13.13	23	TID*230*
23.3	DMP233	●	13.13	23	TID*230*
23.4	DMP234	●	13.13	23	TID*230*
23.5	DMP235	●	13.13	23	TID*230*
23.6	DMP236	●	13.13	23	TID*230*
23.7	DMP237	●	13.13	23	TID*230*
23.8	DMP238	●	13.13	23	TID*230*
23.9	DMP239	●	13.13	23	TID*230*
24.0	DMP240	●	13.70	24	TID*240*
24.1	DMP241	●	13.70	24	TID*240*
24.2	DMP242	●	13.70	24	TID*240*
24.3	DMP243	●	13.70	24	TID*240*
24.4	DMP244	●	13.70	24	TID*240*
24.5	DMP245	●	13.70	24	TID*240*
24.6	DMP246	●	13.70	24	TID*240*
24.7	DMP247	●	13.70	24	TID*240*
24.8	DMP248	●	13.70	24	TID*240*
24.9	DMP249	●	13.70	24	TID*240*

Drill dia. $\phi D_c$ (mm)	Cat. No.	Stock AH725	S (mm)	Pocket size	Applicable body
25.0	DMP250	●	14.30	25	TID*250*
25.1	DMP251	●	14.30	25	TID*250*
25.2	DMP252	●	14.30	25	TID*250*
25.3	DMP253	●	14.30	25	TID*250*
25.4	DMP254	●	14.30	25	TID*250*
25.5	DMP255	●	14.30	25	TID*250*
25.6	DMP256	●	14.30	25	TID*250*
25.7	DMP257	●	14.30	25	TID*250*
25.8	DMP258	●	14.30	25	TID*250*
25.9	DMP259	●	14.30	25	TID*250*

Package Quantity:  $\phi 20.0 - \phi 25.9 = 1$  pc.  
● : Stocked items

## Standard cutting condition

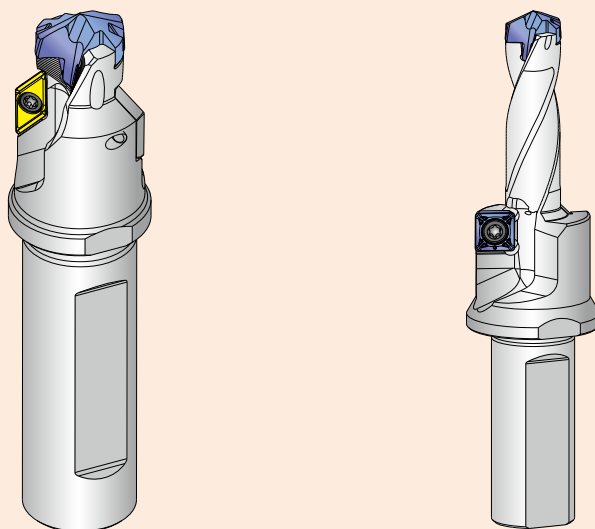
ISO	Workpiece material	Cutting speed Vc (m/min)	Feed: f (mm/rev)				
			øDc (mm)				
			ø10 - ø11.9	ø12 - ø13.9	ø14 - ø15.9	ø16 - ø19.9	ø20 - ø25.9 <span style="color:red">New</span>
<b>P</b>	Low carbon steel (C < 0.3) (SS400 / St42-1, SM490 / St52-3, S25C / C25, etc.)	80 - 140	0.15 - 0.28	0.18 - 0.30	0.20 - 0.35	0.25 - 0.45	0.25 - 0.45
	High carbon steel (C > 0.3) (S45C / C45, S55C / C55, etc.)	70 - 120	0.15 - 0.28	0.18 - 0.30	0.20 - 0.35	0.25 - 0.45	0.25 - 0.45
	Low alloy steel (SCM415, etc.)	70 - 120	0.14 - 0.28	0.16 - 0.32	0.18 - 0.35	0.23 - 0.40	0.25 - 0.45
	Alloy steel (SCM440 / 42CrMo4, SCr420 / 20Cr4, etc.)	40 - 90	0.14 - 0.28	0.16 - 0.32	0.18 - 0.35	0.23 - 0.40	0.25 - 0.45
<b>M</b>	Stainless steel (SUS304 / X5CrNi18-9, SUS316 / X5CrNiMo17-12-2, etc.)	30 - 70	0.12 - 0.18	0.14 - 0.20	0.16 - 0.24	0.16 - 0.26	0.18 - 0.30
<b>K</b>	Grey cast iron (FC250 / GG25, etc.)	80 - 180	0.20 - 0.35	0.25 - 0.40	0.30 - 0.45	0.35 - 0.55	0.35 - 0.60
	Ductile cast iron (FCD700 / GGG70, etc.)	80 - 140	0.20 - 0.35	0.25 - 0.40	0.30 - 0.45	0.35 - 0.55	0.35 - 0.60
<b>N</b>	Aluminium alloys (ADC12, etc.)	80 - 220	0.25 - 0.40	0.30 - 0.45	0.35 - 0.50	0.40 - 0.60	0.50 - 0.75
<b>S</b>	Titanium alloys (Ti-6Al-4V, etc.)	20 - 50	0.08 - 0.15	0.10 - 0.28	0.12 - 0.20	0.14 - 0.22	0.18 - 0.27
	Nickel-based alloys	20 - 50	0.08 - 0.13	0.10 - 0.15	0.12 - 0.18	0.12 - 0.22	0.14 - 0.22

- Cutting conditions in the above table is a guide under typical machining conditions.
- Cutting conditions may change according to the machine's rigidity, power, and the type of workpiece material.

- Machined hole diameter may vary depending on the machine's rigidity or the cutting conditions.
- In using the drill with L/D = 8, the values for cutting speed and feed should be between the minimum and the median values.

## Specially-designed drill body

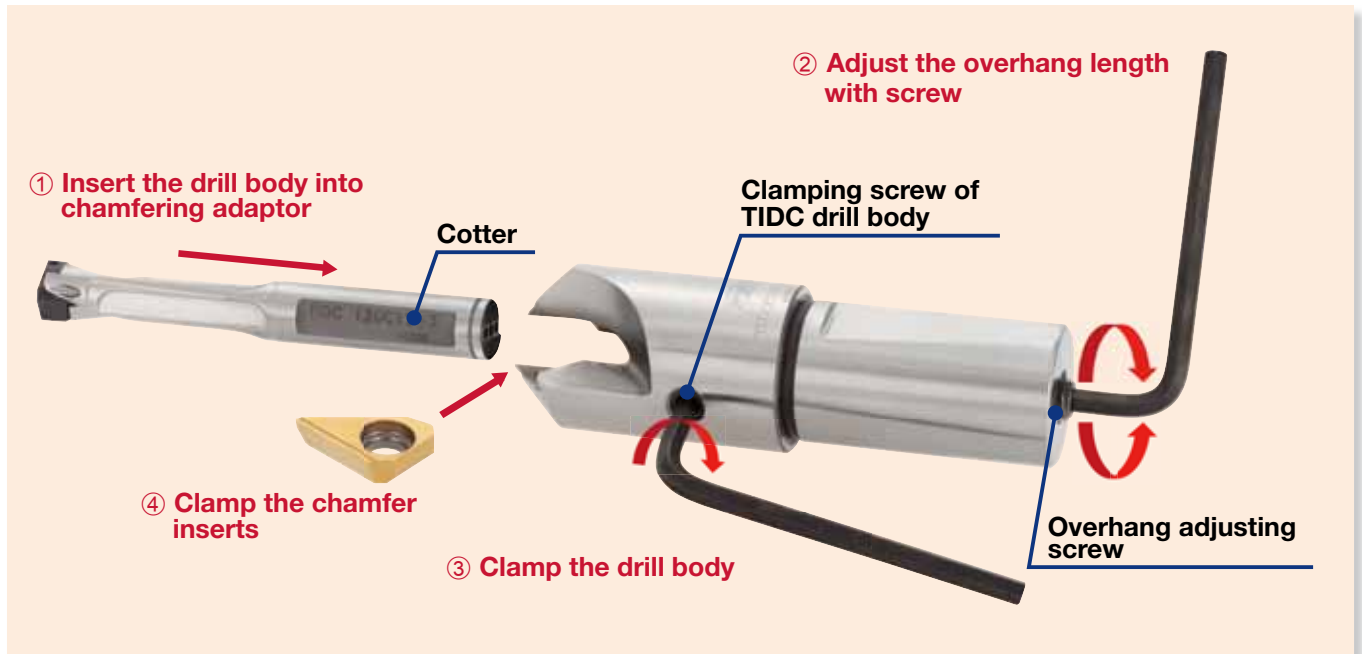
Special drill bodies, such as the one featuring chamfering or counter boring capabilities, will be available upon request. Please contact your sales representative for the details.



## ● How to mount the TIDC drill body into the chamfer adaptor

The overhang length of the drill can be changed by the adjusting screw at the bottom of the adaptor.

The rear end of the drill body must be in contact with the adjusting screw as the screw supports the drill against thrust force when drilling.



### Procedure

- ① Place the TIDC drill body into the chamfer adaptor without chamfer inserts.
- ② Adjust the overhang length of the drill body with the adjusting screw at the bottom of the adaptor.
- ③ Adjust the position of the drill body so that the drill body is fixed at the cotter and tighten the clamping screw of the drill body. This aligns the flutes of the TIDC drill body with the chamfer inserts.
- ④ To clamp the chamfer inserts, tighten the clamping screw of the insert while pushing the insert into the insert pocket.

### Notice

Before removing the drill body from the adaptor, chamfer inserts must be unclamped.

The overhang adjusting screw can be handled from the top of the adaptor with flat-blade screwdriver. In this way, the overhang length of the drill body can be adjusted after the adaptor is positioned on the drill shank.

## ● Parts

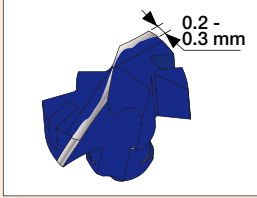
Clamping screw of TIDC drill body	Overhang adjusting screw	Wrench	Clamping screw of insert	Wrench	
				Torx bit	Grip
SRM10x10DIN916	SRM10x1.5S	HW5.0	SR14-544/S ***	BT15S	SW6-SD

\*\*\* SR14-544/S Package Quantity = 5 pcs.

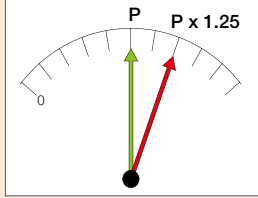
## ● Technical guidelines

### ● When to change drill heads (Criteria for the end of tool life)

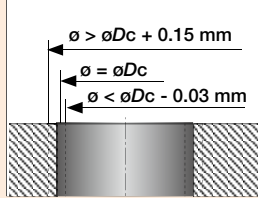
The criteria to identify the time for tool change are as follows:



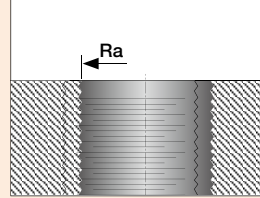
Width of corner wear reaches 0.2 – 0.3 mm.



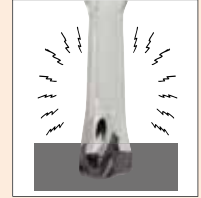
Spindle load exceeds 125% of the normal value.



Hole diameter is 0.15 mm larger or 0.03 mm smaller than the drill diameter.



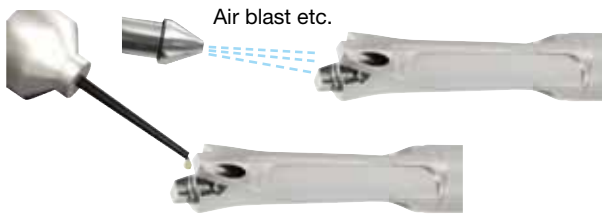
Surface roughness deteriorates.



Vibration or unusual noise occurs.

### ● How to clamp the drill head

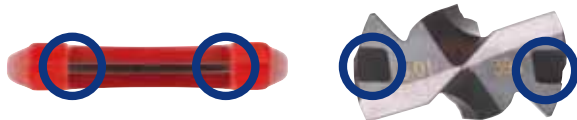
#### ① Clean and lubricate the pocket.



#### ② Set the drill head into the pocket.



#### ③ Set the clamping key on the drill head



#### ④ Clamp

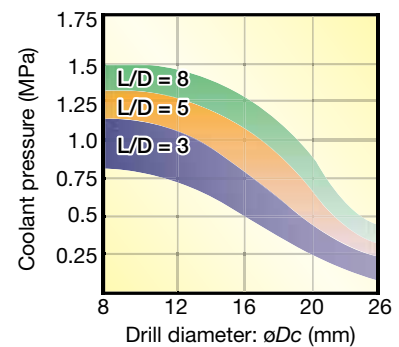
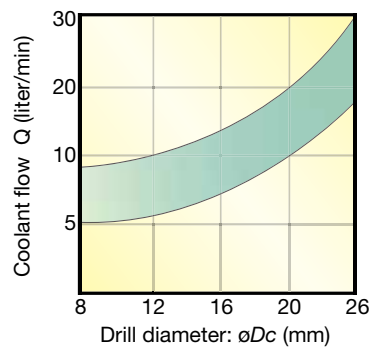


### ● Coolant supply

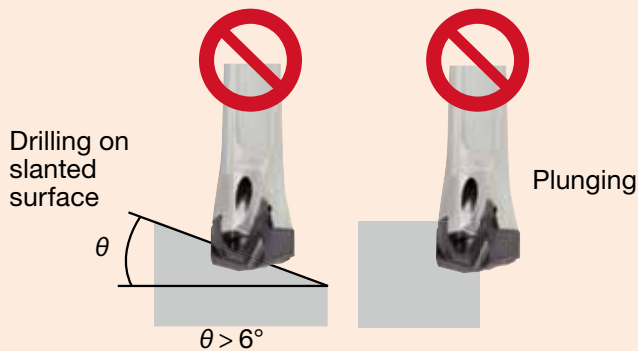
Internal coolant supply is recommended.



#### ■ The required coolant flow and pressure

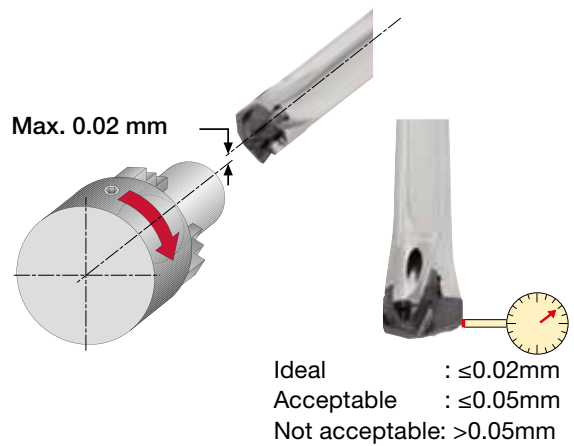


### ● Applications that are not recommended

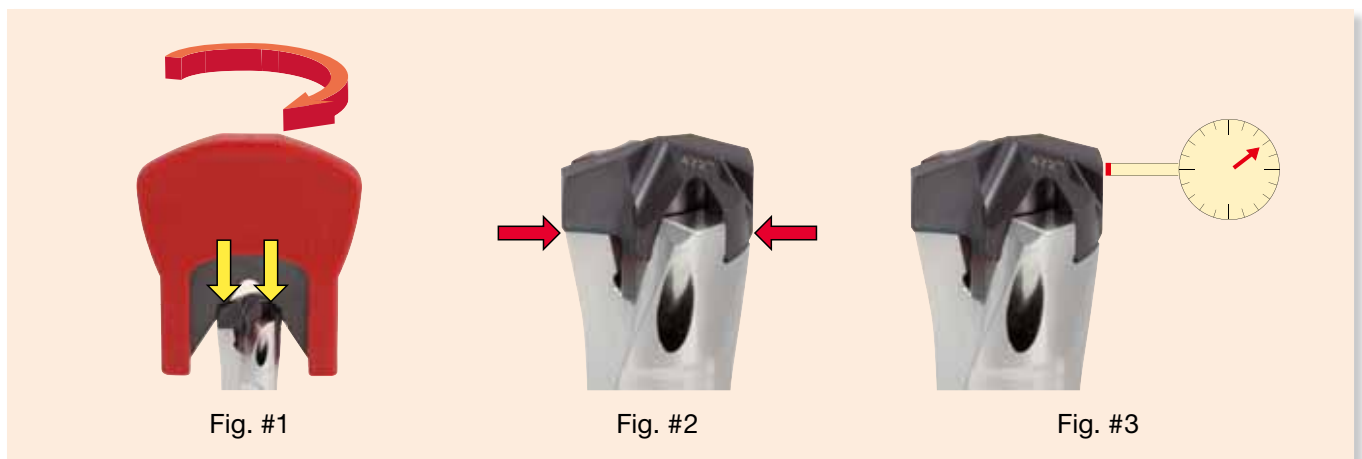


### ● Run-out

Run-out should be less than 0.02 mm.



## ● Instruction of clamping head



### Procedure

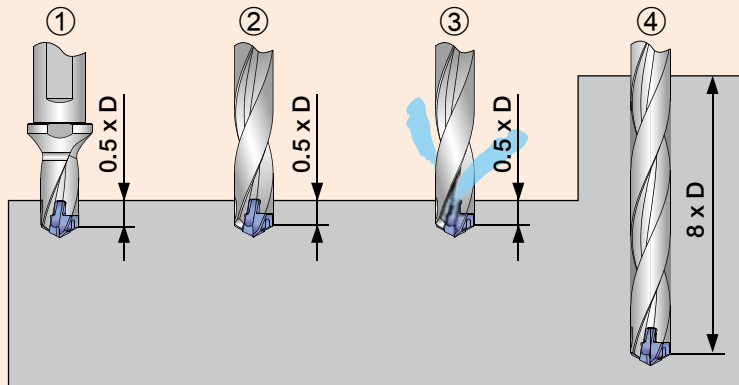
- ① Clean the clamping areas on the drill body and the head with an air blast, lubricate them, and put the drill head in the pocket.
- ② Set the clamping key in the groove on the drill head. Push the head toward the pocket with equal torque on the right and the left sides, and turn the clamping key to clamp the head completely. (Fig. #1)
- ③ Be sure that there is no gap between the bottom of the head and the drill body. A shim in the thickness of around 0.01 mm is useful to check the gap. (Fig. #2)
- ④ If there is a gap thicker than 0.01 mm, unclamp the head and return to the procedure No. ①
- ⑤ Check the run-out at the margin of the drill head. Run-out must be less than 0.05 mm. (Fig. #3) (Recommended value: less than 0.02 mm)  
If the run-out exceeds 0.05 mm, unclamp the head and return to the procedure No. ① .

Note #1: If the clamping torque is not equally applied on the right and the left sides of the drill head, there may be a gap between the head and the body, which increases the run-out of the head.

Note #2: The low accuracy in holding the drill body may affect the run-out. If the run-out is large, check the accuracy in holding the drill body.

**● Caution for using drills with  $L/D = 8$**

Prior to using the drill with  $L/D = 8$ , a pilot hole should be drilled with a short or centering drill.



- ① Drill a pilot hole in the depth of  $0.5 \times D$ .
- ② Rotate the drill at a low speed, such as  $100 \text{ min}^{-1}$ , and feed it slowly into the pilot hole until the drill reaches several millimeters from the bottom.
- ③ Supply the coolant and rotate the drill at the recommended speed.
- ④ Drill the required depth under the recommended cutting conditions.

# SD Gun Drills Solid gun drills for very small diameter and deep hole drilling

0° Helix 40 L/D

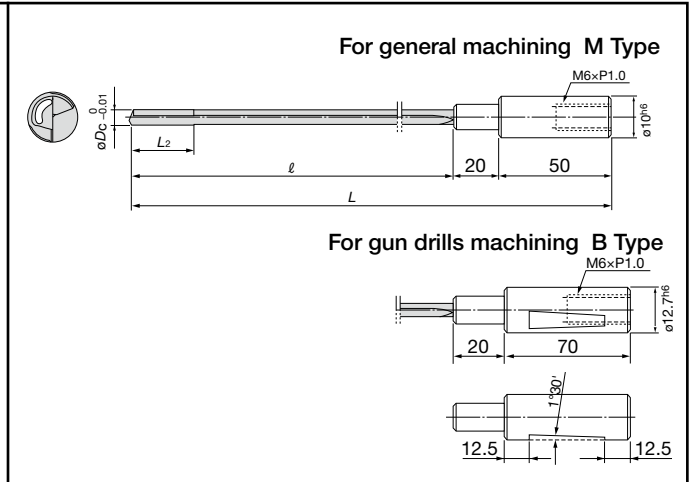
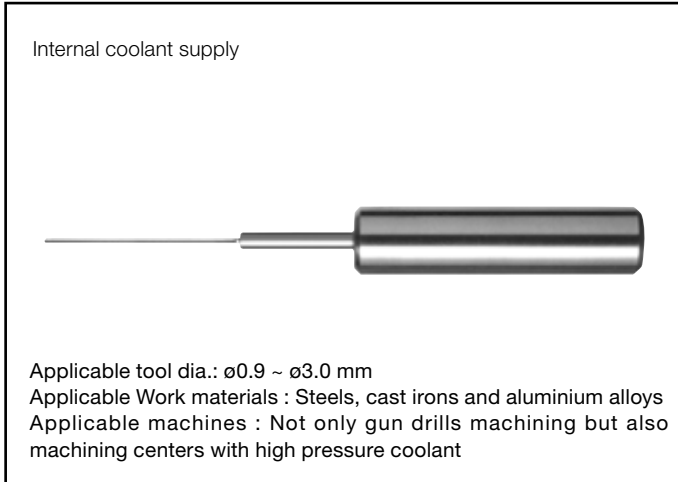
Solid gun drills



Diameter  $\phi 0.9 \sim 3.0$  mm

IT8-9 IT class

**P** Steel **K** Cast Iron **N** Non-ferrous



Nomenclature for SD Gun Drills

**GNSD 013L0**    **S10.0M**

Solid gun drills Drill diameter Overall length Diameter of driver

## Standard sizes

Tool dia. $\phi D_c$	M-type for general purpose machines						B-type for gun drilling machines				
	Cat. No. Overall length L: 110 Flute length $\ell$ : 40 (mm)	Stock	Cat. No. Overall length L: 130 Flute length $\ell$ : 60 (mm)	Stock	Cat. No. Overall length L: 150 Flute length $\ell$ : 80 (mm)	Stock	Effective pad length L2 (mm)	Diameter of driver (mm)	Overall length L (Flute length $\ell$ ) (mm)	Effective pad length L2 (mm)	Diameter of driver (mm)
0.9	GNSD009L0110S10.0M						10	$\phi 10.0$	200 (110)	10	$\phi 12.7$
1.0	GNSD010L0110S10.0M						10	$\phi 10.0$	200 (110)	10	$\phi 12.7$
1.1	GNSD011L0110S10.0M						10	$\phi 10.0$	200 (110)	10	$\phi 12.7$
1.2	GNSD012L0110S10.0M		GNSD012L0130S10.0M				10	$\phi 10.0$	200 (110) 250 (160)	10	$\phi 12.7$
1.3	GNSD013L0110S10.0M		GNSD013L0130S10.0M				13	$\phi 10.0$	200 (110) 250 (160)	13	$\phi 12.7$
1.4	GNSD014L0110S10.0M		GNSD014L0130S10.0M				13	$\phi 10.0$	200 (110) 250 (160)	13	$\phi 12.7$
1.5	GNSD015L0110S10.0M		GNSD015L0130S10.0M				13	$\phi 10.0$	200 (110) 250 (160)	13	$\phi 12.7$
1.6	GNSD016L0110S10.0M		GNSD016L0130S10.0M		GNSD016L0150S10.0M		13	$\phi 10.0$	200(110) 250(160) 300(210)	13	$\phi 12.7$
1.7	GNSD017L0110S10.0M		GNSD017L0130S10.0M		GNSD017L0150S10.0M		13	$\phi 10.0$	200(110) 250(160) 300(210)	13	$\phi 12.7$
1.8	GNSD018L0110S10.0M		GNSD018L0130S10.0M		GNSD018L0150S10.0M		13	$\phi 10.0$	200(110) 250(160) 300(210)	13	$\phi 12.7$
1.9	GNSD019L0110S10.0M		GNSD019L0130S10.0M		GNSD019L0150S10.0M		13	$\phi 10.0$	200(110) 250(160) 300(210)	13	$\phi 12.7$
2.0	GNSD020L0110S10.0M		GNSD020L0130S10.0M		GNSD020L0150S10.0M		15	$\phi 10.0$	200(110) 250(160) 300(210)	15	$\phi 12.7$
2.1	GNSD021L0110S10.0M		GNSD021L0130S10.0M		GNSD021L0150S10.0M		15	$\phi 10.0$	200(110) 250(160) 300(210)	15	$\phi 12.7$
2.2	GNSD022L0110S10.0M		GNSD022L0130S10.0M		GNSD022L0150S10.0M		15	$\phi 10.0$	200(110) 250(160) 300(210)	15	$\phi 12.7$
2.3	GNSD023L0110S10.0M		GNSD023L0130S10.0M		GNSD023L0150S10.0M		15	$\phi 10.0$	200(110) 250(160) 300(210)	15	$\phi 12.7$
2.4	GNSD024L0110S10.0M		GNSD024L0130S10.0M		GNSD024L0150S10.0M		15	$\phi 10.0$	200(110) 250(160) 300(210)	15	$\phi 12.7$
2.5	GNSD025L0110S10.0M		GNSD025L0130S10.0M		GNSD025L0150S10.0M		15	$\phi 10.0$	200(110) 250(160) 300(210)	15	$\phi 12.7$
2.6	GNSD026L0110S10.0M		GNSD026L0130S10.0M		GNSD026L0150S10.0M		15	$\phi 10.0$	200(110) 250(160) 300(210)	15	$\phi 12.7$
2.7	GNSD027L0110S10.0M		GNSD027L0130S10.0M		GNSD027L0150S10.0M		15	$\phi 10.0$	200(110) 250(160) 300(210)	15	$\phi 12.7$
2.8	GNSD028L0110S10.0M		GNSD028L0130S10.0M		GNSD028L0150S10.0M		15	$\phi 10.0$	200(110) 250(160) 300(210)	15	$\phi 12.7$
2.9	GNSD029L0110S10.0M		GNSD029L0130S10.0M		GNSD029L0150S10.0M		15	$\phi 10.0$	200(110) 250(160) 300(210)	15	$\phi 12.7$
3.0	GNSD030L0110S10.0M		GNSD030L0130S10.0M		GNSD030L0150S10.0M		15	$\phi 10.0$	200(110) 250(160) 300(210)	15	$\phi 12.7$

All above are made to order, intermediate sizes also made to order.

Solid gun drills for very small diameter and deep hole drilling

# SD Gun Drills



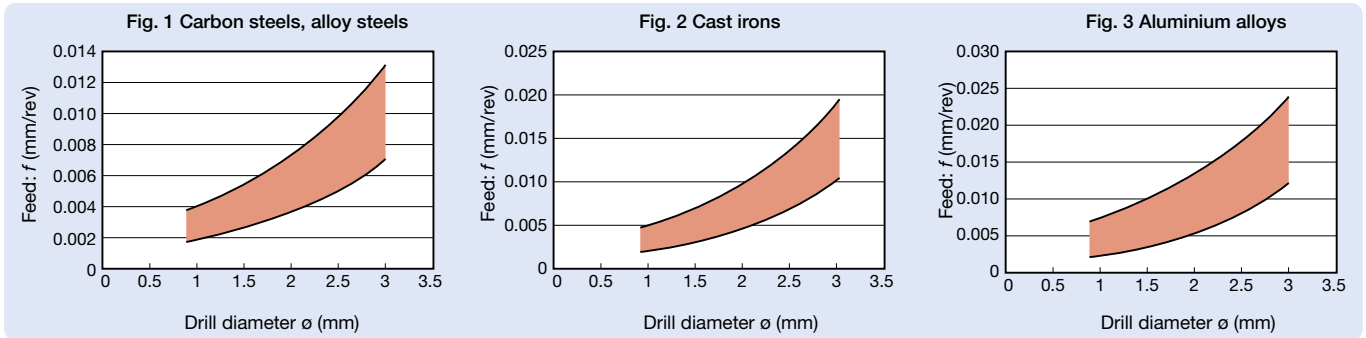
Diameter  
ø0.9~3.0 mm

IT8~9  
IT class

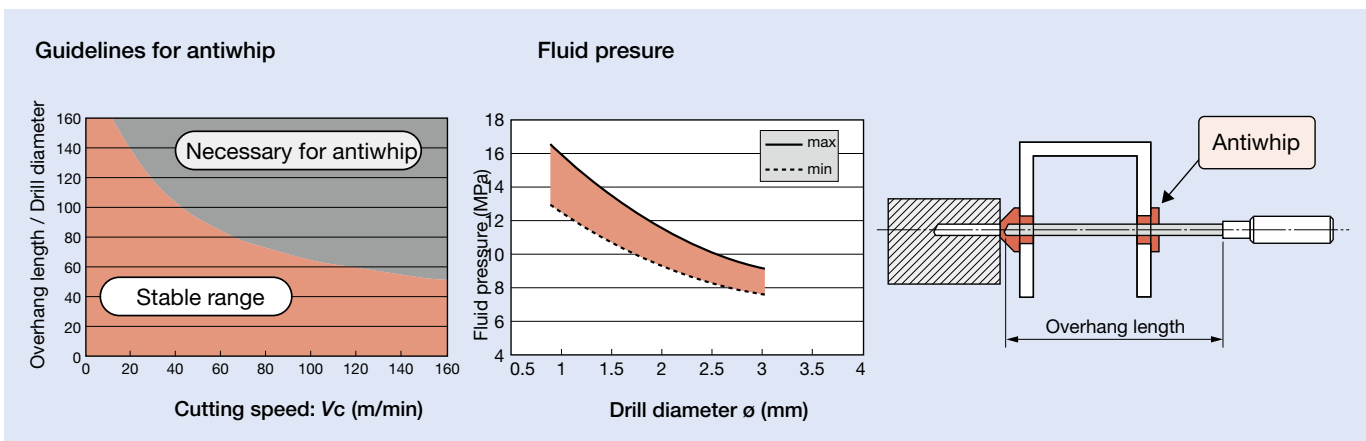


## Standard cutting conditions

Work materials	Cutting speed: Vc (m/min)	Feed: f (mm/rev)
Carbon steels, Alloy steels	40 - 50 - 70	Fig. 1
Cast irons	50 - 70 - 90	Fig. 2
Aluminium alloys	60 - 80 - 120	Fig. 3

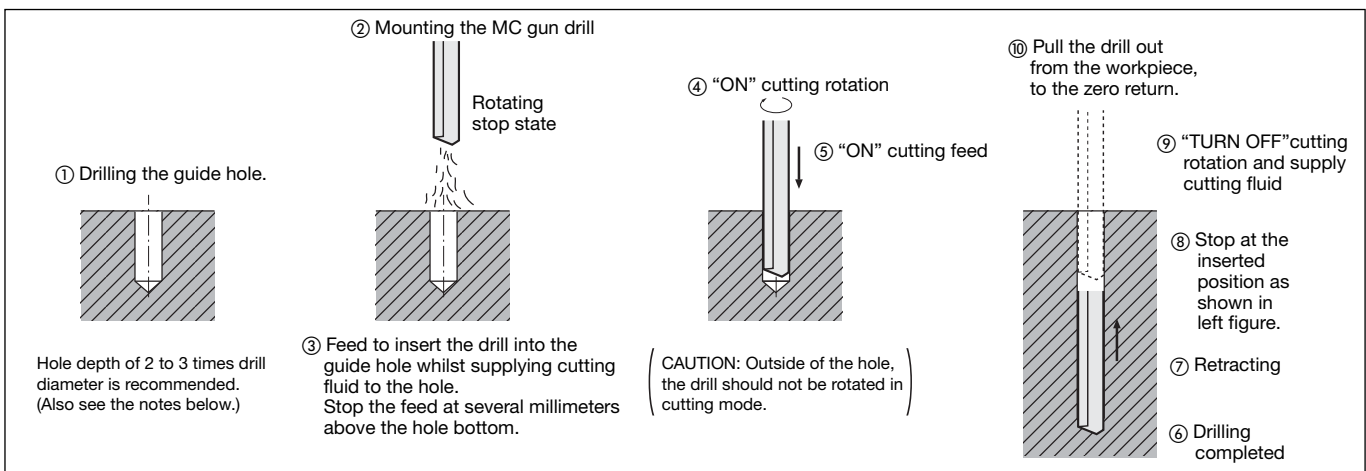


## Precaution in use



When drilling depth is  $L/D \leq 20$ , drilling is usable at standard fluid pressure of about 60 %.

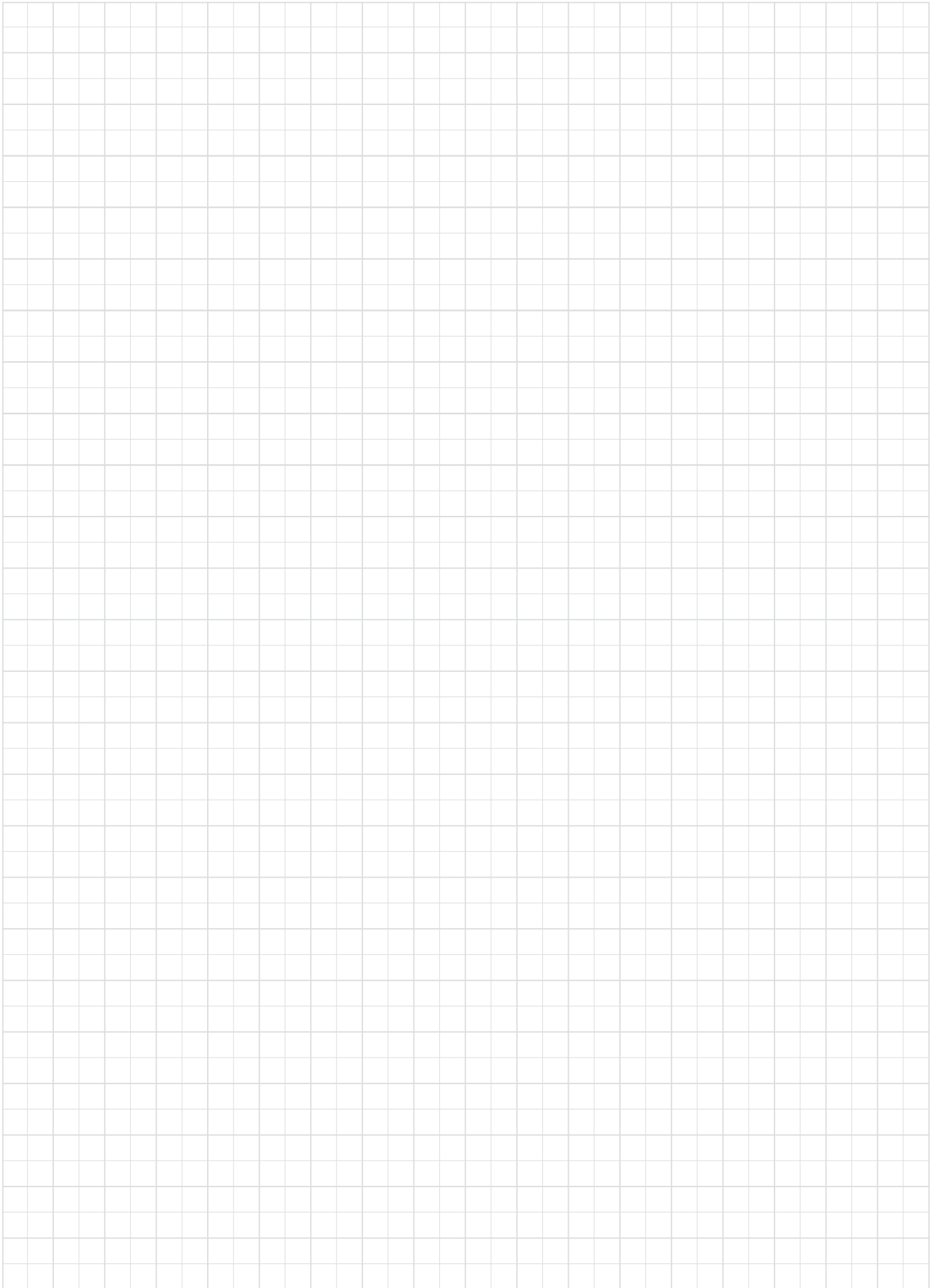
## Drilling on machining center



### Notes:

- For drilling the guide hole, use a solid carbide drill. The drills are designed to suit the work material and made to order.
- The guide hole diameter should be machined to generally 10 to 30  $\mu\text{m}$  (preferably 3 to 10  $\mu\text{m}$ ) larger than the drill diameter.
- No. of revolutions ( $\text{min}^{-1}$ ) = Cutting speed  $\times$  1000  $\div$  3.14  $\div$  Tool diameter
- Table feed ( $\text{mm}/\text{min}$ ) = No. of revolutions  $\times$  Feed per revolution





# Chapter Composition of Tooling Systems

Title name of the chapter

Series name of the Tooling Systems

**TUNINGHOLD** Tooling Systems  
**Straight Shank • Collet Chuck Holder**

**ST-ER-M / MF**

① Straight Shank  
 ② DIN6499

**ST-ER-M/MF Mini ER Collet Chuck Holder**

Cat. No.	Range	Dimensions (mm)					
		L <sub>1</sub>	L	J	aD	aD <sub>1</sub>	T
ST12X50ER11M	0.5-7	80	26.5	-	16	12	11
ST16X50ER11MF	0.5-7	50	18.5	M8	16	16	13
ST16X100ER11M	0.5-7	100	18.5	M8	16	16	13
ST18X100ER11M	0.5-7	150	18.5	M8	16	16	13
ST12X50ER16M	0.5-10	80	36.5	-	22	12	17
ST20X100ER16M	0.5-10	100	25.0	M12	22	20	17
ST20X100ER16M	0.5-10	150	25.0	M12	22	20	17
ST20X100ER20M	1-13	100	40.0	M12	28	20	21
ST20X100ER20M	1-13	150	40.0	M12	28	20	21

F indicates a flat on the shank.

**ST-ER**

① Straight Shank  
 ② DIN6499

**ST-ER ER Collet Chuck Holder**

Cat. No.	Range	Dimensions (mm)					
		L <sub>1</sub>	L	J	aD	aD <sub>1</sub>	T
ST20X50ER25F	1-16	50	46	M12	42	20	28
ST20X100ER25	1-16	100	46	M12	42	20	28
ST20X50ER30F	2-20	50	54	M12	50	20	36
ST20X100ER32	2-20	100	54	M12	50	20	36
ST25X50ER25F	1-16	50	46	M16	42	25	28
ST25X100ER25	1-16	100	46	M16	42	25	28
ST25X50ER30F	2-20	50	52	M16	48	25	36
ST25X100ER30F	2-20	50	60	M16x2	50	25	36
ST25X50ER40F	3-26	50	60	M16x2	63	25	45
ST25X100ER40F	3-26	50	60	M16x1.5	63	30	45
ST32X50ER30F	2-20	50	52	M18x1.5	50	32	36
ST32X100ER30F	2-20	150	52	M18x1.5	50	32	36
ST32X50ER40F	3-26	50	60	M18x1.5	63	32	45
ST40X75ER30F	2-20	75	46	M22x1.5	50	40	44
ST40X100ER40F	3-26	75	55	M22x1.5	63	40	45
ST50X50ER40F	3-26	80	60	M28x1.5	63	50	54
ST50X50ER50F	10-34	80	77	M36x1.5	78	50	58

F indicates a flat on the shank.

**ST-ER-MF Mini Collet Chuck with a Flat cotter**

Cat. No.	Range	Dimensions (mm)						Machine type
		L <sub>1</sub>	L	J	aD	aD <sub>1</sub>	T	
ST16X50ER16MF	0.5-7	35.00	36.00	M8X1	22.0	16.00	17	11
ST16X50ER11MF	0.5-7	38.00	18.50	M8X1	16.0	16.00	14	11
ST16X100ER11MF	0.5-7	140.00	18.50	M8X1	16.0	16.00	14	11
ST20X50ER16MF	0.5-10	50.00	26.00	M12X1	22.0	20.00	17	11
ST20X100ER16MF	0.5-10	70.00	26.00	M12X1	22.0	20.00	17	11
ST20X150ER16MF	0.5-10	120.00	26.00	M12X1	22.0	20.00	17	11
ST20X100ER16MF	0.5-10	140.00	26.00	M12X1	22.0	20.00	17	11
ST22X50ER16MF	0.5-10	38.00	26.00	M12X1	22.0	22.00	19	11
ST22X100ER16MF	0.5-10	70.00	26.00	M12X1	22.0	22.00	19	11
ST25X50ER20MF	0.5-10	70.00	47.00	M12X1	35.0	22.00	27	11
ST22X50ER20MF	1-13	80.00	39.00	M12X1	28.0	22.00	21	11
ST22X100ER16MF	1-16	100.00	28.00	M12X1	22.0	22.00	19	11
ST25X50ER16MF	0.5-10	65.00	28.00	M12X1	22.0	25.00	22	11
ST28X75ER25MF	1-13	75.00	48.00	M14X1	35.0	25.00	27	11
ST25X100ER20MF	1-13	100.00	28.00	M14X1	28.0	25.00	22	11
ST25X100ER20MF	1-16	145.00	36.00	M14X1	35.0	25.00	27	11
ST28X154ER20MF	1-16	154.00	28.00	M14X1	28.0	25.00	22	11
ST32X100ER25MF	1-16	70.00	30.00	M18X1	35.0	32.00	27	11

F indicates a flat on the shank.

(1) Cobalt  
 (2) Maruflut  
 (3) Schulte  
 (4) Star  
 (5) Tornos-Bachler

Dimensions

Cat. No. of Tooling Systems

## Ordering information

- When ordering Tooling system, please specify Cat. No. and quantity.  
 Example: **ST16X50ER11MFD** 1 piece.
- Standard packing quantity is 1 piece.
- Inserts must be ordered separately.

# 11

## Tooling Systems

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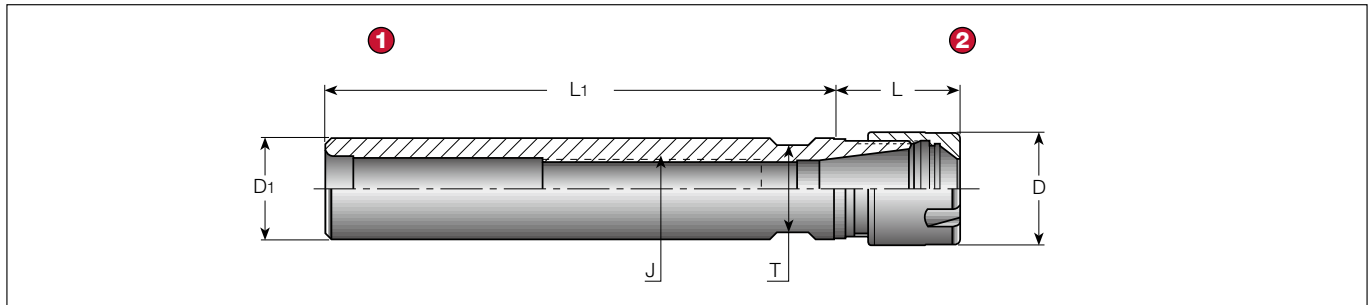
### Products

#### ■ TungHold

- Straight Shank Collet Chuck Holder ..... 11-2
- ER Collet ..... 11-5

# Straight Shank • Collet Chuck Holder

## ST-ER-M / MF



- 1 Straight Shank
- 2 DIN6499

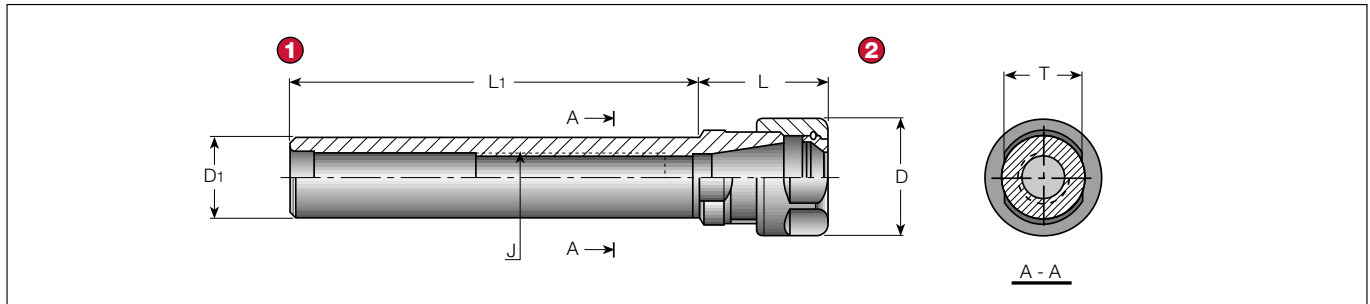


## ST-ER-M/MF Mini ER Collet Chuck Holder

Cat. No.	Range	Dimensions (mm)					
		L <sub>1</sub>	L	J	øD	øD <sub>1</sub>	T
ST12X80ER11M	0.5-7	80	26.5	-	16	12	11
ST16X50ER11MF	0.5-7	50	18.5	M8	16	16	13
ST16X100ER11M	0.5-7	100	18.5	M8	16	16	13
ST16X150ER11M	0.5-7	150	18.5	M8	16	16	13
ST12X80ER16M	0.5-10	80	36.5	-	22	12	17
ST20X100ER16M	0.5-10	100	25.0	M12	22	20	17
ST20X150ER16M	0.5-10	150	25.0	M12	22	20	17
ST20X100ER20M	1-13	100	40.0	M12	28	20	21
ST20X150ER20M	1-13	150	40.0	M12	28	20	21

F indicates a flat on the shank.

## ST-ER



- 1 Straight Shank
- 2 DIN6499



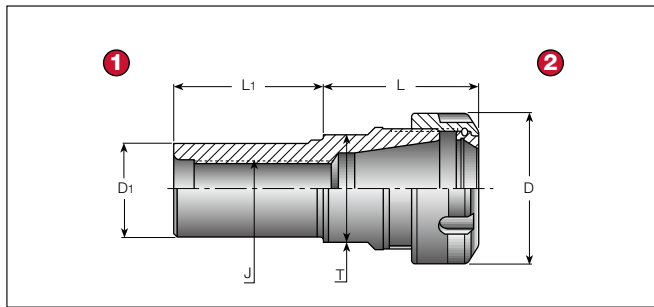
## ST-ER ER Collet Chuck Holder

Cat. No.	Range	Dimensions (mm)					
		L <sub>1</sub>	L	J	øD	øD <sub>1</sub>	T
ST16X50ER11F	0.5-7	50	18.5	M8	19	16	13
ST20X50ER11F	0.5-7	50	18.5	M10	19	20	17
ST20X100ER11	0.5-7	100	18.5	M10	19	20	17
ST20X150ER11	0.5-7	150	18.5	M10	19	20	17
ST20X50ER16F	0.5-10	50	32.3	M12	28	20	19
ST20X100ER16	0.5-10	100	30.0	M12	28	20	19
ST20X150ER16	0.5-10	150	30.0	M12	28	20	19
ST20X50ER20F	1-13	50	42.5	M12	34	20	22
ST25X100ER20	1-13	100	36.0	M16	34	25	22
ST25X100ER20F	1-13	100	36.0	M16	34	25	22
ST25X150ER20	1-13	150	36.0	M16	34	25	22

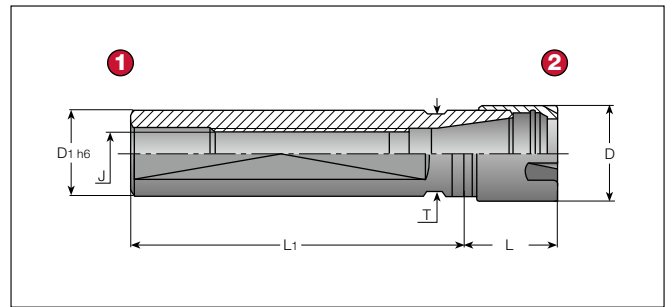
F indicates a flat on the shank.

# Straight Shank • Collet Chuck Holder

## A ST-ER



## B ST-ER-MF



- 1 Straight Shank
- 2 DIN6499



## A ST-ER ER Collet Chuck Holder

Cat. No.	Dimensions (mm)							
	Range	L <sub>1</sub>	L	J	øD	øD <sub>1</sub>	T	
ST20X50ER25F	1-16	50	46	M12	42	20	28	
ST20X100ER25	1-16	100	46	M12	42	20	28	
ST20X50ER32F	2-20	50	54	M12	50	20	36	
ST20X100ER32	2-20	100	54	M12	50	20	36	
ST25X50ER25F	1-16	50	46	M16	42	25	28	
ST25X100ER25	1-16	100	46	M16	42	25	28	
ST25X50ER32F	2-20	50	52	M16x2	50	25	36	
ST25X50ER40F	3-26	50	60	M16x2	63	25	45	
ST30X50ER32F	2-20	50	52	M18x1.5	50	30	36	
ST30X50ER40F	3-26	50	60	M18x1.5	63	30	45	
ST32X50ER32F	2-20	50	52	M18x1.5	50	32	36	
ST32X150ER32	2-20	150	52	M18x1.5	50	32	36	
ST32X50ER40F	3-26	50	60	M18x1.5	63	32	45	
ST40X75ER32F	2-20	75	46	M22x1.5	50	40	44	
ST40X75ER40F	3-26	75	55	M22x1.5	63	40	45	
ST50X80ER40F	3-26	80	60	M28x1.5	63	50	54	
ST50X80ER50F	10-34	80	77	M36x1.5	78	50	58	

F indicates a flat on the shank.

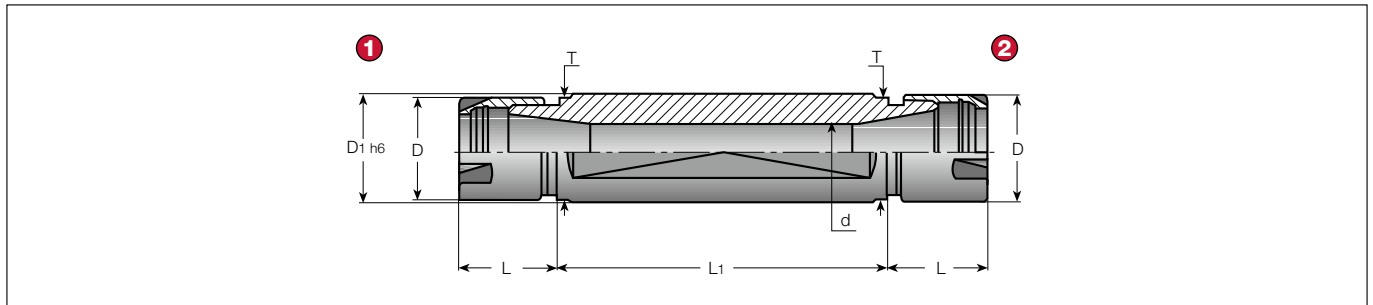
## B ST-ER-MF Mini Collet Chuck with a Flat cotter

Cat. No.	Dimensions (mm)							
	Range	L <sub>1</sub>	L	J	øD	øD <sub>1</sub>	T	Machine type
ST16X35ER16MF	0.5-7	35.00	36.00	M8X1	22.0	16.00	17	(4)
ST16X38ER11MF	0.5-7	38.00	18.50	M8X1	16.0	16.00	14	(4)
ST16X140ER11MF	0.5-7	140.00	18.50	M8X1	16.0	16.00	14	-
ST20X50ER16MF	0.5-10	50.00	26.00	M12X1	22.0	20.00	17	(1)
ST20X70ER16MF	0.5-10	70.00	26.00	M12X1	22.0	20.00	17	(1)
ST20X120ER16MF	0.5-10	120.00	26.00	M12X1	22.0	20.00	17	(1)
ST20X140ER16MF	0.5-10	140.00	26.00	M12X1	22.0	20.00	17	(1)
ST22X38ER16MF	0.5-10	38.00	26.00	M12X1	22.0	22.00	19	(4)
ST22X70ER16MF	0.5-10	70.00	26.00	M12X1	22.0	22.00	19	(4)
ST22X70ER25MF	0.5-10	70.00	47.00	M12X1	35.0	22.00	27	(4)
ST22X80ER20MF	1-13	80.00	39.00	M12X1	28.0	22.00	21	(4)
ST22X100ER16MF	1-16	100.00	28.00	M12X1	22.0	22.00	19	(4)
ST25X65ER16MF	0.5-10	65.00	28.00	M12X1	22.0	25.00	22	-
ST25X75ER25MF	1-13	75.00	48.00	M14X1	35.0	25.00	27	(2)
ST25X100ER20MF	1-13	100.00	28.00	M14X1	28.0	25.00	22	(5)
ST25X145ER25MF	1-16	145.00	36.00	M14X1	35.0	25.00	27	(5)
ST25X154ER20MF	1-16	154.00	28.00	M14X1	28.0	25.00	22	(5)
ST32X70ER25MF	1-16	70.00	30.00	M18X1	35.0	32.00	27	(3)

- (1) Citizen
- (2) Manurhin
- (3) Schutte
- (4) Star
- (5) Tornos-Bechler

# Straight Shank • Collet Chuck Holder

## ST-ER-MF-D



- 1 Straight Shank
- 2 DIN6499

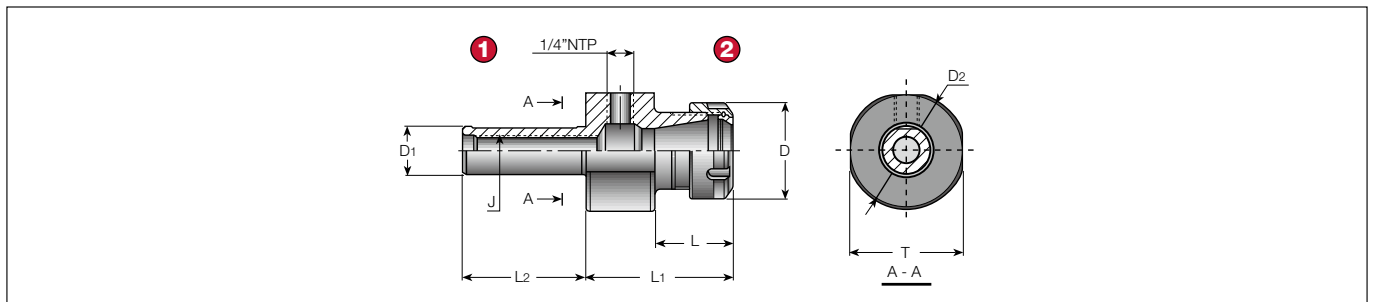


## ST-ER-MF D Double Ended Mini Collet Chuck with a Flat

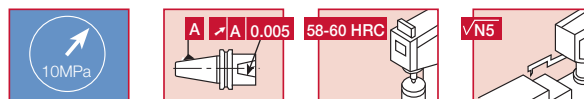
Cat. No.	Dimensions (mm)							Machine type
	Range	øD	øD1 h6	ød	28	L	T	
ST16X50ER11MFD	0.5-7	16	16	7.5	50	18.5	14	-
ST20X30ER11MFD	0.5-7	16	20	7.5	30	18.5	17	(1)
ST20X50ER11MFD	0.5-7	16	20	7.5	50	18.5	17	(1)
ST20X55ER16MFD	0.5-10	22	20	10.5	55	25.0	17	(1)
ST22X55ER16MFD	0.5-10	22	22	10.5	55	28.0	19	(2)
ST22X75ER16MFD	0.5-10	22	22	10.5	75	28.0	19	(2)
ST25X62ER16MFD	0.5-10	22	25	10.5	62	28.0	22	-
ST32X55ER20MFD	1-13	28	32	13.5	55	28.0	27	(2)
ST32X75ER20MFD	1-13	28	32	13.5	75	28.0	27	(2)

- (1) Citizen
- (2) Star

## ST-ER-S



- 1 Straight Shank
- 2 DIN6499



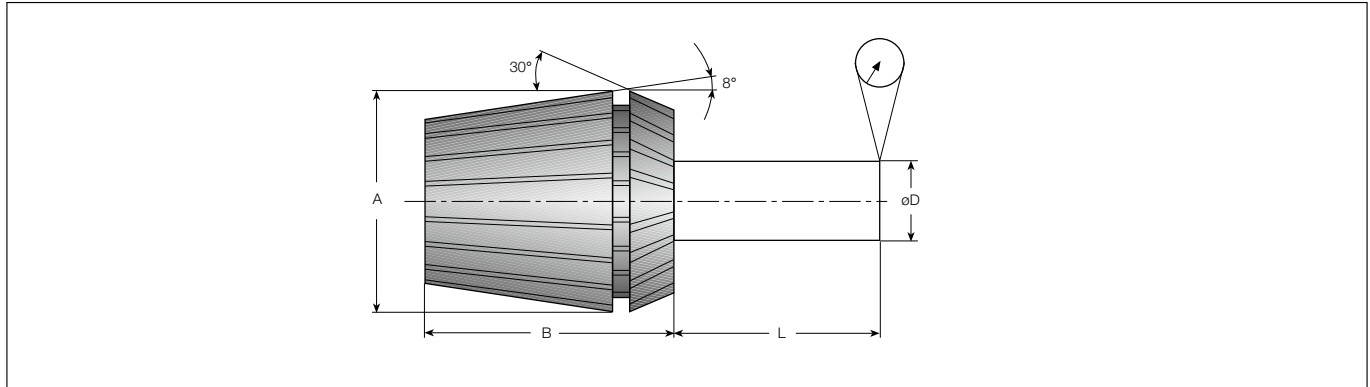
## ST-ER-S ER Collet Chuck with Internal Coolant

Cat. No.	Dimensions (mm)								
	Range	L2	L1	L	J	øD	øD1	øD2	T
ST20X65ER16S	0.5-10	65	54	29.6	M12	28	20	40	34
ST20X65ER20S	1-13	65	63	31.0	M12	34	20	40	34
ST20X65ER25S	1-16	65	72	32.0	M12	42	20	54	51
ST20X65ER32S	2-20	65	77	41.0	M12	50	20	63	59
ST25X65ER25S	1-16	65	72	32.0	M12	42	25	54	50
ST25X65ER32S	2-20	65	77	41.0	M16	50	25	63	59
ST32X65ER32S	2-20	65	77	41.0	M18x1.5	50	32	63	59
ST40X75ER32S	2-20	75	77	41.0	M22x1.5	50	40	63	59

# ER Collet

## Standard

### ER Collet type DIN6499



Collet type	Dimensions (mm)				T.I.R Precision Standard type	T.I.R Precision "AA" Ultra Precision type
	A	B	L	øD		
ER-11	11.5	18	6	1.0-1.6	0.01	0.005
ER-16	17	27	10	1.6-3.0	0.01	0.005
ER-20	21	31	16	3.0-6.0	0.01	0.005
ER-25	26	35	25	6.0-10.0	0.01	0.005
ER-32	33	40	40	10.0-18.0	0.01	0.005
ER-40	41	46	50	18.0-26.0	0.01	0.005
ER-50	52	60	60	26.0-34.0	0.01	-

ER 50 DIN6499

## ER - Coolant Sealed Collet



### Sealed Collet Jet

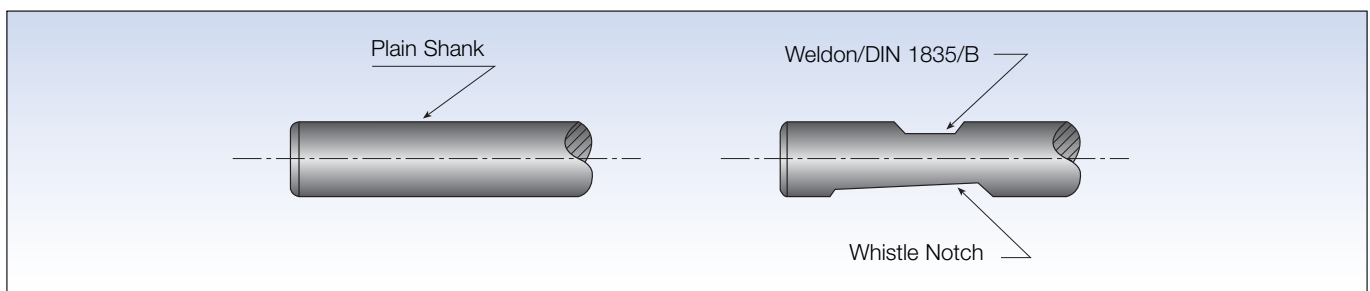
For straight shank cutting tools with internal coolant supply.



### Sealed Collet JET2

With angular double nozzles. Coolant flow is direct to the cutting edge - for use with standard straight shank cutting tools (without coolant hole).

### Standard Shank which can be used in Sealed Collets



Note: The front end of the sealed collet should be located beyond weldon or the whistle notch.

# ER Collet

## ER Spring Collet DIN 6499 (ULTRA PRECISION)



### ER11, 16, 20-SPR-AA

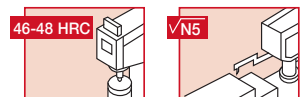
Cat. No.	Stock	Range (mm)
ER11SPR0.5-1AA	●	0.5-1
ER11SPR1-2AA	●	1-2
ER11SPR2-3AA	●	2-3
ER11SPR3-4AA	●	3-4
ER11SPR4-5AA	●	4-5
ER11SPR5-6AA	●	5-6
ER11SPR6-7AA	●	6-7
ER16SPR0.5-1AA	●	0.5-1
ER16SPR1-2AA	●	1-2
ER16SPR2-3AA	●	2-3
ER16SPR3-4AA	●	3-4
ER16SPR4-5AA	●	4-5
ER16SPR5-6AA	●	5-6
ER16SPR6-7AA	●	6-7
ER16SPR7-8AA	●	7-8
ER16SPR8-9AA	●	8-9
ER16SPR9-10AA	●	9-10
ER20SPR1-2AA	●	1-2
ER20SPR2-3AA	●	2-3
ER20SPR3-4AA	●	3-4
ER20SPR4-5AA	●	4-5
ER20SPR5-6AA	●	5-6
ER20SPR6-7AA	●	6-7
ER20SPR7-8AA	●	7-8
ER20SPR8-9AA	●	8-9
ER20SPR9-10AA	●	9-10
ER20SPR10-11AA	●	10-11
ER20SPR11-12AA	●	11-12
ER20SPR12-13AA	●	12-13

### ER25, 32-SPR-AA

Cat. No.	Stock	Range (mm)
ER25SPR1-2AA	●	1-2
ER25SPR2-3AA	●	2-3
ER25SPR3-4AA	●	3-4
ER25SPR4-5AA	●	4-5
ER25SPR5-6AA	●	5-6
ER25SPR6-7AA	●	6-7
ER25SPR7-8AA	●	7-8
ER25SPR8-9AA	●	8-9
ER25SPR9-10AA	●	9-10
ER25SPR10-11AA	●	10-11
ER25SPR11-12AA	●	11-12
ER25SPR12-13AA	●	12-13
ER25SPR13-14AA	●	13-14
ER25SPR14-15AA	●	14-15
ER25SPR15-16AA	●	15-16
ER32SPR2-3AA	●	2-3
ER32SPR3-4AA	●	3-4
ER32SPR4-5AA	●	4-5
ER32SPR5-6AA	●	5-6
ER32SPR6-7AA	●	6-7
ER32SPR7-8AA	●	7-8
ER32SPR8-9AA	●	8-9
ER32SPR9-10AA	●	9-10
ER32SPR10-11AA	●	10-11
ER32SPR11-12AA	●	11-12
ER32SPR12-13AA	●	12-13
ER32SPR13-14AA	●	13-14
ER32SPR14-15AA	●	14-15
ER32SPR15-16AA	●	15-16
ER32SPR16-17AA	●	16-17
ER32SPR17-18AA	●	17-18
ER32SPR18-19AA	●	18-19
ER32SPR19-20AA	●	19-20

### ER40-SPR-AA

Cat. No.	Stock	Range (mm)
ER40SPR3-4AA		3-4
ER40SPR4-5AA		4-5
ER40SPR5-6AA		5-6
ER40SPR6-7AA		6-7
ER40SPR7-8AA		7-8
ER40SPR8-9AA		8-9
ER40SPR9-10AA		9-10
ER40SPR10-11AA		10-11
ER40SPR11-12AA		11-12
ER40SPR12-13AA		12-13
ER40SPR13-14AA		13-14
ER40SPR14-15AA		14-15
ER40SPR15-16AA		15-16
ER40SPR16-17AA		16-17
ER40SPR17-18AA		17-18
ER40SPR18-19AA		18-19
ER40SPR19-20AA		19-20
ER40SPR20-21AA		20-21
ER40SPR21-22AA		21-22
ER40SPR22-23AA		22-23
ER40SPR23-24AA		23-24
ER40SPR24-25AA		24-25
ER40SPR25-26AA		25-26



● : Stocked items



# ER Collet / Internal Coolant

## ER Coolant - Sealed JET Collets 10Mpa



### ER16, 20, 25-SEAL

Cat. No.	Stock	Range (mm)
ER16SEAL3-4	●	3-4
ER16SEAL4-5	●	4-5
ER16SEAL5-6	●	5-6
ER16SEAL6-7	●	6-7
ER16SEAL7-8	●	7-8
ER16SEAL8-9	●	8-9
ER16SEAL9-10	●	9-10
ER20SEAL3-4	●	3-4
ER20SEAL4-5	●	4-5
ER20SEAL5-6	●	5-6
ER20SEAL6-7	●	6-7
ER20SEAL7-8	●	7-8
ER20SEAL8-9	●	8-9
ER20SEAL9-10	●	9-10
ER20SEAL10-11	●	10-11
ER20SEAL11-12	●	11-12
ER20SEAL12-13	●	12-13
ER25SEAL3-4	●	3-4
ER25SEAL4-5	●	4-5
ER25SEAL5-6	●	5-6
ER25SEAL6-7	●	6-7
ER25SEAL7-8	●	7-8
ER25SEAL8-9	●	8-9
ER25SEAL9-10	●	9-10
ER25SEAL10-11	●	10-11
ER25SEAL11-12	●	11-12
ER25SEAL12-13	●	12-13
ER25SEAL13-14	●	13-14
ER25SEAL14-15	●	14-15
ER25SEAL15-16	●	15-16

### ER32-SEAL

Cat. No.	Stock	Range (mm)
ER32SEAL3-4	●	3-4
ER32SEAL4-5	●	4-5
ER32SEAL5-6	●	5-6
ER32SEAL6-7	●	6-7
ER32SEAL7-8	●	7-8
ER32SEAL8-9	●	8-9
ER32SEAL9-10	●	9-10
ER32SEAL10-11	●	10-11
ER32SEAL11-12	●	11-12
ER32SEAL12-13	●	12-13
ER32SEAL13-14	●	13-14
ER32SEAL14-15	●	14-15
ER32SEAL15-16	●	15-16
ER32SEAL16-17	●	16-17
ER32SEAL17-18	●	17-18
ER32SEAL18-19	●	18-19
ER32SEAL19-20	●	19-20

### ER40-SEAL

Cat. No.	Stock	Range (mm)
ER40SEAL3-4		3-4
ER40SEAL4-5		4-5
ER40SEAL5-6		5-6
ER40SEAL6-7		6-7
ER40SEAL7-8		7-8
ER40SEAL8-9		8-9
ER40SEAL9-10		9-10
ER40SEAL10-11		10-11
ER40SEAL11-12		11-12
ER40SEAL12-13		12-13
ER40SEAL13-14		13-14
ER40SEAL14-15		14-15
ER40SEAL15-16		15-16
ER40SEAL16-17		16-17
ER40SEAL17-18		17-18
ER40SEAL18-19		18-19
ER40SEAL19-20		19-20
ER40SEAL20-21		20-21
ER40SEAL21-22		21-22
ER40SEAL22-23		22-23
ER40SEAL23-24		23-24
ER40SEAL24-25		24-25
ER40SEAL25-26		25-26



● : Stocked items

# ER Collet / External Coolant

## ER Coolant - Sealed JET2 Collets 10Mpa



### ER16, 20, 25-SEAL-JET2

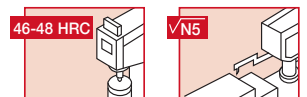
Cat. No.	Stock	Range (mm)
ER16SEAL3-4JET2	●	3-4
ER16SEAL4-5JET2	●	4-5
ER16SEAL5-6JET2	●	5-6
ER16SEAL6-7JET2	●	6-7
ER16SEAL7-8JET2	●	7-8
ER16SEAL8-9JET2	●	8-9
ER16SEAL9-10JET2	●	9-10
ER20SEAL3-4JET2	●	3-4
ER20SEAL4-5JET2	●	4-5
ER20SEAL5-6JET2	●	5-6
ER20SEAL6-7JET2	●	6-7
ER20SEAL7-8JET2	●	7-8
ER20SEAL8-9JET2	●	8-9
ER20SEAL9-10JET2	●	9-10
ER20SEAL10-11JET2	●	10-11
ER20SEAL11-12JET2	●	11-12
ER20SEAL12-13JET2	●	12-13
ER25SEAL3-4JET2	●	3-4
ER25SEAL4-5JET2	●	4-5
ER25SEAL5-6JET2	●	5-6
ER25SEAL6-7JET2	●	6-7
ER25SEAL7-8JET2	●	7-8
ER25SEAL8-9JET2	●	8-9
ER25SEAL9-10JET2	●	9-10
ER25SEAL10-11JET2	●	10-11
ER25SEAL11-12JET2	●	11-12
ER25SEAL12-13JET2	●	12-13
ER25SEAL13-14JET2	●	13-14
ER25SEAL14-15JET2	●	14-15
ER25SEAL15-16JET2	●	15-16

### ER32-SEAL-JET2

Cat. No.	Stock	Range (mm)
ER32SEAL3-4JET2	●	3-4
ER32SEAL4-5JET2	●	4-5
ER32SEAL5-6JET2	●	5-6
ER32SEAL6-7JET2	●	6-7
ER32SEAL7-8JET2	●	7-8
ER32SEAL8-9JET2	●	8-9
ER32SEAL9-10JET2	●	9-10
ER32SEAL10-11JET2	●	10-11
ER32SEAL11-12JET2	●	11-12
ER32SEAL12-13JET2	●	12-13
ER32SEAL13-14JET2	●	13-14
ER32SEAL14-15JET2	●	14-15
ER32SEAL15-16JET2	●	15-16
ER32SEAL16-17JET2	●	16-17
ER32SEAL17-18JET2	●	17-18
ER32SEAL18-19JET2	●	18-19
ER32SEAL19-20JET2	●	19-20

### ER40-SEAL-JET2

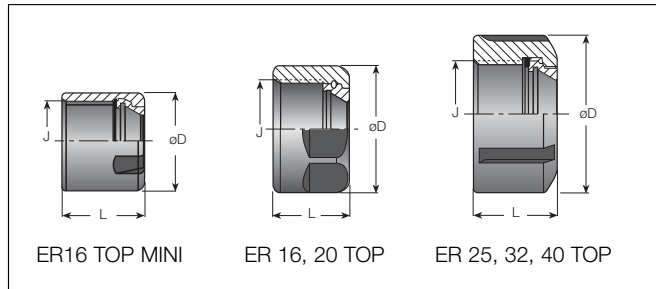
Cat. No.	Stock	Range (mm)
ER40SEAL3-4JET2		3-4
ER40SEAL4-5JET2		4-5
ER40SEAL5-6JET2		5-6
ER40SEAL6-7JET2		6-7
ER40SEAL7-8JET2		7-8
ER40SEAL8-9JET2		8-9
ER40SEAL9-10JET2		9-10
ER40SEAL10-11JET2		10-11
ER40SEAL11-12JET2		11-12
ER40SEAL12-13JET2		12-13
ER40SEAL13-14JET2		13-14
ER40SEAL14-15JET2		14-15
ER40SEAL15-16JET2		15-16
ER40SEAL16-17JET2		16-17
ER40SEAL17-18JET2		17-18
ER40SEAL18-19JET2		18-19
ER40SEAL19-20JET2		19-20
ER40SEAL20-21JET2		20-21
ER40SEAL21-22JET2		21-22
ER40SEAL22-23JET2		22-23
ER40SEAL23-24JET2		23-24
ER40SEAL24-25JET2		24-25
ER40SEAL25-26JET2		25-26



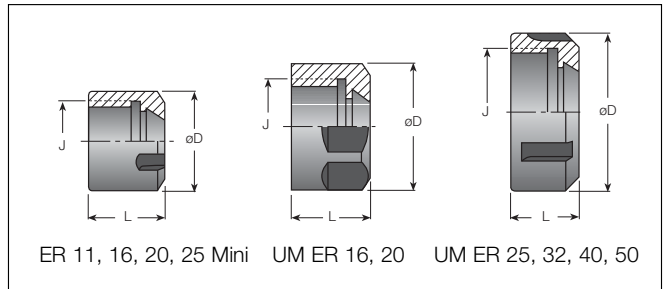
● : Stocked items

# ER NUT

## A NUT ER-TOP



## B NUT E-UM / MINI



## A NUT-ER-TOP ER Clamping NUT (DIN6499)

Cat. No.	Stock	Dimensions (mm)			N·m
		øD	L	J	
NUTER16TOPMINI	●	22	18	M19X1.0	39.2
NUTER16TOP	●	28	17	M22X1.5	68.7
NUTER20TOP	●	34	19	M25X1.5	117.7
NUTER25TOP	●	42	20	M32X1.5	196.1
NUTER32TOP	●	50	22	M40X1.5	215.7
NUTER40TOP	●	63	25	M50X1.5	245.1

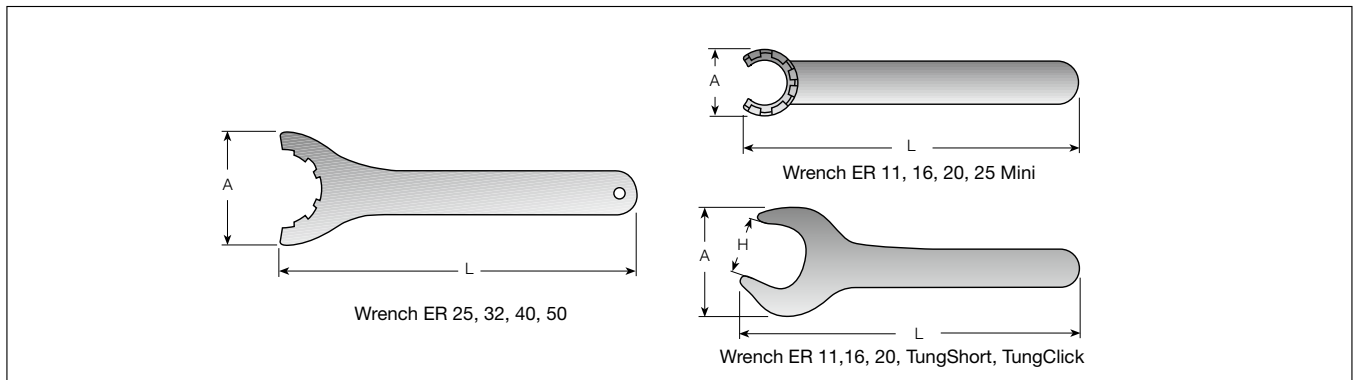
## B NUT ER-UM / Mini UM & Mini Clamping NUT (DIN6499)

Cat. No.	Stock	Dimensions (mm)			N·m
		øD	L	J	
NUTER11MINI	●	16	10.8	M13X0.75	29.4
NUTER11UM	●	19	11.3	M14X0.75	49
NUTER16MINI	●	22	18.0	M19X1.0	39.2
NUTER16UM	●	28	17.0	M22X1.5	68.7
NUTER20MINI	●	28	19.0	M24X1.0	78.5
NUTER20UM	●	34	19.0	M25X1.5	117.7
NUTER25MINI	●	35	20.0	M30X1.0	98
NUTER25UM	●	42	20.0	M32X1.5	196.1
NUTER32UM	●	50	22.0	M40X1.5	215.7
NUTER40UM	●	63	25.0	M50X1.5	245.1
NUTER50UM	●	78	35.0	M64X2.0	343.2

● : Stocked items

# Parts for ER Collet Chuck

## WRENCH-ER



## WRENCH-ER Wrench for ER DIN 6499

Cat. No.	Stock	Dimensions (mm)		
		A	H	L
WRENCHER11MINI	●	16.8	-	95
WRENCHER11	●	32	17	95
WRENCHER16MINI	●	22.5	-	117
WRENCHER16	●	42.8	25	143
WRENCHER20MINI	●	28	-	128
WRENCHER20	●	53.5	30	172
WRENCHER25MINI	●	29	-	120
WRENCHER25	●	70	-	207
WRENCHER32	●	78	-	255
WRENCHER40		95	-	285
WRENCHER50		110	-	350

# 12

## Technical Reference

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### Cutting tools

● Turning tools .....	12-2
● Chipbreakers .....	12-5
● Drilling tools .....	12-6

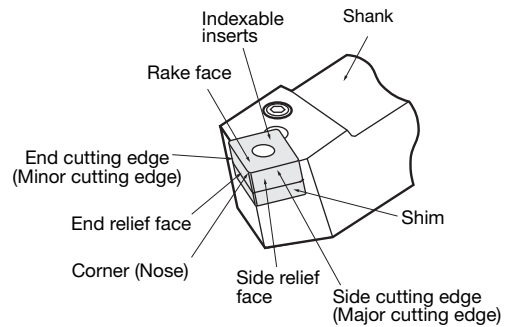
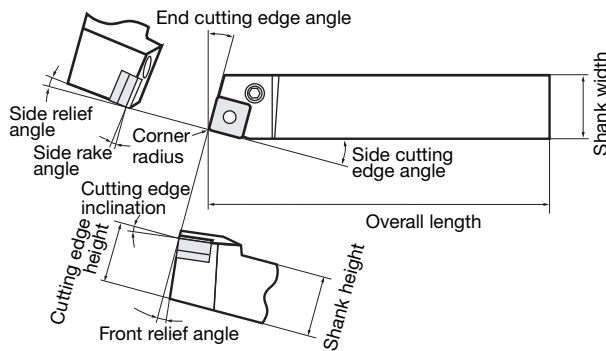
### Appendix

#### ■ Dimensional standards relating to tools

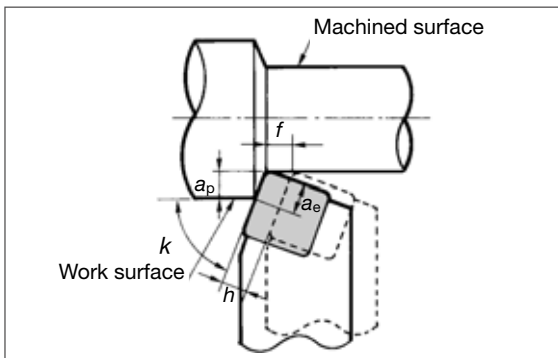
● Internal tolerance and JIS fit tolerance .....	12-7
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● Surface roughness .....	12-21

# Turning Tools

## Name of tools parts

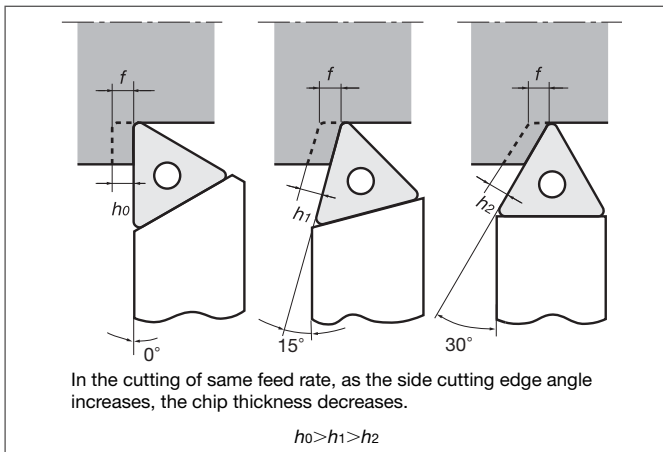


## Relating angles between tool and workpiece



- $a_p$  ... Depth of cut (Distance between work surface and machined surface)
- $a_e$  ... Length of cutting edge engaging in cutting.
- $\kappa$  ... Cutting edge angle (Angle to be made by cutting edge and work surface)
- $f$  ... Feed per revolution
- $h$  ... Thickness to be cut per revolution
- Machined surface ... Workpiece surface after having machined.
- Work surface ... Workpiece surface to be cut.

### Effect of side cutting edge angle



### Honing

TAC indexable inserts of steel cutting grades are honed. Honing specifications are shown in the following table.

Edge condition	Shape
Sharp edge	
Round honing	
Chamfered honing	

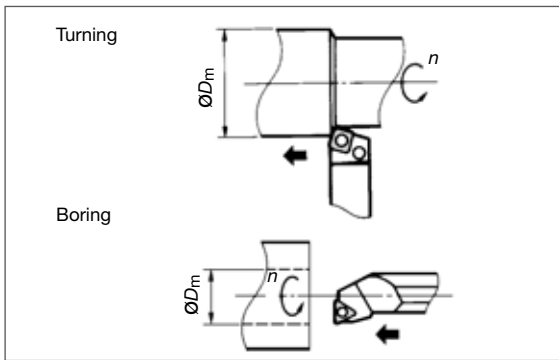
### Effects of tool geometry on cutting phenomena

Phenomena	Flank wear	Crater wear	Edge strength	Cutting force	Surface finish	Chattering	Cutting edge temperature	Chip shape and flow
<b>Increasing</b>								
Cutting edge inclination	-	Decrease	Lower	Radial force decrease	-	Less tendency	Lower	Effect on flow direction
Side rake angle	-	Decrease	Lower	Decrease	-	-	Lower	Effect on shape
Relief angle	Decrease	-	Lower	Decrease	-	Likely to occur	Lower	-
End cutting edge angle	Decrease	-	Lower	Radial force decrease	Roughen	Less tendency	Lower	-
Side cutting edge angle	Decrease	Decrease	Increase	Radial force decrease	-	Likely to occur	Increase	Decrease thickness
Nose radius	Decrease to some level		Increase	Increase	Improve	Likely to occur	Increase	Effect on flow direction
Honing width	Increase	-	Increase	Increase	-	Likely to occur	Increase	-

# Turning Tools

## Calculation formulas for turning

### ●Cutting speed



When calculating cutting speed from number of revolutions:

$$v_c = \frac{\pi \times D_m \times n}{1000}$$

(m/min)

$v_c$  : Cutting speed (m/min)  
 $n$  : Number of revolution ( $\text{min}^{-1}$ )  
 $D_m$  : Diameter of work piece (mm)  
 $\pi \approx 3.14$

When calculating required number of revolutions from cutting speed:

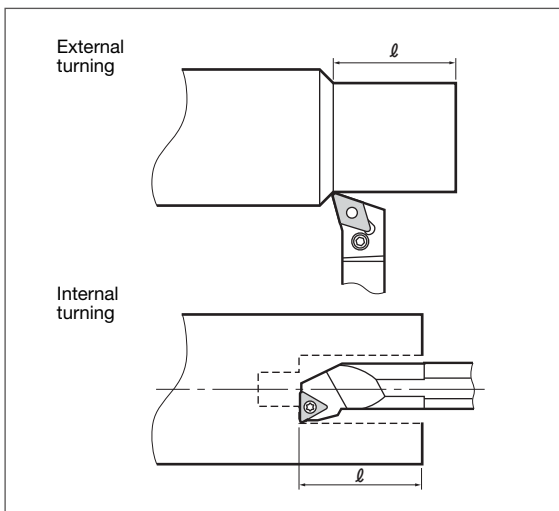
$$n = \frac{1000 \times v_c}{\pi \times D_m}$$

( $\text{min}^{-1}$ )

Example : Calculating the cutting speed when turning a 150 mm-diameter workpiece at  $250 \text{ min}^{-1}$

$$v_c = \frac{3.14 \times 150 \times 250}{1000} = 117 \text{ m/min}$$

### ●Cutting time on external and internal turning

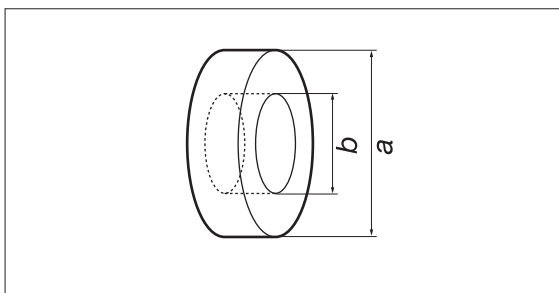


$$T = \frac{\ell}{f \times n}$$

(min)

$T$  : Cutting time (min)  
 $\ell$  : Cutting length (mm)  
 $f$  : Feed (mm/rev)  
 $n$  : Number of revolution ( $\text{min}^{-1}$ )

### ●Cutting time on face turning

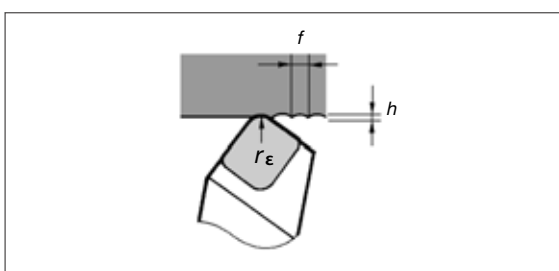


$$T = \frac{\pi \times (a^2 - b^2)}{4000 \times v_c \times f}$$

(min)

$v_c$  : Cutting speed (m/min)  
 $f$  : Feed (mm/rev)  
 $T$  : Cutting Time (min)

### ●Theoretical surface finish



$$h = \frac{f^2}{8 r_\epsilon} \times 1000$$

( $\mu\text{m}$ )

$h$  : Surface finish ( $\mu\text{m}$ )  
 $f$  : Feed (mm/rev)  
 $r_\epsilon$  : Nose radius (mm)

### ●Calculation of power consumption (kW)

$$P_c = \frac{F \times v_c}{60000}$$

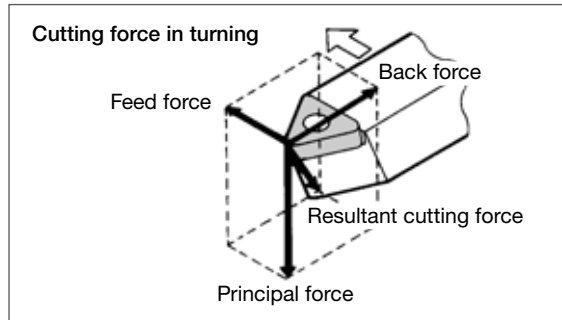
(kW)

$P_c$  : Power requirement (kW)  
 $F$  : Cutting force (N)  
 $v_c$  : Cutting speed (m/min)

# Turning Tools

## ●Cutting forces

- (1) Finding from the diagram based on experimental data.
- (2) In case determining by simplified equation:



$$F = k_c \times a_p \times f$$

(N)

$F$  : Cutting force (N)  
 $k_c$  : Specific cutting force (N/mm<sup>2</sup>)  
 [Refer to the Table below]  
 $a_p$  : Depth of cut (mm)  
 $f$  : Feed (mm/rev)

Example :  
 Calculating the cutting force when cutting a high carbon steel (JIS S55C) at 0.2mm/rev feed and 3mm depth of cut.  
 $F = 3430 \times 3 \times 0.2 = 2058\text{N}$

## ●Calculating power requirement

$$P_c = \frac{k_c \times a_p \times v_c \times f}{60 \times 1000}$$

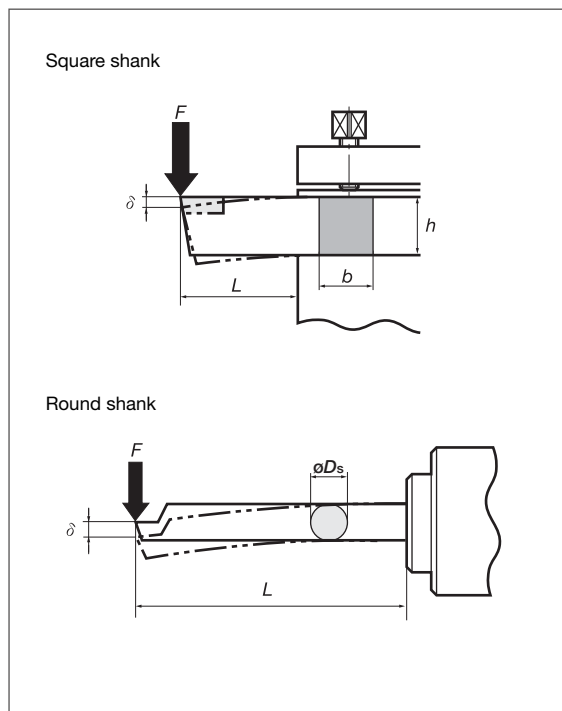
(kw)

$P_c$  : Net power requirement (kW)  
 $k_c$  : Specific cutting force (N/mm<sup>2</sup>)  
 [Refer to the Table below]  
 $v_c$  : Cutting speed (m/min)  
 $a_p$  : Depth of cutting (mm)  
 $f$  : Feed (mm/rev)

## Value of specific cutting force ( $k_c$ )

Work material	Tensile strength (Mpa)	Hardness (HB)	Value of specific cutting force on feed $V_c$ (N/mm <sup>2</sup> )				
			0.04 (mm/rev)	0.1 (mm/rev)	0.2 (mm/rev)	0.4 (mm/rev)	1.0 (mm/rev)
SS400, S15C	390	100	3430	2840	2450	2080	1700
S35C, S40C	590	170	4220	3490	2940	2500	2080
S50C, SCr430	785	230	4900	4020	3430	2940	2400
SCM440, SNCM439	980	300	5390	4410	3780	3240	2650
SDK	1765 (56HRC)	56HRC	8390	6870	5880	5000	4120
FC200	(160HB)	160	2550	1960	1630	1340	1030
FCD600	(200HB)	200	3330	2550	2110	1750	1340
Aluminium alloy	(89HB)	89	1350	1130	950	810	670
Aluminium			1050	870	740	640	520
Magnesium alloy			390	390	390	390	390
Brass			1080	1080	1080	1080	1080

## ●Bending stress and tool deflection



### Bending stress

#### (1) Square shank

$$S = \frac{6 \times F \times L}{b \times h^2}$$

(MPa)

$S$  : Bending stress in shank (MPa)  
 $F$  : Cutting force (N)  
 $L$  : Overhang length of tool (mm)  
 $b$  : Shank width (mm)  
 $h$  : Shank height (mm)  
 $D_s$  : Shank diameter (mm)  
 $E$  : Modulus of elasticity of shank material (MPa)

#### (2) Round shank

$$S = \frac{32 \times F \times L}{\pi \times D_s^3}$$

(MPa)

### Tool deflection (mm)

#### (1) Square shank

$$\delta = \frac{4 \times F \times L^3}{E \times b \times h^3}$$

(mm)

#### (2) Round shank

$$\delta = \frac{64 \times F \times L^3}{3 \times \pi \times E \times D_s^4}$$

(mm)

(Ref.) Values of E

Material	MPa (N/mm <sup>2</sup> )	{kgf/mm <sup>2</sup> }
Steel	210,000	21,000
Cemented Carbide	560,000-620,000	56,000-62,000



# Chipbreaker

## Chip controllability

### Necessity of chip control

- ① Why is chip control needed?
- ② Effect of improper chip control

### ① Why is chip control needed?

What is chip?

For making a product from a workpiece, removed objects produced by a tool which is set to cut to a specified depth with the relative motion of the tool and the workpiece.

Problems when chips are not properly controlled

### Necessity of chip control (Problems and effects)

Problems	Effects
1. Scattering of chips and coolant. 2. Wrapping around the workpiece and the tool. 3. Accumulation on the tool, jig, and machining facilities.	1. Disturbs unmanned and automated machining. 2. Disturbs high-speed and high-efficiency machining. 3. Degrades finished surface. 4. Threatens operator's safety. 5. Reduced operation rate.

Additional problems when chips are not properly controlled

### ② Effect of improper chip control

Effects on quality

- Defective work.
- Defective surface finish
- Chip entangling

Effects on operation

- Increased number of man-hours for handling.
- Increased tool costs.
- Troublesome chip handling.
- Machine stoppage and reduced operation rate.

Effect on safety and health.

- Stain and damage on machine caused from improper carrying-out of chips.
- Dangerous effects on the human body. (Injury and burn on hand, etc.)

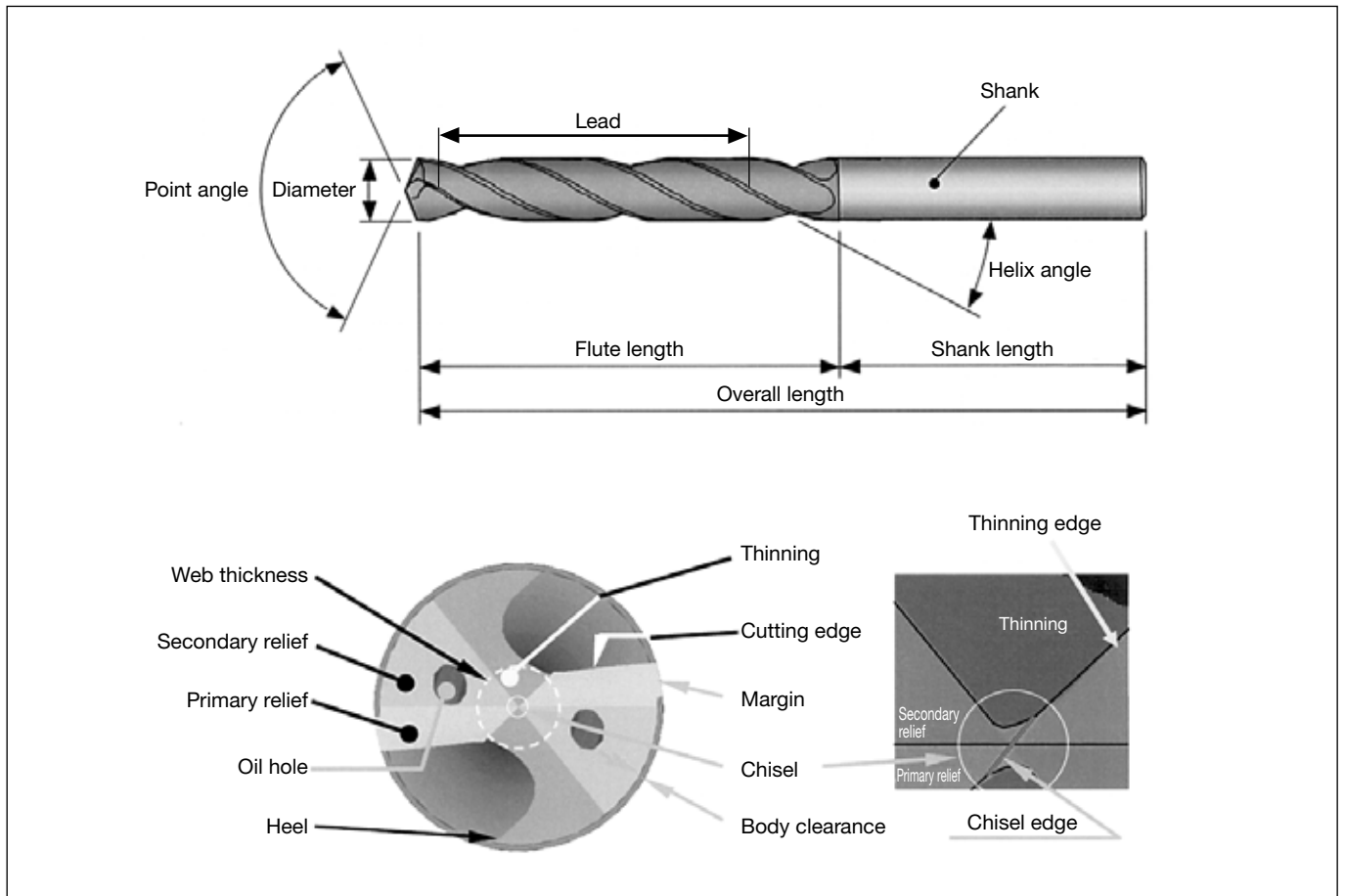
Effective measures

**"Chipbreaker"**

Classification	Chip shape		Description of chip shape	Acceptability	Effect	
	Depth of cut: small	Depth of cut: large				
Shape A			Chips irregularly entangled	Not acceptable	<ul style="list-style-type: none"> <li>• Wrapping around the tool or workpiece or accumulation around the cutting point, hindering cutting</li> <li>• Possible damage to the machined surface</li> </ul>	
Shape B			Long continuous spiral chips $l > 50$ mm	Acceptable	<ul style="list-style-type: none"> <li>• Bulky during transport in the automatic line</li> <li>• May be preferred when one operator handles one machine</li> </ul>	
Shape C			Short spiral chips $l < 50$ mm		<ul style="list-style-type: none"> <li>• Smooth chip flow</li> <li>• Difficult to scatter</li> <li>• Favorable shape</li> </ul>	
Shape D			"C" or "9" shaped chips (Around one coiling)		<ul style="list-style-type: none"> <li>• Favorable shape if not scattering</li> <li>• Not bulky and easy to transport</li> </ul>	
Shape E			Excessively broken chips. Thin pieces or connected in a form of wave as shown in the figure left		Not acceptable	<ul style="list-style-type: none"> <li>• Readily scattering. If scattering is the only trouble, it may be acceptable because the chip cover, etc. may be used.</li> <li>• Tend to cause chatter, causing harms on the finished surface roughness or tool life.</li> </ul>

# Drilling Tools

## Nomenclature for drills



## Cutting forces and power requirement

### ● Twist drill

Power requirement
$P_C = K D_C^2 n (0.647 + 17.29f) \times 10^{-6}$ (kW)
Thrust force
$T_C = 570 K D_C f^{0.85}$ (N)
Torque
$M_C = \frac{K D_C^2 (0.630 + 16.84f)}{100}$ (N·m)

- $P_C$  : Power requirement (kW)
- $T_C$  : Thrust force (N)
- $M_C$  : Torque (N·m)
- $D_C$  : Drill diameter (mm)
- $f$  : Feed (mm/rev)
- $n$  : No. of revolutions ( $\text{min}^{-1}$ )
- $K$  : Material constant... Refer to the Table at right

### ● Material constant compensating for power requirement and thrust force

Work material	Tensile strength		Brinell hardness (HB)	Material constant (K)
	MPa (N/mm <sup>2</sup> )	Kgf/mm <sup>2</sup>		
Cast iron	210	21	177	1.00
Cast iron	280	28	198	1.39
Cast iron	350	35	224	1.88
Aluminium	250	25	100	1.01
Low carbon steel (JIS S20C)	550	55	160	2.22
Free cutting steel (JIS SUM32)	620	62	183	1.42
Manganese steel (JIS SMn438)	630	63	197	1.45
Nickel chromium steel (JIS SNC236)	690	69	174	2.02
4115 steel Cr0.5, Mo0.11, Mn0.8	630	63	167	1.62
Chromium molybdenum steel (JIS SCM430)	770	77	229	2.10
Chromium molybdenum steel (JIS SCM440)	940	94	269	2.41
Nickel chromium molybdenum steel (JIS SNCM420)	750	75	212	2.12
Nickel chromium molybdenum steel (JIS SNCM625)	1,400	140	390	3.44
Chromium vanadium steel				
Cr0.6, Mn0.6, V0.12	580	58	174	2.08
Cr0.8, Mn0.8, V0.1	800	80	255	2.22

# International Tolerance (IT Grades)

## International Tolerance (IT Grades)

IT grades shows a tolerance allowable for difference of the diameters of a hole and a shaft. As the number added after IT increases, the tolerance becomes rough. Depending on the basic size, the tolerance value in each grade varies.

In the catalog, IT grades are shown as a guide of dimensional dispersion in the diameters of holes machined with the drill. For information, H8 tolerance for a ø8.0 hole is 0 to + 0.022 mm, the width of the value is the same as that of IT 8.

In the Table shown below, tolerance areas attainable with typical drilling tools are distinguished by using different colours. Solid drills are generally used for machining holes of IT 9 to 12. For machining a hole of better than IT 8, finishing process such as reaming is required. For a hole better than IT 5, high-precision finishing is required. Above description is based on machining of general steel. In practice, the IT grade attained with the tool varies widely depending on the hardness and the composition of the work material.

### ● IT (International Tolerance) Grades

Basic sizes (mm)		International Tolerance Grades																	
		IT1	IT2	IT3	IT4	IT5	IT6	IT7	IT8	IT9	IT10	IT11	IT12	IT13	IT14	IT15	IT16	IT17	IT18
>	≤	(µm)									(mm)								
-	3	0.8	1.2	2	3	4	6	10	14	25	40	60	0.1	0.14	0.25	0.4	0.6	1	1.4
3	6	1	1.5	2.5	4	5	8	12	18	30	48	75	0.12	0.18	0.3	0.48	0.75	1.2	1.8
6	10	1	1.5	2.5	4	6	9	15	22	36	58	90	0.15	0.22	0.36	0.58	0.9	1.5	2.2
10	18	1.2	2	3	5	8	11	18	27	43	70	110	0.18	0.27	0.43	0.7	1.1	1.8	2.7
18	30	1.5	2.5	4	6	9	13	21	33	52	84	130	0.21	0.33	0.52	0.84	1.3	2.1	3.3
30	50	1.5	2.5	4	7	11	16	25	39	62	100	160	0.25	0.39	0.62	1	1.6	2.5	3.9
50	80	2	3	5	8	13	19	30	46	74	120	190	0.3	0.46	0.74	1.2	1.9	3	4.6
80	120	2.5	4	6	10	15	22	35	54	87	140	220	0.35	0.54	0.87	1.4	2.2	3.5	5.4
120	180	3.5	5	8	12	18	25	40	63	100	160	250	0.4	0.63	1	1.6	2.5	4	6.3
180	250	4.5	7	10	14	20	29	46	72	115	185	290	0.46	0.72	1.15	1.85	2.9	4.6	7.2
250	315	6	8	12	16	23	32	52	81	130	210	320	0.52	0.81	1.3	2.1	3.2	5.2	8.1
315	400	7	9	13	18	25	36	57	89	140	230	360	0.57	0.89	1.4	2.3	3.6	5.7	8.9
400	500	8	10	15	20	27	40	63	97	155	250	400	0.63	0.97	1.55	2.5	4	6.3	9.7
500	630	9	11	16	22	32	44	70	110	175	280	440	0.7	1.1	1.75	2.8	4.4	7	11
630	800	10	13	18	25	36	50	80	125	200	320	500	0.8	1.25	2	3.2	5	8	12.5
800	1000	11	15	21	28	40	56	90	140	230	360	560	0.9	1.4	2.3	3.6	5.6	9	14
1000	1250	13	18	24	33	47	66	105	165	260	420	660	1.05	1.65	2.6	4.2	6.6	10.5	16.5
1250	1600	15	21	29	39	55	73	125	195	310	500	780	1.25	1.95	3.1	5	7.8	12.5	19.5
1600	2000	18	25	35	46	65	92	150	230	370	600	920	1.5	2.3	3.7	6	9.2	15	23
2000	2500	22	30	41	55	78	110	175	280	440	700	1100	1.75	2.8	4.4	7	11	17.5	28
2500	3150	26	36	50	68	96	135	210	330	540	860	1350	2.1	3.3	5.4	8.6	13.5	21	33

Tolerance area requiring finishing process such as with a reamer.

Tolerance area attainable with a solid drill.

Tolerance area attainable with an indexable drill.

# Deviations of Shafts to be Used in Commonly Used Fits.

## Deviations of Shafts to be Used in Commonly Used Fits. (JIS B0401 extrac)

Basic size step (mm)		Tolerance zone class of shaft (μm)															
>	≤	e9	f6	f7	f8	g5	g6	h5	h6	h7	h8	h9	js5	js6	js7	k5	k6
-	3	-14 -39	-6 -12	-6 -16	-6 -20	-2 -6	-2 -8	0 -4	0 -6	0 -10	0 -14	0 -25	±2	±3	±5	+4 0	+6 0
3	6	-20 -50	-10 -18	-10 -22	-10 -28	-4 -9	-4 -12	0 -5	0 -8	0 -12	0 -18	0 -30	±2.5	±4	±6	+6 +1	+9 +1
6	10	-25 -61	-13 -22	-13 -28	-13 -35	-5 -11	-5 -14	0 -6	0 -9	0 -15	0 -22	0 -36	±3	±4.5	±7	+7 +1	+10 +1
10	14	-32 -75	-16 -27	-16 -34	-16 -43	-6 -14	-6 -17	0 -8	0 -11	0 -18	0 -27	0 -43	±4	±5.5	±9	+9 +1	+12 +1
14	18	-40 -92	-20 -33	-20 -41	-20 -53	-7 -16	-7 -20	0 -9	0 -13	0 -21	0 -33	0 -52	±4.5	±6.5	±10	+11 +2	+15 +2
18	24	-50 -112	-25 -41	-25 -50	-25 -64	-9 -20	-9 -25	0 -11	0 -16	0 -25	0 -39	0 -62	±5.5	±8	±12	+13 +2	+18 +2
24	30	-60 -134	-30 -49	-30 -60	-30 -76	-10 -23	-10 -29	0 -13	0 -19	0 -30	0 -46	0 -74	±6.5	±9.5	±15	+15 +2	+21 +2
30	40	-72 -159	-36 -58	-36 -71	-36 -90	-12 -27	-12 -34	0 -15	0 -22	0 -35	0 -54	0 -87	±7.5	±11	±17	+18 +3	+25 +3
40	50	-72 -159	-36 -58	-36 -71	-36 -90	-12 -27	-12 -34	0 -15	0 -22	0 -35	0 -54	0 -87	±7.5	±11	±17	+18 +3	+25 +3
50	65	-72 -159	-36 -58	-36 -71	-36 -90	-12 -27	-12 -34	0 -15	0 -22	0 -35	0 -54	0 -87	±7.5	±11	±17	+18 +3	+25 +3
65	80	-72 -159	-36 -58	-36 -71	-36 -90	-12 -27	-12 -34	0 -15	0 -22	0 -35	0 -54	0 -87	±7.5	±11	±17	+18 +3	+25 +3
80	100	-72 -159	-36 -58	-36 -71	-36 -90	-12 -27	-12 -34	0 -15	0 -22	0 -35	0 -54	0 -87	±7.5	±11	±17	+18 +3	+25 +3
100	120	-72 -159	-36 -58	-36 -71	-36 -90	-12 -27	-12 -34	0 -15	0 -22	0 -35	0 -54	0 -87	±7.5	±11	±17	+18 +3	+25 +3

In every step given in the table, the value on the upper side shows the upper deviation and the value on the lower side, the lower deviation.

## Deviations of Holes to be Used in Commonly Used Fits. (JIS B0401 extrac)

Basic size step (mm)		Tolerance zone class of hole (μm)																
>	≤	E7	E8	E9	F6	F7	F8	G6	G7	H6	H7	H8	H9	H10	JS6	JS7	K6	K7
-	3	+24 +14	+28 +14	+39 +14	+12 +6	+16 +6	+20 +6	+8 +2	+12 +2	+6 0	+10 0	+14 0	+25 0	+40 0	±3	±5	0 -6	0 -10
3	6	+32 +20	+38 +20	+50 +20	+18 +10	+22 +10	+28 +10	+12 +4	+16 +4	+8 0	+12 0	+18 0	+30 0	+48 0	±4	±6	+2 -6	+3 -9
6	10	+40 +25	+47 +25	+61 +25	+22 +13	+28 +13	+35 +13	+14 +5	+20 +5	+9 0	+15 0	+22 0	+36 0	+58 0	±4.5	±7	+2 -7	+5 -10
10	14	+50 +32	+59 +32	+75 +32	+27 +16	+34 +16	+43 +16	+17 +6	+24 +6	+11 0	+18 0	+27 0	+43 0	+70 0	±5.5	±9	+2 -9	+6 -12
14	18	+50 +32	+59 +32	+75 +32	+27 +16	+34 +16	+43 +16	+17 +6	+24 +6	+11 0	+18 0	+27 0	+43 0	+70 0	±5.5	±9	+2 -9	+6 -12
18	24	+61 +40	+73 +40	+92 +40	+33 +20	+41 +20	+53 +20	+20 +7	+28 +7	+13 0	+21 0	+33 0	+52 0	+84 0	±6.5	±10	+2 -11	+6 -15
24	30	+61 +40	+73 +40	+92 +40	+33 +20	+41 +20	+53 +20	+20 +7	+28 +7	+13 0	+21 0	+33 0	+52 0	+84 0	±6.5	±10	+2 -11	+6 -15
30	40	+75 +50	+89 +50	+112 +50	+41 +25	+50 +25	+64 +25	+25 +9	+34 +9	+16 0	+25 0	+39 0	+62 0	+100 0	±8	±12	+3 -13	+7 -18
40	50	+75 +50	+89 +50	+112 +50	+41 +25	+50 +25	+64 +25	+25 +9	+34 +9	+16 0	+25 0	+39 0	+62 0	+100 0	±8	±12	+3 -13	+7 -18
50	65	+90 +60	+106 +60	+134 +60	+49 +30	+60 +30	+76 +30	+29 +10	+40 +10	+19 0	+30 0	+46 0	+74 0	+120 0	±9.5	±15	+4 -15	+9 -21
65	80	+90 +60	+106 +60	+134 +60	+49 +30	+60 +30	+76 +30	+29 +10	+40 +10	+19 0	+30 0	+46 0	+74 0	+120 0	±9.5	±15	+4 -15	+9 -21
80	100	+107 +72	+126 +72	+159 +72	+58 +36	+71 +36	+90 +36	+34 +12	+47 +12	+22 0	+35 0	+54 0	+87 0	+140 0	±11	±17	+4 -18	+10 -25
100	120	+107 +72	+126 +72	+159 +72	+58 +36	+71 +36	+90 +36	+34 +12	+47 +12	+22 0	+35 0	+54 0	+87 0	+140 0	±11	±17	+4 -18	+10 -25

In every step given in the table, the value on the upper side shows the upper deviation and the value on the lower side, the lower deviation.

# The information of toolholder size and CNC Automatic lathes in Machine tool Builders

● CITIZEN MACHINERY CO., LTD. (Cincom)

Machine	Tool size for sliding head	Number of tool	Tool size for turret	Number of tool	Hand of tool	Sleeve	Max. machining diameter
A12/16	10×10×120(60)	5			R	ø19.05(ø20)	ø12/ø16
A20	12×12×120	6, 7			R	ø25, /ø25.4	ø20
A20VII	12×12×120	6			R	ø25.4	ø20
A32	16×16×120	6			R	ø25.4	ø32
B12	10×10×120(60)	5			R	ø19.05(ø20)	ø12
B12/B16E	10×10×120(60)	5			R	ø19.05(ø20)	ø12/ø16
B20	12×12×120	6			R	ø19.05/ø20	ø20
BL12	10×10×60~120	5			R	ø20(ø19.05)	ø12
BL20/25	12×12×120	4~7			R	ø20(ø19.05)	ø20/ø25
C12/16	10×10×120	6			R	ø19.05	ø12/ø16
C32	16×16×130	5			R	ø25.4	ø32
E16			16×16×90	16	R	ø25.4	ø16
E20			16×16×90	16	R	ø25.4	ø20
E25			16×16×90	20	R	ø25.4	ø25
E32			16×16×90	20	R	ø25.4	ø32
F10			10×10×60	8	R	ø19.05	ø10
F12			10×10×60	10	R	ø19.05	ø12
F16			10×10×60	10	R	ø19.05	ø16
F20			16×16×90	10	R	ø25.4	ø20
F25			16×16×90	10	R	ø25.4	ø25
FL25			16×16×90	12	R	ø16	ø25
FL32/42			16×16×90	12	R	ø16	ø42
G32			16×16×90	10	R	ø25.4	ø32
K12/16	12(10)×12(10)×130	6(7)			R	ø19.05(ø20)	ø12/ø16
K12/K16E	12(10)×12(10)×130	6(7)			R	ø19.05(ø20)	ø12/ø16
L10, L <sub>2</sub> 10	8×8×100~130	4, 5			R	ø15.875	ø10
L12	10×10×100	6			R	ø19.05	ø12
L16, L <sub>3</sub> 16/20	12(10)×12(10)×130	5(6)			R	ø19.05	ø16
L20, L20E	12×12×120	5			R	ø19.05	ø20
L20X	12×12×120	5			R	ø19.05	ø20
L25, L <sub>4</sub> 25	16×16×130	5			R	ø25.4	ø25
L32, L <sub>6</sub> 32	16×16×130	5			R	ø25.4	ø32
M <sub>2</sub> 12, M <sub>3</sub> 12	10×10×120	5	10×10×60	10	R	ø19.05	ø12
M <sub>2</sub> 16, M <sub>3</sub> 16	10×10×120	5	10×10×60	10	R	ø19.05	ø16
M <sub>2</sub> 20, M <sub>3</sub> 20	16×16×130	5	16×16×90	10	R	ø25.4	ø20
M <sub>2</sub> 32, M <sub>3</sub> 32, M <sub>4</sub> 32	16×16×130	5	16×16×90	10	R	ø25.4	ø32
M <sub>4</sub> 16	10×10×120	5	10×10×60	10	R	ø19.05	ø16.0
M16/20	12×12×130	5	10×10×60	10	R	ø19.05	ø20
MSL12	10×10×120				R		ø12
R04	8×8×120	5			R	ø15.875	ø4
R07	8×8×120	5			R	ø15.875	ø7
RL21	10(12)×10(12)×90				R	ø19.05	ø35

# The information of toolholder size and CNC Automatic lathes in Machine tool Builders

● CITIZEN MACHINERY CO., LTD. (Miyano)

Machine	Tool size for sliding head	Number of tool	Tool size for turret	Number of tool	Hand of tool	Sleeve	Max. machining diameter
ABX-51SY2			20×20×100	24	R	ø25	ø51
ABX-51SYY2			20×20×100	24	R	ø25	ø51
ABX-51TH5			20×20×100	36	R	ø25	ø51
ABX-51THY2			20×20×100	36	R	ø25	ø51
ABX-64SY2			20×20×100	24	R	ø25	ø64
ABX-64SYY2			20×20×100	24	R	ø25	ø64
ABX-64TH5			20×20×100	36	R	ø25	ø64
ABX-64THY2			20×20×100	36	R	ø25	ø64
BNA-34C	Only for parting-off operation 20×12×100		20×20×100	8(16)	R	ø25	ø34
BNA-34DHY			20×20×100	14(22)	R	ø25	ø34
BNA-34S			20×20×100	8(16)	R	ø25	ø34
BNA-42C			20×20×100	8(16)	R	ø25	ø42
BNA-42DHY			20×20×100	14(22)	R	ø25	ø42
BNA-42S			20×20×100	8(16)	R	ø25	ø42
BND-51C2			20×20×100	12	R	ø25	ø51
BND-51S2			20×20×100	12	R	ø25	ø51
BND-51SY2			20×20×100	12	R	ø25	ø51
BNE-34S6			20×20×100	24	R	ø25	ø34
BNE-34SY6			20×20×100	24	R	ø25	ø34
BNE-42S6			20×20×100	24	R	ø25	ø42
BNE-42SY6			20×20×100	24	R	ø25	ø42
BNE-51S6			20×20×100	24	R	ø25	ø51
BNE-51SY6			20×20×100	24	R	ø25	ø51
BNJ-34S3			20×20×100	18	R	ø25	ø34
BNJ-34SY3			20×20×100	18	R	ø25	ø34
BNJ-42S3			20×20×100	18	R	ø25	ø42
BNJ-42SY3			20×20×100	18	R	ø25	ø42
BNJ-51S3			20×20×100	18	R	ø25	ø51
BNJ-51SY3			20×20×100	18	R	ø25	ø51
LX-06E2			20×20×100	8	R	ø32	-
LX-08C			25×25×150	10	R	ø40	-
LX-08E2			25×25×150	8	R	ø40	-
LX-08R			20×20×100	10	R	ø25	-
LZ-01R2			20×20×100	12	R	ø25	-
LZ-01RY2			20×20×100	12	R	ø25	-
LZ-02R2			20×20×100	10	R	ø25	-
LZ-02RY2			20×20×100	10	R	ø25	-
GN-3200	16×16×70~120	4~5			R	ø20	-
GN-3200W	16×16×70~120	4~5			R	ø20	-
RL01 III	10×10×70~120	2~3			R	ø16	-
RL01V	10×10×70~120	2~3			R	ø16	-
RL03	16×16×70~120	4~5			R	ø20	-
GN-4200	16×16×70~120	7~8			R	ø20	-

## The information of toolholder size and CNC Automatic lathes in Machine tool Builders

● STAR MICRONICS CO., LTD.

Machine	Tool size for sliding head	Number of tool	Tool size for turret	Number of tool	Sleeve	Number of tool	Max. machining diameter	Note
ECAS-12	10×10×95~150	6			ø22		ø13	
ECAS-20	12×12×80~150	6			ø22		ø20	
	16×16×80~144							
ECAS-20T			16×16×60~78		ø22/ø32		ø20	
			16×16×80~88					
ECAS-32T			16×16×60~78	10	ø22/ø32		ø32	
			16×16×80~88	10				
JNC-10			8×8×65	6			ø10	
JNC-16			10×10×80	6			ø16	
JNC-25/32			10×10×78~120	10	ø22		ø25/32	
KJR-16B/25B			16×16×78	12/16	ø22/ø32			
KNC-16/20			16×16×68	16	ø22			
KNC-25 11 /32 11			16×16×78	20	ø22/ø32			
RNC-10	10×10×80~120	5			ø22			
RNC-16	10×10×80~120	5			ø22			
SA-16R	10×10×95~120	6			ø22			
SB-16 (A/C/D/E)	12×12×95~130	5			ø22/(ø22)	4/4		D & E type has sleeve on back side
	12×12×95~130	6			ø22/(ø22)	4/4		
	10×10×95~130	6			ø22/ø22	4/4		
SB-12 11 (C/E)	12×12×95~130	6			ø22/(ø22)	4/4		E type has sleeve on back side
SB-16 11 (C/E)	12×12×95~130	6			ø22/(ø22)	4/4		
	10×10×95~130	6			ø22/ø22	4/4		
SB-20 A/C/E	12×12×95~130	6			ø22/(ø22)	4/4		
SB-20R TYPE-N	12×12×95~130	6			ø22/ø22	4/6		
	10×10×95~130	7			ø22/ø22	4/6		
SC20	12×12×95~130	5			ø22/-	4		
	10×10×95~130	6				4/4		
SE-12B/16B	10×10×95~120	5			ø22		ø13/16	
SG-42			16×16×84~88		ø22/ø32		ø42	
			16×16×71~82					
			20×20×84~88					
SH-7	8×8×95~120	5			ø22		ø7	
SH-12/16	10×10×95~120	5			ø22		ø13/16	
SI-12/12C	10×10×80~130	6			ø22		ø13	
SR-10J	8×8×67~110 (Spacer is needed)	6			ø16	4		
SR-20R II	12×12×100~135	6		4	ø22	6/8	ø23	2 holders on front side for deep hole drilling
SR-20 III	12×12×95~135	6			ø22	6/8	ø23	
SR-20 IV	12×12×95~135	7			ø22	6/8	ø23	
SR-25J/32J	16×16×95~155	6		4	ø22/ø32		ø32	
ST-38			16×16×84~88		ø22/ø32		ø38	
			16×16×71~82					
			20×20×84~88					
SV-12/20	12×12×95~135	5	12×12×70~78		ø22/32			
	16×16×95~135	4	16×16×65~70					
SV-32	16×16×95~135	4	16×16×60~78		ø22/32			
			16×16×80~88					
SW-7	8×8×80~120	6					ø7	

# The information of toolholder size and CNC Automatic lathes in Machine tool Builders

## ● TSUGAMI CORPORATION

Machine	Tool size for sliding head	Number of tool	Tool size for turret	Number of tool	Hand of tool	Sleeve	Max. machining diameter
B073/074-II	8×8×85	9			R	ø20	ø7
B0123-II	12×12×85	9			R	ø20	ø12
B0124/125/126-II	12×12×85	9			R	ø20/ø20	ø12
B0203-II	12×12×85	9			R	ø20/ø20	ø20
B0204/205/206-II	12×12×85	9			R	ø20/ø20	ø20
B020M	12×12×85				R		ø20
B0265/266-II	16×16×100	12			R	ø25/ø25	ø26
B0325/326-II	16×16×100	12			R	ø25/ø25	ø32
B0385/385L	20×20×125	8			R	ø32/ø32	ø38
B038T					R		ø38
BH20/BH20Z	12×12×85	4	12×12×85	12 slots	R	ø25/ø32	ø20
BH38	16×16×125	5	20×20×125	12 slots	R	ø25/ø32	ø38.1
BM164/165-II	12×12×85	9			R	ø20	ø16
C150/CH154	12×12×60~100	4~6			R/L		ø80
C180	12×12×60~100				R/L		ø120
C220/220T	12(13)×12(13)×60~100	6~8			R/L		ø120
C300-II	16×16×100~130	6~10			R/L		ø170
P013H/P014H	8×8×100~120	6			R	ø16	ø1
P033H/P034H	8×8×100~120	6			R	ø16	ø3
S205/206/SS207	12(16)×12(16)×100	8			R	ø22/ø20	ø20
SS26	16×16×100	7			R	ø22/ø20	ø26
SS32/32L	16×16×100	7			R	ø22/ø20	ø32
SS20M	12×12×85				R		ø20
SS267	16×16×100	7			R	ø22/ø20	ø26
SS327	16×16×100	7			R	ø22/ø20	ø32
MB25			20×20×90	2×8slots	R	ø20/ø32	ø25
M42J/M42SD			20×20×125	12 slots	R	ø25/ø32	ø42
M50J/M50SY-III			20×20×100	12 slots	R	ø20/ø32	ø51
TMUI	20×20×100~125	1	20×20×125	16 slots	R	ø25/ø32	ø38
TMB2	20×20×100~125	1	20×20×125	16 slots	R	ø25/ø32	ø51
TMA8-IV	20×20×100~125	1			R	ø25/ø32	ø65
B007-II	7×7×85	8			R	ø25	ø7
	(8)×(8)×(85)						
	(10)×(10)×(85)						
B018-III	12×12×85	9			R	ø20	ø18
BA26	12(16)×12(16)×85	6			R	ø25	ø26
BE12	12×12×85	9			R	ø20	ø12
BE18	12×12×85	9			R	ø20	ø18
BM16	12×12×85	9			R	ø20	ø16
BM16E	12×12×85	9			R	ø20	ø16
BN12	12×12×85	7			R	ø20	ø12
BN20	12(16)×12(16)×85	7			R	ø20	ø20
BS12-III	12×12×85	7, 10			R	ø14/ø25	ø12
BS12-V	12×12×85	8, 12			R	ø20/ø25	ø12
BS18-III	12×12×85	7, 10			R	ø14/ø25	ø18
BS20-III	16×16×100	7, 10			R	ø16/ø25	ø20
BS20-V	12×12×85	8, 12			R	ø20/ø25	ø20
BS26-III	16×16×100	7, 10			R	ø16/ø25	ø26



## The information of toolholder size and CNC Automatic lathes in Machine tool Builders

### ● TSUGAMI CORPORATION

Machine	Tool size for sliding head	Number of tool	Tool size for turret	Number of tool	Hand of tool	Sleeve	Max. machining diameter
BS32-III	16×16×100	6			R	ø16/ø25	ø32
BU12	12×12×85	4	12×12×80	8 slots	R	ø20	ø51
BU20	12×12×85	4	12×12×80	8 slots	R	ø20	ø20
BU26	16×16×100	7	20×20×90	8 slots	R*	ø20/ø32	ø26
BU38	16×16×100	7	20×20×90	8 slots	R*	ø20/ø32	ø38
BW07	12×12×85	7			R	ø20	ø7
BW12	12×12×85	7			R	ø20	ø12
BW20	12(16)×12(16)×85	7			R	ø20	ø20
C15	10×10×60~100	10~14			R		ø75
M34J			20×20×125	12 slots	R	ø20/ø32	ø34
MB35-III			20×20×90	2×8slots	R	ø20/ø32	ø35
MB38-III			20×20×90	2×8slots	R*	ø20/ø32	ø38
MB50-III			20×20×90	2×8slots	R	ø20/ø32	ø50
MU26			20×20×90	2×8slots	R	ø20/ø32	ø26
MU38			20×20×90	2×8slots	R	ø20/ø32	ø38
NU50			20×20×100	12 slots	R	ø20/ø32	ø51

\* For tool post on Sub-spindle side, Left-hand tools are required.

# Symbols of Metals

● Carbon steel and alloy steels for structural use

Type	Japan	International	Each countries				
	JIS		ISO	U.S.A. AISI SAE	Great Britain BS BS/EN	Germany DIN DIN/EN	France NF NF/EN
Carbon steel	S10C	C10	1010	C10 C10E C10R	C10E C10R	C10E C10R	-
	S15C	C15E4 C15M2	1015	C15 C15E C15R	C15E C15R	C15E C15R	-
	S20C	-	1020	C22, C22E C22R	C22 C22E C22R	C22 C22E C22R	-
	S25C	C25 C25E4 C25M2	1025	C25 C25E C25R	C25 C25E C25R	C25 C25E C25R	-
	S30C	C30 C30E4 C30M2	1030	C30 C30E C30R	C30 C30E C30R	C30 C30E C30R	30Г
	S35C	C35 C35E4 C35M2	1035	C35 C35E C35R	C35 C35E C35R	C35 C35E C35R	35Г
	S40C	C40 C40E4 C40M2	1039 1040	C40 C40E C40R	C40 C40E C40R	C40 C40E C40R	40Г
	S43C	-	1042 1043	080A42	-	-	40Г
	S45C	C45 C45E4 C45M2	1045 1046	C45 C45E C45R	C45 C45E C45R	C45 C45E C45R	45Г
	S48C	-	-	-	-	-	45Г
	S50C	C50 C50E4 C50M2	1049	C50 C50E C50R	C50 C50E C50R	C50 C50E C50R	50Г
	S53C	-	1050 1053	-	-	-	50Г
	S55	C55 C55E4 C55M2	1055	C55 C55E C55R	C55 C55E C55R	C55 C55E C55R	-
	S58C	C60 C60E4 C60M2	1059 1060	C60 C60E C60R	C60 C60E C60R	C60 C60E C60R	60Г

Type	Japan	International	Each countries						
	JIS		ISO	U.S.A. AISI ASTM	Great Britain BS BS/EN	Germany DIN DIN/EN	France NF NF/EN	Russia ГОСТ	
Nickel chromium steel	SNC236	-	-	-	-	-	40XH		
	SNC415(H)	-	-	-	-	-	-		
	SNC631(H)	-	-	-	-	-	30XH3A		
	SNC815(H)	15NiCr13	-	15NiCr13	15NiCr13	15NiCr13	-		
	SNC836	-	-	-	-	-	-		
Alloy steel	Nickel chromium molybdenum steel	20NiCrMo2 20NiCrMoS2	8615	8617(H) 8620(H) 8622(H)	20NiCrMo2-2 20NiCrMoS2-2	20NiCrMo2-2 20NiCrMoS2-2	20NiCrMo2-2 20NiCrMoS2-2	-	
			SNCM220	41CrNiMo2 41CrNiMoS2	8637 8640	-	-	-	-
			SNCM240	-	-	-	-	-	-
	SNCM415	-	-	-	-	-	-		
	SNCM420(H)	-	4320(H)	-	-	-	20XH2M(20XHM)		
	SNCM431	-	-	-	-	-	-		
	SNCM439	-	4340	-	-	-	-		
	SNCM447	-	-	-	-	-	-		
	SNCM616	-	-	-	-	-	-		
	SNCM625	-	-	-	-	-	-		
	SNCM630	-	-	-	-	-	-		
	SNCM815	-	-	-	-	-	-		

Note: The above chart is based on published data and not authorized by each manufacturer.

# Symbols of Metals

## ● Stainless steel, heat resistant steel

Type	Japan	International	Each countries					
	JIS		ISO	U.S.A. AISI ASTM	Great Britain BS BS/EN	Germany DIN DIN/EN	France NF NF/EN	Russia ГОСТ
	Alloy steel	Chromium steel	SCr415(H)	-	-	17Cr3 17CrS3	17Cr3 17CrS3	17Cr3 17CrS3
SCr420(H)			20Cr4(H) 20CrS4	5120(H)	-	-	-	20X
SCr430(H)			34Cr4 34CrS4	5130(H) 5132(H)	34Cr4 34CrS4	34Cr4 34CrS4	34Cr4 34CrS4	30X
SCr435(H)			34Cr4 34CrS4 37Cr4 37CrS4	5132	37Cr4 37CrS4	37Cr4 37CrS4	37Cr4 37CrS4	35X
SCr440(H)			37Cr4 37CrS4 41Cr4 41CrS4	5140(H)	530M40 41Cr4 41CrS4	41Cr4 41CrS4	41Cr4 41CrS4	40X
SCr445(H)			-	-	-	-	-	45X
Chromium molybdenum steel		SCM415(H)	-	-	-	-	-	-
		SCM418(H)	18CrMo4 18CrMoS4	-	18CrMo4 18CrMoS4	18CrMo4 18CrMoS4	18CrMo4 18CrMoS4	20XM
		SCM420(H)	-	-	708M20(708H20)	-	-	20XM
		SCM430	-	4130	-	-	-	30XM 30XMA
		SCM432	-	-	-	-	-	-
		SCM435(H)	34CrMo4 34CrMoS4	4137(H)	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	35XM
		SCM440(H)	42CrMo4 42CrMoS4	4140(H) 4142(H)	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	-
Manganese steel and manganese chromium steel		SMn420(H)	22Mn6(H)	1522(H)	-	-	-	-
		SMn433(H)	-	1534	-	-	-	30Г2 35Г2
		SMn438(H)	36Mn6(H)	1541(H)	-	-	-	35Г2 40Г2
		SMn443(H)	42Mn6(H)	1541(H)	-	-	-	40Г2 45Г2
		SMnC420(H) SMnC443(H)	- -	- -	- -	- -	- -	- -
Aluminum chromium molybdenum steel		SACM645	41CrAlMo74	-	-	-	-	-

## ● Stainless steel, heat resistant steel

Type	Japan	International	Each countries							
	JIS		ISO	U.S.A. UNS	AISI ASTM	Great Britain BS BS/EN	Germany DIN DIN/EN	France NF NF/EN	Russia ГОСТ	
	Stainless steel	Austenitic	SUS201	X12CrMnNiN17-7-5	S20100	201				Z12CMN17-07Az
SUS202			X12CrMnNiN18-9-5	S20200	202	284S16				12X17Г9AH4
SUS301			X10CrNi18-8	S30100	301	301S21		X12CrNi17-7	Z11CN17-08	07X16H6
SUS301L			X2CrNi18-7					X2CrNi18-7		
SUS301J1								X12CrNi17-7		
SUS302				S30200	302	302S25			Z12CN18-09	12X18H9
SUS302B			X12CrNiSi18-9-3	S30215	302B					
SUS303			X10CrNiS18-9	S30300	303	303S21		X10CrNiS18-9	Z8CNF18-09	
SUS303Se				S30323	303Se	303S41				12X18H10E
SUS303Cu										
SUS304			X5CrNi18-9	S30400	304	304S31		X5CrNi18-10	Z7CN18-09	08X18H10
SUS304L			X2CrNi18-9	S30403	304L	304S11		X2CrNi19-11	Z3CN19-11	03X18H11
SUS304N1			X5CrNiN18-8	S30451	304N				Z6CN19-09Az	
SUS304N2				S30452						
SUS304LN			X2CrNiN18-9	S30453	304LN			X2CrNiN18-10	Z3CN18-10Az	
SUS304J1										
SUS304J2										
SUS304J3					S30431	S30431				
SUS305			X6CrNi18-12	S30500	305	305S19		X5CrNi18-12	Z8CN18-12	06X18H11

Note: The above chart is based on published data and not authorized by each manufacturer.

# Symbols of Metals

● Stainless steel, heat resistant steel

Type	Japan	International	Each countries					
	JIS		ISO	U.S.A.		Great Britain	Germany	France
		UNS		AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	ГОСТ
Austenitic	SUS305J1							
	SUS309S		S30908	309S			Z10CN24-13	
	SUS310S	X6CrNi25-21	S31008	310S	310S31		Z8CN25-20	10X23H18
	SUS315J1							
	SUS315J2							
	SUS316	X5CrNiMo17-12-2 X3CrNiMo17-12-3	S31600	316	316S31	X5CrNiMo17-12-2 X5CrNiMo17-13-3	Z7CND17-12-02 Z6CND18-12-03	
	SUS316F							
	SUS316L	X2CrNiMo17-12-2 X2CrNiMo17-12-3 X2CrNiMo18-14-3	S31603	316L	316S11	X2CrNiMo17-13-2 X2CrNiMo17-14-3	Z3CND17-12-02 Z3CND17-12-03	03X17H14M3
	SUS316N		S31651	316N				
	SUS316LN	X2CrNiMoN17-11-2 X2CrNiMoN17-12-3	S31653	316LN		X2CrNiMoN17-12-2 X2CrNiMoN17-13-3	Z3CND17-11Az Z3CND17-12Az	
	SUS316Ti	X6CrNiMoTi17-12-2	S31635			X6CrNiMoTi17-12-2	Z6CNDT17-12	08X17H13M2T
	SUS316J1							
	SUS316J1L							
	SUS317		S31700	317	317S16			
	SUS317L	X2CrNiMo19-14-4	S31703	317L	317S12	X2CrNiMo18-16-4	Z3CND19-15-04	
	SUS317LN	X2CrNiMoN18-12-4	S31753				Z3CND19-14Az	
	SUS317J1							
	SUS317J2							
	SUS317J3L							
	SUS836L		N08367					
	SUS890L	X1CrNiMoCu25-20-5	N08904	N08904	904S14		Z2NCUDU25-20	
	SUS321	X6CrNiTi18-10	S32100	321	321S31	X6CrNiTi18-10	Z6CNT18-10	08X18H10T
	SUS347	X6CrNiNb18-10	S34700	347	347S31	X6CrNiNb18-10	Z6CNNb18-10	08X18H12B
	SUS384	X3NiCr18-16	S38400	384			Z6CN18-16	
	SUSXM7	X3CrNiCu18-9-4	S30430	304Cu	394S17		Z2CNU18-10	
SUSXM15J1		S38100				Z15CNS20-12		
Austenitic Ferritic	SUS329J1		S32900	329				
	SUS329J3L	X2CrNiMoN22-5-3	S31803	31803		Z3CNDU22-05Az	08X21H6M2T	
	SUS329J4L	X2CrNiMoCuN25-6-3	S32250	32250		Z3CNDU25-07Az		
	SUS405	X6CrAl13	S40500	405	405S17	X6CrAl13	Z8CA12	
Ferritic	SUS410L					Z3C14		
	SUS429		S42900	429				
	SUS430	X6Cr17	S43000	430	430S17	X6Cr17	Z8C17	12X17
	SUS430F	X7CrS17	S43020	430F		X7CrS18	Z8CF17	
	SUS430LX	X3CrTi17 X3CrNb17	S43035			X6CrTi17	Z4CT17	
	SUS430J1L	X2CrTi17				X6CrNb17	Z4CNb17	
	SUS434	X6CrMo17-1	S43400	434	434S17	X6CrMo17-1	Z8CD17-01	
	SUS436L	X1CrMoTi16-1	S43600	436				
	SUS436J1L							
	SUS444	X2CrMoTi18-2	S44400	444			Z3CDT18-02	
	SUS445J1							
	SUS445J2							
	SUS447J1		S44700					
	SUSXM27		S44627				Z1CD26-01	
	Martensitic	SUS403		S40300	403			
SUS410		X12Cr13	S41000	410	410S21	X10Cr13	Z13C13	
SUS410S		X6Cr13	S41008	410S	403S17	X6Cr13	Z8C12	08X13
SUS410F2								
SUS410J1			S41025					
SUS416		X12CrS13	S41600	416	416S21		Z11CF13	
SUS420J1		X20Cr13	S42000	420	420S29	X20Cr13	Z20C13	20X13
SUS420J2		X30Cr13	S42000	420	420S37	X30Cr13	Z33C13	30X13
SUS420F		X29CrS13	S42020	420F			Z30CF13	
SUS420F2								
SUS429J1								
SUS431		X19CrNi16-2	S43100	431	431S29	X20CrNi17-2	Z15CN16-02	20X17H2
SUS440A		X70CrMo15	S44002	440A			Z70C15	
SUS440B			S44003	440B				
SUS440C		X105CrMo17	S44004	440C			Z100CD17	95X18
SUS440F		S44020	S44020					
Precipitation hardening type	SUS630	X5CrNiCuNb16-4	S17400	S17400			Z6CNU17-04	
	SUS631	X7CrNiAl17-7	S17700	S17700		X7CrNiAl17-7	Z9CNA17-07	09X17H7Ю
	SUS631J1							

Note: The above chart is based on published data and not authorized by each manufacturer.

# Symbols of Metals

● Stainless steel, heat resistant steel

Type	Japan	International	Each countries								
	JIS		ISO	U.S.A.		Great Britain	Germany	France	Russia		
				UNS	AISI SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	ГОСТ		
Heat resistant steel	Austenitic	SUH31				331S42		Z35CNWS14-14	45X14H14B2M		
		SUH35		S63008			349S52		Z52CMN21-09Az		
		SUH36					349S54	X53CrMnNi21-9	Z55CMN21-09Az	55X20Г9 AH4	
		SUH37		S63017			381S34				
		SUH38									
		SUH309			S30900	309	309S24			Z15CN24-13	
		SUH310			S31000	310	310S24	CrNi2520		Z15CN25-20	20X25H20C2
		SUH330			N08330	N08330				Z12NCS35-16	
	SUH660			S66286					Z6NCTV25-20		
	SUH661			R30155							
	Ferritic	SUH21						CrAl1205			
		SUH409	X6CrTi12	S40900	409	409S19	X6CrTi12		Z6CT12		
		SUH409L	X2CrTi12						Z3CT12		
	Martensitic	SUH446		S44600	446				Z12C25	15X28	
		SUH1		S65007		401S45	X45CrSi9-3		Z45CS9		
		SUH3							Z40CSD10	40X10C2M	
SUH4					443S65			Z80CSN20-02			
SUH11									40X9C2		
SUH600									20X12BHMБФР		
SUH616			S42200								

● Tool steel

Type	Japan	International	U.S.A.	Type	Japan	International	U.S.A.
	JIS	ISO	AISI ASTM		JIS	ISO	AISI ASTM
Carbon tool steel	SK140	-	-	Alloy tool steel	SKS5	-	-
	SK120	C120U	W1-11 1/2		SKS51	-	L6
	SK105	C105U	W1-10		SKS7	-	-
	SK95	-	W1-9		SKS81	-	-
	SK90	C90U	-		SKS8	-	-
	SK85	-	W1-8		SKS4	-	-
	SK80	C80U	-		SKS41	-	-
	SK75	-	-		SKS43	105V	W2-9 1/2
	SK70	C70U	-		SKS44	-	W2-8 1/2
	SK65	-	-		SKS3	-	-
	SK60	-	-		SKS31	-	-
High speed steel	SKH2	HS18-0-1	T1	SKS93	-	-	
	SKH3	-	T4	SKS94	-	-	
	SKH4	-	T5	SKS95	-	-	
	SKH10	-	T15	SKD1	X210Cr12	D3	
	SKH40	HS6-5-3-8	-	SKD2	X210CrW12	-	
	SKH50	HS1-8-1	-	SKD10	X153CrMoV12	-	
	SKH51	HS6-5-2	M2	SKD11	-	D2	
	SKH52	HS6-6-2	M3-1	SKD12	X100CrMoV5	A2	
	SKH53	HS6-5-3	M3-2	SKD4	-	-	
	SKH54	HS6-5-4	M4	SKD5	X30WCrV9-3	H21	
	SKH55	HS6-5-2-5	-	SKD6	-	H11	
SKH56	-	M36	SKD61	X40CrMoV5-1	H13		
SKH57	HS10-4-3-10	-	SKD62	X35CrWMoV5	H12		
SKH58	HS2-9-2	M7	SKD7	32CrMoV12-28	H10		
SKH59	HS2-9-1-8	M42	SKD8	38CrCoWV18-17-17	H19		
Alloy tool steel	SKS11	-	F2	SKT3	-	-	
	SKS2	-	-	SKT4	55NiCrMoV7	-	
	SKS21	-	-	SKT6	45NiCrMo16	-	

● Special use steels

Type	Japan	International	U.S.A.	Type	Japan	International	U.S.A.
	JIS	ISO	AISI ASTM		JIS	ISO	AISI ASTM
Free cutting carbon steels	SUM11	-	1110	Free cutting carbon steels	SUM32	-	-
	SUM12	-	1109		SUM41	-	1137
	SUM21	9S20	1212		SUM42	-	1141
	SUM22	11SMn28	1213		SUM43	44SMn28	1144
	SUM22L	11SMnPb28	-	High carbon chromium	SUJ1	-	-
	SUM23	-	1215		SUJ2	B1	52100
	SUM23L	-	-		SUJ3	B2	ASTM A 485
	SUM24L	11SMnPb28	12L14				Grade 1
	SUM25	12SMn35	-		SUJ4	-	-
	SUM31	-	1117		SUJ5	-	-
	SUM31L	-	-				

Note: The above chart is based on published data and not authorized by each manufacturer.

# Symbols of Metals

● Casting or forging steels

Type	Japan	International	Each countries					
	JIS		ISO	U.S.A. AISI ASTM	Great Britain BS BS/EN	Germany DIN DIN/EN	France NF NF/EN	Russia ГОСТ
Casting steel	Carbon steel casting	SC	200-400, 230-450, 270-480	U-	A1, A2	GS-	GE230, GE280, GE320	-
	Steel casting for welded structure	SCW	200-400W, 230-450W, 270-480W, 340-550W	WCA, WCB, WCC	A4	-	GE230, GE280	-
	Heat resisting steel casting	SCH	GX40CrSi24, GX40CrNiSi22-10, GX40NiCrSi38-19	Grade HC, HD, HF	309C30, 310C45, 330C12	-	GX40NiCrNb45-35, GX50NiCrCoW35-25-15-5	-
	Steel casting for high temperature and high pressure service	SCPH	-	Grade WC1, WC6, WC9	A1, A2, B1, B2, B3, B4, B5, B7	G20Mo5, G17CrMo5-5, G17CrMo5-10	G17CrMo9-10, GX15CrMo5, GP240GH, GP280GH	-
	Steel casting for low temperature and high pressure service	SCPL	-	Grade LCB, LC1, LC2, LC3	AL1, BL2	-	FB-M, FC1-M, FC2-M, FC3-M	-
Casting iron	Grey iron casting	FC	100,150,200,250,300,350	No.20,25,30,35,40,45,50	EN-GJL-	EN-GJL-	EN-GJL-	-
	Spheroidal graphite iron casting	FCD	700-2, 600-3, 500-7, 450-10, 400-15, 400-18, 350-22	60-40-18, 65-45-12, 8-55-06, 100-70-03, 120-90-02	EN-GJS-	EN-GJS-	EN-GJS-	BЧ
	Austempered spheroidal graphite iron casting	FCAD	-	-	EN-GJS-	EN-GJS-	EN-GJS-	-
	Austenitic iron casting	FCA-FCDA-	L-, S-	Type 1, 2, Type D-2, D-3A Class 1, 2	F1, F2, S2W, S5S	GGL-, GGG-	L-, S-	-
Forging steel	Carbon steel forging for general use	SF	-	Class A, B, C, D, E, F	C22, C25, C30, C35, C40, C45, C50, C55, C60	P285, P355	P245, P280, P305	-
	Chromium molybdenum steel forgings for general use	SFCM	-	Class E, F, G, I Grade 3A, 4 Class G, J, K, L, M	-	-	-	-
	Nickel Chromium molybdenum steel forgings for general use	SFNCM	-	Class G, H, I, J Class 3A, 4, 5, 6 Class K, L, M	-	-	-	-

● Non-ferrous alloys

Type	Japan	International	Each countries		
	JIS		ISO	U.S.A. ASTM SAE	Great Britain BS BS/EN
Copper alloy casting	CAC101	-	-	-	-
	CAC102	-	-	-	Cu-C(CC040AgradeC)
	CAC103	-	-	-	Cu-C(CC040AgradeA,B)
Brass casting	CAC201	-	-	-	CuZn15As-C(CC760S)
	CAC202	-	C85400	-	CuZn33Pb2-C(CC750S)
	CAC203	-	C85700	-	CuZn39Pb1-C(CC754S)
High strength brass casting	CAC301	-	C86500	-	CuZn35Mn2Al1Fe-C(CC765S)
	CAC302	-	C86400	-	CuZn34Mn3Al2Fe1-C(CC764S)
	CAC303	-	C86200	-	CuZn25Al5Mn4Fe3-C(CC762S)
	CAC304	-	C86300	-	CuZn25Al5Mn4Fe3-C(CC762S)
Bronze casting	CAC401	-	C84400	-	CuSn3Zn8Pb5-C(CC490K)
	CAC402	-	C90300	-	-
	CAC403	-	C90500	-	-
	CAC406	-	C83600	-	CuSn5Zn5Pb5-C(CC490K)
	CAC407	-	C92200	-	-
	CAC502A	-	-	-	-
	CAC502B	-	C90700	-	CuSn10-C(CC480K)
Phosphor bronze casting	CAC503A	-	C90800	-	CuSn12-C(CC483K)
	CAC503B	-	-	-	-
Aluminium bronze casting	CAC701	-	C95200	-	CuAl10Fe2-C(CC331G)
	CAC702	-	C95400	-	-
	CAC703	-	C95410	-	CuAl10Ni3Fe2-C(CC332G)
	CAC704	-	C95800	-	CuAl10Fe5Ni5-C(CC333G)
Silicon bronze castings	CAC801	-	-	-	-
	CAC802	-	C87500	-	-
	CAC803	-	C87400	-	CuZn16Si4-C(CC761S)

Note: The above chart is based on published data and not authorized by each manufacturer.

# Symbols of Metals

● Non-ferrous alloys

Type	Japan	International	Each countries				
	JIS	ISO	U.S.A.	Great Britain	Germany	France	
			ASTM SAE	BS BS/EN	DIN DIN/EN	NF NF/EN	
Aluminium alloy Aluminium alloy ingots for casting	AC1B	Al-Cu4MgTi	204.0		EN AC-2100		
	AC2A	-	-		-		
	AC2B	-	319.0		-		
	AC3A	-	-		EN AC-44100		
	AC4A	-	-		-		
	AC4B	Al-Si8Cu3	333.0		EN AC-46200		
	AC4C	Al-Si7Mg(Fe)	356.0		EN AC-42000		
	AC4CH	Al-Si7Mg0.3	A356.0		EN AC-42100		
	AC4D	-	355.0		EN AC-45300		
	AC5A	Al-Cu4Ni2Mg2	242.0		-		
	AC7A	-	514.0		-		
	AC8A	Al-Si12CuNiMg	-		EN AC-48000		
	AC8B	-	-		-		
	AC8C	-	332.0		-		
	Aluminium alloy Aluminium alloy die casting	ADC1	-	A413.0		-	
ADC3		-	A360.0		-		
ADC5		-	518.0		-		
ADC6		-	-		-		
ADC10		-	-		-		
ADC10Z		-	A380.0		-		
ADC12		-	-		-		
ADC12Z		-	383.0		-		
Magnesium alloy Magnesium alloy casting	ADC14	-	B390.0		-		
	MC5	-	AM100A		-		
	MC6	-	ZK51A		-		
	MC7	-	ZK61A		-		
	MC8	MgRE3Zn2Zr	EZ33A		EN MC65120		
	MC9	MgAg3RE2Zr	QE22A		EN MC65210		
	MC10	MgZn4RE1Zr	ZE41A		EN MC35110		
	Magnesium alloy Magnesium alloy die casting	MD1A	-	AZ91A		G-A9Z1Y4	
		MDC1B	-	AZ91B		-	
		MDC1D	MgAl9Zn1(A)	AZ91D		EN MC21120	
MDC2B		MgAl6Mn	AM60B		EN MC21320		
Aluminium alloy Aluminium alloy extruded shapes	A5052S	-	5052		EN AW-5052		
	A5454S	-	5454		EN AW-5454		
	A5083S	AlMg4.5Mn0.7	5083		EN AW-5083		
	A5086S	-	5086		EN AW-5086		
	A6061S	AlMg1SiCu	6061		EN AW-6061		
	A6063S	AlMg0.7Si	6063		EN AW-6063		
	A7003S	-	-		EN AW-7003		
	A7N01S	-	-		-		
A7075S	AlZn5.5MgCu	7075		EN AW-7075			

Note: The above chart is based on published data and not authorized by each manufacturer.

# Approximate Conversion Table of Hardness

## ● Approximate conversion value for Brinell hardness

(The source: JIS HB Ferrous Materials and Metallurgy I -2005)

HB		HV	Rockwell				HS		Approx. tensile strength (Mpa)
Brinell, 10mm ball, Load 3000kg			HRA	HRB	HRC	HRD	Shore		
Standard ball	Tungsten carbide ball								
-	-	940	85.6	-	68.0	76.9	97	-	
-	-	920	85.3	-	67.5	76.5	96	-	
-	-	900	85.0	-	67.0	76.1	95	-	
-	(767)	880	84.7	-	66.4	75.7	93	-	
-	(757)	860	84.4	-	65.9	75.3	92	-	
-	(745)	840	84.1	-	65.3	74.8	91	-	
-	(733)	820	83.8	-	64.7	74.3	90	-	
-	(722)	800	83.4	-	64.0	73.8	88	-	
-	(712)	-	-	-	-	-	-	-	
-	(710)	780	83.0	-	63.3	73.3	87	-	
-	(698)	760	82.6	-	62.5	72.6	86	-	
-	(684)	740	82.2	-	61.8	72.1	-	-	
-	(682)	737	82.2	-	61.7	72.0	84	-	
-	(670)	720	81.8	-	61.0	71.5	83	-	
-	(656)	700	81.3	-	60.1	70.8	-	-	
-	(653)	697	81.2	-	60.0	70.7	81	-	
-	(647)	690	81.1	-	59.7	70.5	-	-	
-	(638)	680	80.8	-	59.2	70.1	80	-	
-	630	670	80.6	-	58.8	69.8	-	-	
-	627	667	80.5	-	58.7	69.7	79	-	
-	-	677	80.7	-	59.1	70.0	-	-	
-	601	640	79.8	-	57.3	68.7	77	-	
-	-	640	79.8	-	57.3	68.7	-	-	
-	578	615	79.1	-	56.0	67.7	75	-	
-	-	607	78.8	-	55.6	67.4	-	-	
-	555	591	78.4	-	54.7	66.7	73	2055	
-	-	579	78.0	-	54.0	66.1	-	2015	
-	534	569	77.8	-	53.5	65.8	71	1985	
-	-	553	77.1	-	52.5	65.0	-	1915	
-	514	547	76.9	-	52.1	64.7	70	1890	
(495)	-	539	76.7	-	51.6	64.3	-	1855	
-	-	530	76.4	-	51.1	63.9	-	1825	
-	495	528	76.3	-	51.0	63.8	68	1820	
(477)	-	516	75.9	-	50.3	63.2	-	1780	
-	-	508	75.6	-	49.6	62.7	-	1740	
-	477	508	75.6	-	49.6	62.7	66	1740	
(461)	-	495	75.1	-	48.8	61.9	-	1680	
-	-	491	74.9	-	48.5	61.7	-	1670	
-	461	491	74.9	-	48.5	61.7	65	1670	
444	-	474	74.3	-	47.2	61.0	-	1595	
-	-	472	74.2	-	47.1	60.8	-	1585	
-	444	472	74.2	-	47.1	60.8	63	1585	

HB		HV	Rockwell				HS		Approx. tensile strength (Mpa)
Brinell, 10mm ball, Load 3000kg			HRA	HRB	HRC	HRD	Shore		
Standard ball	Tungsten carbide ball								
429	429	455	73.4	-	45.7	59.7	61	1510	
415	415	440	72.8	-	44.5	58.8	59	1460	
401	401	425	72.0	-	43.1	57.8	58	1390	
388	388	410	71.4	-	41.8	56.8	56	1330	
375	375	396	70.6	-	40.4	55.7	54	1270	
363	363	383	70.0	-	39.1	54.6	52	1220	
352	352	372	69.3	(110.0)	37.9	53.8	51	1180	
341	341	360	68.7	(109.0)	36.6	52.8	50	1130	
331	331	350	68.1	(108.5)	35.5	51.9	48	1095	
321	321	339	67.5	(108.0)	34.3	51.0	47	1060	
311	311	328	66.9	(107.5)	33.1	50.0	46	1025	
302	302	319	66.3	(107.0)	32.1	49.3	45	1005	
293	293	309	65.7	(106.0)	30.9	48.3	43	970	
285	285	301	65.3	(105.5)	29.9	47.6	-	950	
277	277	292	64.6	(104.5)	28.8	46.7	41	925	
269	269	284	64.1	(104.0)	27.6	45.9	40	895	
262	262	276	63.6	(103.0)	26.6	45.0	39	875	
255	255	269	63.0	(102.0)	25.4	44.2	38	850	
248	248	261	62.5	(101.0)	24.2	43.2	37	825	
241	241	253	61.8	100.0	22.8	42.0	36	800	
235	235	247	61.4	99.0	21.7	41.4	35	785	
229	229	241	60.8	98.2	20.5	40.5	34	765	
223	223	234	-	97.3	(18.8)	-	-	-	
217	217	228	-	96.4	(17.5)	-	33	725	
212	212	222	-	95.5	(16.0)	-	-	705	
207	207	218	-	94.6	(15.2)	-	32	690	
201	201	212	-	93.8	(13.8)	-	31	675	
197	197	207	-	92.8	(12.7)	-	30	655	
192	192	202	-	91.9	(11.5)	-	29	640	
187	187	196	-	90.7	(10.0)	-	-	620	
183	183	192	-	90.0	(9.0)	-	28	615	
179	179	188	-	89.0	(8.0)	-	27	600	
174	174	182	-	87.8	(6.4)	-	-	585	
170	170	178	-	86.8	(5.4)	-	26	570	
167	167	175	-	86.0	(4.4)	-	-	560	
163	163	171	-	85.0	(3.3)	-	25	545	
156	156	163	-	82.9	(0.9)	-	-	525	
149	149	156	-	80.8	-	-	23	505	
143	143	150	-	78.7	-	-	22	490	
137	137	143	-	76.4	-	-	21	460	
131	131	137	-	74.0	-	-	-	450	
126	126	132	-	72.0	-	-	20	435	
121	121	127	-	69.8	-	-	19	415	
116	116	122	-	67.6	-	-	18	400	
111	111	117	-	65.7	-	-	15	385	

Note : Figures in ( ) are not commonly used.



# Surface Roughness

(According to JIS B 0601, 2001 and its explanation.)

Type	Symbol	How to determine	Example (Fig.)
Arithmetic mean roughness	<b>Ra</b>	<p>Ra means the value obtained by the following formula and expressed in micrometer (μm) when sampling only the reference length from the roughness curve in the direction of mean line, taking X-axis in the direction of mean line and Y-axis in the direction of longitudinal magnification of this sampled part and the roughness curve is expressed by y- f (x):</p> $Ra = \frac{1}{\ell} \int_0^{\ell}  f(x)  dx$ <p>where, ℓ : reference length</p>	
Maximum height	<b>Rz</b>	<p>Rz shall be that only the reference length is sampled from the roughness curve in the direction of mean line, the distance between the top of profile peak line and the bottom of profile valley line on this sampled portion is measured in the longitudinal magnification direction of roughness curve and the obtained value is expressed in micrometer (μm).</p> $Rz = Rp + Rv$	
Ten point mean roughness	<b>RzJIS</b>	<p>RzJIS shall be that only the reference length is sampled from the roughness curve in the direction of its mean line, the sum of the average value of absolute values of the heights of five highest profile peaks (Zp) and the depths of five deepest profile valleys (Zv) measured in the vertical magnification direction from the mean line of this sampled portion and this sum is expressed in micrometer (μm)</p> $Rz_{JIS} = \frac{ Zp1 + Zp2 + Zp3 + Zp4 + Zp5  +  Zv1 + Zv2 + Zv3 + Zv4 + Zv5 }{5}$	<p>where, Zp1, Zp2, Zp3, Zp4, Zp5 : altitudes of the heights of five highest profile peaks of the sampled portion corresponding to the reference length ℓ                      where, Zv1, Zv2, Zv3, Zv4, Zv5 : altitudes of the depths of five deepest profile valleys of the sampled portion corresponding to the reference length ℓ</p>

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### **Tungaloy Singapore (Pte.), Ltd.**

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