CBNCERAMICSPCD

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ADVANCED MATERIALS SOLUTIONS

S K H N


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Unleash the Powerhouse of Tungaloy and NTK with its Advanced Materials Solutions: Ceramics, CBN, and PCD

With our combined expertise, Tungaloy and NTK deliver unparalleled solutions in Ceramics, CBN, and PCD for ISO material groups K, S, H, and N. Experience the synergy of our Full Solutions Material approach that exceeds expectations and drives success. Explore our catalog to find the right tools for your most challenging applications

ADVANCED MATERIALS

CERAMIC SOLUTIONS

S

CER-1

Guidelines
for Turning
Selection Guides
Solutions
for Grooving
for Milling
Selection Guides
Solutions

K

CER-34

Guidelines
for Turning
Selection Guides
Solutions
for Grooving
Selection Guides
Solutions
for Milling
Selection Guides
Solutions

H

Guidelines for Turning

CER-67

Sintered metal

Guidelines for Turning

CBN-119

CBN SOLUTIONS

H

Guidelines for Turning
Solutions
for Grooving

CBN-1

K

Guidelines for Turning
Selection Guides
Solutions
for Milling

CBN-95

S

Guidelines for Turning
Solutions

CBN-111

PCD SOLUTIONS

N

Guidelines for Turning
Selection Guides
Solutions
for Grooving
Selection Guides
Solutions
for Milling
Selection Guides
Solutions

PCD-1

THE NECESSITY OF ADVANCED TOOL MATERIALS BEYOND CARBIDE

Ceramic, CBN, and PCD for Modern Machining Applications

Modern manufacturing industries—such as aerospace, automotive, energy, and medical devices—are increasingly using materials that offer higher strength, wear resistance, and heat tolerance. These difficult-to-cut materials, including heat-resistant superalloys, hardened steels, and non-ferrous metals, often exceed the capabilities of traditional carbide tools.

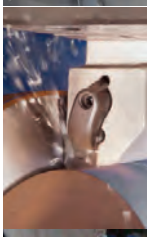
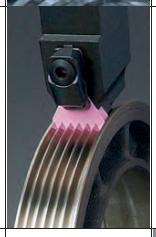
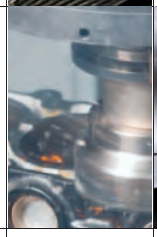
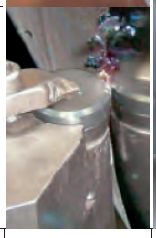
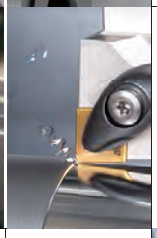
While carbide remains a versatile standard, its limitations become clear in high-demand applications:

- Loss of hardness at elevated temperatures
- Rapid wear when cutting high-hardness materials
- Susceptibility to built-up edges and chemical wear

To meet the demands of modern machining, advanced tool materials such as Ceramic, CBN, and PCD offer superior solutions in performance, durability, and cost-efficiency.

Material	Key Strengths	Ideal for
CBN (Cubic Boron Nitride)	Second hardest material after diamond; optimal for hardened steels.	Retains hardness at elevated temperatures, excellent for finishing applications requiring high precision.
Ceramic	Maintains hardness at high temperatures, excellent wear and heat resistance.	Significantly improved tool life and productivity in high-speed cutting of difficult-to-cut materials.
PCD (Polycrystalline Diamond)	Ultra-hard diamond particles sintered together.	High-speed, high-quality machining of non-ferrous materials (aluminum alloys, copper alloys, etc.)

Application Map of Grades

ISO	Turning			Grooving			Milling		
	Ceramic	CBN	PCD	Ceramic	CBN	PCD	Ceramic	CBN	PCD
S			–		–	–		–	–
K			–		–	–			–
H			–	–		–	–	–	–
N	–	–		–	–		–	–	
	–		–	–	–	–	–	–	–

S HEAT-RESISTANT ALLOYS (NI, CO-BASED, TI ALLOY)

Typical Industries & Applications

Aerospace: Turbine blades, engine disks, shafts

Energy: Gas turbine parts, thermal-resistant components

Medical: Titanium implants and housings

Material Properties & Machining Challenges

Low thermal conductivity generates high cutting temperatures.

High work hardening increases cutting forces.

Heat concentration at the cutting edge shortens tool life.

Recommended Tool Materials

Ceramic:
Maintains hardness above 1,000°C

Suitable for high-speed roughing
(*Vc* = 150 - 300 m/min)

Excellent wear resistance in continuous cuts

CBN:
Ideal for high-precision finishing.

Maintains stability and hardness at high temperatures.

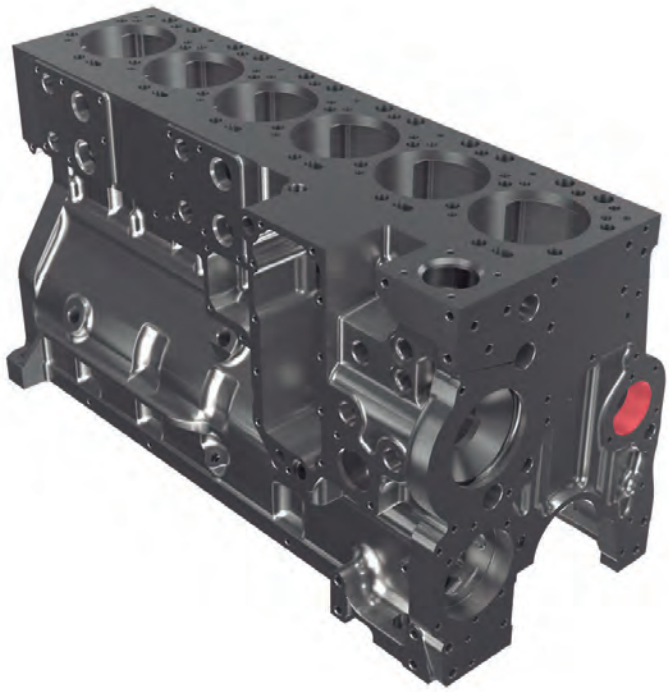
Delivers tight tolerances and excellent surface finishes.

K CAST IRON
(GREY CAST IRON, DUCTILE CAST IRON)

Typical Industries & Applications

Automotive: Brake components, engine blocks, manifolds

Machinery: Housings, pumps, gearboxes



Material Properties & Machining Challenges

Chips are powder-like requires high wear resistance.

Abrasive nature rapid tool wear on standard carbide.

Recommended Tool Materials

Ceramic:
Excellent wear resistance in continuous, high-speed cuts.

Ideal for large-volume machining of grey cast iron.

CBN:
Recommended for alloyed or hardened cast iron.

Provides better wear resistance and durability under tough conditions.

H HARDENED STEELS (50–65+ HRC)

Typical Industries & Applications

Automotive: Transmission gears, bearings, transmission shafts

Die & Mold: Injection molds, forging and press dies

General Engineering: High-load shafts, rollers

Material Properties & Machining Challenges

High hardness and abrasion resistance.

Generates strong cutting forces and heat.

Carbide tools often fail due to rapid flank wear or edge chipping.

Recommended Tool Materials

CBN:
Outstanding hardness and wear resistance.

Maintains performance above 1,000°C.

Ideal for high-speed finishing and dimensional accuracy.

Ceramic:
Effective in stable conditions (continuous cuts, minimal vibration)

Allows higher speeds than carbide.

Best suited for moderate to high-speed roughing.

N NON-FERROUS METALS (ALUMINUM, COPPER ALLOYS)

Typical Industries & Applications

Electronics: Connectors, housings

Automotive: Lightweight structural components

Medical Devices: Casings, surgical tools

Material Properties & Machining Challenges

Soft materials prone to built-up edge and chip adhesion.

Surface finish and chip control are critical.

Carbide often lacks the wear resistance and cleanliness of cut required.

Recommended Tool Materials

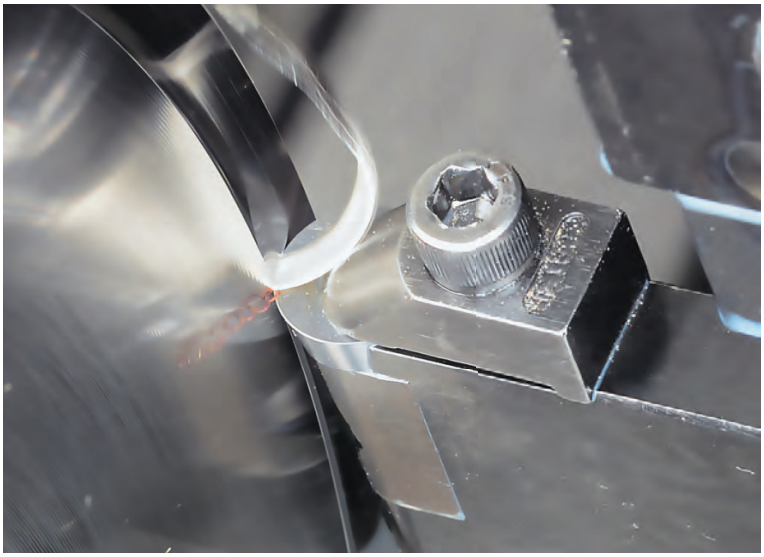
PCD:

Extremely high hardness, resists chip adhesion.

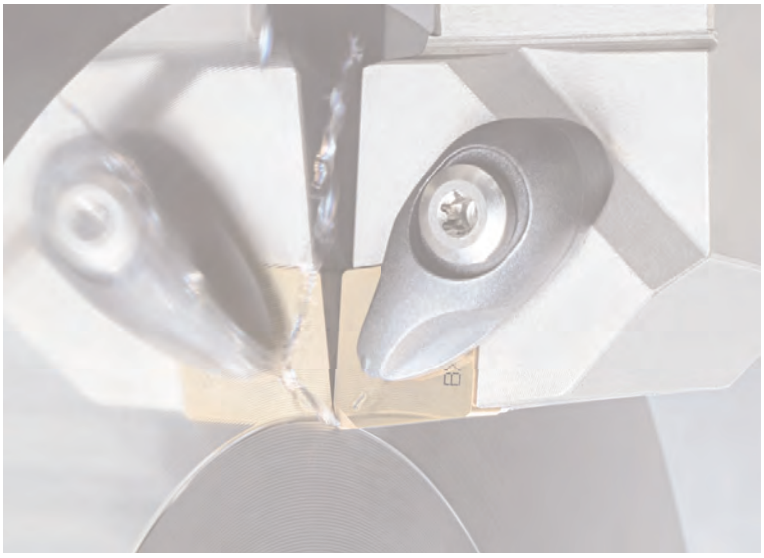
Enables high-speed machining with long tool life.

Delivers excellent surface finish and dimensional control.

ADVANCED
MATERIALS SOLUTIONS



CERAMIC
SOLUTIONS



CBN
SOLUTIONS

PCD
SOLUTIONS

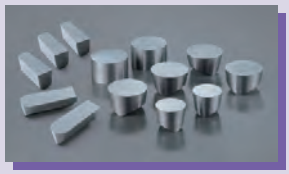
Ceramic

Superalloy machining

BIDEMICS - Game Changer

- 480m/min Speed Capability
- Double tool life at whisker's speed range

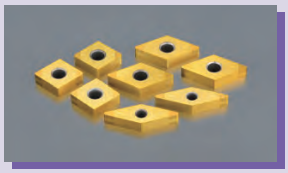
JX1



■Features
- Up to 480m/min speed capability
- Much longer tool life at Whisker ceramics' speed range
- Superior surface finish vs. Whisker ceramics

■Work Materials
- Inco 718 • 718 Plus
- Powdered metal
- Inco 625 • Rene

JP2



■Features
- 10 to 15x speed capability vs. carbide
- Better wear resistance and notching resistance than CBNs
- Superior surface finish to Carbide or CBN

■Work Materials
- Inco 718 • 718 Plus
- Powdered metal • Inco 625 • Rene

SX7

■Features
- Can run at same cutting condition as whisker ceramics
- Best grade for high-speed milling

■Work Materials
- Inco 718 • Inco 625
- Waspaloy • Udimet 720

SX3

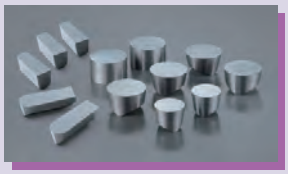
■Features
- Excellent wear resistance and toughness. Wide range of HRSA machining applications: Roughing with scale - semi finishing turning.
- Able to machine even the newest generation of HRSA work materials (like Rene) as well as most common HRSA materials; such as Inconel 718.

■Work Materials
- Inco 718 • 718 Plus
- Powdered metal • Inco 625
- Rene

SiAlON - Workhorse

- Durable for scale to semi-finish machining

JX3



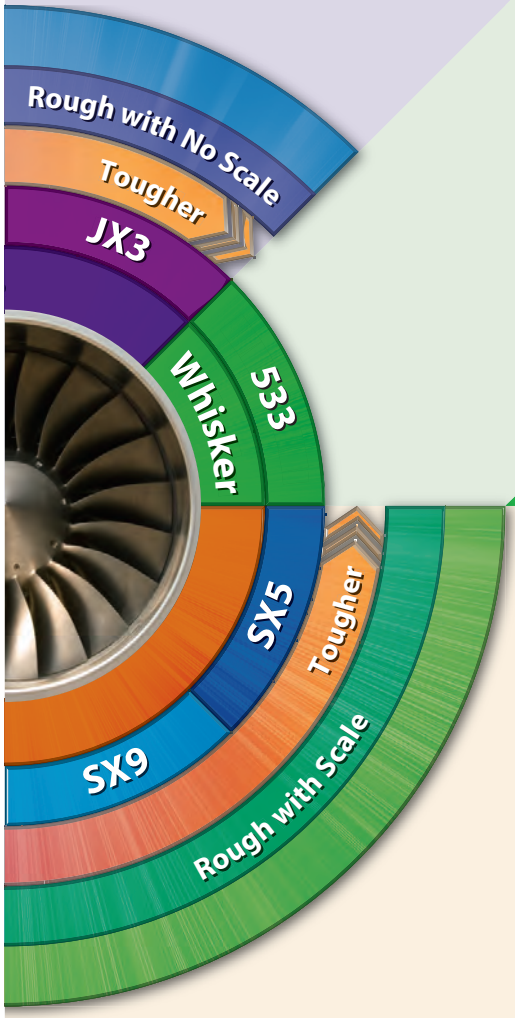
■Features
- Added toughness in BIDEMICS
- Same speed capability as JX1

■Work Materials
- Inco 718
- 718 Plus
- Powdered metal
- Inco 625
- Rene

533

■Features
- Better flank wear resistance compared to SiAlON ceramics
- Better notching resistance compared to competitor's whisker ceramics

■Work Materials
- Inco 718
- Inco 625



Whisker - Versatile Player

● Productivity and reliability

SX5

■Features
- Best grade for scale and interruptions
- Best grade for machining high-cobalt alloys

■Work Materials
- Waspaloy
- Udimet 720
- 718 Plus
- Rene 41

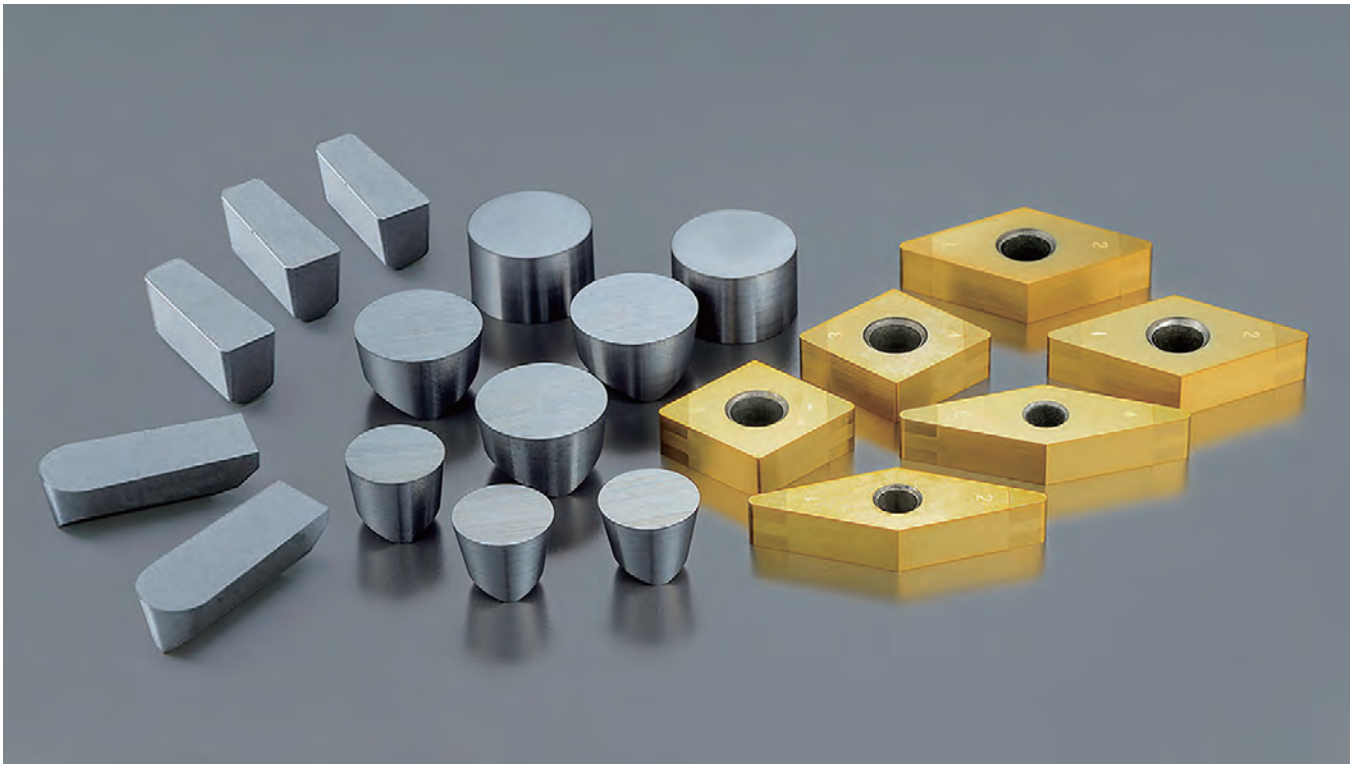
※ Production by order.

SX9

■Features
- Extreme toughness makes higher feed and heavier DOC machining possible
- Best grade for machining Inco 718 with scale

■Work Materials
- Inco 718
- Inco 706
- Inco 713
- Rene

BIDEMICS



Superalloys, which are mainly used in the aircraft industry, have low thermal conductivity, high temperature strength, high work hardening, and high adhesion to tool materials, making them extremely difficult to cut, and improving production efficiency has been a key issue.
BIDEMICS is a new category of material that combines various materials to achieve high strength and high hardness. It enables highly efficient machining that exceeds the performance of conventional carbide and ceramics.

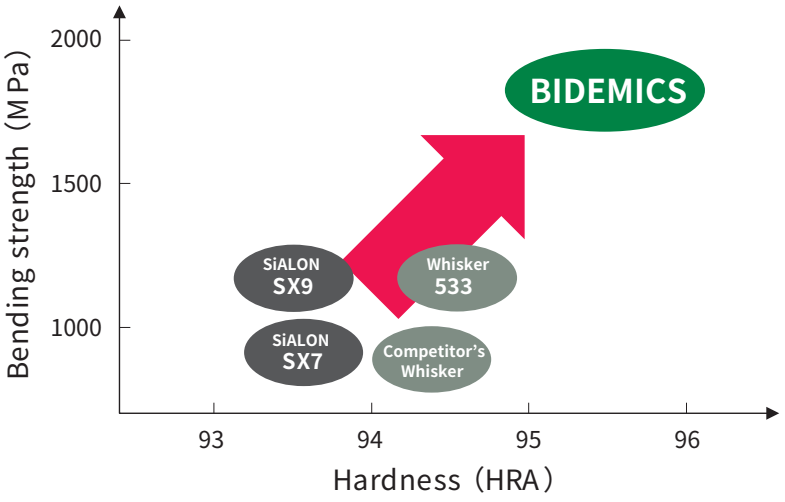
Insert grade, applications, and features

Work material	Grade	Application
S	JX1	Semi-finishing/rough machining of superalloys (non scale) Cutting speed up to Vc=500m/min. Longer life and better machined surface compared to ceramic grades
	JX3	Semi-finishing/rough machining of superalloys (non scale) Cutting speed up to Vc=480m/min. Longer life and better machined surface compared to ceramic grades
	120	Finish machining of superalloys Cutting speed up to Vc=500m/min. Longer life and better machined surface compared to carbide tools
	JP2	Finish machining of superalloys Cutting speed up to Vc=480m/min. Longer life and better machined surface compared to carbide tools

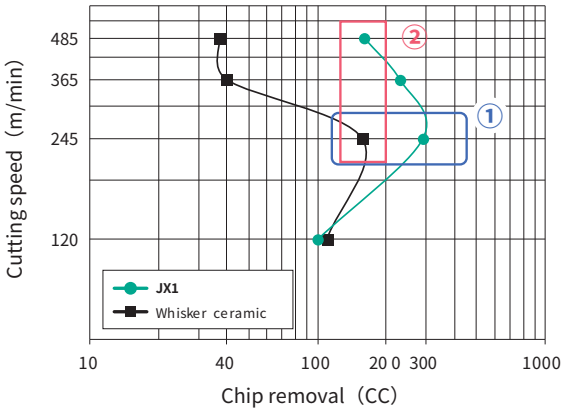
More info

Physical properties

Grade	Hardness HRA	Bending Strength MPa	Thermal Conductivity W/m・K
JX1	95.5	1,800	40
533	94.5	1.200	35



Machining productivity comparison between JX1 and Whisker Ceramics



①Longer tool life

JX1/JX3's combination of High Hardness,Superior Thermal Conductivity and Improved Strength compared to Whisker ceramics results in significantly longer tool life when applied at typical Whisker ceramic speeds, feeds, and depth of cut.

②Higher Speeds, More Productivity

JX1/JX3's superior physical properties compared to Whisker ceramic enable you to increase speeds; potentially as much as 2X Whisker ceramic speeds; increasing productivity and potentially offsetting the need for additional equipment to meet increasing demands.

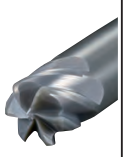
Chips break easily at higher cutting speeds vs the typically continuous chips of HRSA materials. The result is more efficient chip removal.

Recommended Cutting Conditions

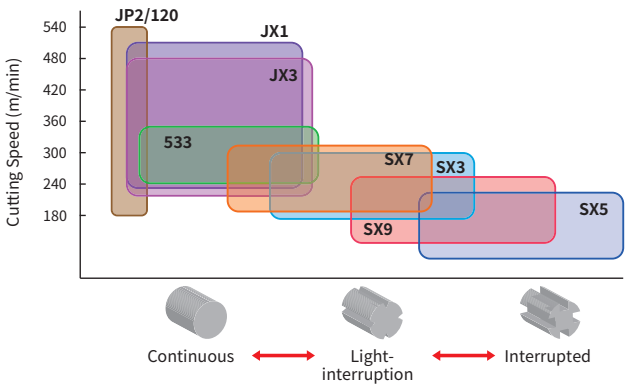
Grade	Work material	Application	Process	Cutting speed (m/min)	Feed (mm/rev)	Depth of cut (mm)	Coolant
JX1	Superalloys	turning	roughing	180-**480**	0.15-0.30	1.0-2.5	WET
JX3			roughing	180-**480**	0.10-0.25	0.5-2.0	WET
120	Superalloys	turning	finishing	180-**500**	0.05-0.20	0.1-0.7	WET
JP2			finishing	180-**520**	0.10-0.25	0.25-1.0	WET

Superalloy machining

Insert grades

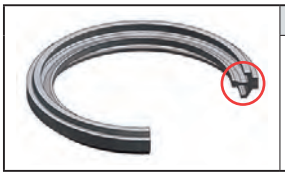
Category	Grade	Attributes	Applications						
			Scale	No scale	Profiling	Finishing	Grooving	Milling	End milling
									
BIDEMICS	JX1	Special grade with higher speed and longer tool life potential		●	●	●	●		
	JP2/120	Special grade for finish turning				●			
	JX3	Added toughness in BIDEMICS		●	●	●	●		
Whisker	533	General versatile grade for turning		●	●		●		
SiAlON	SX3	Best balance of toughness and hardness	●	●	●		●	●	
	SX5	Best grade for Waspaloy with scale	●				●		
	SX7	Versatile grade for turning and milling	●	●	●		●	●	
	SX9	Best grade for scale of Inco718	●	●	●			●	●

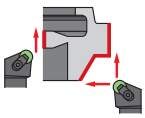
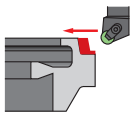
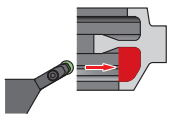
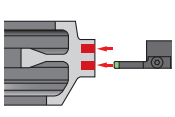
● 1st Choice ● 2nd Choice



	Grade	Rough with Scale	Rough	Semi-Finishing	Finishing
BIDEMICS	JP2/120				
	JX1				
	JX3				
Whisker	533				
SiAlON	SX7				
	SX3				
	SX9				
	SX5				

Application



Rough with scale	Rough&semi-finish	Profiling	Grooving	Milling	End milling
					

Cutting conditions

Application	Grade	Work material	Cutting speed (m/min) 180 240 300 360 420 480	Feed (mm/rev) 0.1 0.2 0.3 0.4 0.5	Depth of cut (mm) 0.5 1.0 1.5 2.0 2.5	Coolant
Rough with Scale 	SX5	Waspaloy	200(180-240)	0.3(0.2-0.35)	2.0(1.0-5.0)	WET 
	SX9	Inco718	200(180-240)	0.3(0.2-0.35)	2.0(1.0-5.0)	
	SX3	Overall	240(180-270)	0.2(0.1-0.22)	2.0(1.0-5.0)	
Rough no Scale 	JX1 JX3	Overall	210-390(180-480)	0.2(0.13-0.28)	1.7(1.0-2.5)	WET 
	SX9 SX3 SX7	Overall	210(180-270)	0.2(0.15-0.3)	2.0(1.0-2.5)	
	533	Overall	240(180-300)	0.2(0.12-0.25)	1.7(1.0-2.5)	
Profiling & Semi-Finish 	JX1 JX3	Overall	210-450(180-480)	0.2(0.1-0.25)	1.5(1.0-2.0)	WET 
	SX3 SX7	Overall	240(180-270)	0.2(0.12-0.25)	1.5(1.0-2.0)	
	533	Overall	240(180-330)	0.2(0.1-0.25)	1.5(1.0-2.0)	
Finishing 	JP2/120	Overall	210-480(180-510)	0.1(0.05-0.18)	0.25(0.13-0.76)	WET 
Grooving 	JX1 JX3	Overall	360(180-480)	0.07(0.05-0.1)	When using SX7 / SX3 / SX5, increase feed rates 100% vs. Whisker Ceramics	WET 
	SX5	Waspaloy	210(180-240)	0.15(0.07-0.17)		
	SX9	Overall	230(180-270)	1.1(0.07-0.15)		
	SX3 SX7	Overall	230(180-270)	1.1(0.07-0.15)		
	533	Overall	240(180-330)	0.07(0.05-0.1)		

Application	Grade	Work material	Cutting speed (m/min) 450 600 750 900 1000 1200	Feed (mm/t) 0.05 0.07 0.1 0.12 0.15	Depth of cut (mm) 0.5 1.0 1.5 2.0 2.5	Coolant
Milling 	SX3 SX7	Overall	810(600-1200)	0.1(0.07-0.12)	1.7(1.0-2.5)	DRY 
	SX9	Overall	750(450-1000)	0.12(0.1-0.15)	2.0(1.0-2.5)	
End milling 	SX9	Overall	600(300-1000)	0.02-0.03		DRY 

Superalloy machining

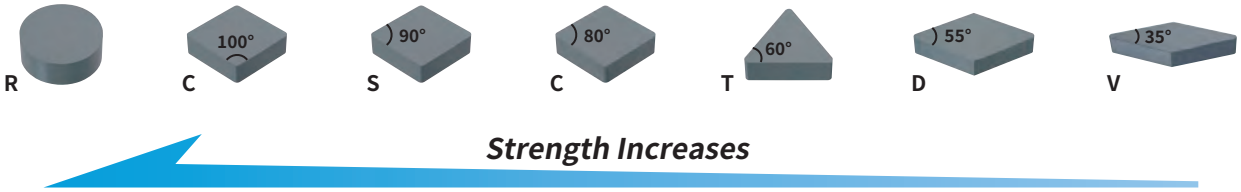
Key Points in Machining

The key to successful superalloy machining is the use of "BIDEMICS" and "ceramics".

- BIDEMICS and ceramic materials improve productivity in machining superalloys.
- BIDEMICS has excellent VB wear resistance and SiAlON ceramics has excellent wear resistance on the infeed side
- BIDEMICS provides high-speed machining and superior surface finishes not possible with conventional ceramic materials.
- Optimizing cutting conditions and tool grade enables more stable machining.

Selection of insert shape with toughness

Select inserts with higher strength cutting edges if at all possible.

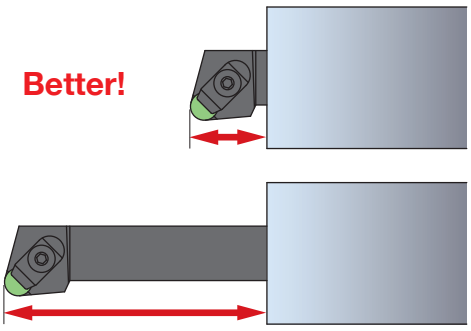


Selection of corner R with superior strength

The larger the insert's corner radius, the stronger the insert's cutting edge and the longer its life. However, please note that the larger the corner radius, the higher the cutting resistance. In general, RNGN1207 inserts are used for rough machining and CNGN1204 inserts are used for finish machining of heat resistant alloys.

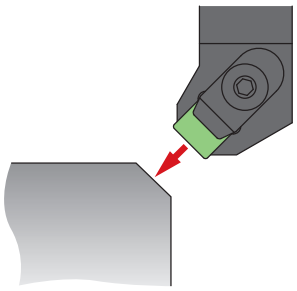
Minimize the amount of overhang

If the overhang is too long, chattering or chip loss will occur.



Insert chipping protection

Before machining, be sure to chamfer the corners of the workpiece. Machining sharp corners of workpieces without chamfering will result in chipping or defects of the inserts.



Coolant

WET machining is recommended when using BIDEMICS, SiAlON-based ceramics, or whisker ceramics in turning. However, DRY machining may be more effective in case of strong interrupted machining.
When using SiAlON ceramics (SX3, SX7, SX9) in milling, be sure to use DRY machining.

Cutting Edge Treatment

Sharp edge preparation is required when machining superalloys, but in the case of ceramic inserts, minute angle chamfering or round honing is better for wear resistance, especially border wear resistance.

Troubleshooting

Insert Breakage

- Cutting Condition ➡ ➡CER-10
- Programming at Scale ➡ ➡CER-11
- Insert Grade ➡ Choose tougher grade
- Insert Shape ➡ ➡CER-13
- Edge Preparation ➡ ➡CER-13

Notching

- Cutting Condition ➡ ➡CER-10
- Depth of Cut ➡ ➡CER-11
- Lead Angle ➡ ➡CER-11
- Programming ➡ ➡CER-12
- Insert Grade ➡ Choose SiAlON ceramic

Flank Wear

- Cutting Condition ➡ ➡CER-10
- Insert Grade ➡ Choose harder grade

Flaking

- Cutting Condition ➡ ➡CER-10
- Programming ➡ ➡CER-12
- Edge Preparation ➡ ➡CER-13

Heat

- Cutting Condition ➡ ➡CER-10
- Insert Shape ➡ ➡CER-13
- Edge Preparation ➡ ➡CER-13

Chatter

- Cutting Condition ➡ ➡CER-10

Troubleshooting / Superalloy machining

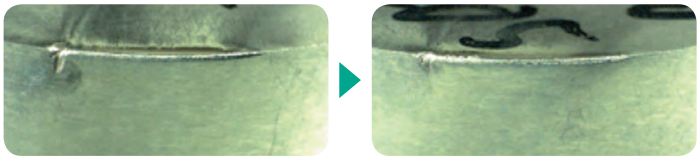
Adjustment of cutting conditions

	Cutting speed (m/min)		Feed rate (mm/rev)		Grade attribute		
	SiAlON	BIDEMICS	SiAlON	BIDEMICS	BIDEMICS	SiAlON	Whisker
 Notching		↗ 「a」	↗ 「b」		●	●	
 Flank wear	↘ 「c」		↗ 「d」		●	● SX3 SX7	●
 Breakage			↘	↘	●	●	
Heat	↘	↘	↘	↘	—	—	—
Chatter	↗	↗	↘	↘	—	—	—

● 1st Choice ● 2nd Choice

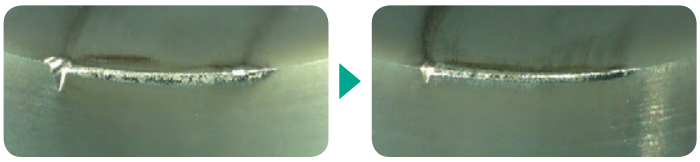
Result

「a」 WA1 : Increase cutting speed



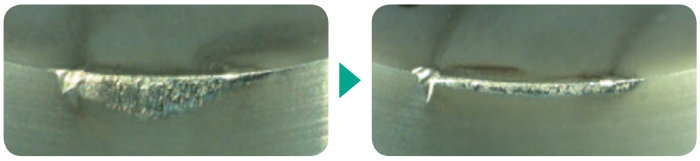
150m/ min 550m/ min

「b」 SX7 • SX3 • SX9 • SX5 : Increase feed rate



0.2mm/rev 0.4mm/rev

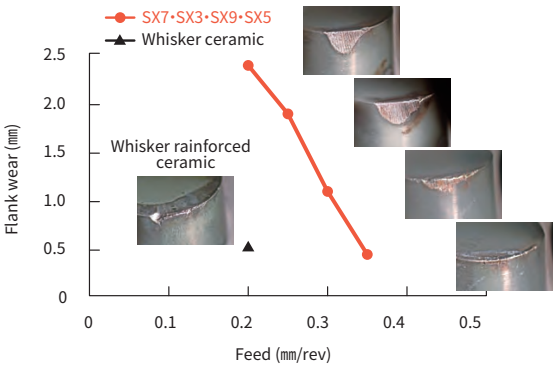
「c」 SX7 • SX3 • SX9 • SX5 : Decrease cutting speed



400m/min 150m/ min

「d」 SX7 • SX3 • SX9 • SX5 : Increase feed rate

Feed rate increased decreases wear amount of SiAlON



Cutting condition
Work material : Inco718
Insert shape : RNGN120700

Cutting Speed : 250m/min
Depth of Cut : 2.0mm
WET

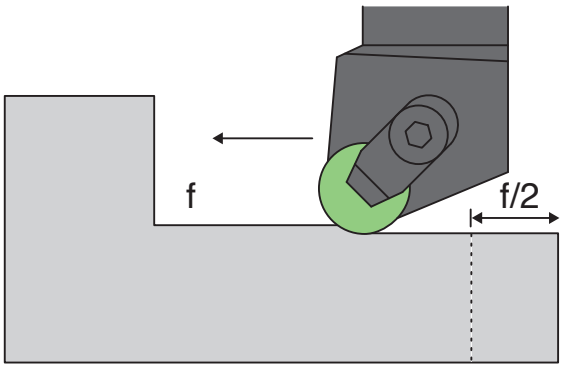
When using the SX7 & SX3 & SX9 & SX5, increased feed is necessary to increase the wear resistance of the tool. By increasing the feed rate and taking advantage of the high tool material strength of the SX7 & SX3 & SX9 & SX5, the number of times the tool and workpiece material rub against each other can be reduced, thereby reducing wear. In addition, higher feed rates shorten cycle time, increasing productivity and profitability.

Note: When machining corner R, reduce feed rate by 25% toprevent insert defects.

Machining with scale

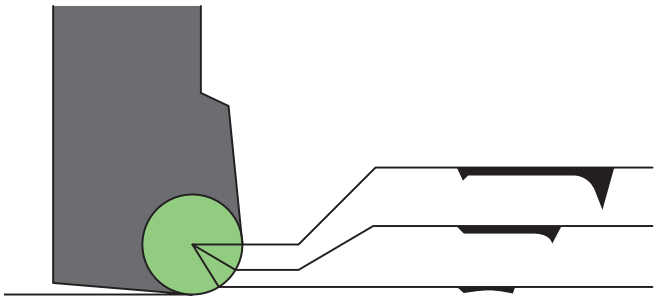
If inserts break in the early stages of scale machining, high cutting speeds and feed rates may be the cause.

Understanding the hardness of the work material is the key to a successful cutting process. Many machining operators do not know the hardness of their work material. This causes them to spend a lot of time finding the optimum cutting conditions for test machining. The higher the hardness of the work material, the lower the cutting speed should be. Also, where there is scale on the workpiece surface, the cutting speed and feed rate must be reduced by 25%. By changing the machining program in this way, excessive tool damage can be reduced.



Depth of cut

As shown in the figure on the right, as the depth of cut increases, the amount of wear, especially border wear, increases. In order to reduce border wear and extend tool life, it is necessary to control the depth of cut.
The table below shows the maximum depth of cut for RN inserts and the maximum depth of cut by corner R size. Please refer to these values to determine the depth of cut.



Recommended depth of cut

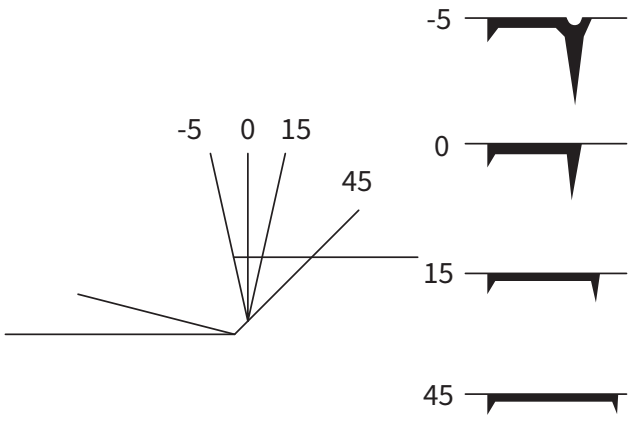
IC size of RN insert	Max. depth of cut	*Corner R size	Max. depth of cut
φ6.35mm	~1.5mm	0.8	0.2mm
φ9.525mm	~2.3mm	1.2	0.3mm
φ12.7mm	~3.2mm	1.6	0.4mm
φ25.4mm	~6.4mm	2.4	0.6mm

The optimum depth of cut is 5-15% of the insert diameter.
*In case of lead angle: 0°

Lead angle

In the machining of superalloys, the larger the lead angle, the less wear is likely to occur. Also, the larger the lead angle, the more cutting resistance is distributed over a wider area of the insert, which reduces border wear and at the same time improves tool life and workpiece surface roughness.
In addition, the larger the lead angle, the better the chip control. In the case of the SX9 inserts, which have excellent chip resistance, higher feed rates reduce wear and machining time.

Effect of lead angle on wear pattern

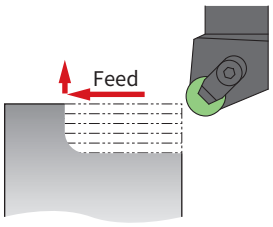


Troubleshooting / Superalloy machining

Programming

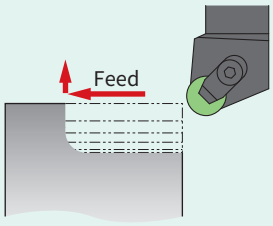
Rough

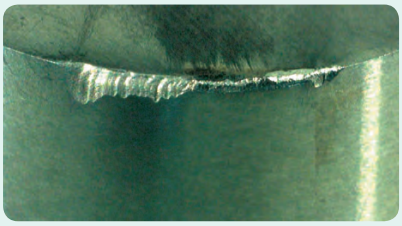
Same Depth of Cut



Note)
Notch wear on the insert cutting edge as shown is the result of multiple passes being taken at the same depth of cut. This type of wear will minimize tool life. The following programming examples will help to minimize this mode of failure.

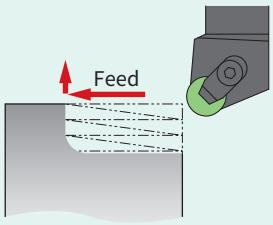
Varying Depth of Cut





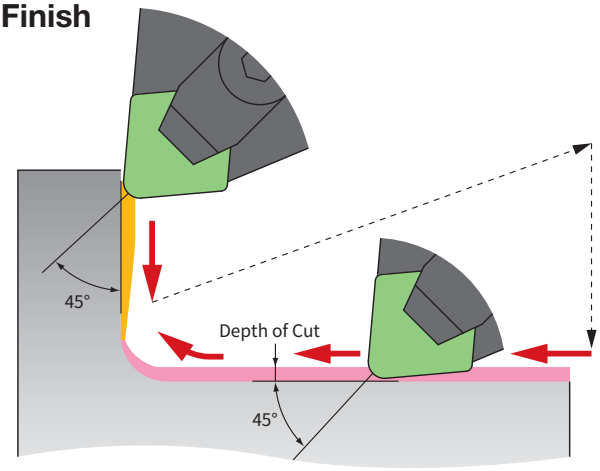
Note) Roughing while varying the depth of cut reduces notch wear because the point at which notch wear occurs changes each time.

Ramping



Note) Programming " Ramping " cuts in the same cutting direction is one of the best procedures to minimize notching. By varying the DOC, wear is distributed over the entire cutting edge not on one point.

Finish



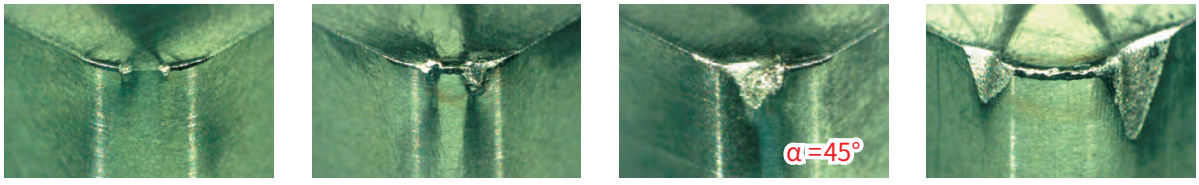
• α= 45°

(mm)

Insert radius	DOC
0.4	0.12
0.8	0.23
1.2	0.35
1.6	0.47
2.4	0.70
3.2	0.94

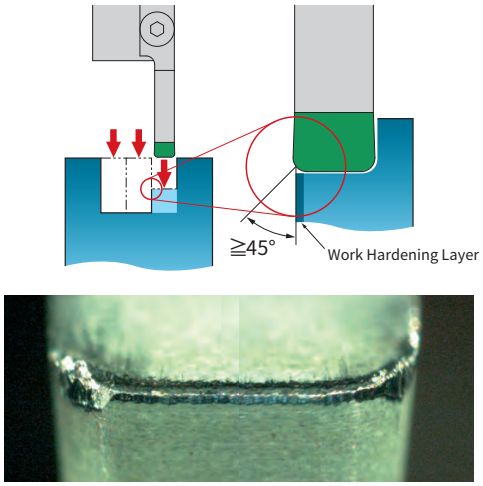
Note) The correct procedure is to take more material off during the previous roughing application.
Then remove the amount of stock suitable for the nose radius of the insert by staying
below the 45° mark of the corner radius.
This will minimize notching and allow a cut from both directions.

Depth of Cut

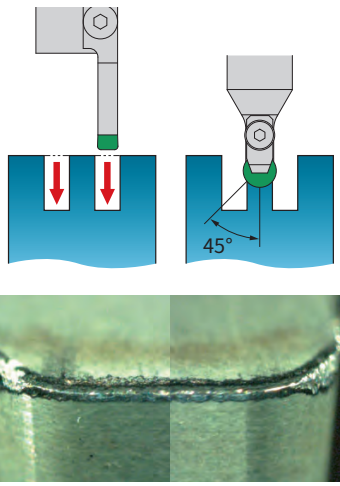


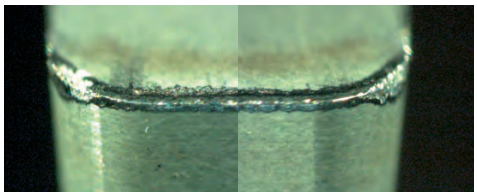
Better

Application



Change to

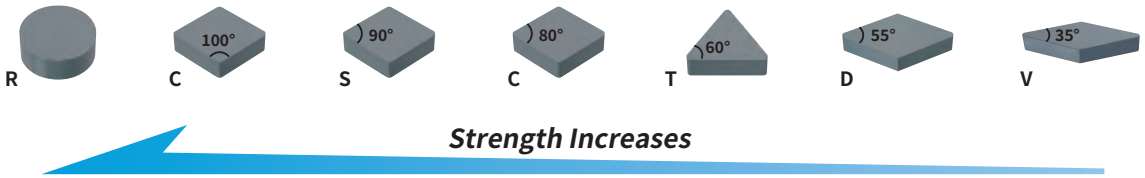




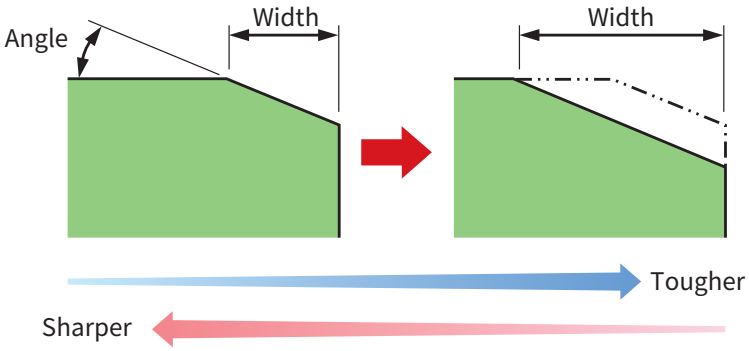
When grooving in multiple passes:
When grooving a final pass, the cutting edge contacts the workhardened area.
This causes chipping of the corner radius and border wear.

The grooving is performed on both sides, leaving the center machining point.
Finally, grooving is performed with a strong insert shape such as RCGX type.

Insert shape



Edge preparation



Slightly larger T-land on the edge preparation may eliminate flaking.

Prevention of chattering

When machining nickel-based superalloys, chattering often occurs due to increased cutting resistance. Chatter is especially likely to occur when using a holder with a large overhang for copying or grooving, when machining thin-walled workpieces, or when using a machine with low rigidity, resulting in abnormal insert wear or sudden loss of inserts. Generally, increasing the cutting speed and decreasing the feed rate will reduce or eliminate chattering. In addition, the following methods are also effective.

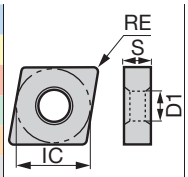
- Increase cutting speed and reduce feed rate.
- Change to an insert grade with higher hardness.
- Change to an insert with a smaller inscribed circle or smaller corner radius.
- Change the cutting edge treatment to the sharpest possible shape.
- Change to a positive insert.
- Reduce the lead angle.
- Minimum overhang.
- Change the holder material to anti-vibration material.

● : Continuous cutting
ɔ : Light interrupted cutting
✣ : Heavy interrupted cutting

CN

Rhombic, 80° with hole

P	Steel	
M	Stainless	
K	Cast iron	●ɔ ●✣
N	Non-ferrous	
S	Superalloy	● ●ɔ✣ ɔ✣
H	Hard material	



Application	Chipbreaker	Designation	Whisker 533	SiAlON SX3	SiAlON SX9	Dimension (mm) RE	IC	S	D1
Roughing to medium cutting	-	**CNGA120408E004**	●	●	●	0.8	12.7	4.76	5.16
		CNGA120408T00520	●	●	●	0.8	12.7	4.76	5.16
		CNGA120412E004	●	●	●	1.2	12.7	4.76	5.16
		CNGA120412T00520	●	●	●	1.2	12.7	4.76	5.16
		CNGA120416E004	●	●	●	1.6	12.7	4.76	5.16
		CNGA120416T00520	●	●	●	1.6	12.7	4.76	5.16

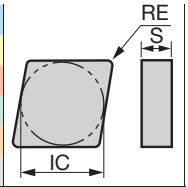
● : Line up

● : Continuous cutting
ɔ : Light interrupted cutting
✣ : Heavy interrupted cutting

CN

Rhombic, 80° without hole

P	Steel	
M	Stainless	
K	Cast iron	●ɔ ●✣
N	Non-ferrous	
S	Superalloy	● ●ɔ✣ ɔ✣ ●ɔ
H	Hard material	



Application	Chipbreaker	Designation	Whisker 533	SiAlON SX3	SiAlON SX9	Bidemics JX3	Dimension (mm) RE	IC	S	D1
Roughing to medium cutting	-	**CNGN120408E004**	●	●	●	●	0.8	12.7	4.76	-
		CNGN120408T00520	●	●	●	●	0.8	12.7	4.76	-
		CNGN120412E004	●	●	●	●	1.2	12.7	4.76	-
		CNGN120412T00520	●	●	●	●	1.2	12.7	4.76	-
		CNGN120416E004	●	●	●	●	1.6	12.7	4.76	-
		CNGN120416T00520	●	●	●	●	1.6	12.7	4.76	-
		CNGN120708E004	●	●	●	●	0.8	12.7	7.94	-
		CNGN120712E004	●	●	●	●	1.2	12.7	7.94	-
		CNGN120716E004	●	●	●	●	1.6	12.7	7.94	-
		CNGN120708T00520	●	●	●	●	0.8	12.7	7.94	-
		CNGN120712T00520	●	●	●	●	1.2	12.7	7.94	-
		CNGN120716T00520	●	●	●	●	1.6	12.7	7.94	-
	-	**CNGX120708T01020**			●		0.8	12.7	7.94	-
		CNGX120712T01020			●		1.2	12.7	7.94	-
		CNGX120716T01020			●		1.6	12.7	7.94	-

● : Line up

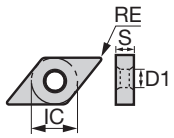
More info

● : Continuous cutting
ɔ : Light interrupted cutting
✣ : Heavy interrupted cutting

DN

Rhombic, 55° with hole

P	Steel	●ɔ
M	Stainless	
K	Cast iron	●ɔ ●✣
N	Non-ferrous	
S	Superalloy	● ●✣ ɔ✣
H	Hard material	



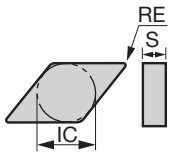
Application	Chipbreaker	Designation	Whisker 533	SiAlON SX3	SiAlON SX9	Dimension (mm) RE	IC	S	D1
Roughing to medium cutting	-	DNGA150408E004	●	●	●	0.8	12.7	4.76	5.16
		DNGA150408T00520	●	●	●	0.8	12.7	4.76	5.16
		DNGA150412E004	●	●	●	1.2	12.7	4.76	5.16
		DNGA150412T00520	●	●	●	1.2	12.7	4.76	5.16
		DNGA150416E004	●	●	●	1.6	12.7	4.76	5.16
		DNGA150416T00520	●	●	●	1.6	12.7	4.76	5.16

● : Line up

DN

Rhombic, 55° without hole

P	Steel	●ɔ
M	Stainless	
K	Cast iron	●ɔ ●✣
N	Non-ferrous	
S	Superalloy	● ●✣ ɔ✣ ●ɔ
H	Hard material	



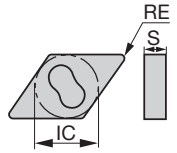
Application	Chipbreaker	Designation	Whisker 533	SiAlON SX3	SiAlON SX9	Bidemics JX3	Dimension (mm) RE	IC	S	D1
Roughing to medium cutting	-	DNGN150708E004	●	●	●	●	0.8	12.7	7.94	-
		DNGN150708T00520	●	●	●	●	0.8	12.7	7.94	-
		DNGN150712E004	●	●	●	●	1.2	12.7	7.94	-
		DNGN150712T00520	●	●	●	●	1.2	12.7	7.94	-
		DNGN150716E004	●	●	●	●	1.6	12.7	7.94	-
		DNGN150716T00520	●	●	●	●	1.6	12.7	7.94	-

● : Line up

DN

Rhombic, 55° without hole

P	Steel	
M	Stainless	
K	Cast iron	●✣
N	Non-ferrous	
S	Superalloy	ɔ✣
H	Hard material	



Application	Chipbreaker	Designation	SiAlON SX9	Dimension (mm) RE	IC	S	D1
Roughing to medium cutting	-	DNGX150708T01020	●	0.8	12.7	7.94	-
		DNGX150712T01020	●	1.2	12.7	7.94	-
		DNGX150716T01020	●	1.6	12.7	7.94	-

● : Line up

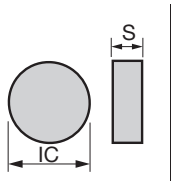
More info

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

RN

Round, without hole

P	Steel	
M	Stainless	
K	Cast iron	●◐ ●✣
N	Non-ferrous	
S	Superalloy	● ●✣ ◐✣ ◐✣ ◐✣ ◐◐ ◐◐
H	Hard material	



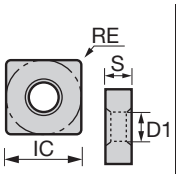
Application	Chipbreaker	Designation	Whisker 533	SiAlON SX3	SiAlON SX5	SiAlON SX7	SiAlON SX9	Bidemics JX1	Bidemics JX3	Dimension (mm) RE	IC	S	D1
Roughing to medium cutting	-	RNGN120400E004	●	●	●	●	●	●	●	-	12.7	4.76	-
		RNGN120400T00520		●					●	-	12.7	4.76	-
		RNGN120400T01020	●	●	●	●	●	●	●	-	12.7	4.76	-
		RNGN120700E004	●	●	●	●	●	●	●	-	12.7	7.94	-
		RNGN120700T00520		●					●	-	12.7	7.94	-
		RNGN120700T01020	●	●	●	●	●	●	●	-	12.7	7.94	-
		RNGN190700E004		●	●		●			-	19.05	7.94	-
		RNGN190700T00520		●	●		●			-	19.05	7.94	-
		RNGN250700E004		●	●		●			-	25.4	7.94	-
		RNGN250700T00520		●	●		●			-	25.4	7.94	-

● : Line up

SN

Square with hole

P	Steel	
M	Stainless	
K	Cast iron	●✣
N	Non-ferrous	
S	Superalloy	●✣ ◐✣
H	Hard material	



Application	Chipbreaker	Designation	SiAlON SX3	SiAlON SX9	Dimension (mm) RE	IC	S	D1
Roughing to medium cutting	-	SNGA120408E004	●	●	0.8	12.7	4.76	5.16
		SNGA120412E004	●	●	1.2	12.7	4.76	5.16
		SNGA120416E004	●	●	1.6	12.7	4.76	5.16

● : Line up

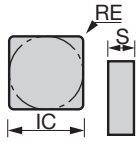
More info

● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

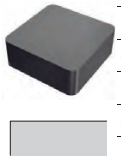
SN

Square without hole

P	Steel	
M	Stainless	
K	Cast iron	●ⓒ ●✣
N	Non-ferrous	
S	Superalloy	● ●✣ ⓒ✣
H	Hard material	



Application	Chipbreaker	Designation	Whisker 533	SiAlON SX3	SiAlON SX9	RE	IC	S	D1
Roughing to medium cutting	-	SNGN120408E004		●	●	0.8	12.7	4.76	-
		SNGN120408T01020	●			0.8	12.7	4.76	-
		SNGN120412E004		●	●	1.2	12.7	4.76	-
		SNGN120412T01020	●			1.2	12.7	4.76	-
		SNGN120416E004		●	●	1.6	12.7	4.76	-
		SNGN120416T01020	●			1.6	12.7	4.76	-
		SNGN150716E004		●	●	1.6	15.875	7.94	
		SNGN150716T01020		●	●	1.6	15.875	7.94	-
		SNGN190716E004		●	●	1.6	19.05	7.94	-
		SNGN190716T01020		●	●	1.6	19.05	7.94	-
		SNGN190724E004		●	●	2.4	19.05	7.94	-
		SNGN190724T01020		●	●	2.4	19.05	7.94	-
		SNGN250924E004		●	●	2.4	25.4	9.52	-
		SNGN250924T01020		●	●	2.4	25.4	9.52	-

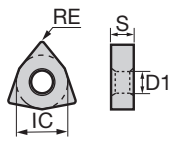


● : Line up

WN

Trigon, 80° with hole

P	Steel	
M	Stainless	
K	Cast iron	●✣
N	Non-ferrous	
S	Superalloy	●✣ ⓒ✣
H	Hard material	



Application	Chipbreaker	Designation	SiAlON SX3	SiAlON SX9	RE	IC	S	D1
Roughing to medium cutting	-	WNGA080408E004	●	●	0.8	12.7	4.76	5.16
		WNGA080408T00520	●	●	0.8	12.7	4.76	5.16
		WNGA080412E004	●	●	1.2	12.7	4.76	5.16
		WNGA080412T00520	●	●	1.2	12.7	4.76	5.16
		WNGA080416E004	●	●	1.6	12.7	4.76	5.16
		WNGA080416T00520	●	●	1.6	12.7	4.76	5.16

● : Line up

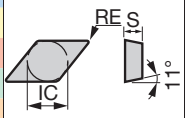
More info

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

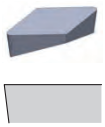
DP

Rhombic, 55° without hole, Positive 11°

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	◐✣ ◐
H	Hard material	



Application	Chipbreaker	Designation	SiAlON SX3	Bidemics JX3	RE	IC	S	D1
Roughing to medium cutting	-	DPGN150612E004-V	●	●	1.2	12.7	6.35	-

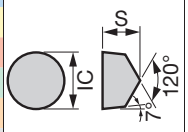


● : Line up

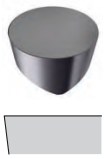
RC

Round, without hole Positive 7°

P	Steel	
M	Stainless	
K	Cast iron	◐ ◐✣
N	Non-ferrous	
S	Superalloy	● ◐✣ ◐✣ ◐✣ ◐✣ ◐ ◐
H	Hard material	



Application	Chipbreaker	Designation	Whisker 533	SiAlON SX3	SX5	SX7	SX9	Bidemics JX1	JX3	RE	IC	S	D1
Roughing to medium cutting	-	RCGX060400E004	●	●	●	●	●	●	●	-	6.35	4.76	-
		RCGX060400T00520		●					●	-	6.35	4.76	-
		RCGX060400T01020	●	●	●	●	●	●	●	-	6.35	4.76	-
		RCGX060600E004	●	●	●	●	●	●	●	-	6.35	6.35	-
		RCGX060600T00520		●					●	-	6.35	6.35	-
		RCGX060600T01020	●	●	●	●	●	●	●	-	6.35	6.35	-
		RCGX090700E004	●	●	●	●	●	●	●	-	9.525	7.94	-
		RCGX090700T00520		●					●		9.525	7.94	-
		RCGX090700T01020	●	●	●	●	●	●	●	-	9.525	7.94	-
		RCGX120700E004	●	●	●	●	●	●	●	-	12.7	7.94	-
		RCGX120700T00520		●					●	-	12.7	7.94	-
		RCGX120700T01020	●	●	●	●	●	●	●	-	12.7	7.94	-



● : Line up

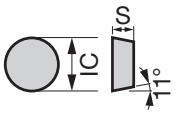
More info

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

RP

Round, without hole Positive 11°

P	Steel	◐✣ ◐✣ ◐✣
M	Stainless	
K	Cast iron	◐✣
N	Non-ferrous	
S	Superalloy	●◐✣ ◐✣ ◐✣
H	Hard material	



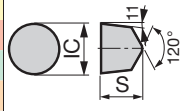
Application	Chipbreaker	Designation	SiAlON			Dimension (mm)			
			SX3	SX7	SX9	RE	IC	S	D1
Roughing to medium cutting	-	RPGN060200E004	●	●	●	-	6.35	2.38	-
		RPGN060200T00520	●	●	●	-	6.35	2.38	-
		RPGN090300E004	●	●	●	-	9.525	3.18	-
		RPGN090300T00520	●	●	●	-	9.525	3.18	-
		RPGN120400E004	●	●	●	-	12.7	4.76	-
		RPGN120400T00520	●	●	●	-	12.7	4.76	-
		RPGN120400T01020	●	●	●	-	12.7	4.76	-

● : Line up

RP

Round, without hole Positive 11°

P	Steel	
M	Stainless	
K	Cast iron	◐ ✣
N	Non-ferrous	
S	Superalloy	● ◐✣ ◐✣ ◐✣ ◐✣ ◐ ◐
H	Hard material	



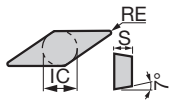
Application	Chipbreaker	Designation	Whisker	SiAlON				Bidemics		Dimension (mm)			
			533	SX3	SX5	SX7	SX9	JX1	JX3	RE	IC	S	D1
Roughing to medium cutting	-	RPGX060400E004	●	●	●	●	●	●	●	-	6.35	4.76	-
		RPGX060400T00520		●					●	-	6.35	4.76	-
		RPGX060400T01020	●	●	●	●	●	●	●	-	6.35	4.76	-
		RPGX060600E004	●	●	●	●	●	●	●	-	6.35	4.76	-
		RPGX060600T00520		●					●	-	6.35	6.35	-
		RPGX060600T01020	●	●	●	●	●	●	●	-	6.35	6.35	-
		RPGX090700E004	●	●	●	●	●	●	●	-	9.525	7.94	-
		RPGX090700T00520		●					●	-	9.525	7.94	-
		RPGX090700T01020	●	●	●	●	●	●	●	-	9.525	7.94	-
		RPGX120700E004	●	●	●	●	●	●	●	-	12.7	7.94	-
		RPGX120700T00520		●					●	-	12.7	7.94	-
		RPGX120700T01020	●	●	●	●	●	●	●	-	12.7	7.94	-

● : Line up

VC

Rhombic, 35° without hole

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	●◐✣ ●◐
H	Hard material	



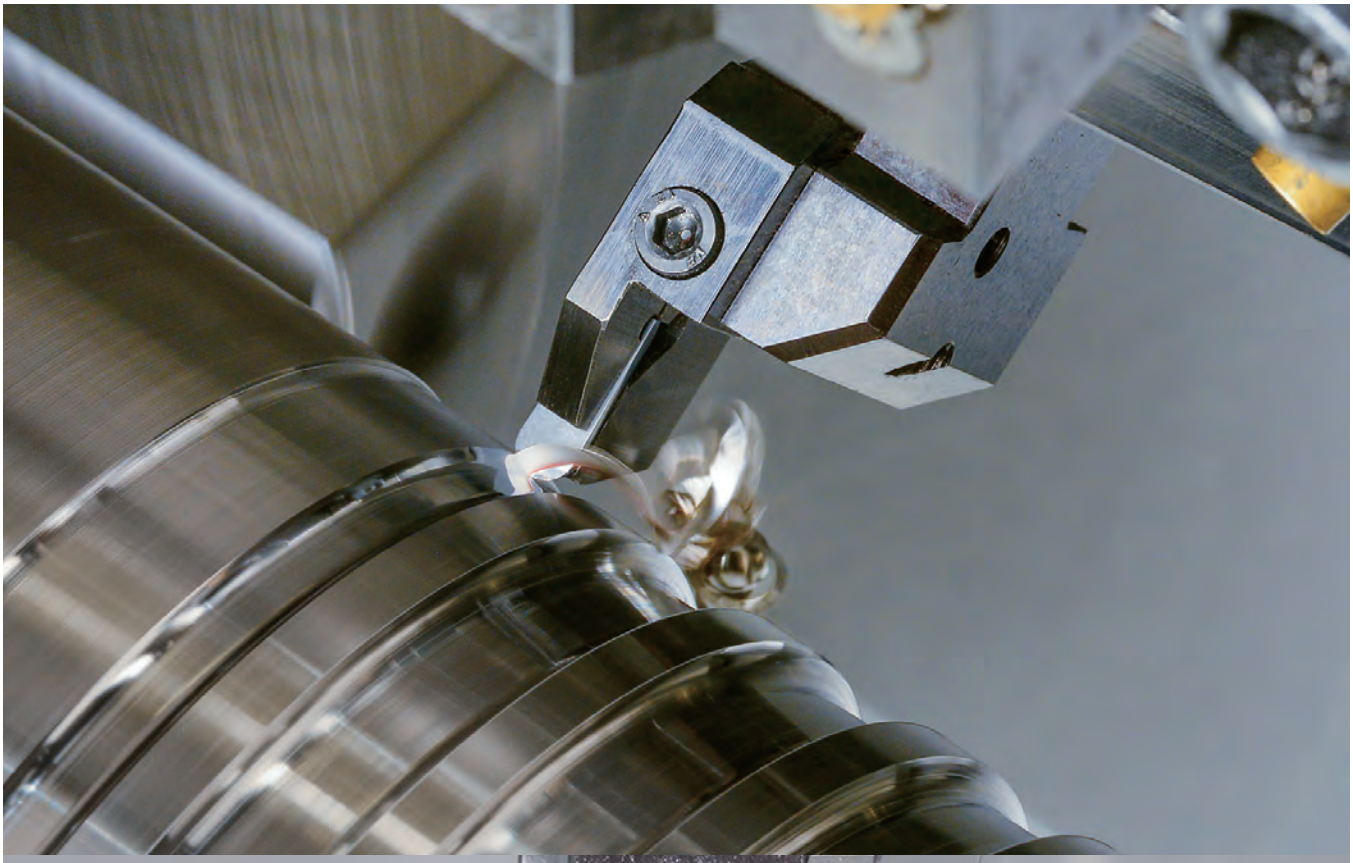
Application	Chipbreaker	Designation	SiAlON	Bidemics	Dimension (mm)			
			SX3	JX3	RE	IC	S	D1
Roughing to medium cutting	-	VCGN130412E004-V	●	●	1.2	7.94	4.76	-

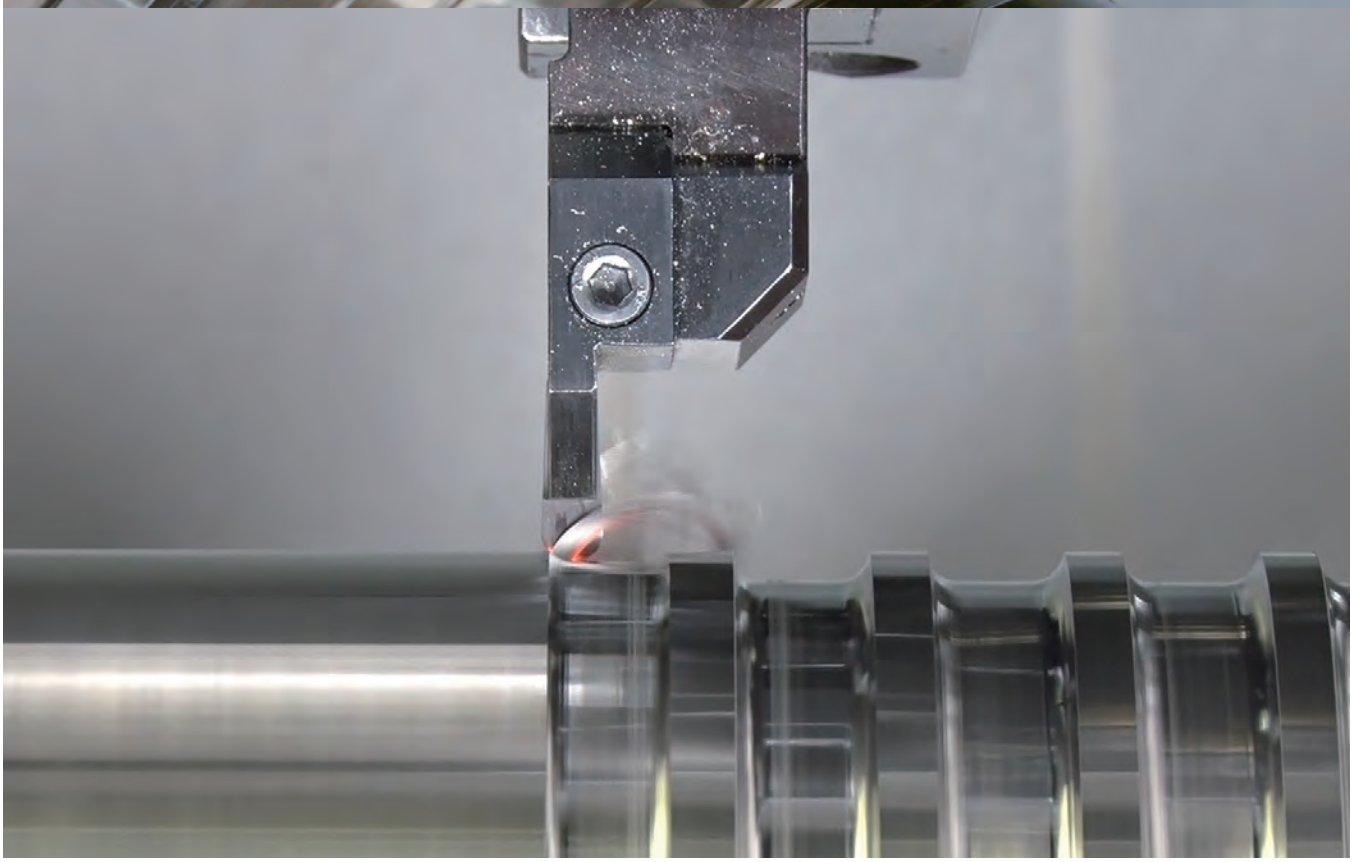
● : Line up

More info

Ceramic Grooving

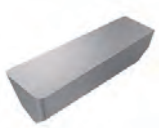
S Superalloy

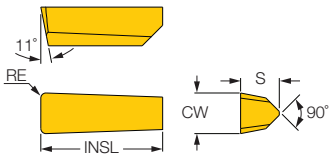




INSERT

VGW





P	Steel										
M	Stainless										
K	Cast iron										
N	Non-ferrous										
S	Superalloy	★			★	☆	☆	★			
H	Hard materials										

★ : First choice
☆ : Second choice

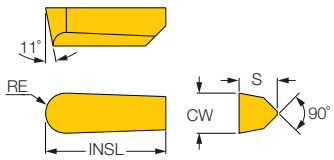
Designation	CW	RE	Whisker			SiAlON			Bidemics			INSL	S
			533			SX3	SX7	SX9	JX3				
VGW4125-1E004	3.175	0.4	●			●			●			12.7	4.51
VGW4125-1EM04X	3.175	0.4					●	●				12.7	4.51
VGW4125-1T00520	3.175	0.4				●	●	●				12.7	4.51
VGW4125-2E004	3.175	0.8	●			●			●			12.7	4.51
VGW4125-2EM04X	3.175	0.8					●	●				12.7	4.51
VGW4125-2T00520	3.175	0.8				●	●	●				12.7	4.51
VGW4156-1E004	3.962	0.4	●			●			●			12.7	4.51
VGW4156-1EM04X	3.962	0.4					●	●				12.7	4.51
VGW4156-1T00520	3.962	0.4				●	●	●				12.7	4.51
VGW4156-2E004	3.962	0.8	●			●			●			12.7	4.51
VGW4156-2EM04X	3.962	0.8					●	●				12.7	4.51
VGW4156-2T00520	3.962	0.8				●	●	●				12.7	4.51
VGW4187-1E004	4.75	0.4	●			●			●			12.7	4.51
VGW4187-1EM04X	4.75	0.4					●	●				12.7	4.51
VGW4187-1T00520	4.75	0.4				●	●	●				12.7	4.51
VGW4187-2E004	4.75	0.8	●			●			●			12.7	4.51
VGW4187-2EM04X	4.75	0.8					●	●				12.7	4.51
VGW4187-2T00520	4.75	0.8				●	●	●				12.7	4.51
VGW6250-1E004	6.35	0.4	●			●			●			19.05	6.05
VGW6250-1EM04X	6.35	0.4					●	●				19.05	6.05
VGW6250-1T00520	6.35	0.4				●	●	●				19.05	6.05
VGW6250-2E004	6.35	0.8	●			●			●			19.05	6.05
VGW6250-2EM04X	6.35	0.8					●	●				19.05	6.05
VGW6250-2T00520	6.35	0.8				●	●	●				19.05	6.05
VGW8375-2E004	9.525	0.8	●			●			●			25.4	8.31
VGW8375-2EM04X	9.525	0.8					●	●				25.4	8.31
VGW8375-2T00520	9.525	0.8				●	●	●				25.4	8.31

●: Line up

More info

INSERT

VGW-R



P	Steel										
M	Stainless										
K	Cast iron										
N	Non-ferrous										
S	Superalloy	★			★	☆	☆	★			
H	Hard materials										

★ : First choice
☆ : Second choice

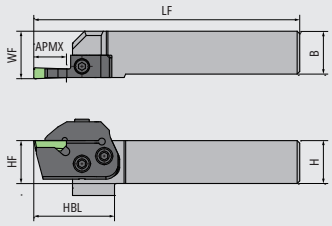
Designation	CW	RE	Whisker			SiAlON			Bidemics			INSL	S
			533			SX3	SX7	SX9	JX3				
VGW4125-RE004	3.175	1.588	●			●			●			12.7	4.51
VGW4125-REM04X	3.175	1.588					●	●				12.7	4.51
VGW4125-RT00520	3.175	1.588				●	●	●				12.7	4.51
VGW4156-RE004	3.962	1.981	●			●			●			12.7	4.51
VGW4156-REM04X	3.962	1.981					●	●				12.7	4.51
VGW4156-RT00520	3.962	1.981				●	●	●				12.7	4.51
VGW4187-RE004	4.75	2.375	●			●			●			12.7	4.51
VGW4187-REM04X	4.75	2.375					●	●				12.7	4.51
VGW4187-RT00520	4.75	2.375				●	●	●				12.7	4.51
VGW6250-RE004	6.35	3.175	●			●			●			19.05	6.05
VGW6250-REM04X	6.35	3.175					●	●				19.05	6.05
VGW6250-RT00520	6.35	3.175				●	●	●				19.05	6.05
VGW8375-RE004	9.525	4.763	●			●			●			25.4	8.31
VGW8375-REM04X	9.525	4.763					●	●				25.4	8.31
VGW8375-RT00520	9.525	4.763				●	●	●				19.05	6.05

● : Line up

More info

GBVR...

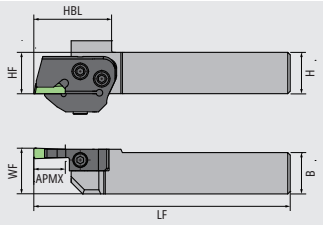
VGW.. series/For straight shank toolholder



Designation	APMX	H	B	LF	HBL	WF	HF	Holder	Insert
GBVR-VGW4-3T09	9.525	20	20	118.6	39.6	22.3	20	GTWPR2020-H	VGW4125
		25	25	143.6	35.6	27.2	25	GTWPR2525-H	
		32	32	163.6	–	34.2	32	GTWPR3232-H	
GBVR-VGW4-4T14	14.275	20	20	124.9	45.9	22.3	20	GTWPR2020-H	VGW4156
		25	25	150	42	27.3	25	GTWPR2525-H	
		32	32	170	–	34.3	32	GTWPR3232-H	
GBVR-VGW6-6T14	14.275	20	20	124.9	45.9	22.7	20	GTWPR2020-H	VGW6250
		25	25	150	42	22.7	25	GTWPR2525-H	
		32	32	170	–	34.7	32	GTWPR3232-H	
GBVR-VGW6-6T19	19.05	20	20	130	51	22.6	20	GTWPR2020-H	VGW6250
		25	25	155	47	27.6	25	GTWPR2525-H	
		32	32	175	–	34.6	32	GTWPR3232-H	
GBVR-VGW8-8T28	28.575	20	20	137.6	58.6	23.3	20	GTWPR2020-H	VGW8375
		25	25	162.7	54.7	28.3	25	GTWPR2525-H	
		32	32	182.7	–	35.3	32	GTWPR3232-H	

GBVL...

VGW.. series/For straight shank toolholder



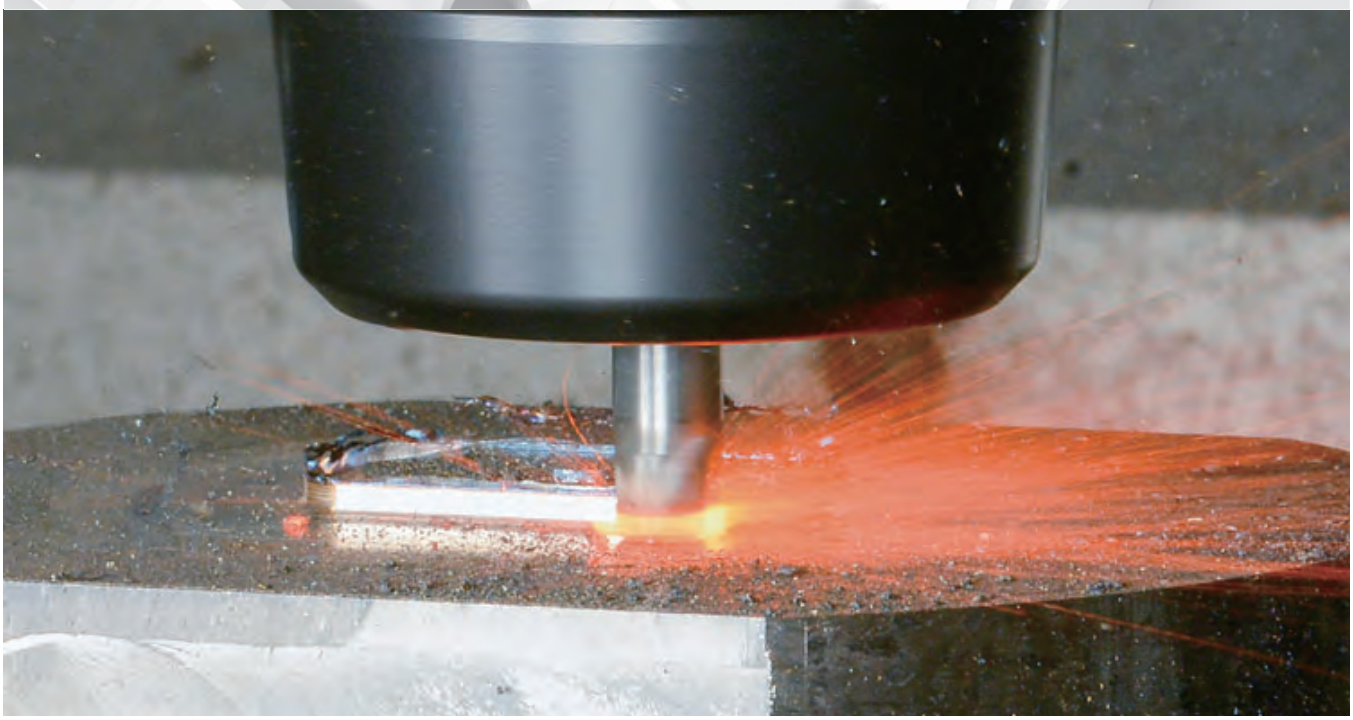
Designation	APMX	H	B	LF	HBL	WF	HF	Holder	Insert
GBVL-VGW4-3T09	9.525	20	20	118.6	39.6	22.3	20	GTWPL2020-H	VGW4125
		25	25	143.6	35.6	27.2	25	GTWPL2525-H	
		32	32	163.6	–	34.2	32	GTWPL3232-H	
GBVL-VGW4-4T14	14.275	20	20	124.9	45.9	22.3	20	GTWPL2020-H	VGW4156
		25	25	150	42	27.3	25	GTWPL2525-H	
		32	32	170	–	34.3	32	GTWPL3232-H	
GBVL-VGW6-6T14	14.275	20	20	124.9	45.9	22.7	20	GTWPL2020-H	VGW6250
		25	25	150	42	22.7	25	GTWPL2525-H	
		32	32	170	–	34.7	32	GTWPL3232-H	
GBVL-VGW6-6T19	19.05	20	20	130	51	22.6	20	GTWPL2020-H	VGW6250
		25	25	155	47	27.6	25	GTWPL2525-H	
		32	32	175	–	34.6	32	GTWPL3232-H	
GBVL-VGW8-8T28	28.575	20	20	137.6	58.6	23.3	20	GTWPL2020-H	VGW8375
		25	25	162.7	54.7	28.3	25	GTWPL2525-H	
		32	32	182.7	–	35.3	32	GTWPL3232-H	

Reference pages: Insert → CER-21, 22

More info

Ceramic Milling

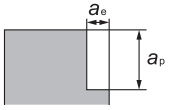
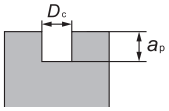
S Superalloy



CERAMATIC / Ceramic Endmill

Series	Features	DC (mm)	CICT	APMX (mm)	Pages
RCE.. series 	For HRSA materials • High-speed machining of superalloy is possible by utilizing the sialon ceramic grade "SX9" with excellent wear resistance. • Compared to carbide end mills, high-efficiency machining over 10 times is possible.	φ8 - 12.7	4,6 flute	- 9.525	A11 H05

Recommend Cutting Conditions for HRSA material

Application	Grade	ϕ D_c	Flute	Cutting Speed (m/min) 150 600 1000	Feed (mm/t)	Depth of cut (a_p -mm)	Width of cut (a_e -mm)	Coolant
Face Milling 	SX9	8mm	4/6/8		0.03	≦1.2	—	DRY 
		10mm				≦1.5		
		12mm				≦1.8		
		16mm				≦2.4		
		20mm				≦3.0		
		3/8"				≦1.4		
		1/2"				≦1.9		
		5/8"				≦2.4		
		3/4"				≦2.9		
Side Milling 	SX9	8mm	4/6/8		0.03	≦4.0	≦0.8	DRY 
		10mm				≦5.0	≦1.0	
		12mm				≦6.0	≦1.2	
		16mm				≦8.0	≦1.6	
		20mm				≦10.0	≦2.0	
		3/8"				≦4.8	≦0.9	
		1/2"				≦6.4	≦1.3	
		5/8"				≦8.0	≦1.6	
		3/4"				≦9.5	≦1.9	
Slotting 	SX9	8mm	4		0.03	≦2.0	—	DRY 
		10mm				≦2.5		
		12mm				≦3.0		
		16mm				≦4.0		
		3/8"				≦2.4		
		1/2"				≦3.2		
		5/8"				≦4.0		
		8mm	6			≦1.2		
		10mm				≦1.5		
		12mm				≦1.8		
		16mm				≦2.4		
		3/8"				≦1.4		
		1/2"				≦1.9		
		5/8"				≦2.4		

JRF Milling Cutter

Introducing a New Paradigm in Ceramic-Embedded Cutters

NTK Achieves Industry-First Triple-Blade Configuration with Ceramic Negative Inserts for ϕ16 Cutters
By utilizing double-sided, high-strength negative inserts and the high efficiency of three blades, NTK contributes to cost-effective tooling, stable machining processes, and enhanced productivity.

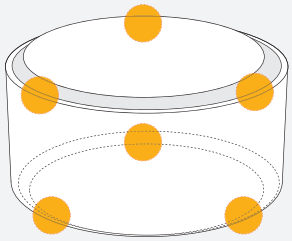
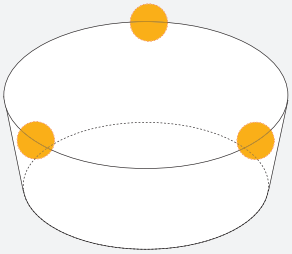
Enhancing Machining Efficiency Further with Increased Insert Count

JRF Cutter (Negative insert)	Conventional (Positive insert)
	

High-Efficiency Machining with 3-insert Design
at ϕ16 - Supports Maximum Table Feed of 7200mm/min!

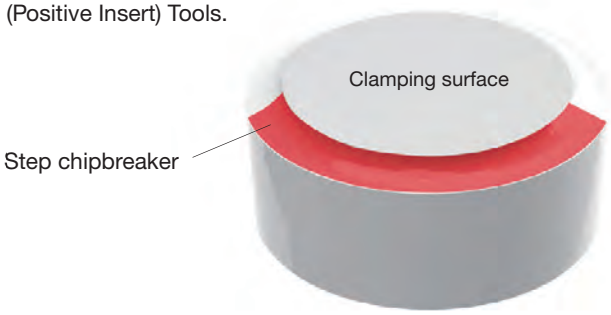
Economical with Double-Sided Usable Negative Inserts

● Usable Corner

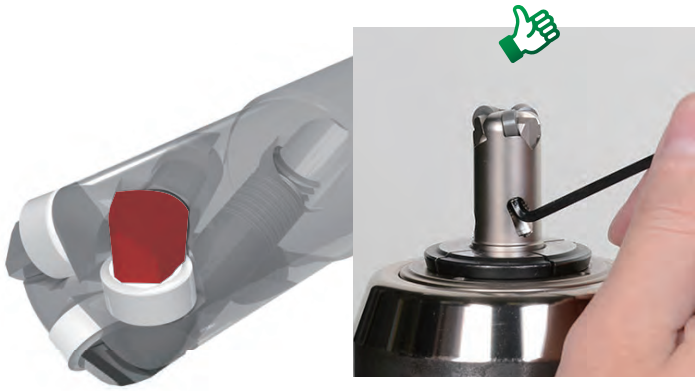
JRF Cutter (Negative insert)	Conventional (Positive insert)
	

Extended Lifespan Chipbreaker

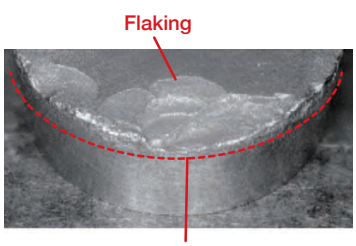
Our Step Chipbreaker: Reduces Flaking by Lowering the Cutting Edge from the Clamping Surface of Conventional (Positive Insert) Tools.



Prevent Insert Movement During Machining with Increased Clamping Force



Insert Damage Suppression with Chipbreaker-Equipped Negative Inserts and Increased Clamping Force!

	JRF Cutter (Negative insert)	Competitor (Positive insert)
Number of teeth (pc)	3 (ϕ16)	2 (ϕ16)
Table feed (mm/min)	2,250	1,500
Edge Damage		 Flaking — Insert breakage  Flaking — Insert rotating

Workpiece Material	Waspaloy (Combustion Casing)	Feed per tooth (mm/t)	0.075
Cutting Speed (m/min)	500 (10,000rpm)	D.O.C.(mm)	0.5

Recommended Machining Parameters

Grade	Workpiece Material	Machining process	Cutting conditions			DRY	WET
			Cutting Speed (m/min)	Feed (mm/t)	D.O.C. (mm)		
SX3 SX9	HRSA	Milling	400 - **700** – 1000	0.08 - **0.10** - 0.12	- **1.0**	●	×

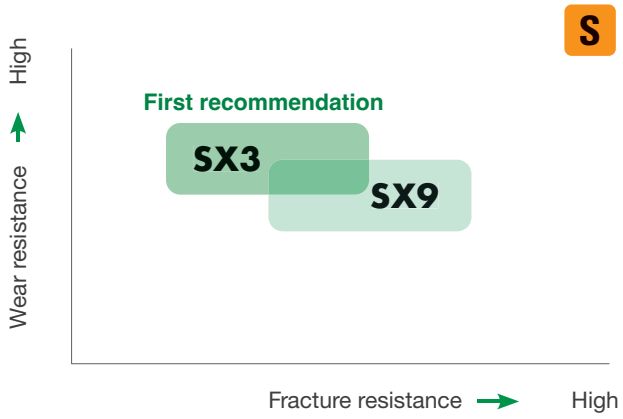
Material-Specific Characteristics

SX3

The First Recommended Material for Machining Superalloys with Ceramics: Balancing Wear Resistance and Fracture Resistance.

SX9

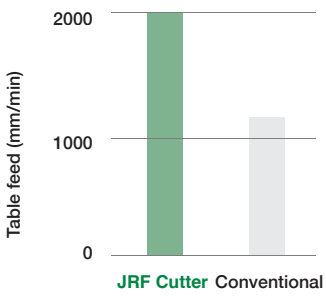
Ceramic Material Prioritizing Fracture Resistance



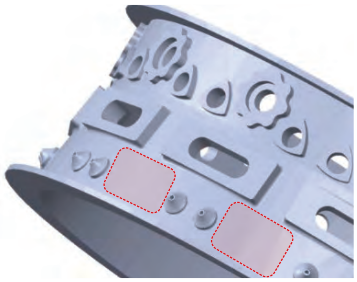
Case study

Waspaloy (Combustion Casing)

	JRF Cutter	Conventional
Grade	SX9 Negative insert	SX9 Positive insert
Teeth per body	5 (Φ32)	3 (Φ32)
Speed (m/min)	800 (8,000rpm)	800 (8,000rpm)
Feed per tooth (mm/t)	0.05	0.05
Table feed (mm/min)	2,000	1,200
D.O.C. (mm)	1.0	1.0
Tool life	2 pass	1 pass
Number of usable corners	8	5



1.7 Times Efficiency



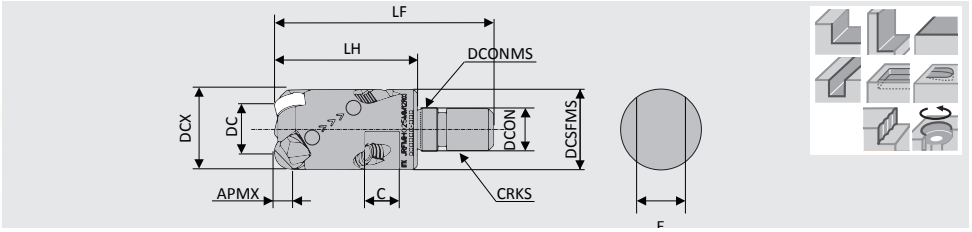
32% Reduction in Tooling Costs

Chip Price ÷ Number of Corners (tool life) x Number of inserts

JRF Modular type

TUNGFLEX shank x Modular type JRF cutter, Dia. 16 - 32 with RNGF negative insert

GAMP = -10° ~ -15°, GAMF = -20° ~ -28°



Designation	APMX	DC	DCX	CICT	DCONMS	DCSFMS	LF	LH	C	E	CRKS	WT(kg)	Insert
JRFMH016MM08R03	1	9.65	16	3	8.5 (h7)	15	53	35	8	13	M8	0.04	RNGF0603...
JRFMH020MM10R03	1	13.65	20	3	10.5 (h7)	19	54	35	10	16	M10	0.07	RNGF0604...
JRFMH025MM12R03	1	15.475	25	3	12.5 (h7)	23	63	41	12	19	M12	0.11	RNGF0904...
JRFMH025MM12R04	1	18.65	25	4	12.5 (h7)	23	63	41	12	19	M12	0.13	RNGF0604...
JRFMH032MM16R03	1	19.3	32	3	17 (h7)	30	63	40.5	12	24	M16	0.2	RNGF1204...
JRFMH032MM16R04	1	22.475	32	4	17 (h7)	30	63	40.5	12	24	M16	0.19	RNGF0904...
JRFMH032MM16R05	1	22.475	32	5	17 (h7)	30	63	40.5	12	24	M16	0.21	RNGF0904...

SPARE PARTS

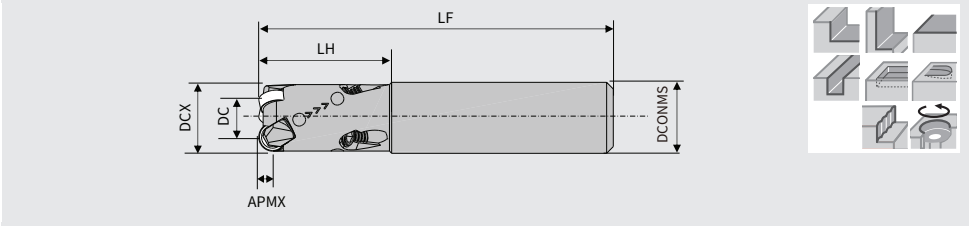
Designation	Cap screw	Wedge screw	Wrench	Wrench (sold separately)
JRFMH016MM08R03	HCS3P050	HWS3P050	LW-2.5	(DL-025-08-JRF)
JRFMH020MM10R03	HCS3P050	HWS3P050	LW-2.5	(DL-025-08-JRF)
JRFMH025MM12R03	HCS5P080	HWS5P080	LW-4.0	(DL-040-20-JRF)
JRFMH025MM12R04	HCS3P050	HWS3P050	LW-2.5	(DL-025-20-JRF)
JRFMH032MM16R03	HCS5P080	HWS5P080	LW-4.0	(DL-040-20-JRF)
JRFMH032MM16R04	HCS5P080	HWS5P080	LW-4.0	(DL-040-20-JRF)
JRFMH032MM16R05	HCS3P050	HWS3P050	LW-2.5	(DL-025-20-JRF)

Recommended Clamping Torque: CRKS / M8 = 23 N·m, M10 = 46 N·m, M12 = 80 N·m, M16 = 90 N·m

JRF Shank type

Shank type cutter for HRSA material, Dia. 16 - 32 with RNGF negative insert

GAMP = -10° ~ -15°, GAMF = -20° ~ -28°



Designation	APMX	DC	DCX	CICT	DCONMS	LF	LH	WT(kg)	Insert
JRFMH016E160R03	1	9.65	16	3	16	80	30	0.11	RNGF0603..
JRFMH020E200R03	1	13.65	20	3	20	100	40	0.22	RNGF0604..
JRFMH025E250R03	1	15.475	25	3	25	100	40	0.33	RNGF0904..
JRFMH025E250R04	1	18.65	25	4	25	100	40	0.34	RNGF0604..
JRFMH032E320R03	1	19.3	32	3	32	120	50	0.67	RNGF1204..
JRFMH032E320R04	1	22.475	32	4	32	120	50	0.67	RNGF0904..
JRFMH032E320R05	1	22.475	32	5	32	120	50	0.68	RNGF0904..

SPARE PARTS

Designation	Cap screw	Wedge screw	Wrench	Wrench (sold separately)
JRFMH016E160R03	HCS3P050	HWS3P050	LW-2.5S	(DL-025-08-JRF)
JRFMH020E200R03	HCS3P050	HWS3P050	LW-2.5S	(DL-025-08-JRF)
JRFMH025E250R03	HCS5P080	HWS5P080	LW-4.0	(DL-040-20-JRF)
JRFMH025E250R04	HCS3P050	HWS3P050	LW-2.5	(DL-025-20-JRF)
JRFMH032E320R03	HCS5P080	HWS5P080	LW-4.0	(DL-040-20-JRF)
JRFMH032E320R04	HCS5P080	HWS5P080	LW-4.0	(DL-040-20-JRF)
JRFMH032E320R05	HCS3P050	HWS3P050	LW-2.5	(DL-025-20-JRF)

More info

INSERT

RNGF-HNF

P	Steel				
M	Stainless				
K	Cast iron				
N	Non-ferrous				
S	Superalloy	★	☆		
H	Hard materials				

★ : First choice
☆ : Second choice

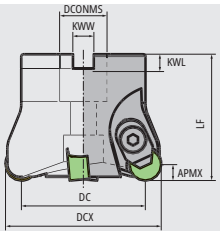
Designation	SiAlON			IC	S
	SX3	SX9			
RNGF060300E-HNF	●	●		6.35	3.18
RNGF060400E-HNF	●	●		6.35	4.76
RNGF090400E-HNF	●	●		9.525	4.76
RNGF120400E-HNF	●	●		12.7	4.76

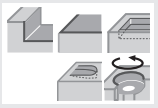
●: Line up

JRNMW Arbor type Cutter

JRNMW Arbor type Cutter For HRSA materials

GAMP = -5°, GAMF = -10°





Designation	APMX	DC	DCX	CICT	DCONMS	KWL	KWW	LF	WT(kg)	Insert
JRNMW050S220R03	3.2	37.3	50	3	22	6	10	50	0.42	RNGN1207...
JRNMW063S220R04	3.2	50.3	63	4	22	6	10	50	0.55	RNGN1207...
JRNMW080S254R05	3.2	67.3	80	5	25.4	6	9.5	50	0.85	RNGN1207...

SPARE PARTS

Designation	Clamp	Shim	Clamp screw
JRNMW***S...	AMS-6T	AOB-6S-T30	LLR-T30

INSERT

RNGN

P	Steel				
M	Stainless				
K	Cast iron				
N	Non-ferrous				
S	Superalloy	★	☆		
H	Hard materials				

★ : First choice
☆ : Second choice

Designation	SiAlON			IC	S
	SX3	SX9			
RNGN120700E004	●	●		12.7	7.94
RNGN120700T00520	●	●		12.7	7.94
RNGN120700T01020	●	●		12.7	7.94

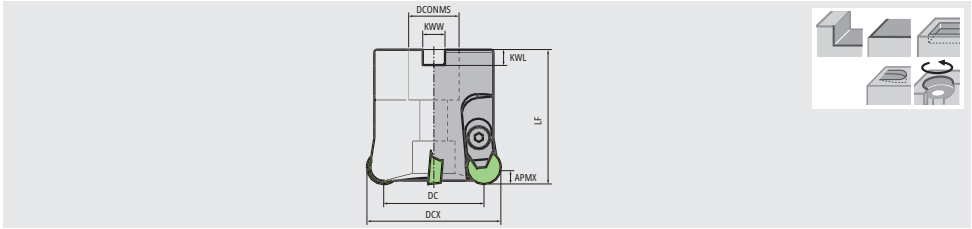
●: Line up

More info

JRPMW Arbor type Cutter

JRPMW Arbor type Cutter For HRSA materials

GAMP = 5°, GAMF = -2.5° - -5°



Designation	APMX	DC	DCX	CICT	DCONMS	KWL	KWW	LF	WT(kg)	Insert
JRPMW050S220R04	3.2	37.3	50	4	22	6.3	10.4	50	0.35	RP**1204...
JRPMW063S220R04	3.2	50.3	63	4	22	6.3	10.4	50	0.55	RP**1204...
JRPMW080S254R05	3.2	67.3	80	5	25.4	6	9.5	50	0.87	RP**1204...

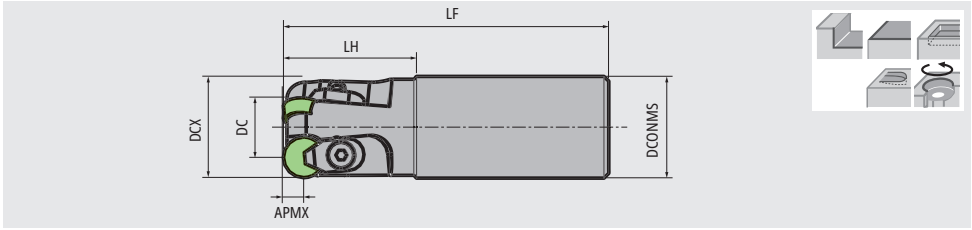
SPARE PARTS

Designation	Clamp	Shim	Clamp screw	Screw (for Shim)	Wrench (for Clamp screw)
JRPMW**S**R...	AMS-5T	ARP42A	AOB-5S-T25	M3*8	LLR-T25

JRPMW Shank type Cutter

JRPMW Shank type Cutter For HRSA materials

GAMP = 5°, GAMF = -7.5°



Designation	APMX	DC	DCX	CICT	DCONMS	LF	LH	WT(kg)	Insert
JRPMW032E250R03	3.2	19.3	32	3	25	120	40	0.42	RP**1204...
JRPMW032E320R03	3.2	19.3	32	3	32	120	40	0.6	RP**1204...
JRPMW040E320R03	3.2	27.3	40	3	32	120	40	0.72	RP**1204...

SPARE PARTS

Designation	Clamp	Clamp screw	Wrench (for Clamp screw)
JRPMW**E**R...	AMS-5T	AOB-5S-T25	LLR-T25

INSERT

RPGN

P	Steel			
M	Stainless			
K	Cast iron			
N	Non-ferrous			
S	Superalloy	★	☆	☆
H	Hard materials			

★ : First choice
☆ : Second choice

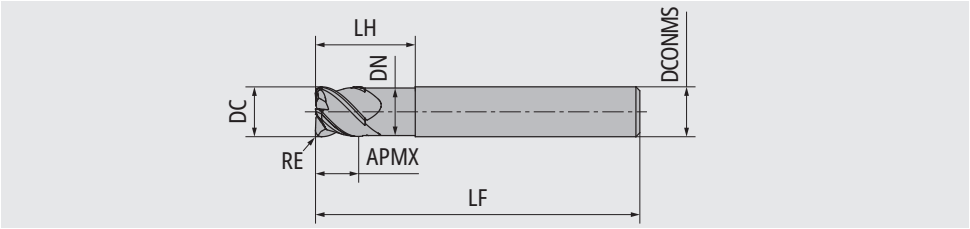
Designation	SiAlON SX3	SiAlON SX7	SiAlON SX9	IC	S
RPGN120400E004	●	●	●	12.7	4.76
RPGN120400T00520	●	●	●	12.7	4.76
RPGN120400T01020	●	●	●	12.7	4.76

●: Line up

More info

Ceramatic 4 blade

Solid ceramic end mill

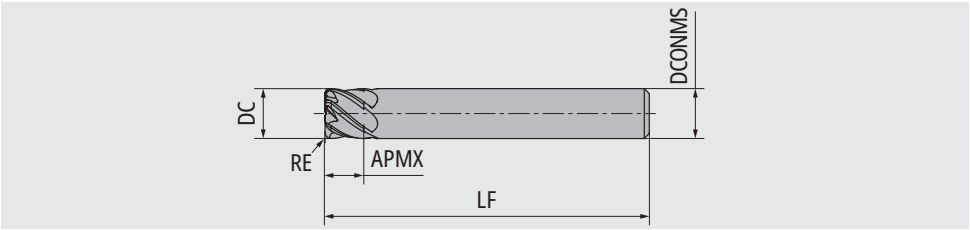


Designation	SX9	CICT	APMX	DC	DCONMS	DN	FHA	LH	LF	RE
RCEM080H4R100S	●	4	6	8	8	7.6	35	16	60	1
RCEM100H4R125S	●	4	7.5	10	10	9.6	35	20	65	1.25
RCEM120H4R150S	●	4	9	12	12	11.6	35	24	70	1.5

●: Line up

Ceramatic 6 blade

Solid ceramic end mill



Designation	SX9	CICT	APMX	DC	DCONMS	DN	FHA	LH	LF	RE
RCEM080J6R100S	●	6	6	8	8	-	40	-	60	1
RCEM100J6R125S	●	6	7.5	10	10	9.6	40	30	67.8	1.5
RCEM120J6R150S	●	6	9	12	12	11.6	40	36	79.4	1.5

●: Line up

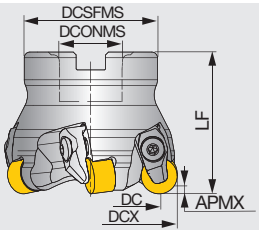
More info

CERAMICSMILL SPEED

TFMRN

Face milling cutter for high temperature alloy applications

GAMP = -7°, GAMF = +15°



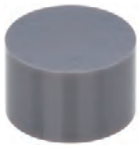
Designation	APMX	DC	DCX	CICT	DCONMS	LF	DCSFMS	WT(kg)	Insert
TFMRN563-22R-12FL	2	50.35	63	5	22	50	47	0.6	RNGN120700...
TFMRN580-27R-12FL	2	67.37	80	5	27	50	58	0.9	RNGN120700...

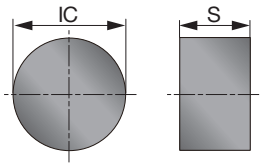
SPARE PARTS

Designation	Clamp	Screw	Snap ring
TFMRN**-**R-12FL	CCL-5S-F	CLS3C	CSR2

INSERT

RNGN-E/T1





P	Steel			
M	Stainless			
K	Cast iron			
N	Non-ferrous			
S	Superalloys	★	★	
H	Hard materials			

★ : First choice

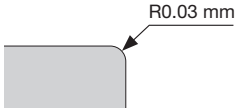
Designation	APMX	Edge prep.*	SiAlON TS200	SiAlON TS300	IC	S
RNGN120700-E	2	E	●		12.7	7.94
RNGN120700-T1	2	T1	●		12.7	7.94
RNGN120700-E	2	E		●	12.7	7.94
RNGN120700-T1	2	T1		●	12.7	7.94

* Types of cutting edge preparations

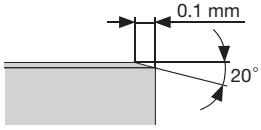
●: Line up

Edge prep

E: Low cutting force



T1: Strong cutting edge



STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Priority	Grades	Cutting speed *Vc* (m/min)	Feed per tooth *fz* (mm/t)	Depth of cut *ap*(mm)
S	Ni-based super alloys	Wear resistance	TS200	550 - 1300	0.05 - 0.2	0.1 - 2
		First choice	TS300	270 - 550	0.05 - 0.2	0.1 - 2
	Co-based super alloys	Wear resistance	TS200	550 - 1500	0.05 - 0.2	0.1 - 2
		First choice	TS300	270 - 550	0.05 - 0.2	0.1 - 2

Ceramic Turning

K Cast Iron

Cast iron / ductile cast iron machining

SX6 Silicon Nitride Ceramic

Features

- 1st choice for roughing grey cast iron
- Applicable for wet cutting
- Excellent thermal shock resistance makes high speed milling possible

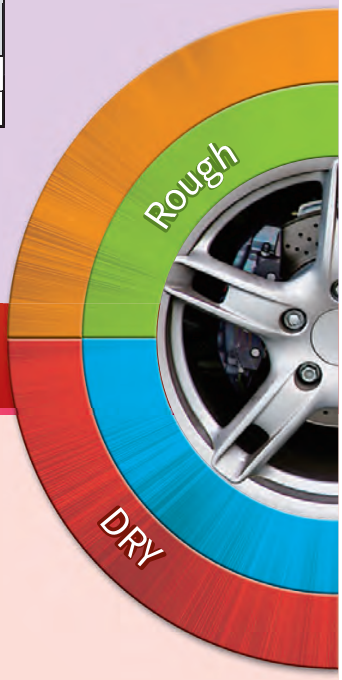
	SX6
Notching	◎
Flank Wear	
Toughness	○
Heat Shock	◎

Recommended Applications

- Grey cast iron — Rough — Turning and milling

Recommended Cutting Conditions

Work material	Purpose	Grade	Cutting speed (m/min)	Feed	Depth of cut (mm)	DRY	WET
Grey cast iron	Turning	SX6	500-1000	0.3-0.6(mm/rev)	0.5-3.5	●	●
	Milling	SX6	450-1200	0.07-0.25(mm/t)	0.5-3.5	●	○



HC1,HW2 Alumina Oxide Ceramic

Features

- 1st choice for finishing grey cast iron with no coolant
- Excellent wear resistance makes high speed finishing possible

Recommended Applications

- Grey cast iron — Finish — Turning
- Chilled liners — Rough / Finish — Turning（HW2）

Recommended Cutting Conditions

Work material	Purpose	Grade	Cutting speed (m/min)	Feed (mm/rev)	Depth of cut (mm)	DRY	WET
Grey cast iron	Turning	HC1	300-600	0.1-0.4	0.5-2.0	●	
		HW2	300-600	0.1-0.4	0.5-2.0	●	
Chilled liners	Turning	HW2	250-350	0.1-0.3	0.5-2.0	●	

SP9 CVD Coated Silicon Aluminum Oxynitride ceramics

SP9
◎
◎

Features

- Extremely tough – Tough enough to rough cast iron with T01020 (0.1 × 20°) edge preparation
- Small edge preparation – Low tool pressure for stable precision machining
- SP9' s toughness makes higher feed rates possible
- Dramatically reduced flank wear due to CVD coating

Recommended Applications

- Grey cast iron — Rough — Turning and milling
- Ductile cast iron — Rough — Turning and milling

Recommended Cutting Conditions

Work material	Purpose	Grade	Cutting speed (m/min)	Feed (mm/rev, mm/t)	Depth of cut (mm)	DRY	WET
Grey cast iron	Turning	SP9	360-800	0.3-0.6	~3.5	●	○
	Milling		360-750	0.08-0.25	-6.0	●	○
Ductile cast iron	Turning	SP9	240-600	0.3-0.6	~3.5	●	○
	Milling		630-900	0.05-0.25	-6.0	●	○

HC2,HC6 TiC Ceramic 533 Whisker Reinforced Ceramic

Features

- All grades make high speed finishing of cast iron possible
- Applicable for wet cutting conditions
- HC6 – Optimized for finishing ductile cast iron

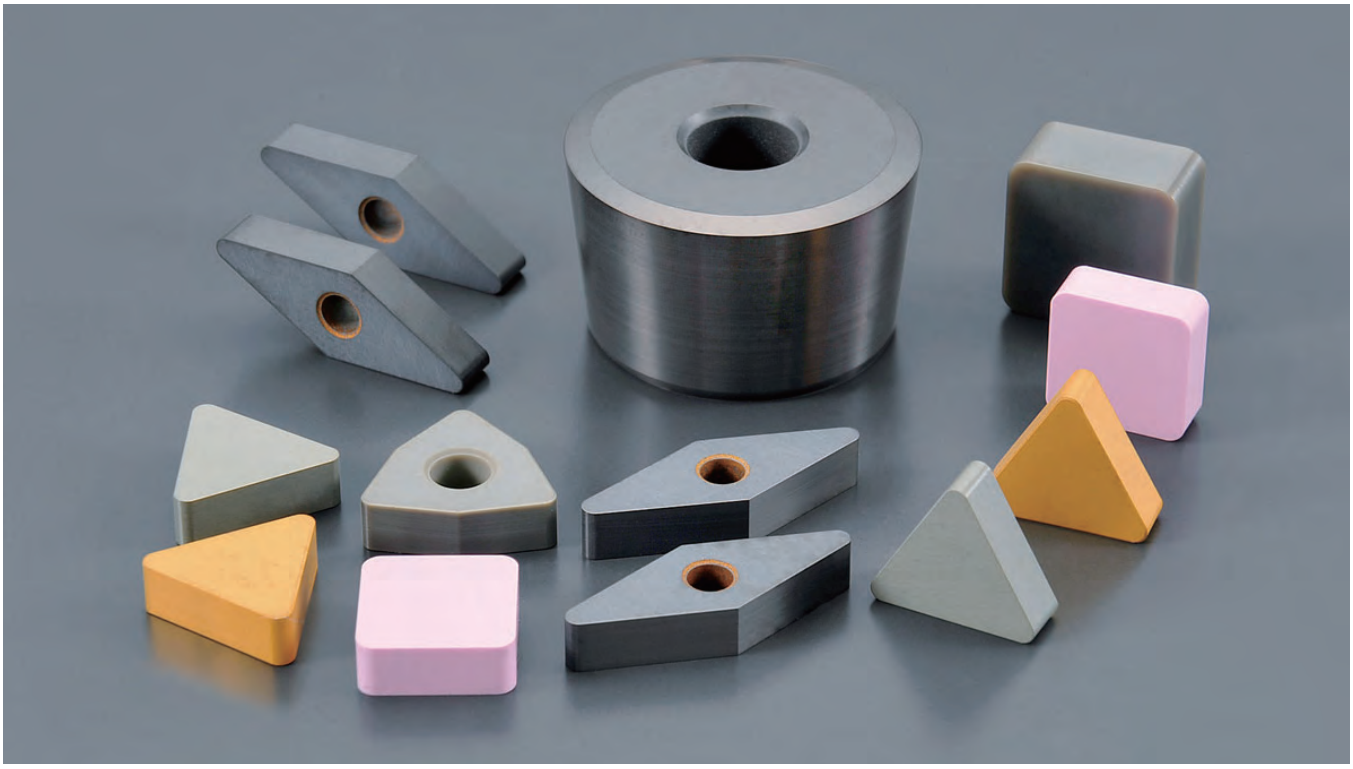
Recommended Applications

- Grey cast iron — Finish — Turning (HC2 • HC6 • 533)
- Ductile cast iron — Finish — Turning (HC6)

Recommended Cutting Conditions

Work material	Purpose	Grade	Cutting speed (m/min)	Feed (mm/rev, mm/t)	Depth of cut (mm)	DRY	WET
Grey cast iron	Turning	HC2/HC6	360-630	0.1-0.4	-1.5	●	●
		533	360-630	0.1-0.4	-3.0	●	●
Ductile cast iron	Turning	HC6	180-450	0.1-0.3	-0.2	○	●

Ceramics / NTK CeramiX



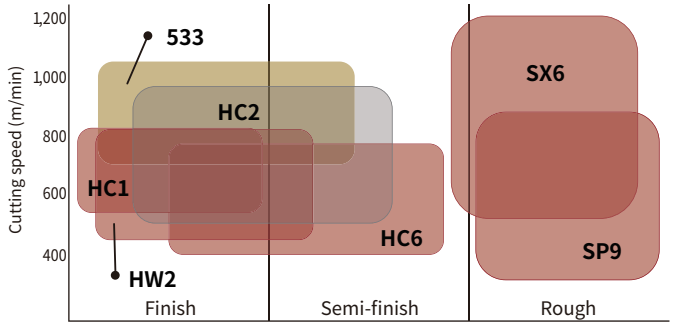
NTK ceramic inserts provide highly efficient machining with excellent high-temperature hardness, heat resistance, and chemical stability.
NTK offers various types and geometries of silicon nitride, alumina, and whisker ceramic inserts to meet the needs of each application and support highly efficient machining and high-speed cutting.

Insert grade, applications, and features

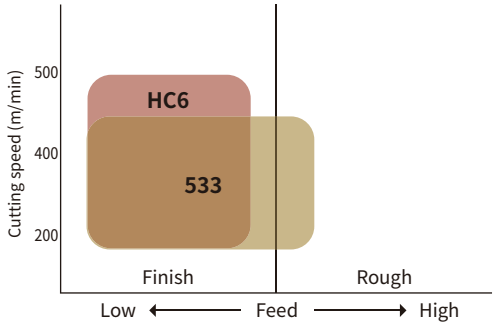
Work material	Grade	Structure	Color	Application	Hardness HRA	Toughness Mpa	Thermal conductivity W/m.K
K	**HC1**	Al_2O_3	White	Semi-finishing of grey cast iron Pipe bead cutting	94	700	17
	HC2	Al_2O_3+TiC	Black	Semi-finishing of grey cast iron	94.5	800	21
	HW2	Al_2O_3	Pink	Semi-finishing of grey cast iron / liners Reinforced toughness	94	750	19
	HC6	TiC+Al_2O_3	Black	Semi-finishing of ductile cast iron Semi-finishing of grey cast iron with coolant	94	800	29
	SX6	Si_3N_4	Gray	Turning/milling of grey cast iron Reinforced VB wear resistance	93.5	1,200	29
	SP9	SiAlON	Yellow	Turning of heat-resistant alloy Roughing of grey cast iron High-precision machining by low-resistance edge treatment + CVD coating	93.5	1,200	15
H	**450**	TiAlN coating	Black	Continuous finishing of hardened material (HRC 55-65)	95.5	1200	31
	HC4/ZC4	Al_2O_3+TiC	Black / Gold	Finishing of hardened materials (e.g. removal of carburized layers)	95.5	1,000	25
	HC7/ZC7	Al_2O_3+TiC	Black / Gold	Finishing of hardened materials (e.g. removal of carburized layers)	95	1,100	23
S	**SX3**	SiAlON	Gray	Roughing with scale to Semi-finishing of heat-resistant alloys Excellent balance between wear and chipping resistance	93	1,100	12
	SX5	SiAlON	Gray	Rough turning of heat-resistant alloy (Waspaloy)	92.5	1100	18
	SX7	SiAlON	Gray	Turning/Milling of Heat-Resistant Alloys Good wear resistance	93	900	11
	SX9	SiAlON	Gray	Rough turning/milling of heat-resistant alloys and grey cast iron Excellent chipping resistance	93.5	1,200	15
	533	Al_2O_3+SiC	Light green	Turning of heat-resistant alloys/grey cast iron Excellent chipping resistance	94.5	1,200	35

More info

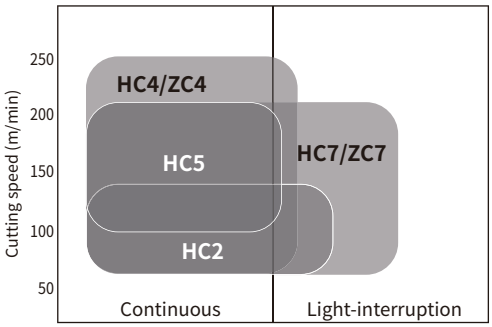
For grey cast iron



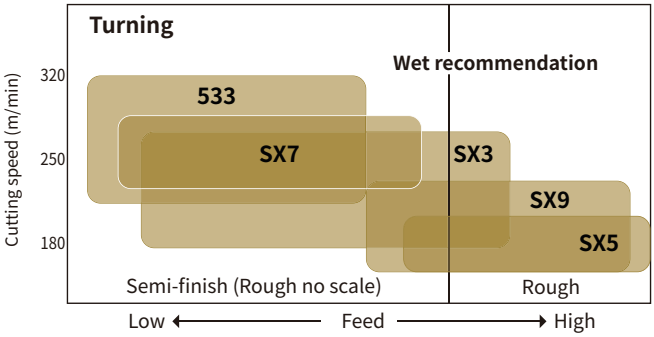
For ductile cast iron

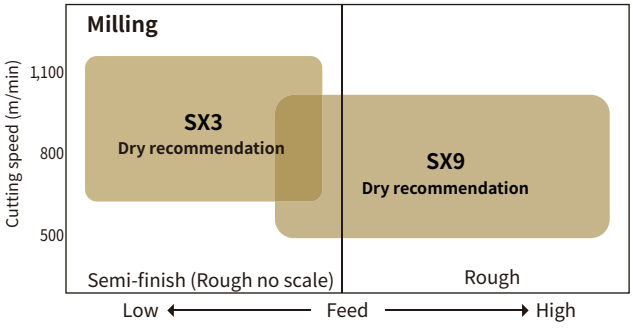


For hardened materials

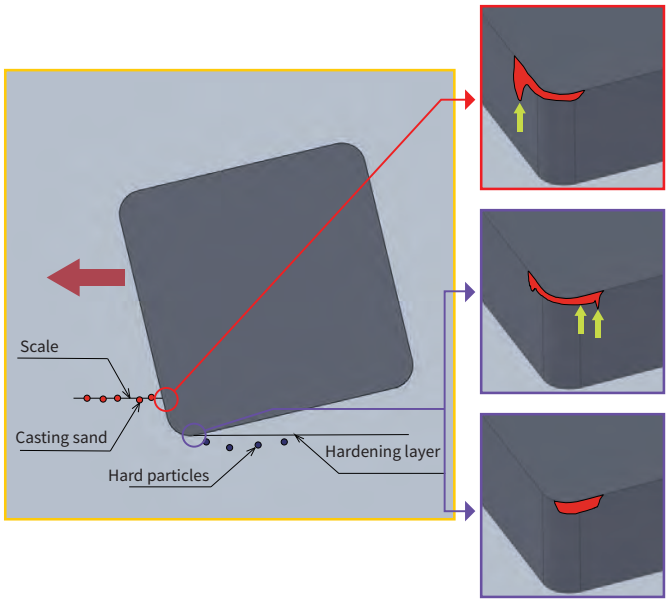


For heat-resistant alloys





Recommended grade from cutting edge damage



Recommended when wear on the infeed side wear has progressed due to scale or casting sand, resulting in chipping of the cutting edge.

Roughing **SX6**

Recommended when VB wear has progressed due to the surface machining layer and hard particles, and the machined surface has deteriorated.

Roughing **SP9** *DRY machining

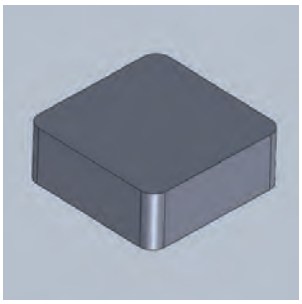
Finishing **HC2 HC6** *HC6 WET machining recommended

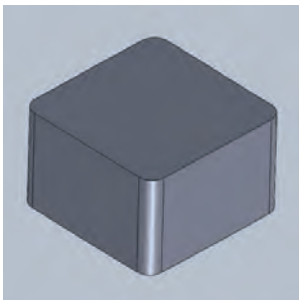
Recommended when the heat generated during DRY machining causes progressive wear, resulting in worsening of the machined surface and deterioration of dimensional accuracy.

Finishing **HC1 HW2** *DRY machining

Effect of insert thickness

In machining with high cutting loads, such as roughing, a thicker insert thickness effectively reduces damage such as chipping, thus extending tool life.



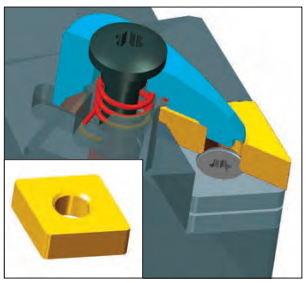


Brake disc	
Work material	: FC250
Cutting speed(m/min)	: 550
Feed(mm/rev)	: 0.45
Depth of cut(mm)	: 2.5
Coolant	: DRY

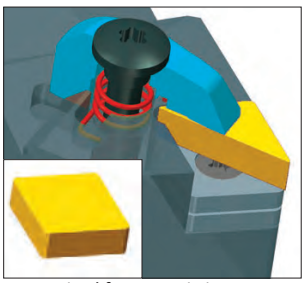
SNGN1207 type	100 pcs/corner stable
SNGN1204 type	50-70 pcs/corner unstable

Recommended clamping type when using ceramic inserts

To maximaize the performance of ceramic inserts, clamping rigidity of the inserts is important.
Select the clamping method best suited for your machining method.

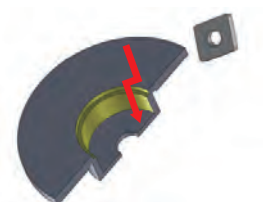


Capable of clamping inserts tightly. Supports cutting loads from any direction.



Best suited for ceramic inserts. Not suitable where cutting loads are applied from each direction.

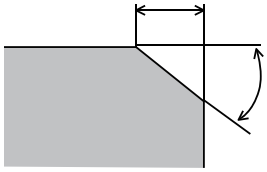
Brake disc	
Work material	: FC250
Cutting speed(m/min)	: 750
Feed(mm/rev)	: 0.35
Depth of cut(mm)	: 2.0
Coolant	: DRY



NTK double clamping type	100 pcs/corner
Lever lock type	45 pcs/corner

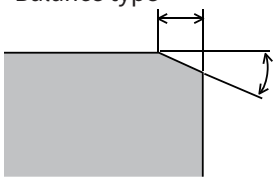
Use of different edge preparations

<Tougher type>



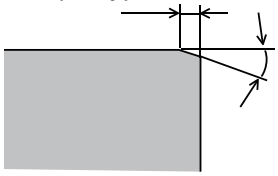
Width: Bigger
Angle: Bigger
Ex. width 0.3 × angle 35°

<Balance type>



Width: Medium
Angle: Medium
Ex. width 0.2 × angle 20°

<Shaper type>



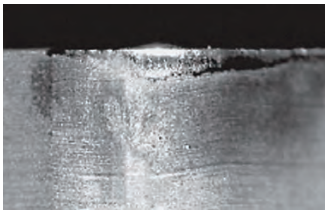
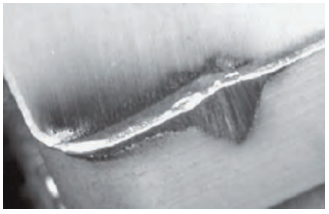
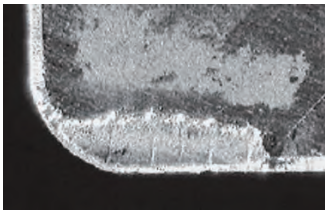
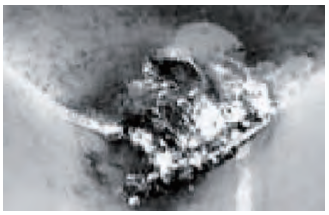
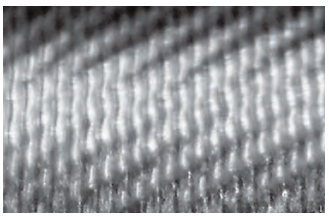
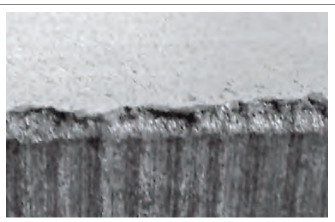
Width: Smaller
Angle: Smaller
Ex. width 0.1 × angle 15°

Case1.
Excessive notch wear or chipping in the early stages of machining.
→Tougher type is recommended.

Case2.
Unstable machining dimensions and excessive VB wear
→Sharper type is recommended.

Case3.
Micro chipping occured.
→Add round honing on the cutting edge is recommended.

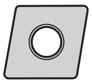
Troubleshooting

	Case study		Cause	Measure
Insert	VB wear		• Cutting speed too high • Feed rate too low • Insert shape incorrect • Incorrect insert grade	• Reduce cutting speed • Increase feed rate • Increase corner radius • Change to a grade with superior wear resistance
	Notch wear		• Incorrect insert grade • Cutter geometry incorrect • Insert shape incorrect	• Change to a grade with better wear resistance • Increase the lead angle • Change the geometry of inserts
	Thermal crack		• Cutting conditions incorrect • Incorrect insert grade	• Reduce cutting speed • Change from WET to DRY machining • Change to a grade with superior thermal shock resistance
	Fracture		• Cutting condition incorrect • Edge treatment incorrect • Use coolant	• Lower feed • Increase cutting edge treatment • Apply honing • Change from WET to DRY machining
	Cracked		• Insert clamped with incorrect seating	• Clean the mounting area and install according to the correct procedure • Tighten to the correct torque.
Work material	Chatter		• Low cutting resistance • Workpiece/tool less rigidity • Low cutting speed	• Lower feed • Smaller cutting edge treatment • Increase the clearance angle of the insert • Shorten tool overhang • Increase cutting speed
	Edge chipped		• High feed rate • Small cutting edge corner radius • Insert wear	• Lower feed • Increase the corner radius of insert • Use wiper inserts • Reduce cutting speed

Negative
Positive

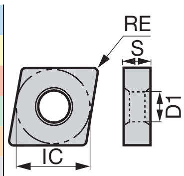
● : Continuous cutting
◖ : Light interrupted cutting
✠ : Heavy interrupted cutting

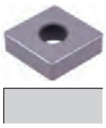
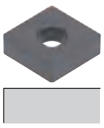
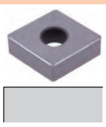
CN



Rhombic, 80° with hole

ISO	Work material	533	SP9	SX9	SX6	FX105	HC1	HC2	HC6	HW2	LX21
P	Steel										
M	Stainless										
K	Cast iron	●◖	●◖✠	●◖✠	●◖✠	●◖	●	●	●	●	●
N	Non-ferrous										
S	Superalloy										
H	Hard material										



Application	Chipbreaker	Designation	Whisker: 533	SiAlON: SP9	SiAlON: SX9	Silicon Nitride: SX6	Silicon Nitride: FX105	Alumina: HC1	Alumina: HC2	Alumina: HC6	Alumina: HW2	Alumina: LX21	RE	IC	S	D1
Finishing to medium cutting	-	CNGA120404					●					●	0.4	12.7	4.76	5.16
		CNGA120408					●					●	0.8	12.7	4.76	5.16
		CNGA120412					●					●	1.2	12.7	4.76	5.16
		CNGA120416					●						1.6	12.7	4.76	5.16
Roughing to finishing	-	CNGA120408T01020	●	●	●			●	●	●	●		0.8	12.7	4.76	5.16
		CNGA120408T02020				●							0.8	12.7	4.76	5.16
		CNGA120412T01020	●	●	●			●	●	●	●		1.2	12.7	4.76	5.16
		CNGA120412T02020				●							1.2	12.7	4.76	5.16
		CNGA120416T01020	●	●	●			●	●	●	●		1.6	12.7	4.76	5.16
		CNGA120416T02020				●							1.6	12.7	4.76	5.16
Finishing to medium cutting	-	CNMA120408					●						0.8	12.7	4.76	5.16
		CNMA120412					●						1.2	12.7	4.76	5.16
		CNMA120416					●						1.6	12.7	4.76	5.16
	Wiper	CNMA120408W					●						0.8	12.7	4.76	5.16
		CNMA120412W					●						1.2	12.7	4.76	5.16
		CNMA120416W					●						1.6	12.7	4.76	5.16

Dimension (mm)

● : Line up

More info Ex.Toolholder In.Toolholder

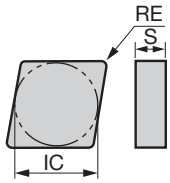
C
D
R
S
T
V
W
OTHERS

● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

CN

Rhombic, 80° without hole

P	Steel	
M	Stainless	
K	Cast iron	●ⓒ ●✣ ●✣ ●✣ ●ⓒ ● ● ● ● ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation	Whisker 533	SiAlON SP9	SiAlON SX9	Silicon Nitride SX6	Silicon Nitride FX105	Alumina HC1	Alumina HC2	Alumina HC6	Alumina HW2	Alumina LX21	Dimension (mm) RE	IC	S	D1
Roughing to finishing	-	**CNGN120408T01020**	●	●	●			●	●	●	●		0.8	12.7	4.76	-
		CNGN120408**T02020**				●							0.8	12.7	4.76	-
		CNGN120412**T01020**	●	●	●			●	●	●	●		1.2	12.7	4.76	-
		CNGN120412**T02020**				●							1.2	12.7	4.76	-
		CNGN120416**T01020**	●	●	●			●	●	●	●		1.6	12.7	4.76	-
		CNGN120416**T02020**				●							1.6	12.7	4.76	-
Finishing to medium cutting	-	**CNMN120408**					●						0.8	12.7	4.76	-
		CNMN120412					●						1.2	12.7	4.76	-
	-	**CNGN120408**					●						0.8	12.7	4.76	-
		CNGN120412					●						1.2	12.7	4.76	-
		CNGN120416					●					●	1.6	12.7	4.76	-
		CNGN120420					●						2	12.7	4.76	-
		CNGN120708					●						0.8	12.7	7.94	-
		CNGN120712					●						1.2	12.7	7.94	-
		CNGN120716					●						1.6	12.7	7.94	-
	-	**CNGD120712**					●						1.2	12.7	7.94	-
		CNGD120716					●						1.6	12.7	7.94	-
Roughing to finishing	-	**CNGX120408T01020**		●	●								0.8	12.7	4.76	-
		CNGX120408**T02020**				●							0.8	12.7	4.76	-
		CNGX120412**T01020**		●	●								1.2	12.7	4.76	-
		CNGX120412**T02020**				●							1.2	12.7	4.76	-
		CNGX120416**T01020**		●	●								1.6	12.7	4.76	-
		CNGX120416**T02020**				●							1.6	12.7	4.76	-
		CNGX120708T01020		●	●								0.8	12.7	7.94	-
		CNGX120708**T02020**		●	●	●							0.8	12.7	7.94	-
		CNGX120712**T01020**		●	●								1.2	12.7	7.94	-
		CNGX120712**T02020**		●	●	●							1.2	12.7	7.94	-
		CNGX120716**T01020**		●	●								1.6	12.7	7.94	-
		CNGX120716**T02020**		●	●	●							1.6	12.7	7.94	-

● : Line up

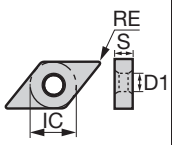
More info | Ex.Toolholder | In.Toolholder

● : Continuous cutting
ᑕ : Light interrupted cutting
✣ : Heavy interrupted cutting

DN

Rhombic, 55° with hole

P	Steel	ᑕ
M	Stainless	✣ ✣ ᑕ
K	Cast iron	ᑕ ✣ ✣ ✣ ᑕ ● ● ● ● ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



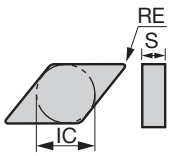
Application	Chipbreaker	Designation	Whisker 533	SiAlON SP9	SiAlON SX9	Silicon Nitride SX6	Silicon Nitride FX105	Alumina HC1	Alumina HC2	Alumina HC6	Alumina HW2	Alumina LX21	Dimension (mm) RE	IC	S	D1
Finishing to medium cutting	-	DNGA150404										●	0.4	12.7	4.76	5.16
		DNGA150408					●					●	0.8	12.7	4.76	5.16
		DNGA150412					●					●	1.2	12.7	4.76	5.16
		DNGA150416					●						1.6	12.7	4.76	5.16
Roughing to finishing	-	DNGA150408T01020	●	●	●			●	●	●	●		0.8	12.7	4.76	5.16
		DNGA150408T02020				●							0.8	12.7	4.76	5.16
		DNGA150412T01020	●	●	●			●	●	●	●		1.2	12.7	4.76	5.16
		DNGA150412T02020				●							1.2	12.7	4.76	5.16

● : Line up

DN

Rhombic, 55° without hole

P	Steel	
M	Stainless	
K	Cast iron	✣ ✣ ✣ ᑕ ● ● ● ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation	SiAlON SP9	SiAlON SX9	Silicon Nitride SX6	Silicon Nitride FX105	Alumina HC1	Alumina HC2	Alumina HC6	Alumina HW2	Dimension (mm) RE	IC	S	D1
Roughing to finishing	-	DNGN150408T01020	●	●			●	●	●	●	0.8	12.7	4.76	-
		DNGN150408T02020			●						0.8	12.7	4.76	-
		DNGN150412T01020	●	●			●	●	●	●	1.2	12.7	4.76	-
		DNGN150412T02020			●						1.2	12.7	4.76	-
Finishing to medium cutting	-	DNGD150708				●					0.8	12.7	7.94	-
		DNGD150712				●					1.2	12.7	7.94	-
		DNGD150716				●					1.6	12.7	7.94	-
	-	DNGN150412				●					1.2	12.7	4.76	-
		DNGN150416				●					1.6	12.7	4.76	-

● : Line up

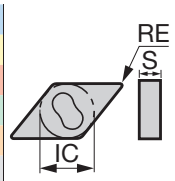
More info | Ex.Toolholder | In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

DN

Rhombic, 55° without hole

P	Steel	
M	Stainless	
K	Cast iron	◐ ✣ ◐ ✣ ◐ ✣
N	Non-ferrous	
S	Superalloy	
H	Hard material	



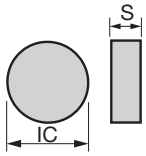
Application	Chipbreaker	Designation	SiAlON SP9	SiAlON SX9	Silicon Nitride SX6	RE	IC	S	D1
Roughing to finishing	-	DNGX150708T01020	●	●		0.8	12.7	7.94	-
		DNGX150708T02020			●	0.8	12.7	7.94	-
		DNGX150712T01020	●	●		1.2	12.7	7.94	-
		DNGX150712T02020			●	1.2	12.7	7.94	-
		DNGX150716T01020	●	●		1.6	12.7	7.94	-
		DNGX150716T02020			●	1.6	12.7	7.94	-

● : Line up

RN

Round, without hole

P	Steel	
M	Stainless	
K	Cast iron	◐ ◐ ✣ ✣ ✣ ◐ ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation	Whisker 533	SiAlON SP9	SiAlON SX9	Silicon Nitride SX6	Silicon Nitride FX105	Alumina HC2	RE	IC	S	D1
Finishing to medium cutting	-	RNGN120400					●		-	12.7	4.76	-
Roughing to finishing	-	RNGN120400S01025	●						-	12.7	4.76	-
		RNGN120400T01020		●	●				-	12.7	4.76	-
		RNGN120400T01025	●						-	12.7	4.76	-
		RNGN120400T02020				●			-	12.7	4.76	-
		RNGN120700P20015	●					●	-	12.7	7.94	-
		RNGN120700S01025	●						-	12.7	7.94	-
		RNGN120700T01020		●	●				-	12.7	7.94	-
		RNGN120700T01025	●						-	12.7	7.94	-
		RNGN120700T02020				●			-	12.7	7.94	-
		RNGN150700P20015						●	-	15.875	7.94	-
		RNGN190700P20015						●	-	19.05	7.94	-
		RNGN250700P20015						●	-	25.4	7.94	-

● : Line up

More info

RN

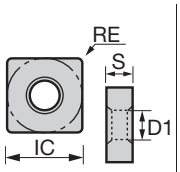
Ex.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

SN

Square with hole

P	Steel	
M	Stainless	
K	Cast iron	◐ ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



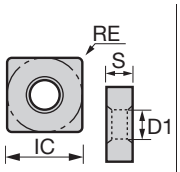
Application	Chipbreaker	Designation	Silicon Nitride	Alumina	Dimension (mm)			
			FX105	LX21	RE	IC	S	D1
Finishing to medium cutting	-	SNMA120408	●		0.8	12.7	4.76	5.16
		SNMA120412	●		1.2	12.7	4.76	5.16
	-	SNGA120408	●		0.8	12.7	4.76	5.16
		SNGA120412	●	●	1.2	12.7	4.76	5.16
		SNGA120416	●		1.6	12.7	4.76	5.16

● : Line up

SN

Square with hole

P	Steel	
M	Stainless	
K	Cast iron	◐ ◐ ◐ ● ● ● ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation	SiAlON		Silicon Nitride	Alumina				Dimension (mm)			
			SP9	SX9	SX6	HC1	HC2	HC6	HW2	RE	IC	S	D1
Roughing to finishing	-	SNGA120408T01020	●	●		●	●	●	●	0.8	12.7	4.76	5.16
		SNGA120408T02020			●					0.8	12.7	4.76	5.16
		SNGA120412T01020	●	●		●	●	●	●	1.2	12.7	4.76	5.16
		SNGA120412T02020			●					1.2	12.7	4.76	5.16
		SNGA120416T01020	●	●		●	●	●	●	1.6	12.7	4.76	5.16
		SNGA120416T02020			●					1.6	12.7	4.76	5.16

● : Line up

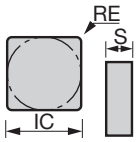
More info
Ex.Toolholder
In.Toolholder

● : Continuous cutting
ɔ : Light interrupted cutting
✣ : Heavy interrupted cutting

SN

Square without hole

P	Steel	
M	Stainless	
K	Cast iron	●ɔ ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



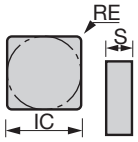
Application	Chipbreaker	Designation	Silicon Nitride: FX105	Alumina: LX21	Dimension (mm): RE	IC	S	D1
Finishing to medium cutting	-	SNGD120712	●		1.2	12.7	7.94	-
		SNGD120716	●		1.6	12.7	7.94	-
	-	SNGN090308		●	0.8	9.525	3.18	-
		SNGN120408	●	●	0.8	12.7	4.76	-
		SNGN120412	●	●	1.2	12.7	4.76	-
		SNGN120416	●	●	1.6	12.7	4.76	-
		SNGN120420	●	●	2	12.7	4.76	-
		SNGN120424	●		2.4	12.7	4.76	-
		SNGN120712	●		1.2	12.7	7.94	-
		SNGN120716	●		1.6	12.7	7.94	-

● : Line up

SN

Square without hole

P	Steel	
M	Stainless	
K	Cast iron	●ɔ ●✣ ●✣ ●✣ ● ● ● ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation	Whisker: 533	SiAlON: SP9	SiAlON: SX9	Silicon Nitride: SX6	Alumina: HC1	Alumina: HC2	Alumina: HC6	Alumina: HW2	Dimension (mm): RE	IC	S	D1
Roughing to finishing	-	SNGN120408T01020	●	●	●	●	●	●	●	●	0.8	12.7	4.76	-
		SNGN120408T02020				●					0.8	12.7	4.76	-
		SNGN120412T01020	●	●	●	●	●	●	●	●	1.2	12.7	4.76	-
		SNGN120412T02020	●	●	●	●	●	●	●	●	1.2	12.7	4.76	-
		SNGN120416T01020	●	●	●	●	●	●	●	●	1.6	12.7	4.76	-
		SNGN120416T02020				●					1.6	12.7	4.76	-
		SNGN150716T01020				●					1.6	15.875	7.94	-
		SNGN150716T02020		●	●	●					1.6	15.875	7.94	-
		SNGN150716T02020		●	●	●					1.6	15.875	7.94	-
	-	SNGX120712T01020		●	●						1.2	12.7	7.94	-
		SNGX120712T02020		●	●	●					1.2	12.7	7.94	-
		SNGX120716T01020		●	●						1.6	12.7	7.94	-
		SNGX120716T02020		●	●	●					1.6	12.7	7.94	-
		SNGX150716T02020		●	●	●					1.6	15.875	7.94	-

● : Line up

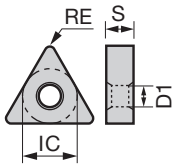
More info | Ex.Toolholder | In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TN

Triangular with hole

P	Steel	
M	Stainless	
K	Cast iron	◐ ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



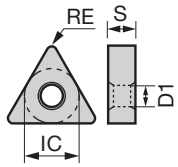
Application	Chipbreaker	Designation	Silicon Nitride: FX105	Alumina: LX21	Dimension (mm) RE	IC	S	D1
Finishing to medium cutting	-	TNMA160408	●		0.8	9.525	4.76	3.81
		TNMA160412	●		1.2	9.525	4.76	3.81
	-	TNGA160404	●	●	0.4	9.525	4.76	3.81
		TNGA160408	●	●	0.8	9.525	4.76	3.81
		TNGA160412	●	●	1.2	9.525	4.76	3.81
		TNGA160416	●		1.6	9.525	4.76	3.81

● : Line up

TN

Triangular with hole

P	Steel	
M	Stainless	
K	Cast iron	◐✣ ◐✣ ◐✣ ● ● ● ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation	SiAlON: SP9	SiAlON: SX9	Silicon Nitride: SX6	Alumina: HC1	HC2	HC6	HW2	Dimension (mm) RE	IC	S	D1
Roughing to finishing	-	TNGA160408T01020	●	●		●	●	●	●	0.8	9.525	4.76	3.81
		TNGA160408T02020			●					0.8	9.525	4.76	3.81
		TNGA160412T01020	●	●		●	●	●	●	1.2	9.525	4.76	3.81
		TNGA160412T02020			●					1.2	9.525	4.76	3.81
		TNGA160416T01020	●	●		●	●	●	●	1.6	9.525	4.76	3.81
		TNGA160416T02020			●					1.6	9.525	4.76	3.81

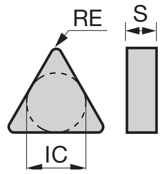
● : Line up

More info | Ex.Toolholder | In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TN

Triangular without hole



Material		533	SP9	SX9	SX6	HC1	HC2	HC6	HW2
P	Steel								
M	Stainless								
K	Cast iron	●◐	●◐✣	●◐✣	●◐✣	●	●	●	●
N	Non-ferrous								
S	Superalloy								
H	Hard material								

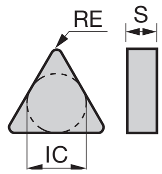
Application	Chipbreaker	Designation	Whisker: 533	SiAlON: SP9	SiAlON: SX9	Silicon Nitride: SX6	Alumina: HC1	Alumina: HC2	Alumina: HC6	Alumina: HW2	RE	IC	S	D1
Roughing to finishing	-	TNGN160408T01020	●	●	●		●	●	●	●	0.8	9.525	4.76	-
		TNGN160408T02020				●					0.8	9.525	4.76	-
		TNGN160412T01020	●	●	●		●	●	●	●	1.2	9.525	4.76	-
		TNGN160412T02020				●					1.2	9.525	4.76	-
		TNGN160416T01020	●	●	●		●	●	●	●	1.6	9.525	4.76	-
		TNGN160416T02020				●					1.6	9.525	4.76	-
		TNGN160416T02020				●					1.6	9.525	4.76	-
		TNGN160416T02020				●					1.6	9.525	4.76	-

Dimension (mm)

● : Line up

TN

Triangular without hole



Material		FX105	LX21
P	Steel		
M	Stainless		
K	Cast iron	●◐	●
N	Non-ferrous		
S	Superalloy		
H	Hard material		

Application	Chipbreaker	Designation	Silicon Nitride: FX105	Alumina: LX21	RE	IC	S	D1
Finishing to medium cutting	-	TNGN160404		●	0.4	9.525	4.76	-
		TNGN160408		●	0.8	9.525	4.76	-
		TNGN160412	●	●	1.2	9.525	4.76	-
		TNGN160416	●		1.6	9.525	4.76	-
		TNGN160420	●		2	9.525	4.76	-

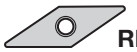
Dimension (mm)

● : Line up

More info　Ex.Toolholder　In.Toolholder

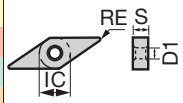
● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

VN



Rhombic, 35° with hole

		SiAlON		Silicon Nitride	Alumina			
		SP9	SX9	SX6	HC1	HC2	HC6	HW2
P	Steel	◐✣	◐✣	◐✣	●	●	●	●
M	Stainless							
K	Cast iron	◐✣	◐✣	◐✣	●	●	●	●
N	Non-ferrous							
S	Superalloy							
H	Hard material							



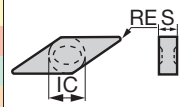
Application	Chipbreaker	Designation	SP9	SX9	SX6	HC1	HC2	HC6	HW2	RE	IC	S	D1
Roughing to finishing	-	VNGA160404T01020				●	●	●	●	0.4	9.525	4.76	3.81
		VNGA160408T01020	●	●		●	●	●	●	0.8	9.525	4.76	3.81
		VNGA160408T02020			●					0.8	9.525	4.76	3.81
		VNGA160412T01020	●	●		●	●	●	●	1.2	9.525	4.76	3.81
		VNGA160412T02020			●					1.2	9.525	4.76	3.81

● : Line up

VN

Rhombic, 35° without hole

		Silicon Nitride	
		SX6	FX105
P	Steel	◐✣	◐
M	Stainless		
K	Cast iron	◐✣	◐
N	Non-ferrous		
S	Superalloy		
H	Hard material		



Application	Chipbreaker	Designation	SX6	FX105	RE	IC	S	D1
Finishing to medium cutting	-	VNGD160712		●	1.2	9.525	4.76	-
Roughing to finishing	-	VNGX160704T02020	●		0.4	9.525	7.94	-
		VNGX160708T02020	●		0.8	9.525	7.94	-
		VNGX160712T02020	●		1.2	9.525	7.94	-
		VNGX160716T02020	●		1.6	9.525	7.94	-
		VNGX160720T02020	●		2.0	9.525	7.94	-

● : Line up

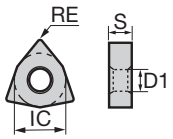
More info | Ex.Toolholder | In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

WN

Trigon, 80° with hole

P	Steel	
M	Stainless	
K	Cast iron	◐ ✣ ✣ ✣
N	Non-ferrous	
S	Superalloy	
H	Hard material	



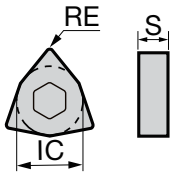
Application	Chipbreaker	Designation	Whisker 533	SiAlON SP9	SiAlON SX9	Silicon Nitride SX6	Dimension (mm) RE	IC	S	D1
Roughing to finishing	-	WNGA080408T01020	●	●	●		0.8	12.7	4.76	5.16
		WNGA080408T02020				●	0.8	12.7	4.76	5.16
		WNGA080412T01020	●	●	●		1.2	12.7	4.76	5.16
		WNGA080412T02020				●	1.2	12.7	4.76	5.16
		WNGA080416T01020		●	●		1.6	12.7	4.76	5.16
		WNGA080416T02020				●	1.6	12.7	4.76	5.16

● : Line up

WN

Trigon, 80° without hole

P	Steel	
M	Stainless	
K	Cast iron	◐ ✣
N	Non-ferrous	
S	Superalloy	
H	Hard material	



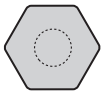
Application	Chipbreaker	Designation	Silicon Nitride SX6	Dimension (mm) RE	IC	S	D1
Roughing to finishing	-	WNGX080712T02020	●	1.2	12.7	7.94	-

● : Line up

More info

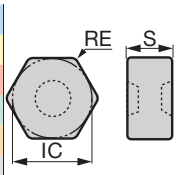
● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

HN



Hexagonal, 120° without hole

P	Steel	
M	Stainless	
K	Cast iron	●◐
N	Non-ferrous	
S	Superalloy	
H	Hard material	



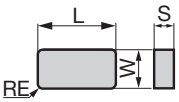
Application	Chipbreaker	Designation	Silicon Nitride	Dimension (mm)			
			FX105	RE	IC	S	D1
Finishing to medium cutting	-	HNGD050712	●	1.2	12.7	7.94	-
		HNGD050716	●	1.6	12.7	7.94	-

● : Line up

LNM

Rectangular

P	Steel	
M	Stainless	
K	Cast iron	●◐
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation	Whisker	Alumina	Dimension (mm)			
			533	HC2	RE	W	S	L
Medium to finishing	-	LNM6688SNX6	●	●	3.2	19.05	12.7	38.1

● : Line up

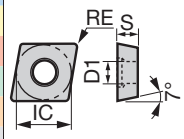
More info

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

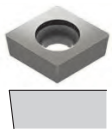
CC

Rhombic, 80° with hole Positive 7°

P	Steel	
M	Stainless	
K	Cast iron	●◐✣ ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation	Silicon Nitride SX6	Alumina HC2	RE	IC	S	D1
Roughing to finishing	-	CCGW060204T01020		●	0.4	6.35	2.38	3.75
		CCGW060208T01020		●	0.8	6.35	2.38	3.75
		CCGW09T304T01020		●	0.4	9.525	3.97	6
		CCGW09T308T01020	●	●	0.8	9.525	3.97	6
		CCGW09T312T01020	●		1.2	9.525	3.97	6
		CCGW120408T01020	●		0.8	12.7	4.76	7.5
		CCGW120412T01020	●		1.2	12.7	4.76	7.5

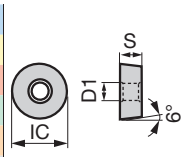


● : Line up

CDH

Round, with hole Positive 6°

P	Steel	
M	Stainless	
K	Cast iron	●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



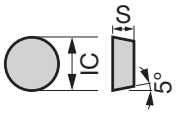
Application	Chipbreaker	Designation	Alumina HC2	RE	IC	S	D1
Medium to finishing	-	CDH1909P15010	●	-	19.05	9.52	6.35
		CDH2512P20015	●	-	25.4	12.7	6.75
		CDH3209P20015	●	-	31.75	9.52	9.92
		CDH3219P20015	●	-	31.75	19.05	9.92

● : Line up

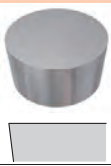
RB

Round, without hole Positive 5°

P	Steel	
M	Stainless	
K	Cast iron	●◐ ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation	Whisker 533	Alumina HC2	RE	IC	S	D1
Medium to finishing	-	RBGN090400P07020	●	●	-	9.525	4.76	-
		RBGN120600P07020	●	●	-	12.7	6.35	-



● : Line up

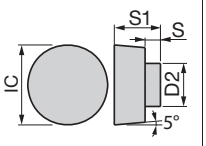
More info

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

RB

Round, without hole
Positive 5°

P	Steel	
M	Stainless	
K	Cast iron	◐ ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



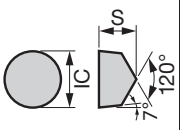
Application	Chipbreaker	Designation	Whisker 533	Alumina HC2	Dimension (mm) RE	IC	S	S1	D2
Medium to finishing	-	RBGX20P20015	●	●	-	20	5	15	10
		RBGX26P20015	●	●	-	26	5	15	14
		RBGX32P20015	●	●	-	32	8	20	16

● : Line up

RC

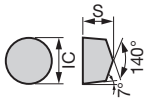
Round, without hole
Positive 7°

P	Steel	
M	Stainless	
K	Cast iron	◐ ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation	Whisker 533	Alumina HC2	Dimension (mm) RE	IC	S	D1
Medium to finishing	-	RCGX060400P07015	●	●	-	6.35	4.76	-
		RCGX060400T01025	●	●	-	6.35	4.76	-
		RCGX060600P07015	●	●	-	6.35	6.35	-
		RCGX060600T01025	●	●	-	6.35	6.35	-
		RCGX090700P07015	●	●	-	9.525	7.94	-
		RCGX090700T01025	●	●	-	9.525	7.94	-
		RCGX120700P20015	●	●	-	12.7	7.94	-
		RCGX120700T01025	●	●	-	12.7	7.94	-
		RCGX191000P20015		●	-	19.05	10	-
		RCGX251200P20015		●	-	25.4	12	-

● : Line up



Only **RCGX251200P20015** bottoms angle is 140°.

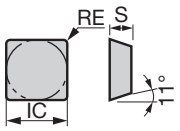
More info

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

SP

Square without hole Positive 11°

P	Steel	
M	Stainless	
K	Cast iron	●◐✣ ●◐✣ ● ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



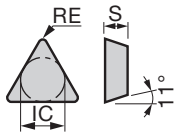
Application	Chipbreaker	Designation	SiAlON SP9			Silicon Nitride SX6			Alumina HC2	Alumina HW2				Dimension (mm) RE	IC	S	D1
Roughing to finishing	-	SPGN090308T01020							●	●				0.8	9.525	3.18	-
		SPGN120308T01020							●	●				0.8	12.7	3.18	-
		SPGN120312T01020							●	●				1.2	12.7	3.18	-
		SPGN120316T01020							●	●				1.6	12.7	3.18	-
		SPGN120412T01020	●			●								1.2	12.7	4.76	-
		SPGN120416T01020	●			●								1.6	12.7	4.76	-

● : Line up

TP

Triangular without hole Positive 11°

P	Steel	
M	Stainless	
K	Cast iron	● ● ●
N	Non-ferrous	
S	Superalloy	
H	Hard material	



Application	Chipbreaker	Designation	Alumina HC2	HC6	HW2	LX21	Dimension (mm) RE	IC	S	D1
Finishing	-	TPGN110304				●	0.4	6.35	3.18	-
		TPGN110304T01020	●		●		0.4	6.35	3.18	-
		TPGN110308T01020	●	●	●		0.8	6.35	3.18	-
		TPGN160304T01020	●		●		0.4	9.525	3.18	-
		TPGN160308T01020	●	●	●		0.8	9.525	3.18	-
		TPGN160312T01020	●		●		1.2	9.525	3.18	-

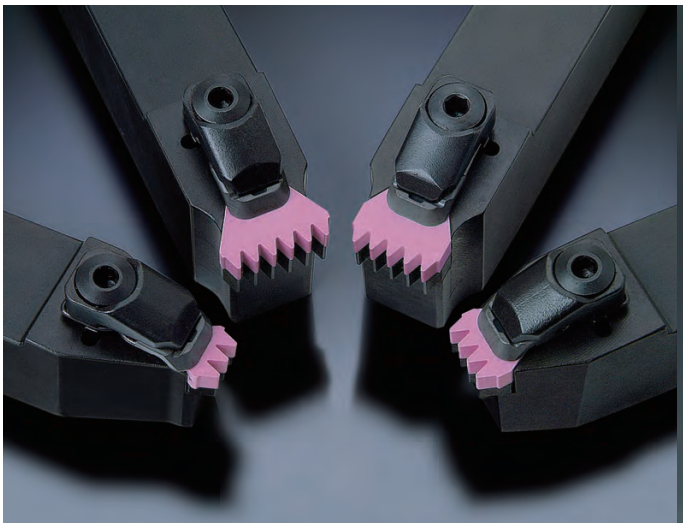
● : Line up

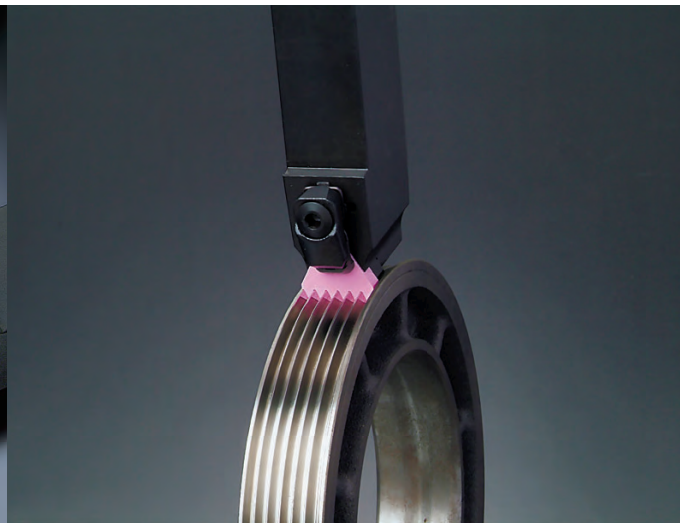
More info

Ceramic Grooving

K Cast Iron

V-pulley machining





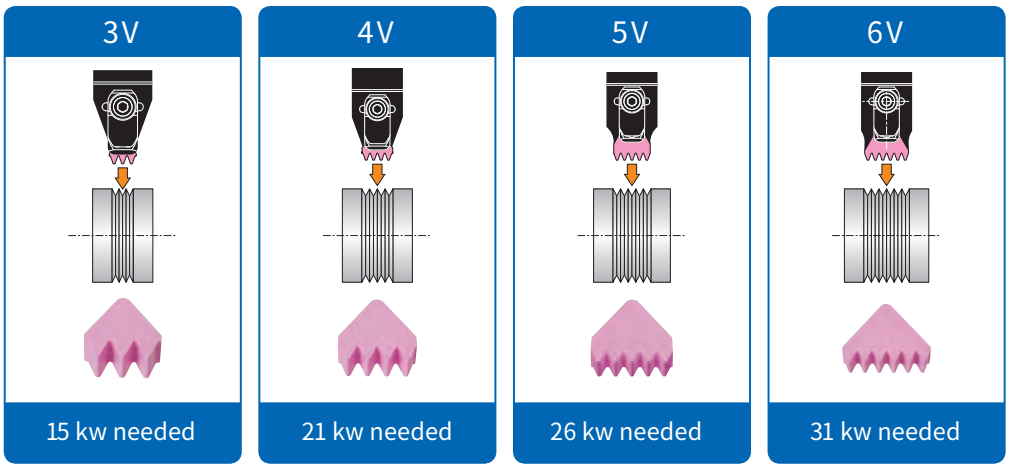
Features

- High-speed machining of poly-V pulleys
- Up to 6 grooves can be machined in a single pass
- High-precision inserts can be produced by profile machining

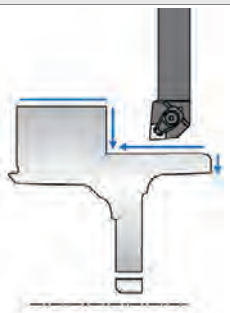
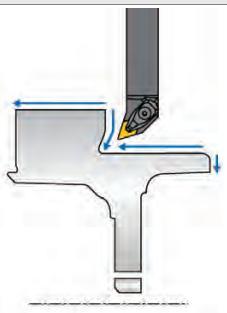
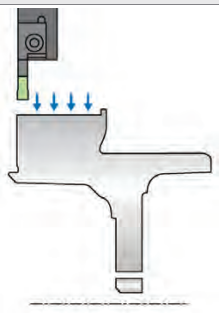
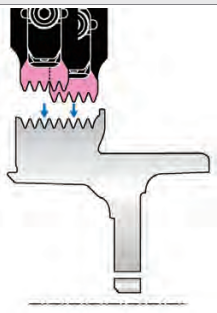
Recommended Cutting Conditions

Material	Insert grade	Cutting speed (m/min)	Feed (mm/rev)	DRY	WET
cast iron	**HW2**	300-600	0.05-0.15	●	

Number of Grooves and the Required Machine Power



High-speed machining of poly V with NTK ceramic inserts

	Process #1	Process #2	Process #3	Process #4
	OD and Profile Roughing	**OD and Profile Finishing**	**Plunge Grooving**	**Poly-V Grooving**
Tooling				
Insert	SX6 CNGX120712T02020	HC6 DNGA150408T01225	533 VGW6250-2E004	HW2 PTM 53 K50504 ENB*
		SP9 DNGA150408T01020		360-450 (420 m/min recommend)
Cutting speed	600-840	450-600(HC6) 540-720 (SP9)	300-420	(420 m/min recommend)
Feed	0.45-0.6	0.3-0.45 (HC6) 0.45-0.6 (SP9)	0.2-0.25	0.05-0.15
Depth of cut (mm)	2.0-3.0	0.5	-	-
Coolant	DRY (WET)	DRY (WET)	DRY (WET)	DRY
Pcs / corner	-300 pcs	-300 pcs	-300 pcs	-300 pcs

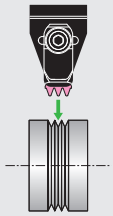
*Check the machine required power.

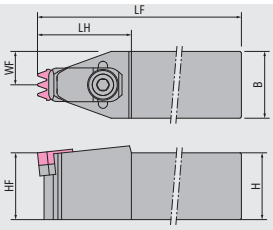
	3V	4V	5V	6V
Required HP kw	16kw	21kw	26kw	31kw

NTK's Ceramic Inserts ensure higher productivity and stable tool life for Damper-Pulley machining.

Poly-V Pulley Profiles

Poly-V Pulley Profiles - 3V Insert





Designation	B	H	HF	LF	LH	WF	Insert
POLY-V163	25.4	25.4	25.4	152.4	12.7	35.56	PTM33K30...

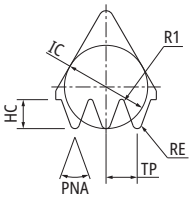
*Made to order item

INSERT

PTM33K30

P	Steel	
M	Stainless	
K	Cast iron	★
N	Non-ferrous	
S	Superalloys	
H	Hard materials	

★ : First choice

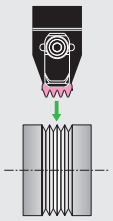


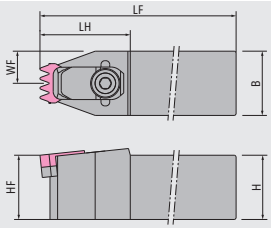
Designation	Alumina HW2	HC	IC	PNA	R1	RE	S	TP
PTM33K30504E004	●	3.16	9.525	40	0.4	0.5	4.76	3.56
PTM33K305E004	●	3.35	9.525	40	0.3	0.5	4.76	3.56

● : Line up

Poly-V Pulley Profiles

Poly-V Pulley Profiles - 4V Insert





Designation	B	H	HF	LF	LH	WF	Insert
POLY-V164	25.4	25.4	25.4	152.4	12.7	35.56	PTM43K40...

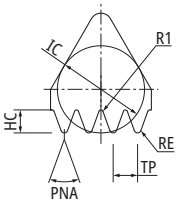
*Made to order item

INSERT

PTM43K40

P	Steel	
M	Stainless	
K	Cast iron	★
N	Non-ferrous	
S	Superalloys	
H	Hard materials	

★ : First choice



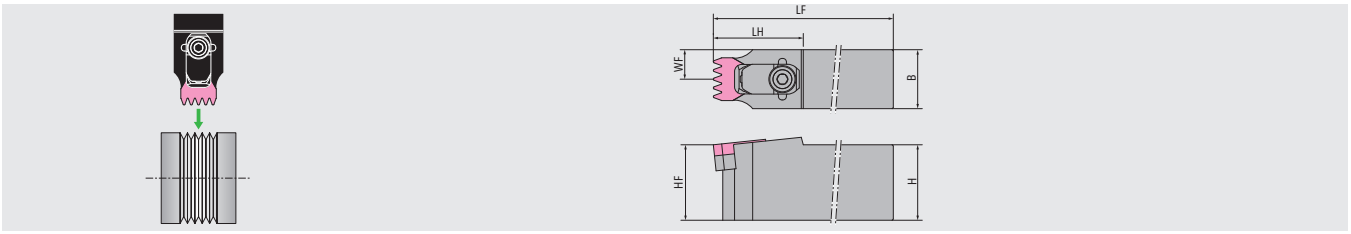
Designation	Alumina HW2	HC	IC	PNA	R1	RE	S	TP
PTM43K40504E004	●	3.16	12.7	40	0.4	0.5	4.76	3.56
PTM43K405E004	●	3.35	12.7	40	0.3	0.5	4.76	3.56

● : Line up

More info

Poly-V Pulley Profiles

Poly-V Pulley Profiles - 5V Insert

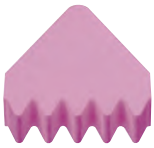


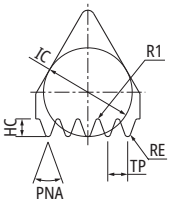
Designation	B	H	HF	LF	LH	WF	Insert
POLY-V205	31.75	31.75	31.75	177.8	15.875	38.1	PTM53K50...

*Made to order item

INSERT

PTM53K50





P	Steel		
M	Stainless		
K	Cast iron	★	
N	Non-ferrous		
S	Superalloys		
H	Hard materials		

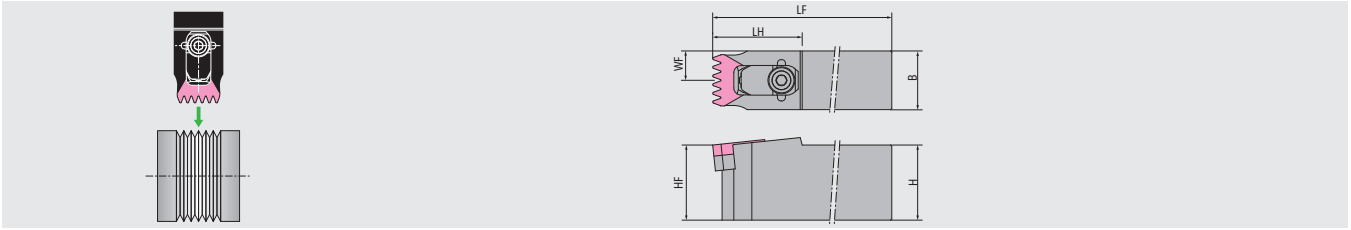
★ : First choice

Designation	Alumina HW2	HC	IC	PNA	R1	RE	S	TP
PTM53K50504E004	●	3.16	15.875	40	0.4	0.5	4.76	3.56
PTM53K505E004	●	3.35	15.875	40	0.3	0.5	4.76	3.56

● : Line up

Poly-V Pulley Profiles

Poly-V Pulley Profiles - 6V Insert

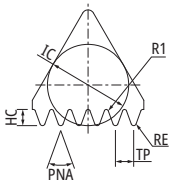


Designation	B	H	HF	LF	LH	WF	Insert
POLY-V206	31.75	31.75	31.75	177.8	15.875	38.1	PTM53K60...

*Made to order item

INSERT

PTM53K60



P	Steel		
M	Stainless		
K	Cast iron	★	
N	Non-ferrous		
S	Superalloys		
H	Hard materials		

★ : First choice

Designation	Alumina HW2	HC	IC	PNA	R1	RE	S	TP
PTM53K60504E004	●	3.16	15.875	40	0.4	0.5	4.76	3.56
PTM53K605E004	●	3.35	15.875	40	0.3	0.5	4.76	3.56

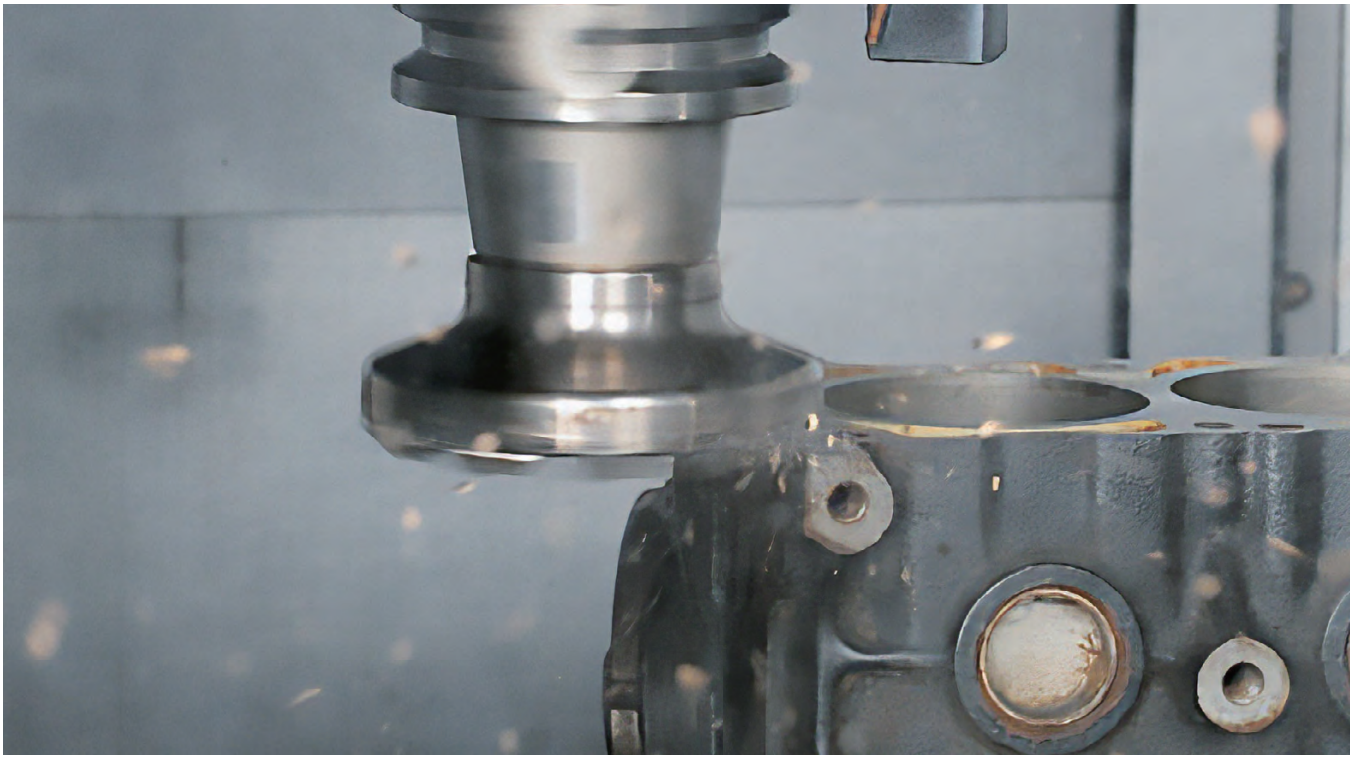
● : Line up

More info

Ceramic Milling

K Cast Iron

Grey / Ductile Cast Iron

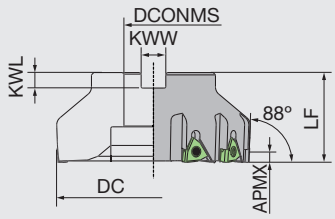


Lineup

Series	Features	DC mm	KAPR °	APMX mm
JWNXM series 	Low resistance × multiple corners • Reduces occurrence of insert edge chipping which is common during cast iron machining • Ideal for machining through scale • Tooling cost is reduced by using the unique 6 corner insert.	φ63 - 160	88°	- 5.5
JFDX series 	Low cost x versatility • Extremely economical 8-corner inserts • Covers various applications with 45, 75, and 88 degree angle milling cutters • Ceramic inserts with chipbreaker and wiper are also available	φ63 - 160	45°,75°,88°	- 6
JXTM series 	High rigidity • Large DOC is possible because of the fine pitch of inserts which results in higher productivity • LNX Insert comes with special chipbreaker to reduce tool pressure • Newly added Left-hand cutters	φ80 - 125	88°	- 8
JQ series 	Shoulder milling × Small diameter cutter • Capable of 90-degree shoulder milling • A variety of cutter diameters as small as φ20mm	φ20 - 80	90°	- 8
JSDW series 	Low tool pressure • Positive inserts reduce tool pressure and produce excellent surface finish in addition to long tool life • Best for milling thin parts thanks to reduced tool pressure	φ80 - 160	45°,75°	- 6

JWNXM...

Square shoulder mill, bore type, for 6-corner double side inserts



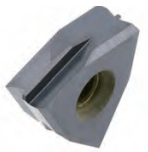
Designation	APMX	DC	CICT	LF	DCONMS	KWL	KWW	WT(kg)	Air hole	Insert
JWNXM063C2200R06-A	4.5,5.5	63	6	50	22	6.3	10.4	0.9	Without	WNX44...
JWNXM080A2540R08-A	4.5,5.5	80	8	50	25.4	6	9.5	1.1	Without	WNX44...
JWNXM100A3175R10-A	4.5,5.5	100	10	50	31.75	8	12.7	1.8	Without	WNX44...
JWNXM125A3810R12-A	4.5,5.5	125	12	58	38.1	10	15.9	3	Without	WNX44...
JWNXM160A5080R16-A	4.5,5.5	160	16	60	50.8	11	19	4.9	Without	WNX44...

SPARE PARTS

Designation	Clamp Screw	Wrench (for Clamp Screw)
JWNXM...	FSI26-4.0*12-LH	LLR-T15

INSERT

WNX44...



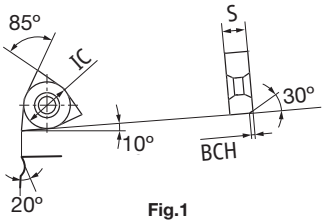


Fig.1

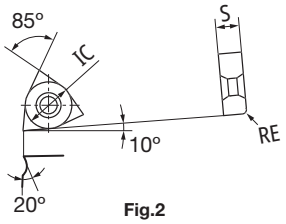


Fig.2

P	Steel							
M	Stainless							
K	Cast iron	★			☆			
N	Non-ferrous							
S	Superalloys							
H	Hard materials							

★ : First choice
☆ : Second choice

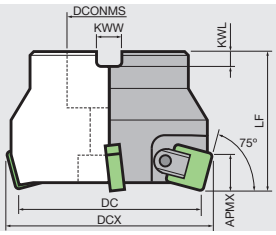
Designation	RE	APMX	Silicon Nitride			SiAION			S	BCH	BS	IC	Figure
			SX6			SP9							
WNX44-C10T01020	-	5.5	●			●			6.35	1	0.6	12.7	1
WNX44-R12T01020	1.2	4.5	●			●			6.35	-	-	12.7	2

● : Line up

More info

JFDX**-75...

75-deg face mill, bore type, for 8-corner double side inserts



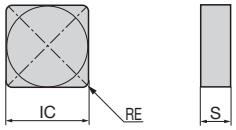
Designation	APMX	DC	DCX	CICT	LF	DCONMS	KWL	KWW	WT(kg)	Air hole	Insert
JFDX063-75-06R	6	63	70	6	50	22	6	10.4	0.79	Without	SN**1204...
JFDX080-75-08R	6	80	87	8	50	25.4	6	9.5	1.06	Without	SN**1204...
JFDX100-75-10R	6	100	107	10	50	31.75	8	12.7	1.39	Without	SN**1204...
JFDX125-75-12R	6	125	132	12	58	38.1	10	15.9	2.56	Without	SN**1204...

SPARE PARTS


Designation	Wedge	Shim	Clamp screw	Screw (for Shim)	Wrench (for Clamp screw)
JFDX**-75-**R	HLW175	ASN423	WS0616-T15	M3*8	T-15A

INSERT

SNGN-T



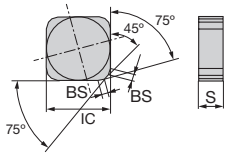
		Silicon Nitride			SiAlON				
		SX6			SP9			S	IC
P	Steel								
M	Stainless								
K	Cast iron	★			☆				
N	Non-ferrous								
S	Superalloys								
H	Hard materials								

★ : First choice
☆ : Second choice

Designation	RE	SX6	SP9	S	IC
SNGN120412T01020	1.2	●	●	4.76	12.7

● : Line up

SNGN-ENT



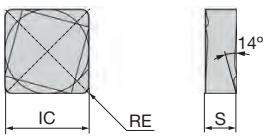
		Silicon Nitride			SiAlON					
		SX6			SP9			S	IC	BS
P	Steel									
M	Stainless									
K	Cast iron	★			☆					
N	Non-ferrous									
S	Superalloys									
H	Hard materials									

★ : First choice
☆ : Second choice

Designation	RE	SX6	SP9	S	IC	BS
SNGN1204ENT01025	1.2	●	●	4.76	12.7	1.4

● : Line up

SNGF-C/-CM



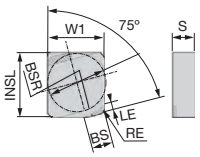
		Silicon Nitride		SiAlON			
		SX6		SP9		S	IC
P	Steel						
M	Stainless						
K	Cast iron	★		☆			
N	Non-ferrous						
S	Superalloys						
H	Hard materials						

★ : First choice
☆ : Second choice

Designation	RE	SX6	SP9	S	IC
SNGF120412T01025RC	1.2		●	4.76	12.7
SNGF120412T01025RC-CM	1.2	●		4.76	12.7

● : Line up

FDX-75



		CBN									
		BK310	B30	BK350	B52	S	BS	W1	LE	BSR	
P	Steel										
M	Stainless										
K	Cast iron	★	☆	★	☆						
N	Non-ferrous										
S	Superalloys										
H	Hard materials										

★ : First choice
☆ : Second choice

Designation	RE	BK310	B30	BK350	B52	S	BS	W1	LE	BSR
FDX1204-75-50R	1.2	●	●	●	●	4.76	4.5	12.2	1.5	250

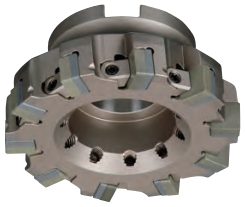
Note: CBN wiper insert can install 1 or 2 with ceramic inserts.

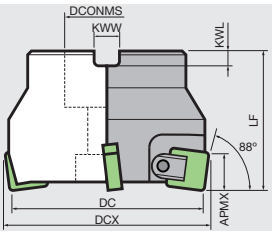
● : Line up

More info

JFDX**-88...

88-deg face mill, bore type, for 8-corner double side inserts





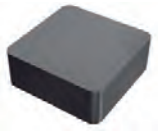
Designation	APMX	DC	DCX	CICT	LF	DCONMS	KWL	KWW	WT(kg)	Air hole	Insert
JFDX063-88-06R	6	63	64	6	50	22	6	10.4	0.79	Without	SN**1204...
JFDX080-88-08R	6	80	81	8	50	25.4	6	9.5	1.03	Without	SN**1204...
JFDX100-88-10R	6	100	101	10	50	31.75	8	12.7	1.38	Without	SN**1204...
JFDX125-88-12R	6	125	126	12	58	38.1	10	15.9	2.61	Without	SN**1204...

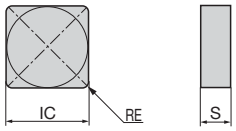
SPARE PARTS


Designation	Wedge	Shim	Clamp screw	Screw (for Shim)	Wrench (for Clamp screw)
JFDX***-88-**R	HLW175	ASN423	WS0616-T15	M3*8	T-15A

INSERT

SNGN-T





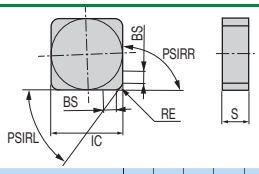
P	Steel							
M	Stainless							
K	Cast iron	★			☆			
N	Non-ferrous							
S	Superalloys							
H	Hard materials							

★ : First choice
☆ : Second choice

Designation	RE	Silicon Nitride			SiAlON			S	IC
		SX6			SP9				
SNGN120412T01020	1.2	●			●			4.76	12.7

● : Line up

SNEN-ZNT



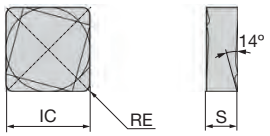
P	Steel							
M	Stainless							
K	Cast iron	★			☆			
N	Non-ferrous							
S	Superalloys							
H	Hard materials							

★ : First choice
☆ : Second choice

Designation	RE	Silicon Nitride			SiAlON			S	IC	BS
		SX6			SP9					
SNEN1204ZNT01025	1.2	●			●			4.76	12.7	2

● : Line up

SNGF-C/-CM



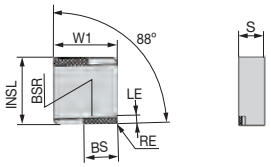
P	Steel							
M	Stainless							
K	Cast iron	★			☆			
N	Non-ferrous							
S	Superalloys							
H	Hard materials							

★ : First choice
☆ : Second choice

Designation	RE	Silicon Nitride			SiAlON			S	IC
		SX6			SP9				
SNGF120412T01025RC	1.2				●			4.76	12.7
SNGF120412T01025RC-CM	1.2	●						4.76	12.7

● : Line up

FDX-88



P	Steel							
M	Stainless							
K	Cast iron	★	☆	★	☆			
N	Non-ferrous							
S	Superalloys							
H	Hard materials							

★ : First choice
☆ : Second choice

Designation	RE	CBN				S	BS	W1	LE	INSL	BSR
		BK310	B30	BK350	B52						
FDX1204-88-50R	1.2	●	●	●	●	4.76	6.15	12.2	1.5	12.95	250

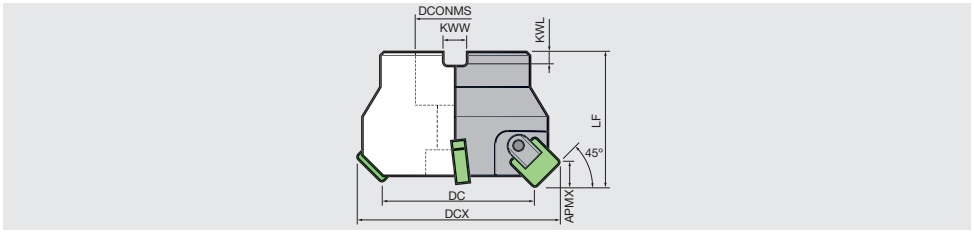
Note: CBN wiper insert can install 1 or 2 with ceramic inserts.

● : Line up

More info

JFDX**-45...

45-deg face mill, bore type, for 8-corner double side inserts



Designation	APMX	DC	DCX	CICT	LF	DCONMS	KWL	KWW	WT(kg)	Air hole	Insert
JFDX063-45-06R	6	63	72	6	50	22	6	10.4	0.93	Without	SN**1204...
JFDX080-45-08R	6	80	95	8	50	25.4	6	9.5	1.21	Without	SN**1204...
JFDX100-45-10R	6	100	120	10	50	31.75	8	12.7	1.66	Without	SN**1204...
JFDX125-45-12R	6	125	146	12	58	38.1	10	15.9	2.8	Without	SN**1204...

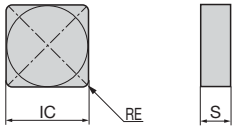
SPARE PARTS




Designation	Wedge	Shim	Clamp screw	Screw (for Shim)	Wrench (for Clamp screw)
JFDX**-45...	HLW175	ASN423	WS0616-T15	M3*8	T-15A

INSERT

SNGN-T

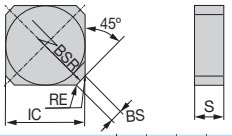
P	Steel							
M	Stainless							
K	Cast iron	★			☆			
N	Non-ferrous							
S	Superalloys							
H	Hard materials							

★ : First choice
☆ : Second choice

Designation	RE	Silicon Nitride			SiAlON			S	IC
		SX6			SP9				
SNGN120412T01020	1.2	●			●			4.76	12.7

● : Line up

SNGN-ANT

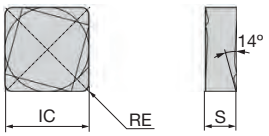
P	Steel							
M	Stainless							
K	Cast iron	★			☆			
N	Non-ferrous							
S	Superalloys							
H	Hard materials							

★ : First choice
☆ : Second choice

Designation	RE	Silicon Nitride			SiAlON			S	IC	BS	BSR
		SX6			SP9						
SNGN1204ANT01020	0.5	●			●			4.76	12.7	2	150

● : Line up

SNGF-C/-CM

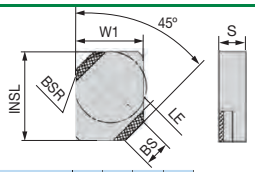
P	Steel							
M	Stainless							
K	Cast iron	★			☆			
N	Non-ferrous							
S	Superalloys							
H	Hard materials							

★ : First choice
☆ : Second choice

Designation	RE	Silicon Nitride			SiAlON			S	IC
		SX6			SP9				
SNGF120412T01025RC	1.2				●			4.76	12.7
SNGF120412T01025RC-CM	1.2	●						4.76	12.7

● : Line up

FDX-45

P	Steel							
M	Stainless							
K	Cast iron	★	☆	★	☆			
N	Non-ferrous							
S	Superalloys							
H	Hard materials							

★ : First choice
☆ : Second choice

Designation	CBN				S	BS	W1	LE	INSL	BSR
	BK310	B30	BK350	B52						
FDX1204-45-50R	●	●	●	●	4.76	4.8	12.2	1.5	16	250

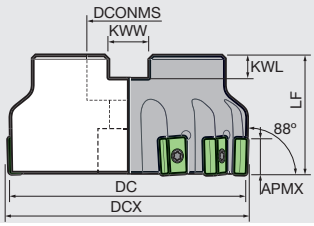
Note: CBN wiper insert can install 1 or 2 with ceramic inserts.

● : Line up

More info

JXTM...

Square shoulder mill, bore type, for 4-corner tangiential inserts



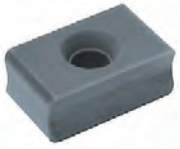
Designation	APMX	DC	DCX	CICT	LF	DCONMS	KWL	KWW	WT(kg)	Air hole	Insert
JXTM080-88-10R	8	80	83	6	50	25.4	6	9.5	1.1	Without	LNX324M...
JXTM100-88-13R	8	100	103	8	50	31.75	8	12.7	1.8	Without	LNX324M...
JXTM125-88-16R	8	125	128	10	58	38.1	10	15.9	3.1	Without	LNX324M...

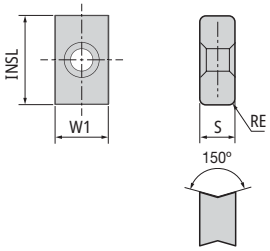
SPARE PARTS

Designation	Clamp screw	Wrench (for Clamp screw)
JXTM...	LRIS-4*12	LLR-25S

INSERT

LNX324





P	Steel						
M	Stainless						
K	Cast iron	★			☆		
N	Non-ferrous						
S	Superalloys						
H	Hard materials						

★ : First choice
☆ : Second choice

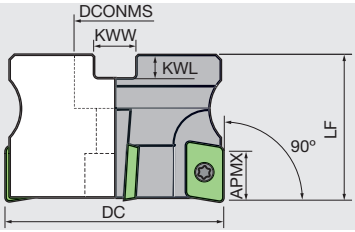
Designation	RE	Silicon Nitride			SiAlON			S	D1	INSL	W1
		SX6			SP9						
LNX324A-08T01020	0.8	●			●			6.35	4.2	15.875	9.525
LNX324A-12T01020	1.2	●			●			6.35	4.2	15.875	9.525
LNX324A-16T01020	1.6	●			●			6.35	4.2	15.875	9.525

● : Line up

More info

JQTS...

For Grey / Ductile cast iron, Lead angle 90 degree / DOC max. 8mm



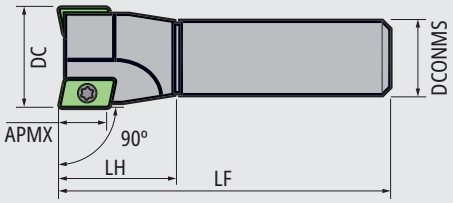
Designation	APMX	DC	CICT	LF	DCONMS	KWL	KWW	WT(kg)	Air hole	Insert
JQTS040-90-4R	8	40	4	40	16	5.6	8.4	0.2	Without	APCW1604...
JQTS050-90-5R	8	50	5	40	22	6.3	10.4	0.32	Without	APCW1604...
JQTS063-90-6R	8	63	6	50	22	6.3	10.4	1.4	Without	APCW1604...
JQTS080-90-8R	8	80	8	50	25.4	6	9.5	1.9	Without	APCW1604...

SPARE PARTS

Designation	Clamp screw	Wrench (for Clamp screw)
JQTS...	FSI22-4.0*11	T-15A

JQTE...

For Grey / Ductile cast iron, Lead angle 90 degree / DOC max. 8mm



Designation	APMX	DC	CICT	LF	DCONMS	LH	WT(kg)	Air hole	Insert
JQTE020-90-1R	8	20	1	100	20	30	0.22	Without	APCW1604..
JQTE025-90-2R	8	25	2	100	25	30	0.32	Without	APCW1604...
JQTE032-90-3R	8	32	3	120	32	35	0.53	Without	APCW1604...
JQTE040-90-4R	8	40	4	120	32	37	0.64	Without	APCW1604...

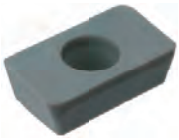
SPARE PARTS

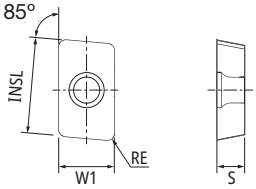
Designation	Clamp screw	Wrench (for Clamp screw)
JQTE020-90-1R, JQTE025-90-2R	FSI23-4.0*7	T-15A
JQTE032-90-3R, JQTE040-90-4R	FSI22-4.0*11	T-15A

More info

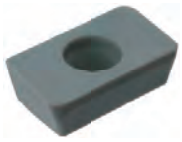
INSERT

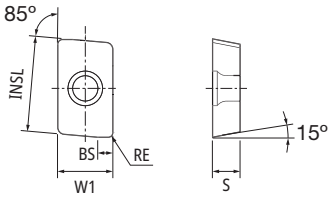
APCW1604**T01020





APCW1604PDRT01020





		Silicon Nitride			SiAlON		
P	Steel						
M	Stainless						
K	Cast iron	★			☆		
N	Non-ferrous						
S	Superalloys						
H	Hard materials						

★ : First choice
☆ : Second choice

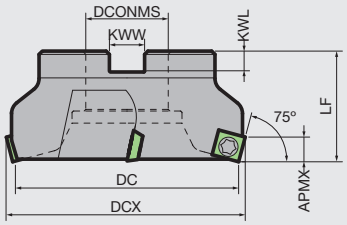
Designation	RE	Silicon Nitride SX6			SiAlON SP9			S	INSL	W1	BS
APCW160408T01020	0.8	●			●			4.76	16.46	9.525	-
APCW160412T01020	1.2	●			●			4.76	16.46	9.525	-
APCW160416T01020	1.6	●			●			4.76	16.46	9.525	-
APCW160420T01020	2	●			●			4.76	16.46	9.525	-
APCW1604PDRT01020	0.8	●			●			4.76	16.46	9.525	2.6

● : Line up

More info

JSDW**-75...

75-deg facemill, bore type, for 4-corner single inserts



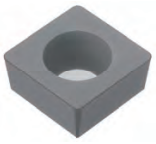
Designation	APMX	DC	DCX	CICT	LF	DCONMS	KWL	KWW	WT(kg)	Air hole	Insert
JSDW063-75-04R	6	63	70.6	4	50	22	6.3	10.4	0.82	Without	SDCW1204...
JSDW080-75-05R	6	80	83.3	5	50	25.4	6	9.5	1.04	Without	SDCW1204...
JSDW100-75-06R	6	100	108.7	6	50	31.75	8	12.7	1.33	Without	SDCW1204...
JSDW125-75-07R	6	125	134.1	7	58	38.1	10	15.9	2.54	Without	SDCW1204...

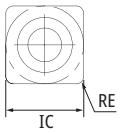
SPARE PARTS

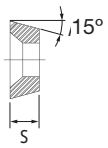
Designation	Clamp screw	Wrench (for Clamp screw)
JSDW***-75-**R	FSI21-5.0*12.45	T-20

INSERT

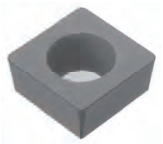
SDCW1204**T...

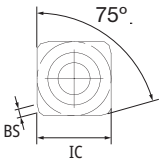


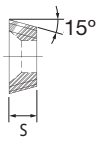




SDCW1204**EERT...







P	Steel						
M	Stainless						
K	Cast iron	★			☆		
N	Non-ferrous						
S	Superalloys						
H	Hard materials						

★ : First choice
☆ : Second choice

Designation	RE	Silicon Nitride			SiAlON			IC	S	BS
		SX6			SP9					
SDCW120408T01020	0.8	●			●			12.7	4.76	-
SDCW1204AET01020	1.2	●			●			12.7	4.76	2.4
SDCW1204EERT01020	-	●			●			12.7	4.76	1.4

● : Line up

More info

Ceramic Turning

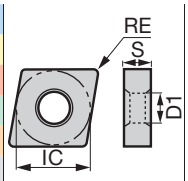
H Hardened Materials

● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

CN

Rhombic, 80° with hole

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	◐ ◐ ●



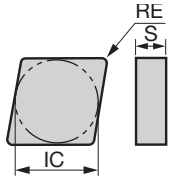
Application	Chipbreaker	Designation	Alumina LX10	Alumina LX11	Alumina ZC7	RE	IC	S	D1
Finishing to medium cutting	-	CNGA120404	●	●		0.4	12.7	4.76	5.16
		CNGA120404WLT01025			●	0.4	12.7	4.76	5.16
		CNGA120408	●	●		0.8	12.7	4.76	5.16
		CNGA120408WLT01025			●	0.8	12.7	4.76	5.16
		CNGA120412	●	●		1.2	12.7	4.76	5.16
		CNGA120412WLT01025			●	1.2	12.7	4.76	5.16
		CNGA120416	●	●		1.6	12.7	4.76	5.16
		CNGA120420	●	●		2	12.7	4.76	5.16

● : Line up

CN

Rhombic, 80° without hole

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	◐ ◐ ● ●



Application	Chipbreaker	Designation	Alumina LX10	Alumina LX11	Alumina HC4	Alumina ZC7	RE	IC	S	D1
Finishing to medium cutting	-	CNGN120404	●	●			0.4	12.7	4.76	-
		CNGN120408	●	●			0.8	12.7	4.76	-
		CNGN120408S02025				●	0.8	12.7	4.76	-
		CNGN120408T01025				●	0.8	12.7	4.76	-
		CNGN120408Z02025			●		0.8	12.7	4.76	-
		CNGN120412	●	●			1.2	12.7	4.76	-
		CNGN120412S02025				●	1.2	12.7	4.76	-
		CNGN120412T01025				●	1.2	12.7	4.76	-
		CNGN120412Z02025			●		1.2	12.7	4.76	-
		CNGN120416	●	●			1.6	12.7	4.76	-
		CNGN120708	●	●			0.8	12.7	7.94	-
		CNGN120712	●	●			1.2	12.7	7.94	-
		CNGN120716	●	●			1.6	12.7	7.94	-
		CNGN120720		●			2	12.7	7.94	-

● : Line up

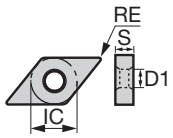
More info | Ex.Toolholder | In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

DN

Rhombic, 55° with hole

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	◐ ◐ ●



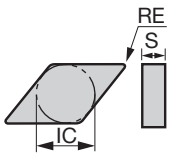
Application	Chipbreaker	Designation	Alumina				Dimension (mm)			
			LX10	LX11	HC4		RE	IC	S	D1
Finishing to medium cutting	-	**DNGA150404**	●	●			0.4	12.7	4.76	5.16
		DNGA150408	●	●			0.8	12.7	4.76	5.16
		DNGA150408Z02025			●		0.8	12.7	4.76	5.16
		DNGA150412	●	●			1.2	12.7	4.76	5.16
		DNGA150416					1.6	12.7	4.76	5.16
		DNGA150604	●	●			0.4	12.7	6.35	5.16
		DNGA150608	●	●			0.8	12.7	6.35	5.16
		DNGA150612	●	●			1.2	12.7	6.35	5.16
		DNGA150616	●	●			1.6	12.7	6.35	5.16
		DNGA150620	●	●			2	12.7	6.35	5.16

● : Line up

DN

Rhombic, 55° without hole

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	◐ ◐ ● ●



Application	Chipbreaker	Designation	Alumina				Dimension (mm)			
			LX10	LX11	HC4	ZC7	RE	IC	S	D1
Finishing to medium cutting	-	**DNGN150404**		●			0.4	12.7	4.76	-
		DNGN150408	●	●			0.8	12.7	4.76	-
		DNGN150408S02025				●	0.8	12.7	4.76	-
		DNGN150408T01025				●	0.8	12.7	4.76	-
		DNGN150408Z02025			●		0.8	12.7	4.76	-
		DNGN150412		●			1.2	12.7	4.76	-
		DNGN150416					1.6	12.7	4.76	-
		DNGN150708	●	●			0.8	12.7	7.94	-
		DNGN150712	●	●			1.2	12.7	7.94	-
		DNGN150716	●	●			1.6	12.7	7.94	-

● : Line up

C
D
R
S
T
V
W
OTHERS

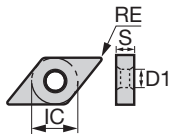
More info | Ex.Toolholder | In.Toolholder

● : Continuous cutting
ɔ : Light interrupted cutting
✣ : Heavy interrupted cutting

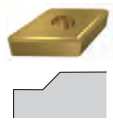
DN

Rhombic, 55° with hole

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	ɔ ●



Application	Chipbreaker	Designation	Alumina HC7	Alumina ZC7	Dimension (mm) RE	IC	S	D1
Roughing to finishing	AG	DNGG150404Z01030AG	●	●	0.4	12.7	4.76	5.16
		DNGG150408Z01030AG	●	●	0.8	12.7	4.76	5.16
		DNGG150412Z01030AG	●	●	1.2	12.7	4.76	5.16

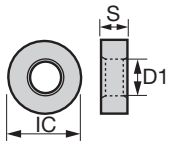


● : Line up

RN

Round, with hole

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	ɔ ɔ



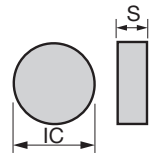
Application	Chipbreaker	Designation	Alumina LX10	Alumina LX11	Dimension (mm) RE	IC	S	D1
Finishing to medium cutting	-	RNGA120400	●	●	-	12.7	4.76	5.16

● : Line up

RN

Round, without hole

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	ɔ ɔ ●



Application	Chipbreaker	Designation	Alumina LX10	Alumina LX11	Alumina HC4	Dimension (mm) RE	IC	S	D1
Finishing to medium cutting	-	RNGN120400	●	●		-	12.7	4.76	-
		RNGN120400Z02025			●	-	12.7	4.76	-
		RNGN120700	●	●		-	12.7	7.94	-
		RNGN120700Z02025			●	-	12.7	7.94	-

● : Line up

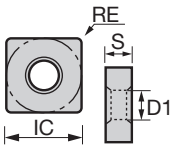
More info | DN Ex.Toolholder | In.Toolholder | RN Ex.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

SN

Square with hole

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	◐ ◐ ●



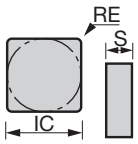
Application	Chipbreaker	Designation	Alumina LX10	Alumina LX11	Alumina ZC7	Dimension (mm) RE	IC	S	D1
Finishing to medium cutting	-	SNGA120404	●	●		0.4	12.7	4.76	5.16
		SNGA120408	●	●		0.8	12.7	4.76	5.16
		SNGA120408S02025			●	0.8	12.7	4.76	5.16
		SNGA120408T01025			●	0.8	12.7	4.76	5.16
		SNGA120412	●	●		1.2	12.7	4.76	5.16
		SNGA120412S02025			●	1.2	12.7	4.76	5.16
		SNGA120412T01025			●	1.2	12.7	4.76	5.16
		SNGA120416	●	●		1.6	12.7	4.76	5.16

● : Line up

SN

Square without hole

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	◐ ◐ ● ●



Application	Chipbreaker	Designation	Alumina LX10	Alumina LX11	Alumina HC4	Alumina ZC7	Dimension (mm) RE	IC	S	D1
Finishing to medium cutting	-	SNGN090308	●	●			0.8	9.525	3.18	-
		SNGN120304	●	●			0.4	12.7	3.18	-
		SNGN120312					1.2	12.7	3.18	-
		SNGN120404	●	●			0.4	12.7	4.76	-
		SNGN120408	●	●			0.8	12.7	4.76	-
		SNGN120408S02025				●	0.8	12.7	4.76	-
		SNGN120408T02020				●	0.8	12.7	4.76	-
		SNGN120408Z02025			●		0.8	12.7	4.76	-
		SNGN120412	●	●			1.2	12.7	4.76	-
		SNGN120412S02025				●	1.2	12.7	4.76	-
		SNGN120412T01025				●	1.2	12.7	4.76	-
		SNGN120412Z02025			●		1.2	12.7	4.76	-
		SNGN120416	●	●			1.6	12.7	4.76	-
		SNGN120416S02025				●	1.6	12.7	4.76	-
		SNGN120416T01025				●	1.6	12.7	4.76	-
		SNGN120416Z02025			●		1.6	12.7	4.76	-
		SNGN120420					2	12.7	4.76	-
		SNGN120708	●	●			0.8	12.7	7.94	-
		SNGN120712	●	●			1.2	12.7	7.94	-
		SNGN120716	●	●			1.6	12.7	7.94	-
		SNGN120720		●			2	12.7	7.94	-

● : Line up

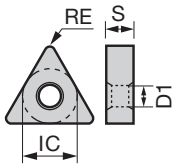
More info | Ex.Toolholder | In.Toolholder

● : Continuous cutting
ᑕ : Light interrupted cutting
✣ : Heavy interrupted cutting

TN

Triangular with hole

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	●ᑕ ●ᑕ ● ●



Application	Chipbreaker	Designation	Alumina LX10	LX11	HC4	ZC7	Dimension (mm) RE	IC	S	D1
Finishing to medium cutting	-	**TNGA160402**	●	●			0.2	9.525	4.76	3.81
		TNGA1604**04**	●	●			0.4	9.525	4.76	3.81
		TNGA1604**04S02025**				●	0.4	9.525	4.76	3.81
		TNGA1604**04T01025**				●	0.4	9.525	4.76	3.81
		TNGA1604**04Z02025**			●		0.4	9.525	4.76	3.81
		TNGA1604**08**	●	●			0.8	9.525	4.76	3.81
		TNGA1604**08S02025**				●	0.8	9.525	4.76	3.81
		TNGA1604**08T01025**				●	0.8	9.525	4.76	3.81
		TNGA1604**08Z02025**			●		0.8	9.525	4.76	3.81
		TNGA1604**12**	●	●			1.2	9.525	4.76	3.81
		TNGA1604**12S02025**				●	1.2	9.525	4.76	3.81
		TNGA1604**12T01025**				●	1.2	9.525	4.76	3.81
		TNGA1604**16**	●	●			1.6	9.525	4.76	3.81

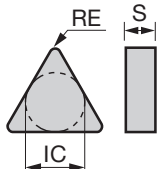
● : Line up

● : Continuous cutting
ᑕ : Light interrupted cutting
✣ : Heavy interrupted cutting

TN

Triangular without hole

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	●ᑕ ●ᑕ ● ●



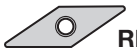
Application	Chipbreaker	Designation	Alumina LX10	LX11	HC4	ZC7	Dimension (mm) RE	IC	S	D1
Finishing to medium cutting	-	**TNGN160404**	●	●			0.4	9.525	4.76	-
		TNGN1604**04Z02025**			●		0.4	9.525	4.76	-
		TNGN1604**08**	●	●			0.8	9.525	4.76	-
		TNGN1604**08S02025**				●	0.8	9.525	4.76	-
		TNGN1604**08T01025**				●	0.8	9.525	4.76	-
		TNGN1604**08Z02025**			●		0.8	9.525	4.76	-
		TNGN1604**12**	●	●			1.2	9.525	4.76	-
		TNGN1604**12S02025**				●	1.2	9.525	4.76	-
		TNGN1604**12Z02025**				●	1.2	9.525	4.76	-
		TNGN1604**12Z02025**			●		1.2	9.525	4.76	-
		TNGN1604**16**	●	●			1.6	9.525	4.76	-
		TNGN1604**20**					2	9.525	4.76	-
		TNGN160708	●	●			0.8	9.525	7.94	-
		TNGN1607**12**		●			1.2	9.525	7.94	-

● : Line up

More info | Ex.Toolholder | In.Toolholder

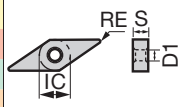
● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

VN

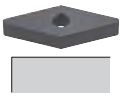


Rhombic, 35° with hole

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	◐ ◐ ● ●



Application	Chipbreaker	Designation	Alumina LX10	LX11	HC4	ZC7	Dimension (mm) RE	IC	S	D1
Finishing to medium cutting	-	**VNGA160404**	●	●			0.4	9.525	4.76	3.81
		VNGA160404**S02025**				●	0.4	9.525	4.76	3.81
		VNGA160404**T01025**				●	0.4	9.525	4.76	3.81
		VNGA160404**Z02025**			●		0.4	9.525	4.76	3.81
		VNGA160408	●	●			0.8	9.525	4.76	3.81
		VNGA160408**S02025**				●	0.8	9.525	4.76	3.81
		VNGA160408**T01025**				●	0.8	9.525	4.76	3.81
		VNGA160408**Z02025**			●		0.8	9.525	4.76	3.81
		VNGA160412**S02025**				●	1.2	9.525	4.76	3.81
		VNGA160412**T01025**				●	1.2	9.525	4.76	3.81
		VNGA220424T01020			●		2.4	12.7	4.76	3.81

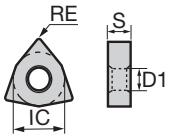


● : Line up

WN

Trigon, 80° with hole

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	◐ ◐



Application	Chipbreaker	Designation	Alumina LX10	LX11	Dimension (mm) RE	IC	S	D1
Finishing to medium cutting	-	**WNGA080404**	●	●	0.4	12.7	4.76	5.16
		WNGA080408	●	●	0.8	12.7	4.76	5.16
		WNGA080412	●	●	1.2	12.7	4.76	5.16

● : Line up

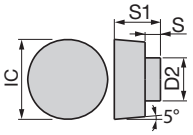
More info | VN Ex.Toolholder | VN In.Toolholder | WN Ex.Toolholder | WN In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

RB

Round, without hole
Positive 5°

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	● ●



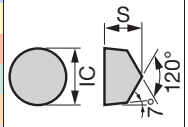
Application	Chipbreaker	Designation	Alumina HC4	Alumina HC7	RE	IC	S	S1	D2
Medium to finishing	-	RBGX20P20015	●	●	-	20	5	15	10
		RBGX26P20015	●	●	-	26	5	15	14

● : Line up

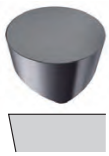
RC

Round, without hole
Positive 7°

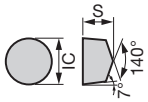
P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	● ●



Application	Chipbreaker	Designation	Alumina HC4	Alumina HC7	RE	IC	S	D1
Medium to finishing	-	RCGX060400P07015	●	●	-	6.35	4.76	-
		RCGX060400T01025	●	●	-	6.35	4.76	-
		RCGX060600P07015	●	●	-	6.35	6.35	-
		RCGX060600T01025	●	●	-	6.35	6.35	-
		RCGX090700P07015	●	●	-	9.525	7.94	-
		RCGX090700T01025	●	●	-	9.525	7.94	-
		RCGX120700P20015	●	●	-	12.7	7.94	-
		RCGX120700T01025	●	●	-	12.7	7.94	-
		RCGX191000P20015		●	-	19.05	10	-
		RCGX251200P20015		●	-	25.4	12	-



● : Line up



Only **RCGX251200P20015** bottoms angle is 140°.

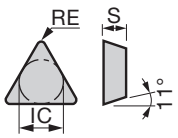
More info

● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular without hole Positive 11°

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	ⓒ ⓒ ● ●



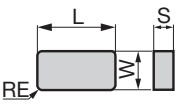
Application	Chipbreaker	Designation	Alumina LX10	LX11	HC4	ZC7	Dimension (mm) RE	IC	S	D1
Medium cutting	-	**TPGN110304**	●	●			0.4	6.35	3.18	-
		TPGN1103**08**	●	●			0.8	6.35	3.18	-
		TPGN1103**04T01025**				●	0.4	6.35	3.18	-
		TPGN1103**08T01025**				●	0.8	6.35	3.18	-
		TPGN160304	●	●			0.4	9.525	3.18	-
		TPGN1603**04Z01025**				●	0.4	9.525	3.18	-
		TPGN1603**04T01025**			●		0.4	9.525	3.18	-
		TPGN1603**08**	●	●			0.8	9.525	3.18	-
		TPGN1603**08T01025**				●	0.8	9.525	3.18	-
		TPGN1603**08Z01025**			●		0.8	9.525	3.18	-
		TPGN1603**12**	●	●			1.2	9.525	3.18	-

● : Line up

LNM

Rectangular

P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloy	
H	Hard material	● ●



Application	Chipbreaker	Designation	Alumina HC4	HC7	Dimension (mm) RE	W	S	L
Medium to finishing	-	**LNM6688SNX6**	●	●	3.2	19.05	12.7	38.1

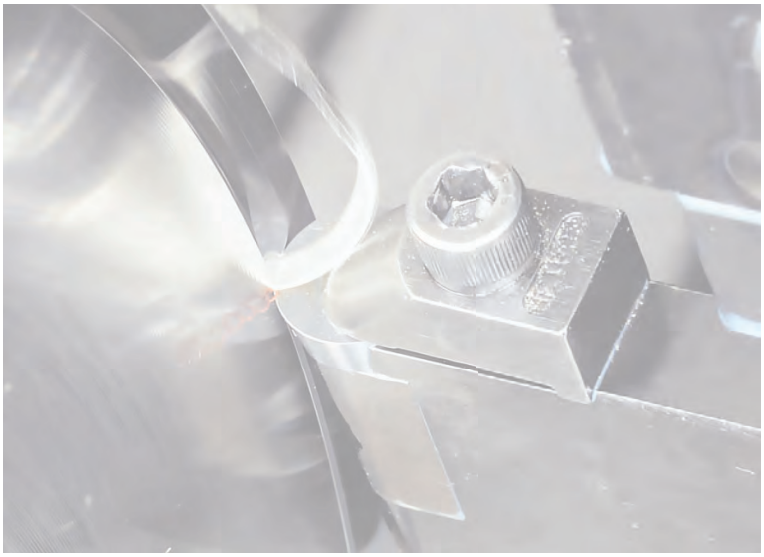
● : Line up

More info

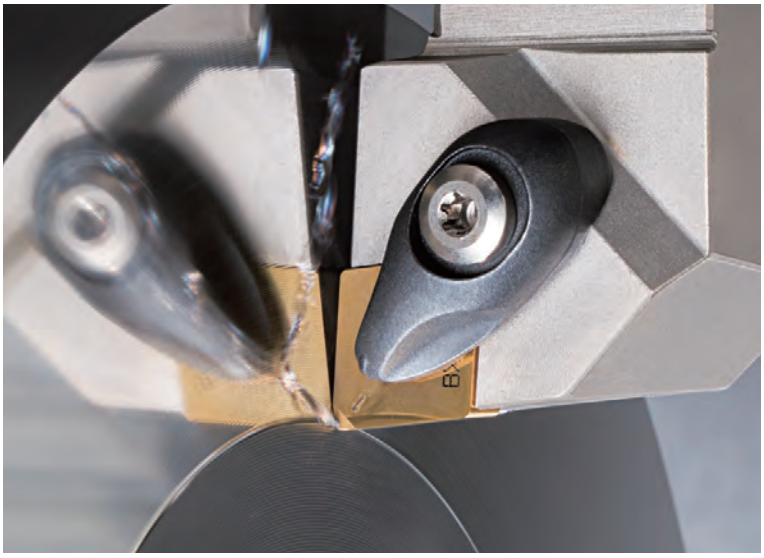
TP In.Toolholder

MEMO

ADVANCED
MATERIALS SOLUTIONS



CERAMIC
SOLUTIONS



CBN
SOLUTIONS

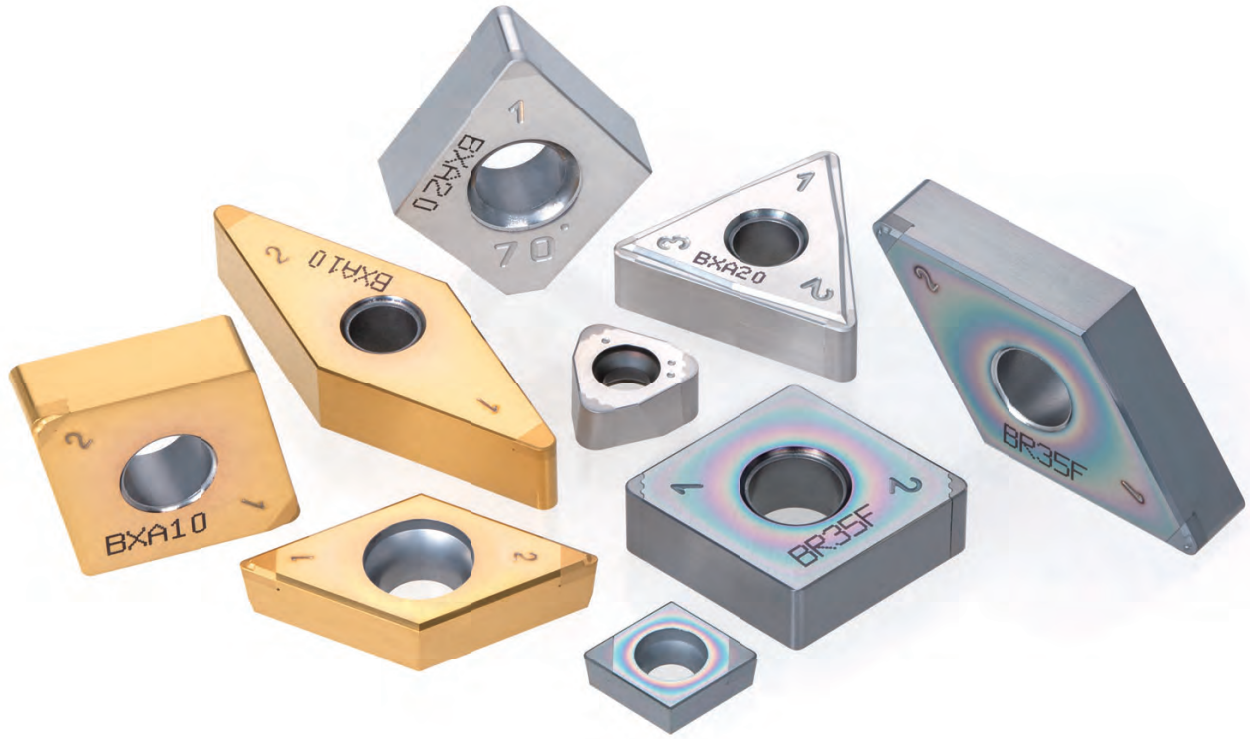
PCD
SOLUTIONS

WHAT IS ***HARD TURNING?***

Tungaloy has always been a pathfinder in hard turning applications, ***making hard turning less hard than it seems…***

HARD TURNING commonly refers to turning operations of a part or bar stock harder than 50HRC on a lathe or turning center. In profiling hardened steel parts, grinding had long been the first-choice process for manufacturers to obtain the dimensions required on the workpiece. This was true until polycrystalline cubic boron nitride **(PcBN)** was introduced in late 1970s, which eventually impelled a shift from time- and energy-consuming grinding operations to hard turning operations.

Hard turning started to rapidly develop in the beginning of the 1990s as the availability of **PcBN** and ceramics increased, along with further advancement in physical vapor deposition (PVD) coating technologies and the capability of designing and building turning machines that are rigid, stable, and accurate enough to successfully finish hard turning. These advancements have made finish hard turning a viable alternative to grinding, as an accurate finishing operation.



More info

Key Points for the Selection of Grade types in Hardened Steel

CBN Inserts

- Broad hardness range
- Superior fracture resistance for both continuous and interrupted cuts

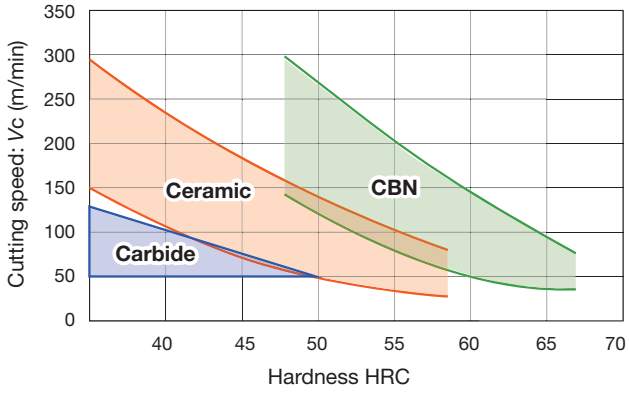
Ceramic Inserts

Best wear resistance in HRC 40 - 55 with continuous finishing

Carbide Inserts

- Suited for lower hardness (less than 50 HRC) or gentle conditions
- Cost-effective with moderate wear and toughness

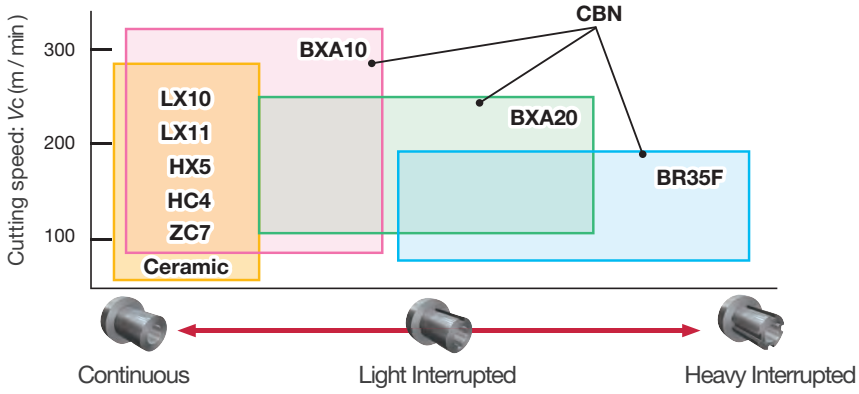
■ **Recommended cutting speed by hardness (continuous)**



Ceramic has superior wear resistance to CBN in machining workpieces with hardnesses of HRC 55 or less.

Recommended Grade Map

This chart highlights Tungaloy and NTK's recommended grades for hardened steel cutting, ranging from continuous finishing to heavy interrupted machining.
BXA10, BXA20, and BR35F (CBN) offer robust fracture resistance across a wide hardness range, while HX3, HC4, and ZC7 (Ceramic) excel in high-speed, continuous operations. Select according to cutting speed, interruption severity, and required tool life.



Summary of CBN Grade Characteristics

Grain Size

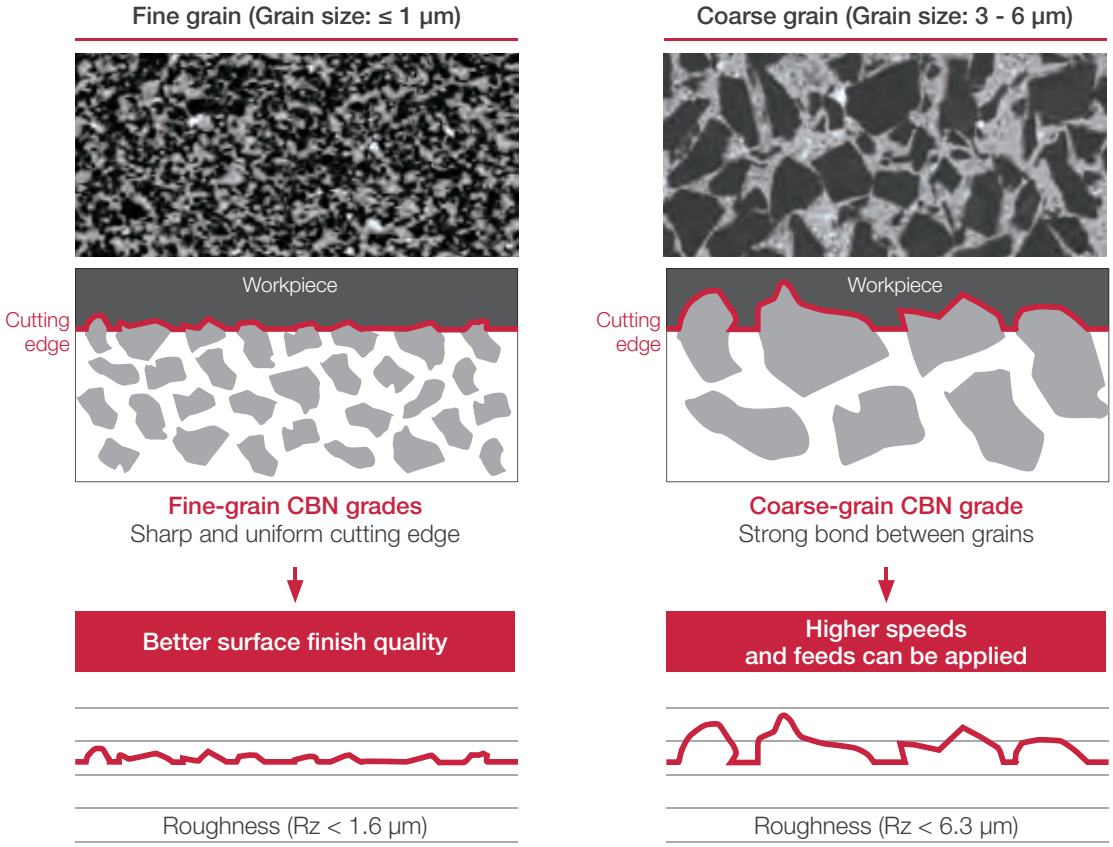
- **Fine:** Yields a sharper edge and better surface finish.
- **Coarse:** Offers enhanced fracture resistance.

CBN Content

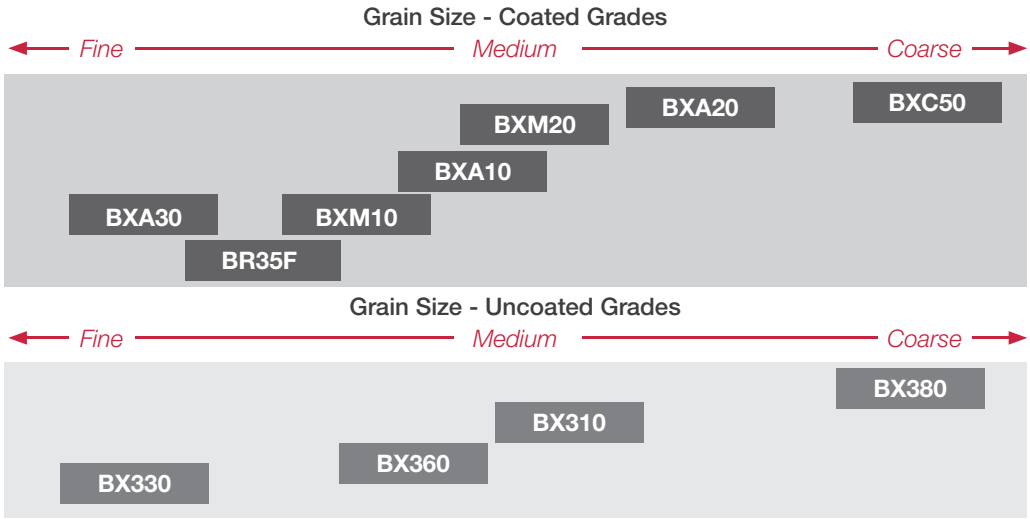
- **Lower Content:** Improves wear resistance.
- **Higher Content:** Boosts toughness for demanding cuts.

Overall, the balance of grain size and CBN content defines the insert's performance to match specific machining conditions.

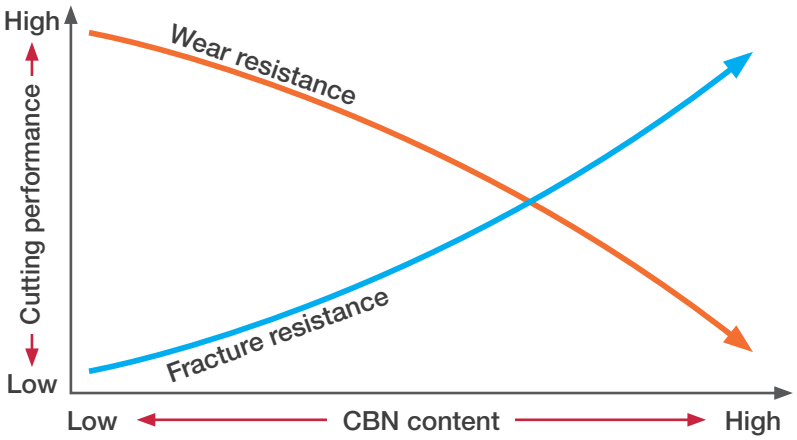
CBN grain sizes and their effects on surface roughness

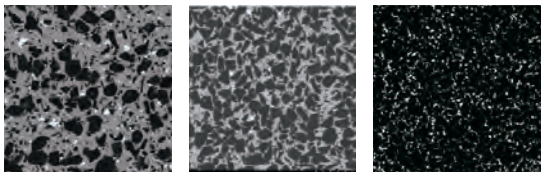


CBN inserts are generally used in a finishing process. A **CBN** insert grade with coarse abrasive grains will output a rough surface and may not be able to achieve the surface quality required. To achieve superior surface quality of Rz = 3.2 or better, always use a fine grain **CBN** insert.



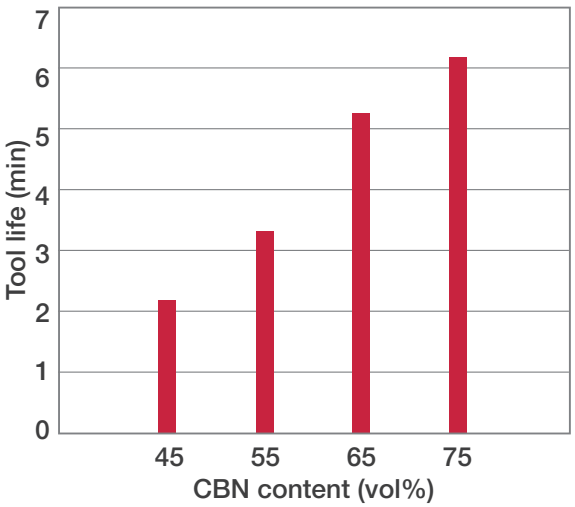
Wear and fracture resistance in terms of CBN content





The lower the CBN content is, the more wear resistant the grade will be, and the higher the CBN content is, the more fracture resistant the grade will be when turning hardened steel.

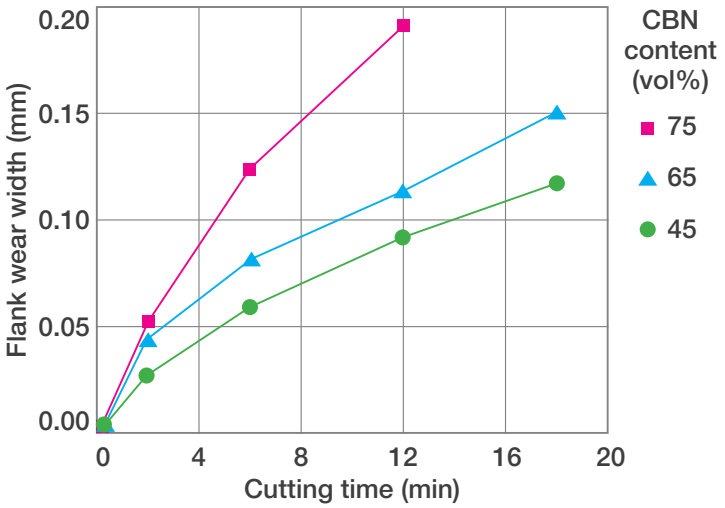
Interrupted Cutting



Cutting conditions
Cutting speed: *Vc* = 180 m/min
Depth of cut: *ap* = 0.1 mm
Feed: *f* = 0.1 mm/rev
Coolant: Dry
Workpiece material: SCM435 (60HRC)

High CBN content
↓
High fracture resistance

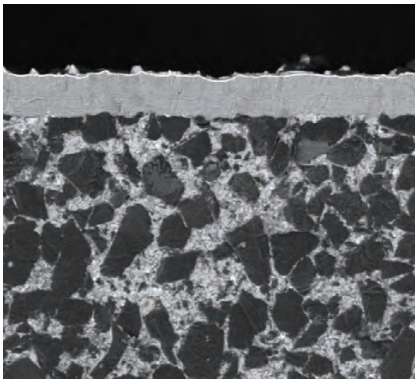
Continuous Cutting



Cutting conditions
Cutting speed: *Vc* = 180 m/min
Depth of cut: *ap* = 0.2 mm
Feed: *f* = 0.1 mm/rev
Coolant: Wet
Workpiece material: SCM415 (60HRC)

Low CBN content
↓
High wear resistance

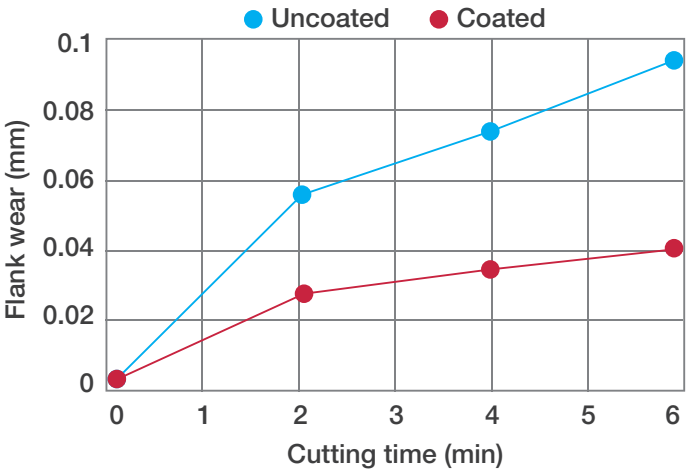
BENEFITS OF **COATED CBN**



Anti-oxidation wear
PVD coating protects **CBN** from interacting with oxygen.

Enhanced wear resistance
CBN has high thermal conductivity and plastic deformation resistance, preventing the coating from delaminating under extreme temperatures generated during hard turning process.

Coated Grades: BXA10, BXA20, BXA30, BXM10, BXM20, and BXC50

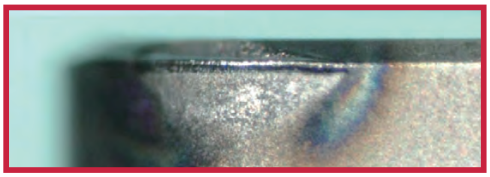


Cutting conditions
Cutting speed: *Vc* = 180 m/min
Depth of cut: *ap* = 0.2 mm
Feed: *f* = 0.1 mm/rev
Coolant: Dry
Workpiece material: SCM415 (60HRC)

Insert wear after 6 minutes

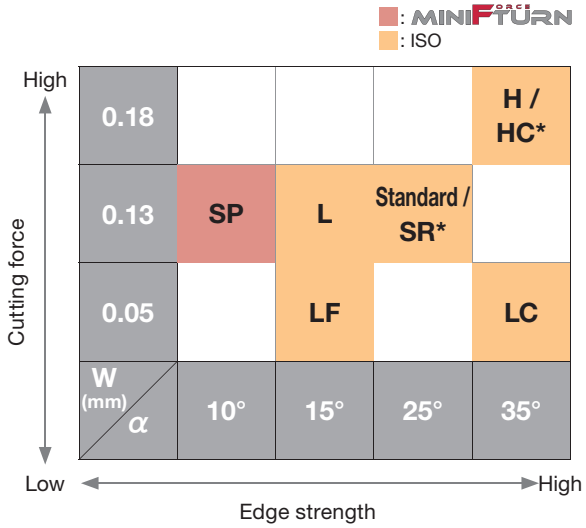
Uncoated

Coated

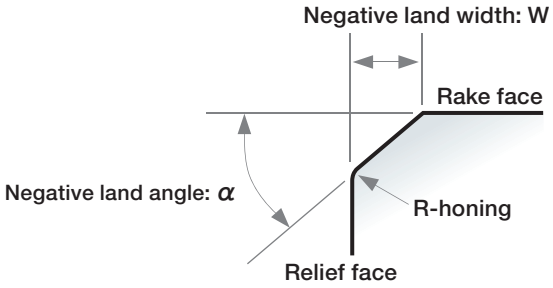


EDGE PREPARATIONS

Edge preparation - Designation



*Edge prep symbol for BR35F grade inserts only

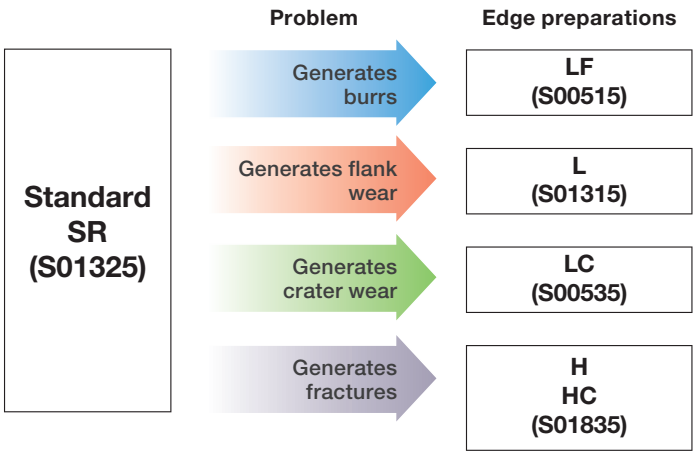


S	0	1	3	2	5
Edge prep. ID	Negative land width W			Negative land angle α	

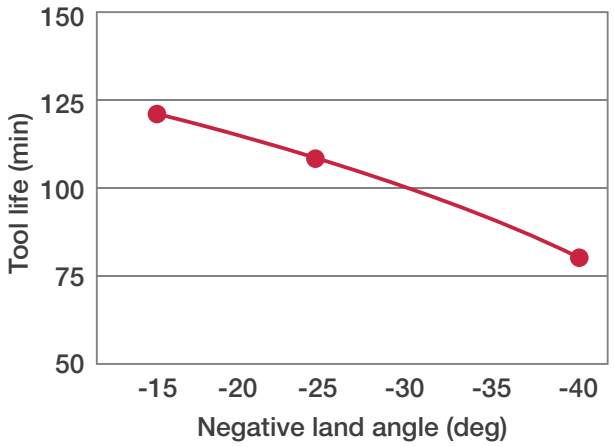
S ··· Chamfered + R-honing

Edge preparation - Selection guide

Based on the performance of the insert with standard edge preparation, the following solutions are recommended.



Edge preparation - Continuous cutting

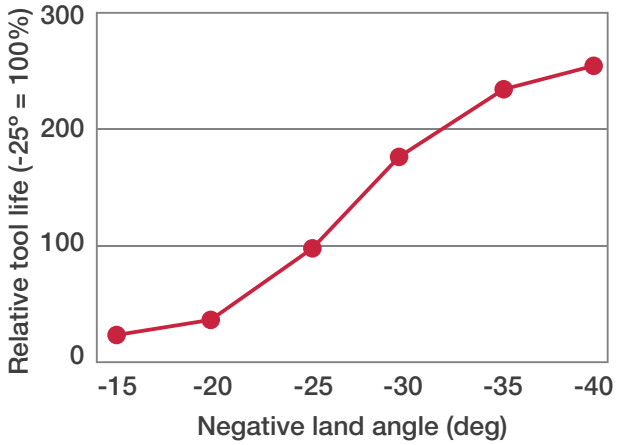


Cutting conditions
Cutting speed: *Vc* = 100 m/min
Depth of cut: *ap* = 0.25 mm
Feed: *f* = 0.1 mm/rev
Coolant: Dry
Continuous cutting
Workpiece material: SCM415 (60HRC)
Criteria: VBmax = 0.15 mm

Edge preparations
Width: 0.13mm
Angles: -15, -25, and -40°
Honed to: R0.01~0.02 mm

The smaller the negative land angle is, the more wear resistant the cutting edge will be in continuous cuts.

Edge preparation - Interrupted cutting



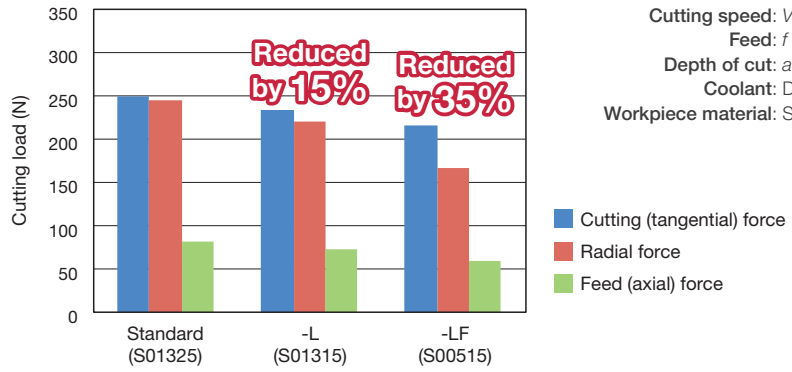
Cutting conditions
Cutting speed: *Vc* = 100 m/min
Depth of cut: *ap* = 0.25 mm
Feed: *f* = 0.15 mm/rev
Coolant: Dry
Workpiece material: SCM415 (60HRC)
Criteria: Fracture

Edge preparations
Width: 0.13 mm
Angles: -15, -20, -25, -30, -35, and -40°
Honed to: R0.01~0.02 mm

The larger the negative land angle is, the more fracture resistant the cutting edge will be in interrupted cuts.

Edge preparation - Cutting loads

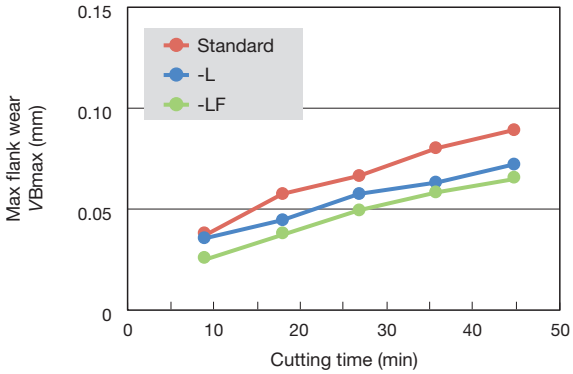
The -L and -LF edge preparations provide reduced cutting loads over the insert with standard edge preparation.



Cutting speed: *Vc* = 100 m/min
Feed: *f* = 0.3 mm/rev
Depth of cut: *ap* = 0.2 mm
Coolant: Dry
Workpiece material: SCM415 (60HRC)

Edge preparation - Flank wear

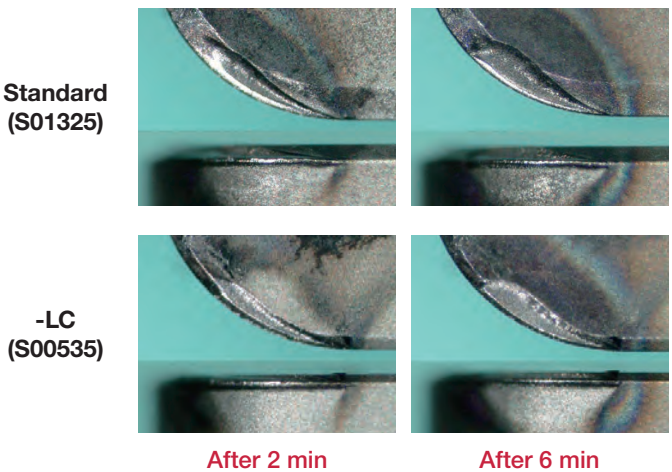
The -L and -LF edge preparations provide reduced flank wear over the insert with standard edge preparation.



Cutting speed: *Vc* = 130 m/min
Feed: *f* = 0.15 mm/rev
Depth of cut: *ap* = 0.2 mm
Coolant: Wet
Workpiece material: SCM415 (60HRC)

Edge preparation - Crater wear

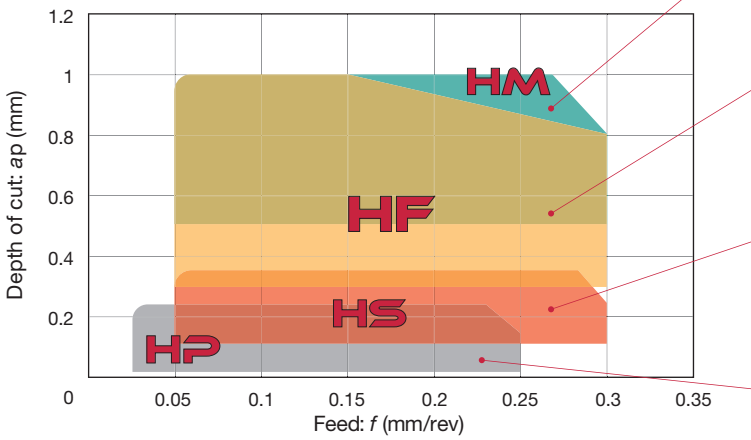
The -LC edge preparation provides reduced crater wear over the insert with standard edge preparation. As a result, insert fracture induced by crater wear is reduced.

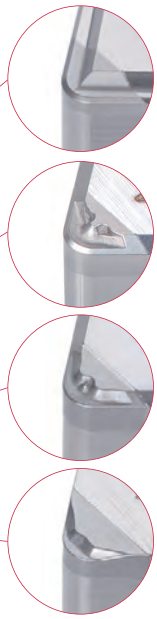


Cutting speed: *Vc* = 200 m/min
Feed: *f* = 0.1 mm/rev
Depth of cut: *ap* = 0.2 mm
Coolant: Dry
Workpiece material: SCM415 (60HRC)

HARDBREAKER SERIES

CBN inserts with chipbreaker
ideal for carburized layer removal and finishing hardened steel





For removal of carburized layer
Breaker shape with excellent chipping resistance in deep cuts

For removal of carburized layer
- Reliable chip restraint over a wide cutting area
- Breaker shape for low cutting resistance and crater wear

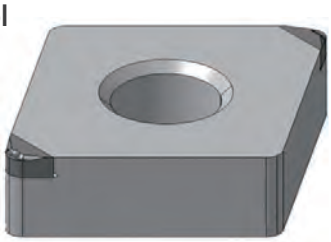
For high feed finishing
- Breaker shape for excellent chip control
- Edge prep to prevent catastrophic failure

For precision finishing
Breaker shape suitable for precision finishing

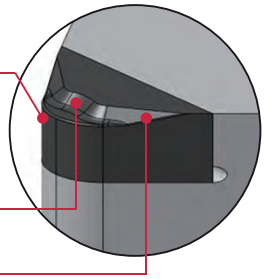
HP - HardBreakers for finishing hardened steel

Innovative 3D chipbreaker for efficient chip control

- By separating the chipbreaker from the cutting edge, the cutting force imposed on the cutting edge during machining is significantly reduced, thus providing long tool life.

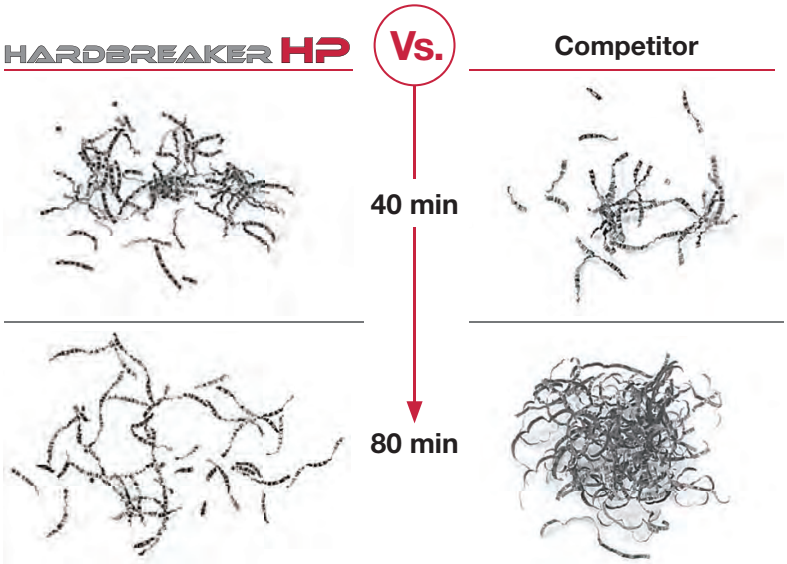


- The cutting edge preparation is designed to ensure easy cutting at low cutting forces, while maintaining close tolerances with no deviations.



- The HP style chipbreaker, combined with built-in wipers, yields excellent surface quality and good chip control.

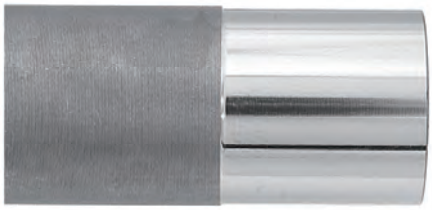
Consistent and durable chip breaking



Insert: 2QP-CNGM120408-HP
Workpiece material: SCM420 (58 HRC)
Cutting speed: *Vc* = 180 m/min (590 sfm)
Feed: *f* = 0.15 mm/rev (.006")
Depth of cut: *ap* = 0.15 mm (.006")
Holder: ACLNR2525M12-A
Coolant: Wet
Machining: External continuous cutting

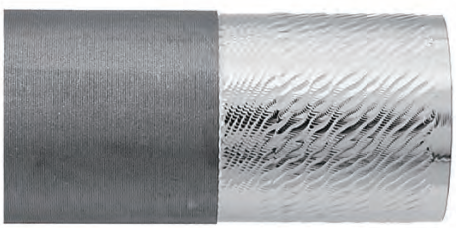
Chatter-free machining

HARDBREAKER HP



Due to low cutting force, chatter stability is greatly improved.

Competitor (without breaker)

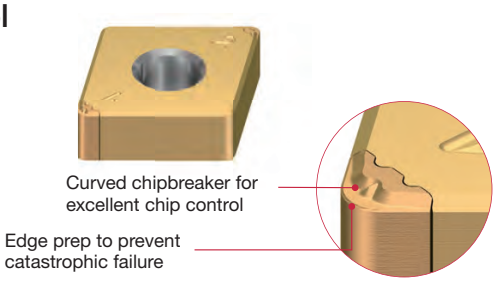


More info

HS chipbreaker

Optimized chipbreaker design for excellent chip control during hard turning at aggressive conditions

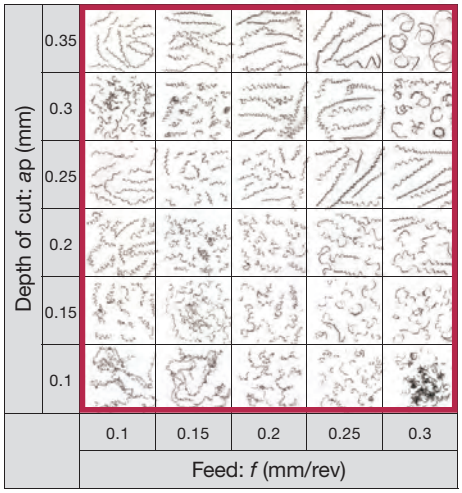
- Designed for high feed machining.
- Provides excellent chip control for a wide range of D.O.C. and feed rates.
- Edge preparation is designed to prevent catastrophic failure.



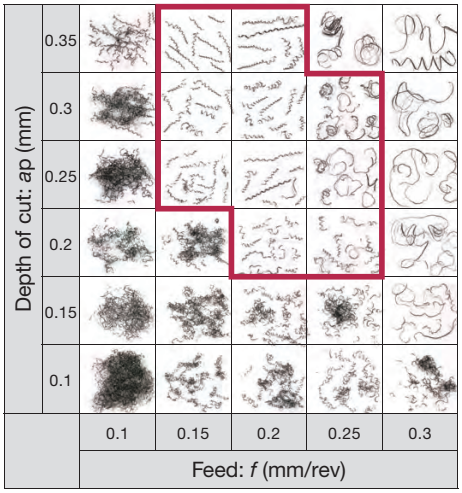
CUTTING PERFORMANCE

HS provides all-round chip breaking capability even at increased feed rates vs. competitors

HS chipbreaker

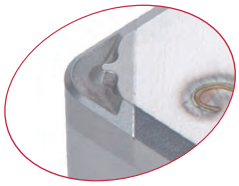


Competitor's CBN with chipbreaker



Insert	: 2QP-CNGM120408-HS
Workpiece material	: SCM420 (58HRC)
Cutting speed	: *Vc* = 150 m/min
Holder	: ACLNL2525M12-A
Coolant	: Wet
Machining	: External continuous cutting

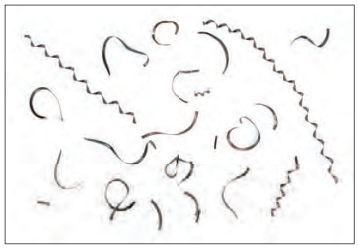
HARDBREAKER HF



Chip control

Comparisons of chip formations after machining 80 pcs of automotive shafts

HF chipbreaker

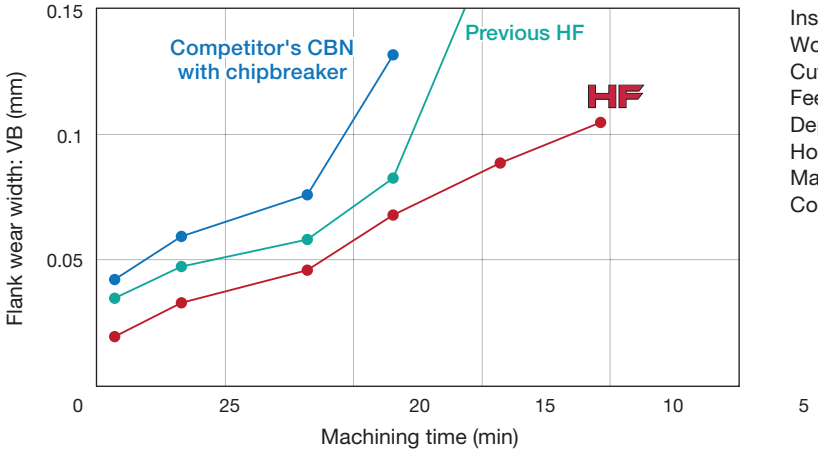


Competitor's CBN with chipbreaker

Insert : 2QP-CNGM120408-HF
Workpiece material : SCM415 (60HRC)
Cutting speed : *Vc* = 180 m/min
Feed : *f* = 0.2 mm/rev
Depth of cut : *ap* = 0.5 mm x 3 passes
Holder : ACLNL25252M12-A
Machining : External continuous cutting
Coolant : Wet

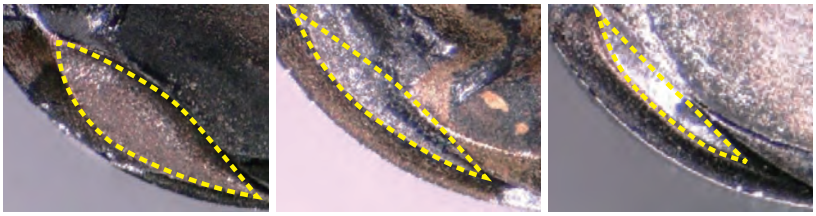
Crater wear resistance

Comparison of automotive clutch machining lifetime



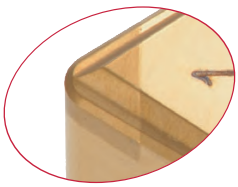
Insert : 2QP-CNGM120408-HF
Workpiece material : SCM415 (60HRC)
Cutting speed : *Vc* = 150 m/min
Feed : *f* = 0.15 mm/rev
Depth of cut : *ap* = 0.5 mm x 5 passes
Holder : ACLNL25252M12-A
Machining : External continuous cutting
Coolant : Wet

Comparisons of crater wear sizes (After 8 min)



Competitor's chipbreaker | Previous HF chipbreaker | New **HF** chipbreaker

HARDBREAKER HM



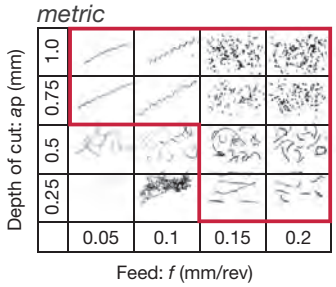
Single-sided CBN insert provides high stability in heavy machining

Provides ideal chip control in large depth of cut with the well-designed chipbreaker

Suitable for medium cutting or roughing

HM chipbreaker

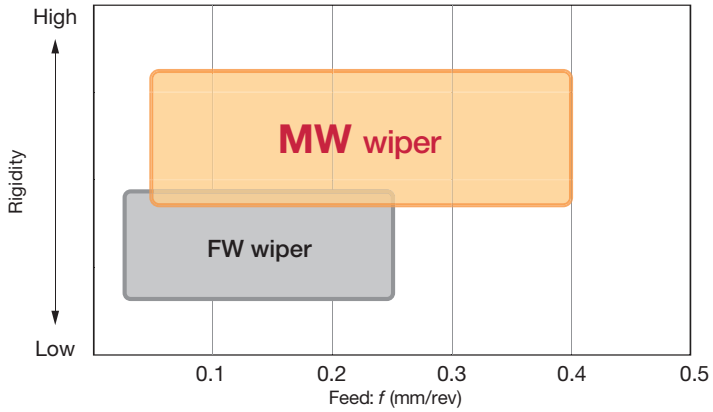
metric

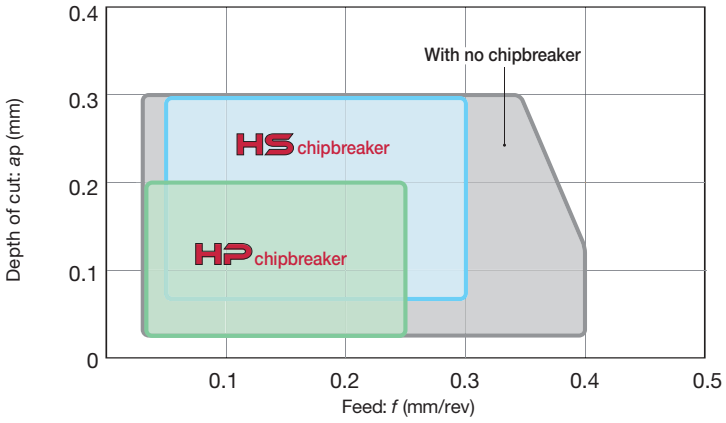


CBN wiper insert series for extended application coverage

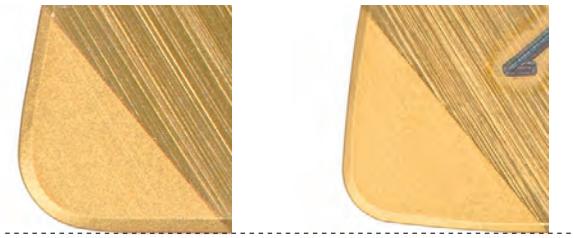
Cutting performance

Application areas



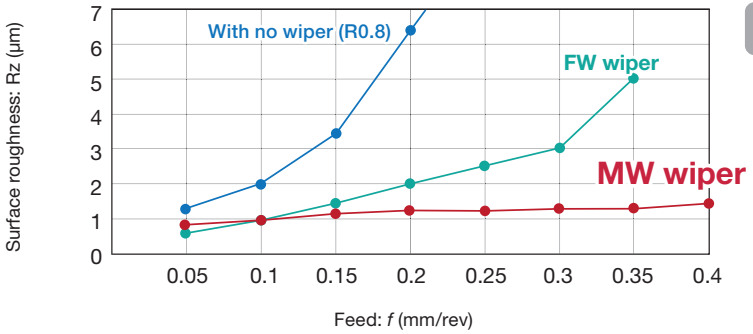


FW wiper eliminates chatter generation at slower feeds and offers good surface part quality.
MW wiper provides improved surface finishing at an increased feed rate.



Available with **HP chipbreaker** and **HS chipbreaker** for effective chip control. Inserts with no chipbreaker are also available.

Surface roughness



H

Insert	: 4QS-CNGA120408*W BXA10
Holder	: ACLNL2525M12-A
Workpiece material	: SCM415 (58 - 60 HRC)
Cutting speed	: *Vc* = 150 m/min
Depth of cut	: *ap* = 0.15 mm
Machining	: External continuous cutting
Coolant	: Wet

GNGA/FNGA/YNGA

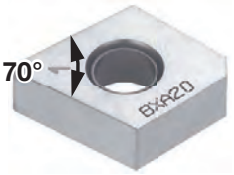
New CBN inserts for general turning

GNGA insert with 70° corner angle
FNGA insert with 45° corner angle

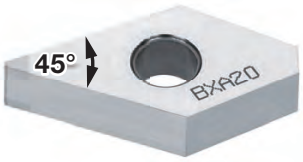
- Smaller corner angle provides the insert with greater clearance between the insert flank and workpiece surface, allowing better chip flow and evacuation

- Enables greater D.O.C. in face turning applications in which the insert is pulled outward (fed away from the workpiece center)

GNGA



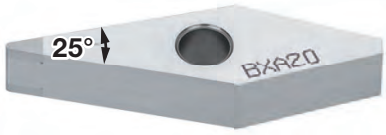
FNGA



YNGA insert with 25° corner angle

Allows undercutting, V grooving, and other applications that are not possible with traditional V inserts

YNGA



High versatility

- Existing ISO turning toolholder can be used for these inserts
  For GNGA insert: use the holder for CN**1204 insert
  For FNGA insert: use the holder for DN**1504 insert
  For YNGA insert: use the holder for VN**1604 insert

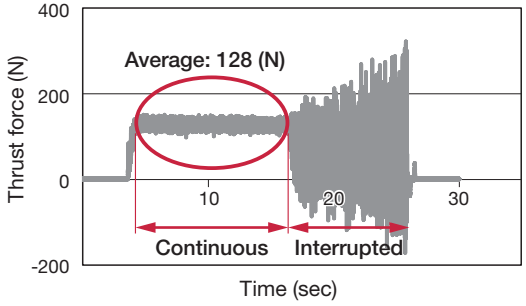
- No offsets needed compared to ISO inserts, due to same geometry of cutting edge position

- Double sided insert with 2 cutting edges

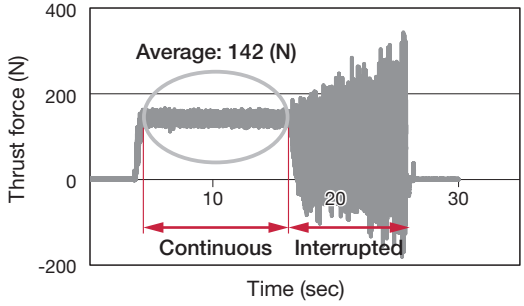
CUTTING PERFORMANCE

Cutting force (Thrust force)

GNGA type
Corner angle: 70°



CNGA type
Corner angle: 80°



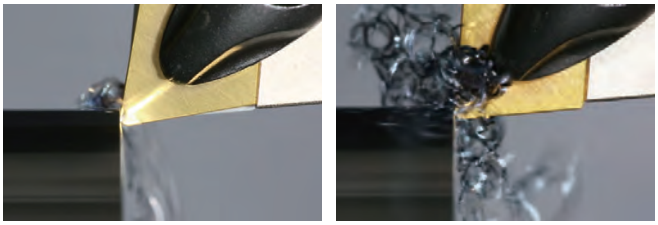
Cutting force of **GNGA** insert is lower than regular CNGA insert's.

H

Insert	: 2QP-GNGA120408 2QP-CNGA120408
Workpiece material	: SCM420 / 18CrMo4 (59HRC)
Cutting speed	: *Vc* = 150 m/min
Feed	: *f* = 0.15 mm/rev
Depth of cut	: *ap* = 0.125 mm
Toolholder	: ACLNL2525M12-A
Machining	: Face turning
Coolant	: Dry

Chip flow and control in face turning

Chip flow of continuous face turning



GNGA type
Corner angle: 70°

CNGA type
Corner angle: 80°

Chip control in interrupted face turning

GNGA type
Corner angle: 70°

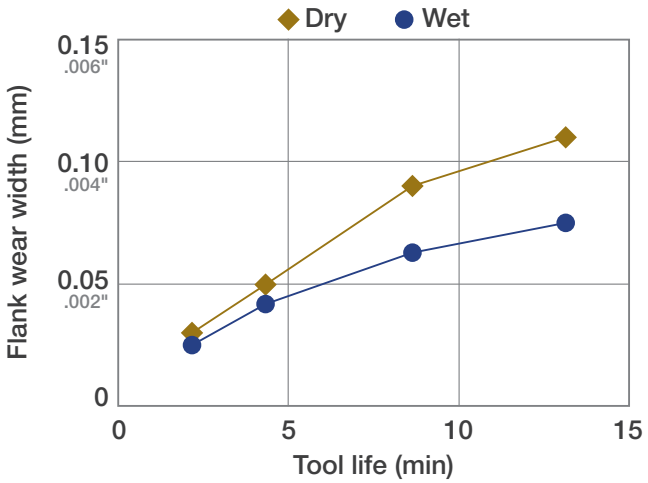
CNGA type
Corner angle: 80°

Since **GNGA** type inserts have enough space for chip flow, chip packing doesn't occur, improving surface finish and preventing sudden chipping on cutting edge.

H

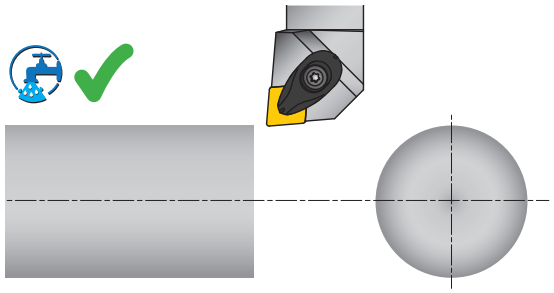
Insert	: 2QP-GNGA120408 2QP-CNGA120408
Workpiece material	: SCM420 / 18CrMo4 (60HRC)
Cutting speed	: *Vc* = 150 m/min
Feed	: *f* = 0.10 mm/rev
Depth of cut	: *ap* = 0.125 mm
Toolholder	: ACLNL2525M12-A
Machining	: Face turning
Coolant	: Dry

Coolant effect - Continuous cutting

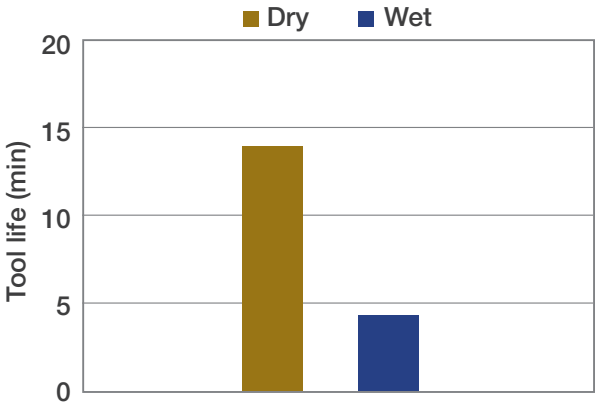


Wet cutting improves tool life for continuous cutting operations.

Cutting conditions
Cutting speed: *Vc* = 180 m/min
Depth of cut: *ap* = 0.2 mm
Feed: *f* = 0.1 mm/rev
Workpiece material: SCM415 (60HRC)

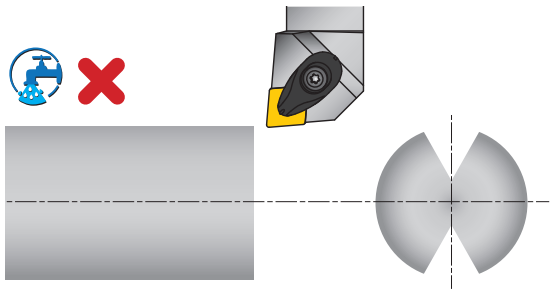


Coolant effect - Interrupted cutting



Dry cutting improves tool life for interrupted cutting operations.

Cutting conditions
Cutting speed: *Vc* = 150 m/min
Depth of cut: *ap* = 0.2 mm
Feed: *f* = 0.2 mm/rev
Workpiece material: SCM415 (60HRC)



Use of coolant

	Dry	Wet
Continuous cutting	✗	✓
Interrrupted cutting	✓	✗

CBN Turning

H Hard Materials

SELECTION GUIDE

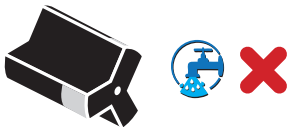
Tungaloy's recommended solutions *for hard turning*

30 - 45 HRC	40 - 55 HRC	Over 50 HRC
PVD Grade **AH8000** Series	Ceramic Grade **LX10** Series	

Cutting Condition

Continuous

Light Interrupted



Heavy Interrupted

First Recommendations

Continuous	Light Interrupted	Heavy Interrupted
BXA10 Edge preparation - *Standard*	**BXA20** Edge preparation - *Standard*	**BR35F** *Wavy Joint* Edge preparation - *HC*

More Solutions

Continuous	Light Interrupted	Heavy Interrupted
For reduce burr **BXA10** Edge preparation - *LF*	For improved fracture resistance **BXA20** Edge preparation - *H*	For low cutting speed **BX380** Edge preparation - *Standard*
For improved crater wear **BXA10** Edge preparation - *LC*	For low cutting speed **BX360** Edge preparation - *Standard*	

Other Solutions

For better surface finish
BXA30 Edge preparation - *Standard*

For improved chip control
BXA10 with *Hardbreaker HP*

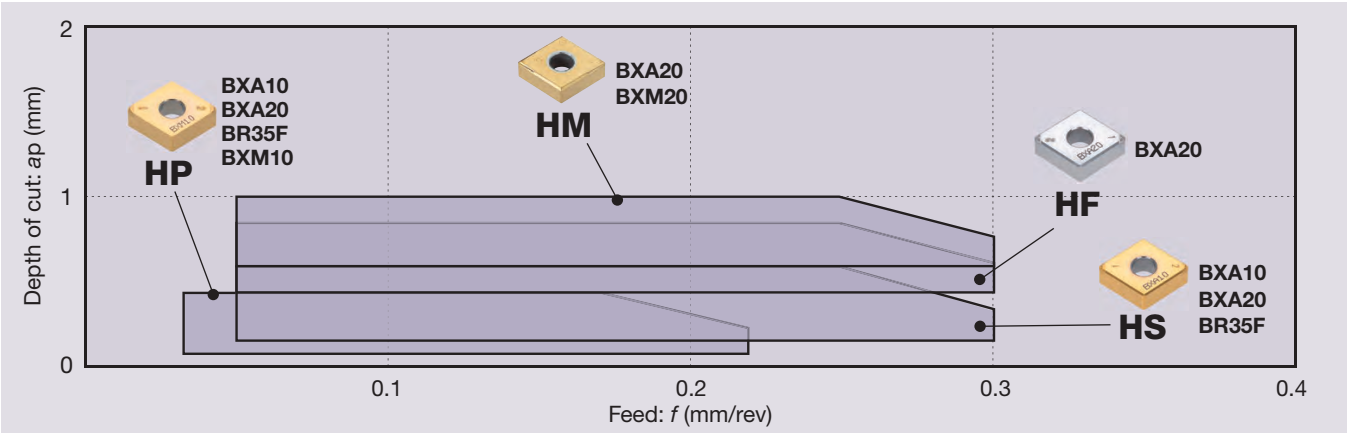
For an economical solution
LX11

Chipbreaker Guide

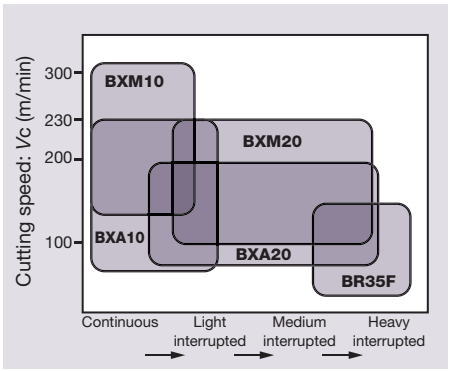
BASIC CHIPBREAKER: NEGATIVE TYPE

H Hard Materials

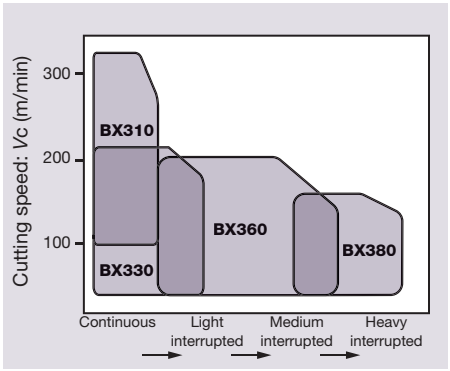
Chipbreaker System for Turning (Negative type)



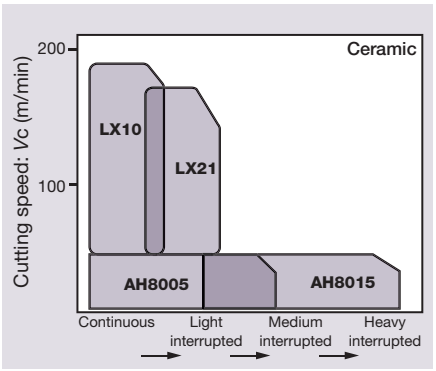
Coated CBN



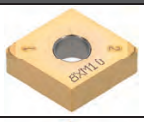
T-CBN



Ceramic, PVD coating



Chipbreaker	Shape	Feature
-		Excellent performance in finishing of hard material with CBN sintered body on the cutting edge.
- (Ceramic)		Realizes economical hardened steel medium speed finishing.
HRF		Excellent chip control in Hardent steel medium finishing.

Chipbreaker	Shape	Feature
HP		Excellent chip control in precision finishing.
HS		Provides the excellent chip-control at a high-feed condition in the precise finishing operation.
HF		Excellent chip control in removing carburized layer at small depth of cut.
HM		Excellent chip control in removing carburized layer at large depth of cut.

STANDARD CUTTING CONDITIONS

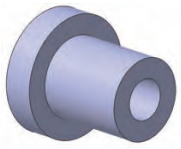
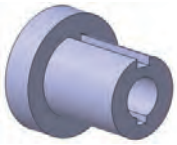
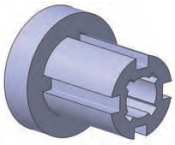
ISO	Operation	Chipbreaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed *Vc* (m/min)
H	Precision finishing	HP	BXA10 BXA20 BR35F	0.03 - 0.25	0.03 - 0.22	70 - 350
		HS	BXA10 BXA20 BR35F	0.1 - 0.35	0.05 - 0.3	70 - 350
	Finishing	-	BXM10 BXM20 BXA20	0.05 - 0.5	0.05 - 0.25	70 - 350
		-	LX10, LX11	0.05 - 0.5	0.05 - 0.25	60 - 180
	Removing of carburized layer	HF	BXA20	0.3 - 1	0.05 - 0.3	70 - 180
		HM	BXA20 BXM20	0.5 - 1	0.05 - 0.3	70 - 200
	Medium cutting	HRF	AH8005 AH8015	0.05 - 2	0.05 - 0.25	10 - 50

Hardened steels, Pre-hardened steels: SKD11, SKD61, etc. X153CrMoV12, X40CrMoV5-1, etc.

Selection System

SELECTION SYSTEM: NEGATIVE TYPE

H Hard Materials

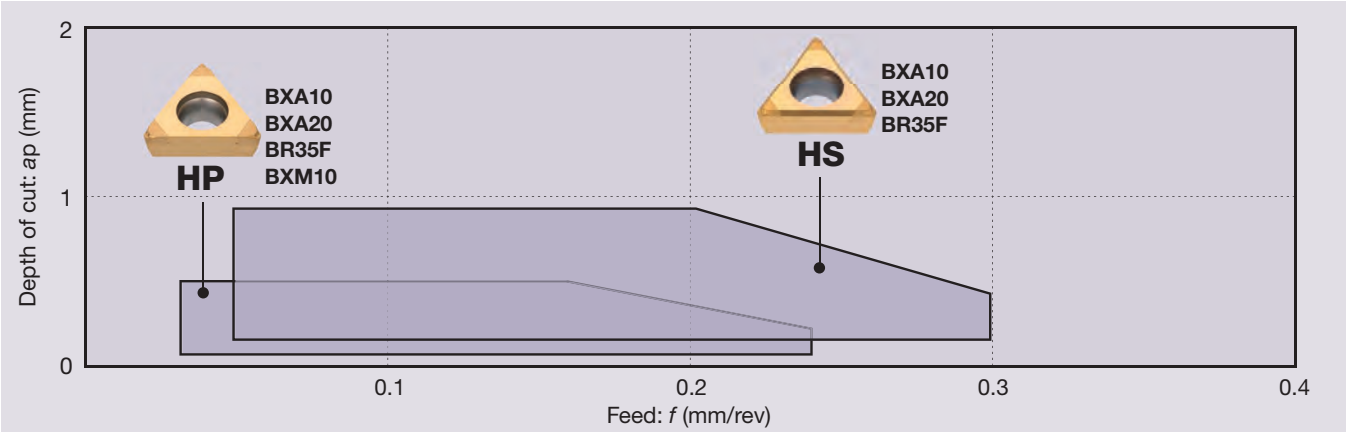
	Continuous	Light interrupted	Heavy interrupted
Precision finishing [a_p = ~ 0.35 mm]	Basic **HP BXA10** → High feed → **HS BXA10**	Basic **BXA20** → Fracture → **-H BXA20**; High-speed wear → **BXA10**	
Finishing [a_p = ~ 0.5 mm]	Basic **BXA10** → High-speed → **LX10**	Basic **BXA20** → Fracture → **-H BXA20**; High-speed wear → **BXA10**	Basic **BR35F** → Fracture → **-HC BR35F**
Removing of carburized layer [a_p = ~ 1 mm]	Basic **HF BXA20**	Basic **HM BXA20**	
Medium cutting [a_p = ~ 2 mm]	Basic **HRF AH8005** → Fracture → **HRF AH8015**	Basic **HRF AH8015** → Fracture → **HRM AH8015**	Basic **HRF AH8015** → Fracture → **HRM AH8015**

Chipbreaker Guide

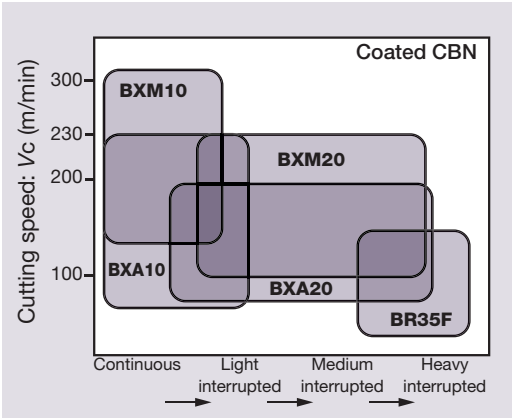
BASIC CHIPBREAKER: POSITIVE TYPE

H Hard Materials

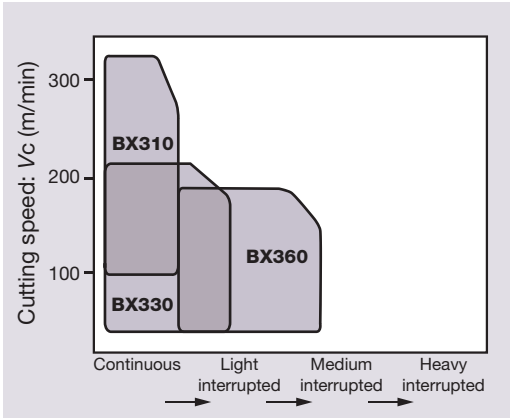
Chipbreaker System for Turning (Positive Type)



Coated CBN



CBN



Chipbreaker	Shape	Feature
-		Excellent performance in high-speed finishing of hard material with CBN sintered body on the cutting edge.

Chipbreaker	Shape	Feature
HP		Excellent chip control in precision finishing.
HS		Provides the excellent chip-control at a high-feed condition in the precise finishing operation.

STANDARD CUTTING CONDITIONS

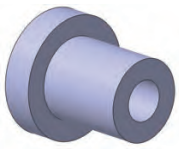
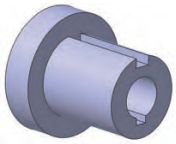
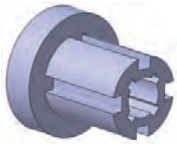
ISO	Operation	Chipbreaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed *Vc* (m/min)
H	Precision finishing	HP	BXM10 BXA20 BR35F	0.03 - 0.25	0.03 - 0.22	70 - 350
		HS	BXM10 BXA20 BR35F	0.1 - 0.35	0.05 - 0.3	70 - 350
	Finishing	-	BXM10 BXA20 BR35F	0.05 - 0.5	0.05 - 0.25	70 - 350

Hardened steels, Pre-hardened steels: SKD11, SKD61, etc. X153CrMoV12, X40CrMoV5-1, etc.

Selection System

SELECTION SYSTEM: POSITIVE TYPE

H Hard Materials

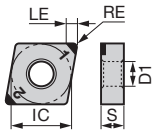




	Continuous	Light interrupted	Heavy interrupted
Precision finishing [a_p = ~ 0.35 mm]	Basic: HP BXA10 → High-feed: HS BXA10	Basic: BXA20 → Fracture: -H BXA20	
Finishing [a_p = ~ 0.5 mm]	Basic: BXA10	Basic: BXA20 → Fracture: -H BXA20; High-speed wear: BXA10	Basic: SR BR35F → Fracture: HC BR35F

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

CN

80°Rhombic with hole



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

		BXA10	BXA20	BR35F	BXM10	BXM20	BXC50	BXA30	BXA40	BX310	BX330	BX360	BX380
K	Cast iron												
S	Superalloy												
H	Hard material	●	◐	✣	●	◐	✣	●	◐	●	●	◐	✣
	Sintered metal												

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXC50	BXA30	BXA40	BX310	BX330	BX360	BX380
Precision finishing	2QP-CNGA120402-LF	0.2	2.3	2			○				●	●										
	2QP-CNGA120402-L		2.3	2				○			●	●										
	2QP-CNGA120404-LF	0.4	2.3	2			○				●	●										
	4QS-CNGA120404-LF		1.6	4			○				●	●										
	2QP-CNGA120404-L		2.3	2				○			●	●		●	●					●		
	2QP-CNGA120404WL		2.3	2	○	○					●	●		●	●							
	4QS-CNGA120404WL		1.6	4	○	○					●	●										
	2QP-CNMA120404W		2.3	2	○	○														●		
	4QP-CNMA120404W		2.3	4	○	○										●						
	2QP-CNGA120408-LF	0.8	2.2	2			○				●	●										
	4QS-CNGA120408-LF		1.5	4			○				●	●										
	2QP-CNGA120408-L		2.2	2				○			●	●		●	●					●		
	2QP-CNGA120408WL		2.2	2	○	○					●	●		●	●							
	4QS-CNGA120408WL		1.8	4	○	○					●	●										
	2QP-CNMA120408W		2.2	2	○	○														●		
	4QP-CNMA120408W		2.2	4	○	○										●						
	2QP-CNGA120412-LF	1.2	2.4	2			○				●	●										
	4QS-CNGA120412-LF		1.7	4			○				●	●										
	2QP-CNGA120412-L		2.4	2				○			●	●		●	●					●		
	2QP-CNGA120412WL		2.4	2	○	○					●	●		●	●							
	4QS-CNGA120412WL		2.1	4	○	○					●	●										
	2QP-CNMA120412W		2.4	2	○	○														●		
	4QP-CNMA120412W		2.4	4	○	○										●						
Finishing	2QP-CNGA120402	0.2	2.3	2		○					●	●										
	2QP-CNGA120402-LC		2.3	2					○		●	●										
	2QP-CNGA120404	0.4	2.3	2		○					●	●		●	●				●	●	●	●
	T2QP-CNGA120404		2.3	2		○															●	
	2QP-CNGA120404SR		2.3	2		○							●									
	4QS-CNGA120404		1.6	4		○					●	●										
	4QS-CNGA120404SR		1.6	4		○							●									
	4QP-CNGA120404		2.3	4		○										●	●	●				
	2QP-CNGA120404-LC		2.3	2					○		●	●										
	4QS-CNGA120404-LC		1.6	4					○		●	●										

T at the beginning of the designation means 10 pieces per package.

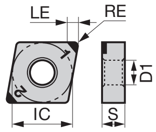
● : Line up

Reference pages : Edge preparation → CBN-6

Ex.Toolholder

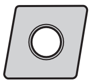
In.Toolholder

● : Continuous cutting
◖ : Light interrupted cutting
✤ : Heavy interrupted cutting



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

CN



80°Rhombic with hole

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Problem: Standard	Burr	Flnak wear	Crater wear	Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXC50	BXA30	BXA40	BX310	BX330	BX360	BX380
	K Cast iron																					
	S Superalloy																					
	H Hard material										●	●◖	✤	●	●◖	✤	●	●◖	●	●	●◖	✤
	Sintered metal																					
Finishing	2QP-CNGA120408	0.8	2.2	2		○					●	●		●	●				●	●	●	●
Finishing	T2QP-CNGA120408	0.8	2.2	2		○															●	
Finishing	2QP-CNGA120408SR	0.8	2.2	2		○							●									
Finishing	4QS-CNGA120408	0.8	1.5	4		○					●	●										
Finishing	4QS-CNGA120408SR	0.8	1.5	4		○							●									
Finishing	4QP-CNGA120408	0.8	2.2	4		○										●	●	●				
Finishing	2QP-CNGA120408-LC	0.8	2.2	2					○		●	●										
Finishing	4QS-CNGA120408-LC	0.8	1.5	4					○		●	●										
Finishing	2QP-CNGA120412	1.2	2.4	2		○					●	●		●	●				●	●	●	●
Finishing	2QP-CNGA120412SR	1.2	2.4	2		○							●									
Finishing	4QS-CNGA120412	1.2	1.7	4		○					●	●										
Finishing	4QS-CNGA120412SR	1.2	1.7	4		○							●									
Finishing	4QP-CNGA120412	1.2	2.4	4		○										●	●	●				
Finishing	2QP-CNGA120412-LC	1.2	2.4	2					○		●	●										
Finishing	4QS-CNGA120412-LC	1.2	1.7	4					○		●	●										
Finishing	2QP-CNGA120416	1.6	3.3	2		○					●	●										
Finishing	2QP-CNGA120416SR	1.6	3.3	2		○							●									
Finishing	2QP-CNGA120420	2	3.2	2		○					●	●										
Finishing	2QP-CNGA120420SR	2	3.2	2		○							●									
Finishing	2QP-CNGA120424	2.4	3.1	2		○					●	●										
Finishing	2QP-CNGA120424SR	2.4	3.1	2		○							●									
Medium cutting	2QP-CNGA120404-H	0.4	2.3	2						○	●	●			●						●	●
Medium cutting	2QP-CNGA120404HC	0.4	2.3	2						○			●									
Medium cutting	4QS-CNGA120404-H	0.4	1.6	4						○	●	●										
Medium cutting	4QS-CNGA120404HC	0.4	1.6	4						○			●									
Medium cutting	4QP-CNGA120404-H	0.4	2.3	4						○								●				
Medium cutting	2QP-CNGA120408-H	0.8	2.2	2						○	●	●			●						●	●
Medium cutting	2QP-CNGA120408HC	0.8	2.2	2						○			●									
Medium cutting	4QS-CNGA120408-H	0.8	1.5	4						○	●	●										
Medium cutting	4QS-CNGA120408HC	0.8	1.5	4						○			●									
Medium cutting	4QP-CNGA120408-H	0.8	2.2	4						○								●				
Medium cutting	2QP-CNGA120412-H	1.2	2.4	2						○	●	●			●						●	●
Medium cutting	2QP-CNGA120412HC	1.2	2.4	2						○			●									
Medium cutting	4QS-CNGA120412-H	1.2	1.7	4						○	●	●										
Medium cutting	4QS-CNGA120412HC	1.2	1.7	4						○			●									
Medium cutting	4QP-CNGA120412-H	1.2	2.4	4						○								●				
Medium cutting	2QP-CNGA120416HC	1.6	3.3	2						○			●									
Medium cutting	2QP-CNGA120420HC	2	3.2	2						○			●									
Medium cutting	2QP-CNGA120424HC	2.4	3.1	2						○			●									

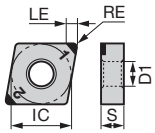
● : Line up

Reference pages : Edge preparation → CBN-6

Ex.Toolholder In.Toolholder

● : Continuous cutting
ᑕ : Light interrupted cutting
✣ : Heavy interrupted cutting

CN with chipbreaker



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

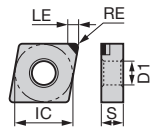
80°Rhombic with hole

		BXA10	BXA20	BR35F	BXM10	BXM20	BXA40
K	Cast iron						
S	Superalloy						
H	Hard material	●	●ᑕ	✣	●	●ᑕ	●ᑕ
	Sintered metal						

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXA40
Precision finishing	2QP-CNGM120404-HP	0.4	2.3	2		○					●	●	●	●		
	4QS-CNGG120404-HP		1.6	4		○					●	●	●			
	2QP-CNGM120404-HS		2.3	2		○					●	●	●			
	4QS-CNGG120404-HS		1.6	4		○					●	●	●			
	2QP-CNGM120408-HP	0.8	2.2	2		○					●	●	●	●		
	4QS-CNGG120408-HP		1.5	4		○					●	●	●			
	2QP-CNGM120408WL-HP		2.2	2	○	○					●	●		●		
	4QS-CNGG120408WL-HP		1.8	4	○	○					●	●				
	2QP-CNGM120408-HS		2.2	2		○					●	●	●			
	4QS-CNGG120408-HS		1.8	4		○					●	●	●			
	2QP-CNGM120408WL-HS		2.2	2	○	○					●	●				
	2QP-CNGM120412-HP	1.2	2.4	2		○					●	●	●	●		
	2QP-CNGM120412-HS		2.4	2		○					●	●	●			
	4QS-CNGG120412-HS		2.2	4		○					●	●	●			
	2QP-CNGM120412WL-HS		2.4	2	○	○					●	●				
Medium cutting	2QP-CNGM120408-HF	0.8	2.2	2		○						●			●	
	4QS-CNGG120408-HF		1.8	4		○						●				
	4QP-CNGG120408-HF		2.2	4		○										●
	2QP-CNGM120408-HM		2.2	2		○						●			●	
	4QS-CNGG120408-HM		1.5	4		○						●				
	4QP-CNGG120408-HM		2.2	4		○										●
	2QP-CNGM120412-HF	1.2	2.4	2		○						●			●	
	4QS-CNGG120412-HF		2.2	4		○						●				
	4QP-CNGG120412-HF		2.4	4		○										●
	2QP-CNGM120412-HM		2.4	2		○						●			●	
	4QS-CNGG120412-HM		1.7	4		○						●				
	4QP-CNGG120412-HM		2.4	4		○										●

● : Line up

CN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

80°Rhombic with hole

		BX360
K	Cast iron	
S	Superalloy	
H	Hard material	●ᑕ
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX360
Medium cutting	CNGA120402-QBN	0.2	4.1	1		○					●
	CNGA120404-QBN	0.4	4	1		○					●
	CNGA120408-QBN	0.8	3.9	1		○					●
	CNGA120412-QBN	1.2	3.9	1		○					●

● : Line up

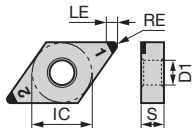
Reference pages : Edge preparation → CBN-6

Ex.Toolholder

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

DN



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

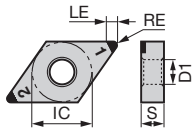
55° Rhombic with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flank wear	Crater wear	Chipping	BXA10	BXA20
Finishing	2QP-DNGA110404	0.4	2.5	2		○					●	●
	2QP-DNGA110408	0.8	2.1	2		○					●	●
	2QP-DNGA110412	1.2	2	2		○					●	●

● : Line up

DN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

55° Rhombic with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flank wear	Crater wear	Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXC50	BXA30	BXA40	BX310	BX330	BX360	BX380
Precision finishing	2QP-DNGA150402-LF	0.2	2.7	2			○				●	●										
	4QS-DNGA150402-LF		2.2	4			○				●	●										
	2QP-DNGA150402-L		2.7	2				○			●	●										
	2QP-DNGA150404-LF	0.4	2.5	2			○				●	●										
	4QS-DNGA150404-LF		2	4			○				●	●										
	2QP-DNGA150404-L		2.5	2				○			●	●		●	●					●		
	2QP-DNGA150404WJ		2.5	2	○	○						●		●	●							
	2QP-DNGA150408-LF	0.8	2.1	2			○				●	●										
	4QS-DNGA150408-LF		1.6	4			○				●	●										
	2QP-DNGA150408-L		2.1	2				○			●	●		●	●					●		
	2QP-DNGA150408WJ		2.1	2	○	○						●		●	●							
	2QP-DNGA150412-LF	1.2	2	2			○				●	●										
	4QS-DNGA150412-LF		1.6	4			○				●	●										
	2QP-DNGA150412-L		2	2				○			●	●			●					●		
Finishing	2QP-DNGA150402	0.2	2.7	2		○					●	●										
	4QS-DNGA150402		2.2	4		○					●	●										
	2QP-DNGA150402-LC		2.7	2					○		●	●										
	4QS-DNGA150402-LC		2.2	4					○		●	●										
	2QP-DNGA150404	0.4	2.5	2		○					●	●		●	●				●	●	●	●
	4QP-DNGA150404		2.5	4		○										●	●	●				
	2QP-DNGA150404SR		2.5	2		○							●									
	4QS-DNGA150404		2	4		○					●	●										
	4QS-DNGA150404SR		2	4		○							●									
	2QP-DNGA150404-LC		2.5	2					○		●	●										
	4QS-DNGA150404-LC		2	4					○		●	●										

Please see Tungaloy General catalog vol.5 page L025 about the toolholders recommended for wiper inserts of the designation with WJ at the end.

● : Line up

Reference pages : Edge preparation → CBN-6

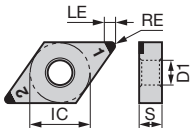
Ex.Toolholder

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

DN

55° Rhombic with hole



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

		BXA10	BXA20	BR35F	BXM10	BXM20	BXC50	BXA30	BXA40	BX310	BX330	BX360	BX380
K	Cast iron												
S	Superalloy												
H	Hard material	●	◐	✣	●	◐	✣	●	◐	●	●	◐	✣
	Sintered metal												

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXC50	BXA30	BXA40	BX310	BX330	BX360	BX380
Finishing	2QP-DNGA150408	0.8	2.1	2		○					●	●		●	●				●	●	●	●
	2QP-DNGA150408SR		2.1	2		○							●									
	4QS-DNGA150408		1.6	4		○					●	●										
	4QS-DNGA150408SR		1.6	4		○							●									
	4QP-DNGA150408		2.1	4		○										●	●	●				
	2QP-DNGA150408-LC		2.1	2					○		●	●										
	4QS-DNGA150408-LC		1.6	4					○		●	●										
	2QP-DNGA150412	1.2	2	2		○					●	●		●	●				●	●	●	●
	2QP-DNGA150412SR		2	2		○							●									
	4QS-DNGA150412		1.6	4		○					●	●										
	4QS-DNGA150412SR		1.6	4		○							●									
	4QP-DNGA150412		2	4		○										●	●	●				
	2QP-DNGA150412-LC		2	2					○		●	●										
	4QS-DNGA150412-LC		1.6	4					○		●	●										
	2QP-DNGA150416	1.6	3.4	2		○					●	●										
	2QP-DNGA150416SR		3.4	2		○							●									
	2QP-DNGA150420	2	3	2		○					●	●										
	2QP-DNGA150420SR		3	2		○							●									
	2QP-DNGA150424	2.4	2.6	2		○					●	●										
	2QP-DNGA150424SR		2.6	2		○							●									
Medium cutting	2QP-DNGA150404-H	0.4	2.5	2						○	●	●			●						●	●
	2QP-DNGA150404HC		2.5	2						○			●									
	4QS-DNGA150404-H		2	4						○	●	●										
	4QS-DNGA150404HC		2	4						○			●									
	4QP-DNGA150404-H		2.5	4						○								●				
	2QP-DNGA150408-H	0.8	2.1	2						○	●	●			●					●	●	
	2QP-DNGA150408HC		2.1	2						○			●									
	4QS-DNGA150408-H		1.6	4						○	●	●										
	4QS-DNGA150408HC		1.6	4						○			●									
	4QP-DNGA150408-H		2.1	4						○								●				
	2QP-DNGA150412-H	1.2	2	2						○	●	●			●						●	●
	2QP-DNGA150412HC		2	2						○			●									
	4QS-DNGA150412-H		1.6	4						○	●	●										
	4QS-DNGA150412HC		1.6	4						○			●									
	4QP-DNGA150412-H		2	4						○								●				
	2QP-DNGA150416HC	1.6	3.4	2						○			●									
	2QP-DNGA150420HC	2	3	2						○			●									
	2QP-DNGA150424HC	2.4	2.6	2						○			●									

● : Line up

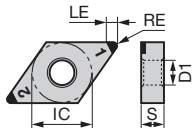
Reference pages : Edge preparation → CBN-6

Ex.Toolholder

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

DN with chipbreaker



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

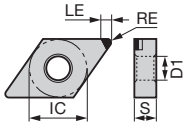
55° Rhombic with hole

		BXA10	BXA20	BR35F	BXM10	BXM20	BXA40
K	Cast iron						
S	Superalloy						
H	Hard material	●	●◐	✣	●	●◐	●◐
	Sintered metal						

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXA40
Precision finishing	2QP-DNGM150404-HP	0.4	2.5	2		○					●	●	●	●		
	4QS-DNGG150404-HP		2	4		○					●	●	●			
	2QP-DNGM150404-HS		2.5	2		○					●	●	●			
	4QS-DNGG150404-HS		2	4		○					●	●	●			
	2QP-DNGM150408-HP	0.8	2.1	2		○					●	●	●	●		
	4QS-DNGG150408-HP		1.6	4		○					●	●	●			
	2QP-DNGM150408-HS		2.1	2		○					●	●	●			
	4QS-DNGG150408-HS		1.6	4		○					●	●	●			
	2QP-DNGM150412-HP	1.2	2	2		○					●	●	●			
	2QP-DNGM150412-HS		2	2		○					●	●	●			
	4QS-DNGG150412-HS		1.6	4		○					●	●	●			
Medium cutting	2QP-DNGM150408-HF	0.8	2.1	2		○						●			●	
	4QS-DNGG150408-HF		2	4		○						●				
	4QP-DNGG150408-HF		2.1	4		○										●
	2QP-DNGM150408-HM		2.1	2		○									●	
	4QS-DNGG150408-HM		1.6	4		○						●				
	4QP-DNGG150408-HM		2.1	4		○										●
	2QP-DNGM150412-HF	1.2	2	2		○						●			●	
	4QS-DNGG150412-HF		2.6	4		○						●				
	4QP-DNGG150412-HF		2	4		○										●
	2QP-DNGM150412-HM		2	2		○									●	
	4QP-DNGG150412-HM		2	4		○										●

● : Line up

DN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

55° Rhombic with hole

		BX360
K	Cast iron	
S	Superalloy	
H	Hard material	●◐
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX360
Finishing	DNGA150402-QBN	0.2	4.3	1		○					●
	DNGA150404-QBN	0.4	4.4	1		○					●
	DNGA150408-QBN	0.8	3.8	1		○					●
	DNGA150412-QBN	1.2	3.4	1		○					●

● : Line up

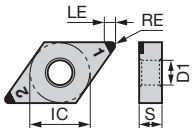
Reference pages : Edge preparation → CBN-6

Ex.Toolholder

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

DN



IC : 12.7 mm
D1 : 5.16 mm
S : 6.35 mm

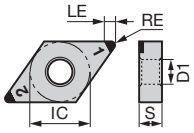
55° Rhombic with hole

K	Cast iron	
S	Superalloy	
H	Hard material	● ◐ ✣ ● ◐
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM10	BXM20
Precision finishing	2QP-DNGA150604-LF	0.4	2.5	2			○				●	●			
	2QP-DNGA150604-L		2.5	2				○			●	●			
	2QP-DNGA150608-LF	0.8	2.1	2			○				●	●			
	2QP-DNGA150608-L		2.1	2				○			●	●			
	2QP-DNGA150612-LF	1.2	2	2			○				●	●			
	2QP-DNGA150612-L		2	2				○			●	●			
Finishing	2QP-DNGA150604	0.4	2.5	2		○					●	●		●	●
	2QP-DNGA150604SR		2.5	2		○							●		
	2QP-DNGA150604-LC		2.5	2					○		●	●			
	2QP-DNGA150608	0.8	2.1	2		○					●	●		●	●
	2QP-DNGA150608SR		2.1	2		○							●		
	2QP-DNGA150608-LC		2.1	2					○		●	●			
	2QP-DNGA150612	1.2	2	2		○					●	●		●	●
	2QP-DNGA150612SR		2	2		○							●		
	2QP-DNGA150612-LC		2	2					○		●	●			
Medium cutting	2QP-DNGA150604-H	0.4	2.5	2						○	●	●			
	2QP-DNGA150604HC		2.5	2						○			●		
	2QP-DNGA150608-H	0.8	2.1	2						○	●	●			
	2QP-DNGA150608HC		2.1	2						○			●		
	2QP-DNGA150612-H	1.2	2	2						○	●	●			
	2QP-DNGA150612HC		2	2						○			●		

● : Line up

DN with chipbreaker



IC : 12.7 mm
D1 : 5.16 mm
S : 6.35 mm

55° Rhombic with hole

K	Cast iron	
S	Superalloy	
H	Hard material	● ◐ ✣ ●
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM10
Precision finishing	2QP-DNGM150608-HP	0.8	2.1	2		○					●	●	●	●
	2QP-DNGM150608-HS		2.1	2		○					●	●	●	

● : Line up

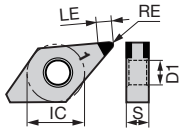
Reference pages : Edge preparation → CBN-6

Ex.Toolholder

In.Toolholder

● : Continuous cutting
ᑕ : Light interrupted cutting
✣ : Heavy interrupted cutting

FN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

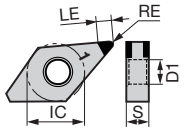
45° Rhombic with hole

K	Cast iron	
S	Superalloy	
H	Hard material	●ᑕ
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA20
Precision finishing	2QP-FNGA150404-LF	0.4	2.6	2			○				●
	2QP-FNGA150404-L		2.6	2				○			●
	2QP-FNGA150408-LF	0.8	3	2			○				●
	2QP-FNGA150408-L		3	2				○			●
	2QP-FNGA150412-LF	1.2	3.3	2			○				●
	2QP-FNGA150412-L		3.3	2				○			●
Finishing	2QP-FNGA150402	0.2	2.8	2		○					●
	2QP-FNGA150404	0.4	2.6	2		○					●
	2QP-FNGA150404-LC		2.6	2					○		●
	2QP-FNGA150408	0.8	3	2		○					●
	2QP-FNGA150408-LC		3	2					○		●
	2QP-FNGA150412	1.2	3.3	2		○					●
	2QP-FNGA150412-LC		3.3	2					○		●
Medium cutting	2QP-FNGA150404-H	0.4	2.6	2						○	●
	2QP-FNGA150408-H	0.8	3	2						○	●
	2QP-FNGA150412-H	1.2	3.3	2						○	●

● : Line up

FN with chipbreaker



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

45° Rhombic with hole

K	Cast iron	
S	Superalloy	
H	Hard material	●ᑕ
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA20
Precision finishing	2QP-FNGG150404-HP	0.4	2.6	2		○					●
	2QP-FNGG150408-HP	0.8	3	2		○					●
	2QP-FNGG150412-HP	1.2	3.3	2		○					●

● : Line up

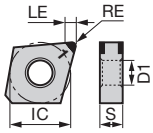
Reference pages : Edge preparation → CBN-6

Ex.Toolholder

In.Toolholder

● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

GN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

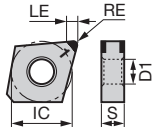
70° Rhombic with hole

K	Cast iron	
S	Superalloy	
H	Hard material	● ●ⓒ ✣ ●ⓒ ●ⓒ
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM20	BX360
Precision finishing	2QP-GNGA120402-LF	0.2	2.2	2			○				●	●			
	2QP-GNGA120402-L		2.2	2				○			●	●			
	2QP-GNGA120404-LF	0.4	2.1	2			○				●	●			
	2QP-GNGA120404-L		2.1	2				○			●	●			
	2QP-GNGA120408-LF	0.8	2.1	2			○				●	●			
	2QP-GNGA120408-L		2.1	2				○			●	●			
	2QP-GNGA120412-LF	1.2	2.2	2			○				●	●			
	2QP-GNGA120412-L		2.2	2				○			●	●			
Finishing	2QP-GNGA120402	0.2	2.2	2		○					●	●			
	2QP-GNGA120402-LC		2.2	2					○		●	●			
	2QP-GNGA120404	0.4	2.1	2		○					●	●		●	●
	2QP-GNGA120404SR		2.1	2		○							●		
	2QP-GNGA120404-LC		2.1	2					○		●	●			
	2QP-GNGA120408	0.8	2.1	2		○					●	●		●	●
	2QP-GNGA120408SR		2.1	2		○							●		
	2QP-GNGA120408-LC		2.1	2					○		●	●			
	2QP-GNGA120412	1.2	2.2	2		○					●	●		●	●
	2QP-GNGA120412SR		2.2	2		○							●		
	2QP-GNGA120412-LC		2.2	2					○		●	●			
Medium cutting	2QP-GNGA120404-H	0.4	2.1	2						○	●	●			
	2QP-GNGA120404HC		2.1	2						○			●		
	2QP-GNGA120408-H	0.8	2.1	2						○	●	●			
	2QP-GNGA120408HC		2.1	2						○			●		
	2QP-GNGA120412-H	1.2	2.2	2						○	●	●			
	2QP-GNGA120412HC		2.2	2						○			●		

● : Line up

GN with chipbreaker



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

70° Rhombic with hole

K	Cast iron	
S	Superalloy	
H	Hard material	● ●ⓒ ●
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10
Precision finishing	2QP-GNGG120404-HP	0.4	2.1	2		○					●	●	●
	2QP-GNGG120404-HS		2.1	2		○					●	●	
	2QP-GNGG120408-HP	0.8	2.1	2		○					●	●	●
	2QP-GNGG120408-HS		2.1	2		○					●	●	
	2QP-GNGG120412-HP	1.2	2.2	2		○					●	●	●
	2QP-GNGG120412-HS		2.2	2		○					●	●	

● : Line up

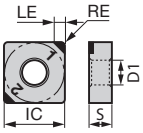
Reference pages : Edge preparation → CBN-6

Ex.Toolholder

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

SN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

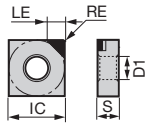
Square with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM20	BXC50	BXA40	BX310	BX330	BX360	BX380
Precision finishing	2QP-SNGA120404-L	0.4	2.4	2				○										●		
	2QP-SNGA120408-LF	0.8	2.4	2			○				●	●								
	2QP-SNGA120408-L		2.4	2				○			●	●		●				●		
	2QP-SNGA120412-LF	1.2	2.4	2			○				●	●								
	2QP-SNGA120412-L		2.4	2				○			●	●		●				●		
Finishing	2QP-SNGA120404	0.4	2.4	2		○					●	●		●			●	●	●	●
	4QS-SNGA120404		1.8	4		○					●	●								
	4QP-SNGA120404		2.4	4		○									●	●				
	2QP-SNGA120408	0.8	2.4	2		○					●	●		●			●	●	●	●
	2QP-SNGA120408SR		2.4	2		○							●							
	4QS-SNGA120408		1.8	4		○					●	●								
	4QS-SNGA120408SR		1.8	4		○							●							
	4QP-SNGA120408		2.4	4		○									●	●				
	2QP-SNGA120412	1.2	2.4	2		○					●	●		●			●	●	●	●
	2QP-SNGA120412SR		2.4	2		○							●							
	4QS-SNGA120412		1.8	4		○					●	●								
	4QS-SNGA120412SR		1.8	4		○							●							
	4QP-SNGA120412		2.4	4		○									●	●				
Medium cutting	2QP-SNGA120404-H	0.4	2.4	2						○									●	●
	2QP-SNGA120408-H	0.8	2.4	2						○		●		●					●	●
	4QP-SNGA120408-H		2.4	4						○						●				
	2QP-SNGA120412-H	1.2	2.4	2						○		●		●					●	●
	4QP-SNGA120412-H		2.4	4						○						●				

● : Line up

SN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

Square with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX360
Finishing	SNGA120402-QBN	0.2	4.1	1		○					●
	SNGA120404-QBN	0.4	4.1	1		○					●
	SNGA120408-QBN	0.8	4.1	1		○					●
	SNGA120412-QBN	1.2	4.1	1		○					●

● : Line up

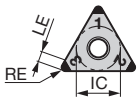
Reference pages : Edge preparation → CBN-6

Ex.Toolholder

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TN



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

Triangular with hole

		BXA10	BXA20	BR35F	BXM10	BXM20	BXC50	BXA30	BXA40	BX310	BX330	BX360	BX380
K	Cast iron												
S	Superalloy												
H	Hard material	●	◐	✣	●	◐	✣	●	◐	●	●	◐	✣
	Sintered metal												

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXC50	BXA30	BXA40	BX310	BX330	BX360	BX380
Precision finishing	3QP-TNGA160402-LF	0.2	2.3	3			○				●	●										
	3QP-TNGA160402-L		2.3	3				○			●	●										
	3QP-TNGA160404-LF	0.4	2.2	3			○				●	●										
	6QS-TNGA160404-LF		1.9	6			○				●	●										
	3QP-TNGA160404-L		2.2	3				○			●	●		●	●					●		
	3QP-TNGA160404WG		2.4	3	○	○					●	●			●							
	3QP-TNGA160408-LF	0.8	1.9	3			○				●	●										
	6QS-TNGA160408-LF		1.6	6			○				●	●										
	3QP-TNGA160408-L		1.9	3				○			●	●		●	●					●		
	3QP-TNGA160408WG		2.2	3	○	○					●	●		●	●							
	3QP-TNGA160412-LF	1.2	2.4	3			○				●	●										
	6QS-TNGA160412-LF		1.8	6			○				●	●										
	3QP-TNGA160412-L		2.4	3				○			●	●		●	●					●		
Finishing	3QP-TNGA160402	0.2	2.3	3		○					●	●										
	3QP-TNGA160402-LC		2.3	3					○		●	●										
	3QP-TNGA160404	0.4	2.2	3		○					●	●		●	●				●	●	●	●
	T3QP-TNGA160404		2.2	3		○															●	
	3QP-TNGA160404SR		2.2	3		○							●									
	6QS-TNGA160404		1.9	6		○					●	●										
	6QS-TNGA160404SR		1.9	6		○							●									
	6QP-TNGA160404		2.2	6		○										●	●	●				
	3QP-TNGA160404-LC		2.2	3					○		●	●										
	6QS-TNGA160404-LC		1.9	6					○		●	●										

T at the beginning of the designation means 10 pieces per package.
Please see page Tungaloy General catalog vol.5 **L025** about the toolholders recommended for wiper inserts of the designation with WG at the end.

● : Line up

Reference pages : Edge preparation → CBN-6

Ex.Toolholder

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TN

Triangular with hole

IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

		BXA10	BXA20	BR35F	BXM10	BXM20	BXC50	BXA30	BXA40	BX310	BX330	BX360	BX380
K	Cast iron	●	◐	✣	●	◐	✣	●	◐	●	●	◐	✣
S	Superalloy												
H	Hard material												
	Sintered metal												

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXC50	BXA30	BXA40	BX310	BX330	BX360	BX380
Finishing	3QP-TNGA160408	0.8	1.9	3		○					●	●		●	●				●	●	●	●
	T3QP-TNGA160408		1.9	3		○															●	
	3QP-TNGA160408SR		1.9	3		○							●									
	6QS-TNGA160408		1.6	6		○					●	●										
	6QS-TNGA160408SR		1.6	6		○							●									
	6QP-TNGA160408		1.9	6		○										●	●	●				
	3QP-TNGA160408-LC		1.9	3					○		●	●										
	6QS-TNGA160408-LC		1.9	6					○		●	●										
	3QP-TNGA160412	1.2	2.4	3		○					●	●		●	●				●	●	●	●
	3QP-TNGA160412SR		2.4	3		○							●									
	6QS-TNGA160412		1.8	6		○					●	●										
	6QS-TNGA160412SR		1.8	6		○							●									
	6QP-TNGA160412		2.4	6		○										●	●	●				
	3QP-TNGA160412-LC		2.4	3					○		●	●										
	6QS-TNGA160412-LC		1.8	6					○		●	●										
	3QP-TNGA160416	1.6	3.3	3		○					●	●										
	3QP-TNGA160416SR		3.3	3		○							●									
	3QP-TNGA160420	2	3	3		○					●	●										
	3QP-TNGA160420SR		3	3		○							●									
	3QP-TNGA160424	2.4	2.7	3		○					●	●										
	3QP-TNGA160424SR		2.7	3		○							●									
Medium cutting	3QP-TNGA160404-H	0.4	2.2	3						○	●	●			●						●	●
	3QP-TNGA160404HC		2.2	3						○			●									
	6QS-TNGA160404-H		1.9	6						○	●	●										
	6QS-TNGA160404HC		1.9	6						○			●									
	6QP-TNGA160404-H		2.2	6						○								●				
	3QP-TNGA160408-H	0.8	1.9	3						○	●	●			●						●	●
	3QP-TNGA160408HC		1.9	3						○			●									
	6QS-TNGA160408-H		1.6	6						○	●	●										
	6QS-TNGA160408HC		1.6	6						○			●									
	6QP-TNGA160408-H		1.9	6						○								●				
	3QP-TNGA160412-H	1.2	2.4	3						○	●	●			●						●	●
	3QP-TNGA160412HC		2.4	3						○			●									
	6QS-TNGA160412-H		1.8	6						○	●	●										
	6QS-TNGA160412HC		1.8	6						○			●									
	6QP-TNGA160412-H		2.4	6						○								●				
	3QP-TNGA160416HC	1.6	3.3	3						○			●									
	3QP-TNGA160420HC	2	3	3						○			●									
	3QP-TNGA160424HC	2.4	2.7	3						○			●									

T at the beginning of the designation means 10 pieces per package.

● : Line up

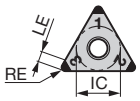
Reference pages : Edge preparation → CBN-6

Ex.Toolholder

In.Toolholder

● : Continuous cutting
ᑕ : Light interrupted cutting
✣ : Heavy interrupted cutting

TN with chipbreaker



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

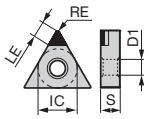
Triangular with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXA40
Precision finishing	3QP-TNGM160404-HP	0.4	2.2	3		○					●	●	●	●		
	6QS-TNGG160404-HP		1.9	6		○					●	●	●			
	3QP-TNGM160404-HS		2.2	3		○					●	●	●			
	6QS-TNGG160404-HS		1.9	6		○					●	●	●			
	3QP-TNGM160408-HP	0.8	1.9	3		○					●	●	●	●		
	6QS-TNGG160408-HP		1.6	6		○					●	●	●			
	3QP-TNGM160408-HS		1.9	3		○					●	●	●			
	6QS-TNGG160408-HS		1.6	6		○					●	●	●			
	3QP-TNGM160412-HP	1.2	2.4	3		○					●	●	●			
	6QS-TNGG160412-HP		1.8	6		○					●	●	●			
	3QP-TNGM160412-HS		2.4	3		○					●	●	●			
	6QS-TNGG160412-HS		1.8	6		○					●	●	●			
Medium cutting	3QP-TNGM160408-HF	0.8	1.9	3		○						●			●	
	6QS-TNGG160408-HF		2.1	4		○						●				
	6QP-TNGG160408-HF		1.9	6		○										●
	3QP-TNGM160408-HM		1.9	3		○									●	
	6QS-TNGG160408-HM		1.6	6		○						●				
	6QP-TNGG160408-HM		1.9	6		○										●
	3QP-TNGM160412-HF	1.2	2.4	3		○						●			●	
	6QS-TNGG160412-HF		2.5	4		○						●				
	6QP-TNGG160412-HF		2.4	6		○										●
	3QP-TNGM160412-HM		2.4	3		○									●	
	6QP-TNGG160412-HM		2.4	6		○										●

● : Line up

TN



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

Triangular with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX360
Finishing	TNGA160402-QBN	0.2	4.4	1		○					●
	TNGA160404-QBN	0.4	4.2	1		○					●
	TNGA160408-QBN	0.8	4	1		○					●
	TNGA160412-QBN	1.2	3.7	1		○					●

● : Line up

Reference pages : Edge preparation → CBN-6

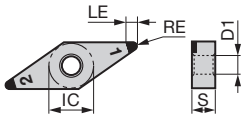
Ex.Toolholder

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

VN

35° Rhombic with hole



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

		BXA10	BXA20	BR35F	BXM10	BXM20	BXC50	BXA30	BXA40	BX310	BX330	BX360	BX380
K	Cast iron												
S	Superalloy												
H	Hard material	●	◐	✣	●	◐	✣	●	◐	●	●	◐	✣
	Sintered metal												

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXC50	BXA30	BXA40	BX310	BX330	BX360	BX380
Precision finishing	2QP-VNGA160402-LF	0.2	3.5	2			○				●	●										
	4QS-VNGA160402-LF		3	4			○				●	●										
	2QP-VNGA160402-L		3.5	2				○			●	●										
	2QP-VNGA160404-LF	0.4	3.1	2			○				●	●										
	4QS-VNGA160404-LF		2.6	4			○				●	●										
	2QP-VNGA160404-L		3.1	2				○			●	●		●	●					●			
	2QP-VNGA160408-LF	0.8	2.2	2			○				●	●										
	4QS-VNGA160408-LF		1.7	4			○				●	●										
	2QP-VNGA160408-L		2.2	2				○			●	●		●	●					●			
	2QP-VNGA160412-LF	1.2	3	2			○				●	●										
	4QS-VNGA160412-LF		1.7	4			○				●	●										
	2QP-VNGA160412-L		3	2				○			●	●										
Finishing	2QP-VNGA160402	0.2	3.5	2		○					●	●										
	4QS-VNGA160402		3	4		○					●	●										
	2QP-VNGA160402-LC		3.5	2					○		●	●										
	4QS-VNGA160402-LC		3	4					○		●	●										
	2QP-VNGA160404	0.4	3.1	2		○					●	●		●	●				●	●	●	●
	2QP-VNGA160404SR		3.1	2		○							●									
	4QS-VNGA160404		2.6	4		○					●	●										
	4QS-VNGA160404SR		2.6	4		○							●									
	4QP-VNGA160404		3.1	4		○										●	●	●				
	2QP-VNGA160404-LC		3.1	2					○		●	●										
	4QS-VNGA160404-LC		2.6	4					○		●	●										
	2QP-VNGA160408	0.8	2.2	2		○					●	●		●	●				●	●	●	●
	2QP-VNGA160408SR		2.2	2		○							●									
	4QS-VNGA160408		1.7	4		○					●	●										
	4QS-VNGA160408SR		1.7	4		○							●									
	4QP-VNGA160408		2.2	4		○										●	●	●				
	2QP-VNGA160408-LC		2.2	2					○		●	●										
	4QS-VNGA160408-LC		1.7	4					○		●	●										
	2QP-VNGA160412	1.2	3	2		○					●	●			●							
	4QS-VNGA160412		1.7	4		○					●	●										
	4QP-VNGA160412		3	4		○											●	●				
	2QP-VNGA160412-LC		3	2					○		●	●										
	4QS-VNGA160412-LC		1.7	4					○		●	●										
Medium cutting	2QP-VNGA160404-H	0.4	3.1	2						○	●	●			●						●	●
	2QP-VNGA160404HC		3.1	2						○			●									
	4QS-VNGA160404-H		2.6	4						○	●	●										
	4QS-VNGA160404HC		2.6	4						○			●									
	4QP-VNGA160404-H		3.1	4						○								●				
	2QP-VNGA160408-H	0.8	2.2	2						○	●	●			●						●	●
	2QP-VNGA160408HC		2.2	2						○			●									
	4QS-VNGA160408-H		1.7	4						○	●	●										
	4QS-VNGA160408HC		1.7	4						○			●									
	4QP-VNGA160408-H		2.2	4						○								●				
	2QP-VNGA160412-H	1.2	3	2						○	●	●										
	4QS-VNGA160412-H		1.7	4						○	●	●										

● : Line up

Reference pages : Edge preparation → CBN-6

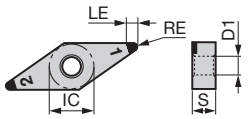
Ex.Toolholder

In.Toolholder

● : Continuous cutting
ɔ : Light interrupted cutting
✣ : Heavy interrupted cutting

VN with chipbreaker

35° Rhombic with hole



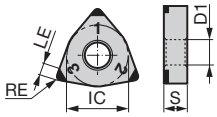
IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BXA10	BXA20	BXM10	BXM20	BXA40
Precision finishing	2QP-VNGM160404-HP	0.4	3.1	2		○					●	●			
	4QS-VNGG160404-HP		2.6	4		○					●	●			
	2QP-VNGM160404-HS		3.1	2		○					●	●			
	4QS-VNGG160404-HS		2.6	4		○					●	●			
	2QP-VNGM160408-HP	0.8	2.2	2		○					●	●	●		
	4QS-VNGG160408-HP		1.7	4		○					●	●			
	2QP-VNGM160408-HS		2.2	2		○					●	●			
	4QS-VNGG160408-HS		1.7	4		○					●	●			
Medium cutting	2QP-VNGM160408-HF	0.8	2.2	2		○								●	
	4QP-VNGG160408-HF		2.2	4		○									●
	2QP-VNGM160408-HM		2.2	2		○								●	
	4QS-VNGG160408-HM		1.7	4		○						●			
	4QP-VNGG160408-HM		2.2	4		○									●

● : Line up

WN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

80° Trigon with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BXA10	BXA20	BXM10	BXM20	BXC50	BXA30	BXA40	BX310	BX330	BX360
Precision finishing	3QP-WNGA080408-LF	0.8	2.2	3			○				●	●								
	6QS-WNGA080408-LF		1.5	6			○				●	●								
	3QP-WNGA080408-L		2.2	3				○			●	●								
	3QP-WNGA080408WL		2.2	3	○	○					●	●	●	●						
	6QS-WNGA080408WL		1.8	6	○	○					●	●								
Finishing	3QP-WNGA080404	0.4	2.3	3		○					●	●								
	6QS-WNGA080404		1.6	6		○					●	●								
	6QP-WNGA080404		2.3	6		○									●					
	3QP-WNGA080408	0.8	2.2	3		○					●	●	●	●				●	●	●
	6QS-WNGA080408		1.5	6		○					●	●								
	6QP-WNGA080408		2.2	6		○									●	●	●			
	3QP-WNGA080412	1.2	2.4	3		○					●	●								
	6QS-WNGA080412		1.7	6		○					●	●								
Medium cutting	3QP-WNGA080408-H	0.8	2.2	3						○	●	●								
	6QS-WNGA080408-H		1.5	6						○	●	●								

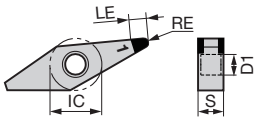
● : Line up

Reference pages : Edge preparation → CBN-6

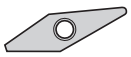
VN Ex.Toolholder | VN In.Toolholder | WN Ex.Toolholder | WN In.Toolholder

● : Continuous cutting
ᑕ : Light interrupted cutting
✣ : Heavy interrupted cutting

YN



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm



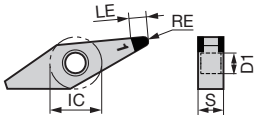
25° Rhombic with hole

K	Cast iron	
S	Superalloy	
H	Hard material	●ᑕ
	Sintered metal	

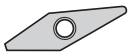
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA20
Precision finishing	2QP-YNGA160404-LF	0.4	3.1	2			○				●
	2QP-YNGA160404-L		3.1	2				○			●
	2QP-YNGA160408-LF	0.8	3	2			○				●
	2QP-YNGA160408-L		3	2				○			●
Finishing	2QP-YNGA160402	0.2	3.5	2		○					●
	2QP-YNGA160404	0.4	3.1	2		○					●
	2QP-YNGA160404-LC		3.1	2					○		●
	2QP-YNGA160408	0.8	3	2		○					●
	2QP-YNGA160408-LC		3	2					○		●

● : Line up

YN with chipbreaker



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm



25° Rhombic with hole

K	Cast iron	
S	Superalloy	
H	Hard material	●ᑕ
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA20
Precision finishing	2QP-YNGG160404-HP	0.4	3.1	2		○					●
	2QP-YNGG160408-HP	0.8	3	2		○					●

● : Line up

Reference pages : Edge preparation → CBN-6

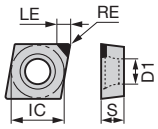
Ex.Toolholder

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

CC

80°Rhombic with hole, Positive 7°



IC : 3.57 mm
D1 : 1.9 mm
S : 1.39 mm

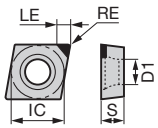
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX310
Precision finishing	**1QP-CCGW03X102**	0.2	1.4	1		○					●
	1QP-CCGW03X1**04**	0.4	1.3	1		○					●

● : Line up

CC

80°Rhombic with hole, Positive 7°



IC : 4.37 mm
D1 : 2.3 mm
S : 1.79 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX310
Precision finishing	**1QP-CCGW04T102**	0.2	1.9	1		○					●
	1QP-CCGW04T1**04**	0.4	1.8	1		○					●

● : Line up

Reference pages : Edge preparation → CBN-6

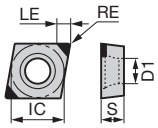
Ex.Toolholder

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

CC

80°Rhombic with hole, Positive 7°



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

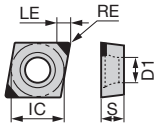
K	Cast iron	
S	Superalloy	
H	Hard material	● ◐ ✣ ● ◐ ● ◐ ● ● ◐
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
Precision finishing	2QP-CCGW060202-LF	0.2	2.3	2			○				●	●								
	2QP-CCGW060202-L		2.3	2				○			●	●								
	2QP-CCGW060204-LF	0.4	2.3	2			○				●	●								
	2QP-CCGW060204-L		2.3	2				○			●	●								
	2QP-CCGW060208-LF	0.8	2.2	2			○				●	●								
	2QP-CCGW060208-L		2.2	2				○			●	●								
Finishing	2QP-CCGW060202	0.2	2.3	2		○					●	●		●	●	●	●			
	2QP-CCMW060202		2.3	2		○												●	●	●
	2QP-CCGW060202-LC		2.3	2					○		●	●								
	2QP-CCGW060204	0.4	2.3	2		○					●	●		●	●	●	●			
	2QP-CCGW060204SR		2.3	2		○							●							
	2QP-CCMW060204		2.3	2		○												●	●	●
	Q-CCMW060204		2.5	1		○													●	
	2QP-CCGW060204-LC		2.3	2					○		●	●								
	2QP-CCGW060208	0.8	2.2	2		○					●	●								
	2QP-CCGW060208SR		2.2	2		○							●							
	2QP-CCMW060208		2.2	2		○													●	
	2QP-CCGW060208-LC		2.2	2					○		●	●								

● : Line up

CC with chipbreaker

80°Rhombic with hole, Positive 7°



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

K	Cast iron	
S	Superalloy	
H	Hard material	● ◐ ✣ ●
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM10
Precision finishing	2QP-CCGT060204-HP	0.4	2.3	2		○					●	●	●	●
	2QP-CCGT060204-HS		2.2	2		○					●	●	●	

● : Line up

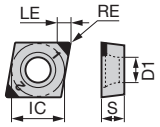
Reference pages : Edge preparation → CBN-6

Ex.Toolholder

In.Toolholder

● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

CC



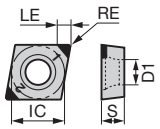
IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

80°Rhombic with hole, Positive 7°

		BXA10	BXA20	BR35F	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
K	Cast iron										
S	Superalloy										
H	Hard material	●	●ⓒ	✣	●	●ⓒ	●	●ⓒ	●	●	●ⓒ
	Sintered metal										

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Finak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
Precision finishing	2QP-CCGW09T302-LF	0.2	2.3	2			○				●	●								
	2QP-CCGW09T302-L		2.3	2				○			●	●								
	2QP-CCGW09T304-LF	0.4	2.3	2			○				●	●								
	2QP-CCGW09T304-L		2.3	2				○			●	●								
	2QP-CCGW09T304WL		2.3	2	○	○					●	●								
	2QP-CCGW09T308-LF	0.8	2.2	2			○				●	●								
	2QP-CCGW09T308-L		2.2	2				○			●	●								
	2QP-CCGW09T308WL		2.2	2	○	○					●	●								
Finishing	2QP-CCGW09T302	0.2	2.3	2		○					●	●								
	2QP-CCGW09T302-LC		2.3	2					○		●	●								
	2QP-CCGW09T304	0.4	2.3	2		○					●	●		●	●	●	●			
	2QP-CCGW09T304SR		2.3	2		○							●							
	2QP-CCMW09T304		2.3	2		○												●	●	●
	Q-CCMW09T304		2.5	1		○													●	
	2QP-CCGW09T304-LC		2.3	2					○		●	●								
	2QP-CCGW09T308	0.8	2.2	2		○					●	●		●	●	●	●			
	2QP-CCGW09T308SR		2.2	2		○							●							
	2QP-CCMW09T308		2.2	2		○												●	●	●
	2QP-CCGW09T308-LC		2.2	2					○		●	●								
Medium cutting	2QP-CCGW09T302-H	0.2	2.3	2						○		●								
	2QP-CCGW09T304-H	0.4	2.3	2						○		●								
	2QP-CCGW09T304HC		2.3	2						○			●							
	2QP-CCGW09T308-H	0.8	2.2	2						○		●								
	2QP-CCGW09T308HC		2.2	2						○			●							

● : Line up



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

CC with chipbreaker

80°Rhombic with hole, Positive 7°

		BXA10	BXA20	BR35F	BXM10
K	Cast iron				
S	Superalloy				
H	Hard material	●	●ⓒ	✣	●
	Sintered metal				

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Finak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM10
Precision finishing	2QP-CCGT09T304-HP	0.4	2.3	2		○					●	●	●	●
	2QP-CCGT09T304-HS		2.2	2		○					●	●	●	
	2QP-CCGT09T304WL-HP		2.2	2	○	○					●			●
	2QP-CCGT09T304WL-HS		2.2	2	○	○					●	●		
	2QP-CCGT09T308-HP	0.8	2.2	2		○					●	●	●	●
	2QP-CCGT09T308-HS		2.2	2		○					●	●	●	
	2QP-CCGT09T308WL-HP		2.2	2	○	○					●			●
	2QP-CCGT09T308WL-HS		2.2	2	○	○					●	●		

● : Line up

Ex.Toolholder

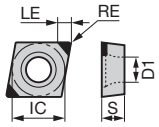
In.Toolholder

Reference pages : Edge preparation → CBN-6

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

CP

80° Rhombic with hole, Positive 11°



IC : 7.94 mm
D1 : 3.4 mm
S : 2.38 mm

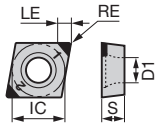
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20
Finishing	2QP-CPGW080202	0.2	2.3	2		○					●	●
	2QP-CPGW080204	0.4	2.3	2		○					●	●
	2QP-CPGW080208	0.8	2.2	2		○					●	●

● : Line up

CP

80° Rhombic with hole, Positive 11°



IC : 9.525 mm
D1 : 4.4 mm
S : 3.18 mm

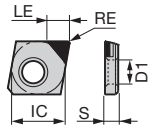
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20
Finishing	2QP-CPGW090302	0.2	2.3	2		○					●	●
	2QP-CPGW090304	0.4	2.3	2		○					●	●
	2QP-CPGW090308	0.8	2.2	2		○					●	●

● : Line up

CP

80° Rhombic with hole, Positive 11°



IC : 9.525 mm
D1 : 4 mm
S : 2.38 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX360
Finishing	CPGA090204-QBN	0.4	4	1		○					●
	CPGA090208-QBN	0.8	3.8	1		○					●

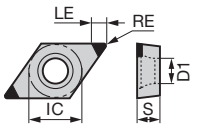
Tungaloy's standard hole specifi cation (ISO non-compliant)

● : Line up

In.Toolholder

● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

DC



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

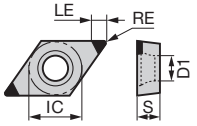
55° Rhombic with hole, Positive 7°

K	Cast iron	
S	Superalloy	
H	Hard material	● ⓒ ✣ ● ⓒ ● ⓒ ● ● ⓒ
	Sintered metal	

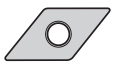
Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
Finishing	2QP-DCGW070202-LF	0.2	2.7	2			○				●	●								
	2QP-DCGW070202-L		2.7	2				○			●	●								
	2QP-DCGW070204-LF	0.4	2.5	2			○				●	●								
	2QP-DCGW070204-L		2.5	2				○			●	●								
	2QP-DCGW070208-LF	0.8	2.1	2			○				●	●								
	2QP-DCGW070208-L		2.1	2				○			●	●								
Medium cutting	2QP-DCGW070202	0.2	2.7	2		○					●	●		●	●	●	●			
	2QP-DCGW070202SR		2.7	2		○							●							
	2QP-DCMW070202		2.7	2		○												●	●	●
	2QP-DCGW070202-LC		2.7	2					○		●	●								
	2QP-DCGW070204	0.4	2.5	2		○					●	●		●	●	●	●			
	2QP-DCGW070204SR		2.5	2		○							●							
	2QP-DCMW070204		2.5	2		○												●	●	●
	Q-DCMW070204		2.1	1		○													●	
	2QP-DCGW070204-LC		2.5	2					○		●	●								
	2QP-DCGW070208	0.8	2.1	2		○					●	●								
	2QP-DCGW070208SR		2.1	2		○							●							
	2QP-DCGW070208-LC		2.1	2					○		●	●								

● : Line up

DC with chipbreaker



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm



55° Rhombic with hole, Positive 7°

K	Cast iron	
S	Superalloy	
H	Hard material	● ⓒ ✣ ●
	Sintered metal	

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BXA10	BXA20	BR35F	BXM10
Precision finishing	2QP-DCGT070204-HP	0.4	2.5	2		○					●	●	●	●
	2QP-DCGT070204-HS		2.5	2		○					●	●	●	

● : Line up

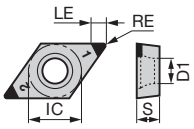
Reference pages : Edge preparation → CBN-6

Ex.Toolholder

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

DC



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

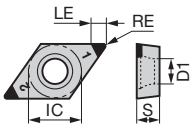
55° Rhombic with hole, Positive 7°

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
Precision finishing	2QP-DCGW11T302-LF	0.2	2.7	2			○				●	●								
	2QP-DCGW11T302-L		2.7	2				○			●	●								
	2QP-DCGW11T304-LF	0.4	2.5	2			○				●	●								
	2QP-DCGW11T304-L		2.5	2				○			●	●								
	2QP-DCGW11T308-LF	0.8	2.1	2			○				●	●								
	2QP-DCGW11T308-L		2.1	2				○			●	●								
Finishing	2QP-DCGW11T301	0.1	2.8	2		○					●	●								
	2QP-DCGW11T302	0.2	2.7	2		○					●	●		●	●	●	●			
	2QP-DCGW11T302SR		2.7	2		○							●							
	2QP-DCMW11T302		2.7	2		○												●	●	●
	2QP-DCGW11T302-LC		2.7	2					○		●	●								
	2QP-DCGW11T304	0.4	2.5	2		○					●	●		●	●	●	●			
	2QP-DCGW11T304SR		2.5	2		○							●							
	2QP-DCMW11T304		2.5	2		○												●	●	●
	Q-DCMW11T304		2.1	1		○													●	
	2QP-DCGW11T304-LC		2.5	2					○		●	●								
	2QP-DCGW11T308	0.8	2.1	2		○					●	●		●	●	●	●			
	2QP-DCGW11T308SR		2.1	2		○							●							
	2QP-DCMW11T308		2.1	2		○												●	●	●
	2QP-DCGW11T308-LC		2.1	2					○		●	●								
Medium cutting	2QP-DCGW11T302-H	0.2	2.7	2						○		●								
	2QP-DCGW11T304-H	0.4	2.5	2						○		●								
	2QP-DCGW11T304HC		2.5	2						○			●							
	2QP-DCGW11T308-H	0.8	2.1	2						○		●								
	2QP-DCGW11T308HC		2.1	2						○			●							

● : Line up

DC with chipbreaker



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

55° Rhombic with hole, Positive 7°

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM10
Precision finishing	2QP-DCGT11T304-HP	0.4	2.5	2		○					●	●	●	●
	2QP-DCGT11T304-HS		2.5	2		○					●	●	●	
	2QP-DCGT11T308-HP	0.8	2.1	2		○					●	●	●	●
	2QP-DCGT11T308-HS		2.1	2		○					●	●	●	

● : Line up

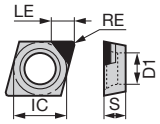
Reference pages : Edge preparation → CBN-6

Ex.Toolholder

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

EP



IC : 3.57 mm
D1 : 1.9 mm
S : 1.39 mm

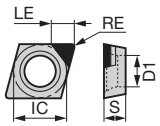
75° Rhombic, Positive 11° with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX310
Finishing	1QP-EPGW03X102	0.2	1.4	1		○					●
Finishing	1QP-EPGW03X104	0.4	1.3	1		○					●

● : Line up

EP



IC : 3.97 mm
D1 : 2.3 mm
S : 1.59 mm

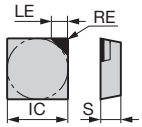
75° Rhombic, Positive 11° with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX310
Finishing	1QP-EPGW040102	0.2	1.7	1		○					●
Finishing	1QP-EPGW040104	0.4	1.6	1		○					●

● : Line up

SP



IC : 12.7 mm
S : 3.18 mm

Square Positive 11° without hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX330	BX360
Finishing	2QP-SPMN090304	0.4	2.4	2		○					●	●
Finishing	Q-SPGN090304		2.8	1		○					●	
Finishing	2QP-SPMN090308	0.8	2.4	2		○					●	●
Finishing	Q-SPGN090308		2.8	1		○					●	

● : Line up

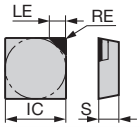
EP In.Toolholder

SP In.Toolholder

● : Continuous cutting
ᑕ : Light interrupted cutting
✣ : Heavy interrupted cutting

SP

Square Positive 11° without hole



IC : 9.525 mm
S : 3.18 mm

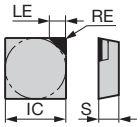
K	Cast iron
S	Superalloy
H	Hard material ●ᑕ
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX360
Finishing	SPGN090304-QBN	0.4	4.1	1		○					●
	SPGN090308-QBN	0.8	4.1	1		○					●
	SPGN090312-QBN	1.2	4.1	1		○					●

● : Line up

SP

Square Positive 11° without hole



IC : 12.7 mm
S : 3.18 mm

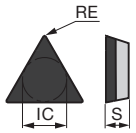
K	Cast iron
S	Superalloy
H	Hard material ●ᑕ
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX360
Finishing	SPGN120308-QBN	0.4	4.1	1		○					●
	SPGN120312-QBN	0.8	4.1	1		○					●

● : Line up

TB

Triangular Positive 5° without hole



IC : 3.97 mm
S : 1.59 mm

K	Cast iron
S	Superalloy
H	Hard material ●ᑕ
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX360
Finishing	TBGN060104-15-QBN	0.4	-	3		○					●
	TBGN060108-15-QBN	0.8	-	3		○					●

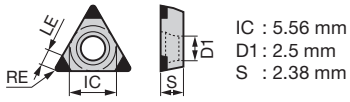
● : Line up

SP
In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TC

Triangular Positive 7° with hole



IC : 5.56 mm
D1 : 2.5 mm
S : 2.38 mm

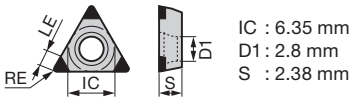
K	Cast iron	
S	Superalloy	
H	Hard material	● ◐
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20
Finishing	3QP-TCGW090202	0.2	2.3	3		○					●	●
	3QP-TCGW090204	0.4	2.2	3		○					●	●
	3QP-TCGW090208	0.8	1.9	3		○					●	●

● : Line up

TC

Triangular Positive 7° with hole



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

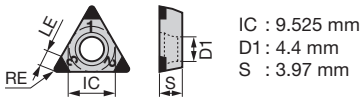
K	Cast iron	
S	Superalloy	
H	Hard material	● ◐
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20
Finishing	3QP-TCGW110202	0.2	2.3	3		○					●	●
	3QP-TCGW110204	0.4	2.2	3		○					●	●
	3QP-TCGW110208	0.8	1.9	3		○					●	●

● : Line up

TC

Triangular Positive 7° with hole



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

K	Cast iron	
S	Superalloy	
H	Hard material	● ◐
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20
Finishing	3QP-TCGW16T302	0.2	2.3	3		○					●	●
	3QP-TCGW16T304	0.4	2.2	3		○					●	●
	3QP-TCGW16T308	0.8	1.9	3		○					●	●

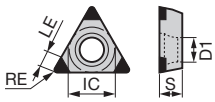
● : Line up

Ex.Toolholder In.Toolholder

● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° with hole



IC : 4.76 mm
D1 : 2.3 mm
S : 2.38 mm

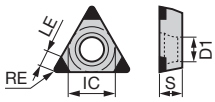
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
Finishing	3QP-TPGW080202	0.2	2.3	3		○					●	●							
Finishing	3QP-TPGW080204	0.4	2.2	3		○					●	●	●	●	●	●			
Finishing	3QP-TPMW080204		2.2	3		○											●	●	●
Finishing	Q-TPMW080204		2.2	1		○												●	
Finishing	3QP-TPGW080208	0.8	1.9	3		○					●	●							

● : Line up

TP

Triangular Positive 11° with hole



IC : 5.56 mm
D1 : 2.5 mm
S : 2.38 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
Finishing	3QP-TPGW090202	0.2	2.3	3		○					●	●		●	●	●			
Finishing	3QP-TPMW090202		2.3	3		○												●	●
Finishing	Q-TPMW090202		2.4	1		○												●	
Finishing	3QP-TPGW090204	0.4	2.2	3		○					●	●	●	●	●	●			
Finishing	3QP-TPMW090204		2.2	3		○											●	●	●
Finishing	Q-TPMW090204		2.3	1		○												●	
Finishing	3QP-TPGW090208	0.8	1.9	3		○					●	●							

● : Line up

TP

Triangular Positive 11° with hole

IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

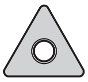
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
Finishing	3QP-TPGW110202	0.2	2.3	3		○					●	●		●	●	●			
Finishing	3QP-TPMW110202		2.3	3		○											●	●	●
Finishing	Q-TPMW110202		2.4	1		○												●	
Finishing	3QP-TPGW110204	0.4	2.2	3		○					●	●	●	●	●	●			
Finishing	3QP-TPMW110204		2,2	3		○											●	●	●
Finishing	Q-TPMW110204		2,2	1		○												●	
Finishing	3QP-TPGW110208	0.8	1.9	3		○					●	●							

● : Line up

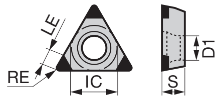
In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✤ : Heavy interrupted cutting

TP



Triangular Positive 11° with hole



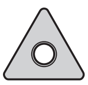
IC : 6.35 mm
D1 : 3.4 mm
S : 3.18 mm

		BXA10	BXA20	BR35F	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
K	Cast iron										
S	Superalloy										
H	Hard material	●	●◐	✤	●	●◐	●	●◐	●	●	●◐
	Sintered metal										

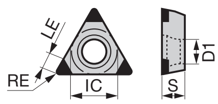
Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flank wear	Crater wear	Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
Precision finishing	3QP-TPGW110302-LF	0.2	2.3	3			○				●	●								
	3QP-TPGW110302-L		2.3	3				○			●	●								
	3QP-TPGW110304-LF	0.4	2.2	3			○				●	●								
	3QP-TPGW110304-L		2.2	3				○			●	●								
	3QP-TPGW110308-LF	0.8	1.9	3			○				●	●								
	3QP-TPGW110308-L		1.9	3				○			●	●								
Finishing	3QP-TPGW110302	0.2	2.3	3		○					●	●			●	●	●			
	3QP-TPMW110302		2.3	3		○												●	●	●
	3QP-TPGW110302-LC		2.3	3					○		●	●								
	3QP-TPGW110304	0.4	2.2	3		○					●	●		●	●	●	●			
	3QP-TPGW110304SR		2.2	3		○							●							
	3QP-TPMW110304		2.2	3		○												●	●	●
	Q-TPMW110304		2.2	1		○													●	
	3QP-TPGW110304-LC		2.2	3					○		●	●								
	3QP-TPGW110308	0.8	1.9	3		○					●	●		●	●	●	●			
	3QP-TPGW110308SR		1.9	3		○							●							
	3QP-TPMW110308		1.9	3		○												●	●	●
	Q-TPMW110308		1.9	1		○													●	
	3QP-TPGW110308-LC		1.9	3					○		●	●								
Medium cutting	3QP-TPGW110302-H	0.2	2.3	3						○		●								
	3QP-TPGW110304-H	0.4	2.2	3						○		●								
	3QP-TPGW110304HC		2.2	3						○			●							
	3QP-TPGW110308-H	0.8	1.9	3						○		●								
	3QP-TPGW110308HC		1.9	3						○			●							

● : Line up

TP with chipbreaker



Triangular Positive 11° with hole



IC : 6.35 mm
D1 : 3.4 mm
S : 3.18 mm

		BXA10	BXA20	BR35F	BXM10
K	Cast iron				
S	Superalloy				
H	Hard material	●	●◐	✤	●
	Sintered metal				

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flank wear	Crater wear	Chipping	BXA10	BXA20	BR35F	BXM10
Precision finishing	3QP-TPGT110304-HP	0.4	2.2	3		○					●	●	●	●
	3QP-TPGT110304-HS		2.1	3		○					●	●	●	
	3QP-TPGT110308-HP	0.8	1.9	3		○					●	●	●	●
	3QP-TPGT110308-HS		1.8	3		○					●	●	●	

● : Line up

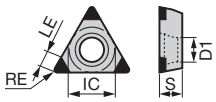
Reference pages : Edge preparation → CBN-6

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° with hole



IC : 7.94 mm
D1 : 3.4 mm
S : 3.18 mm

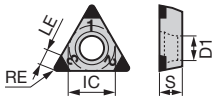
		BXA10	BXA20	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
K	Cast iron									
S	Superalloy									
H	Hard material	●	◐	●	◐	●	◐	●	●	◐
	Sintered metal									

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
Finishing	3QP-TPGW130302	0.2	2.3	3		○					●	●		●	●	●			
	3QP-TPMW130302		2.3	3		○											●	●	●
	Q-TPMW130302		2.4	1		○												●	
	3QP-TPGW130304	0.4	2.2	3		○					●	●	●	●	●	●			
	3QP-TPMW130304		2.2	3		○											●	●	●
	Q-TPMW130304		2.3	1		○												●	
	3QP-TPGW130308	0.8	1.9	3		○					●	●							

● : Line up

TP

Triangular Positive 11° with hole



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

		BXA10	BXA20	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
K	Cast iron									
S	Superalloy									
H	Hard material	●	◐	●	◐	●	◐	●	●	◐
	Sintered metal									

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
Finishing	3QP-TPGW16T302	0.2	2.3	3		○					●	●							
	3QP-TPGW16T304	0.4	2.2	3		○					●	●	●	●	●	●			
	3QP-TPMW16T304		2.2	3		○											●	●	●
	Q-TPGW16T304		2.3	1		○												●	
	3QP-TPGW16T308	0.8	1.9	3		○					●	●	●	●	●	●			
	3QP-TPMW16T308		1.9	3		○											●		

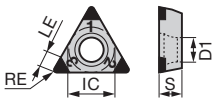
● : Line up

In.Toolholder

● : Continuous cutting
ɔ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° with hole



IC : 9.525 mm
D1 : 4.4 mm
S : 4.76 mm

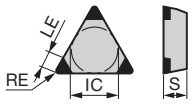
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
Finishing	3QP-TPGW160402	0.2	2.3	3		○					●	●							
Finishing	3QP-TPGW160404	0.4	2.2	3		○					●	●	●	●	●	●			
Finishing	3QP-TPMW160404	0.4	2.2	3		○											●	●	●
Finishing	Q-TPMW160404	0.4	2.3	1		○											●		
Finishing	3QP-TPGW160408	0.8	1.9	3		○					●	●		●	●	●			
Finishing	3QP-TPMW160408	0.8	1.9	3		○											●	●	●
Finishing	Q-TPMW160408	0.8	2	1		○											●		
Medium cutting	3QP-TPGW160402-H	0.2	2.3	3						○	●	●							
Medium cutting	3QP-TPGW160404-H	0.4	2.2	3						○	●	●							
Medium cutting	3QP-TPGW160408-H	0.8	1.9	3						○	●	●							

● : Line up

TP

Triangular Positive 11° without hole



IC : 6.35 mm
S : 3.18 mm

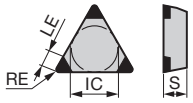
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX330	BX360
Finishing	3QP-TPMN110302	0.2	2.3	3		○					●	●
Finishing	3QP-TPMN110304	0.4	2.2	3		○					●	●
Finishing	Q-TPGN110304	0.4	2.2	1		○					●	
Finishing	3QP-TPMN110308	0.8	1.9	3		○					●	●
Finishing	Q-TPGN110308	0.8	2.2	1		○					●	

● : Line up

TP

Triangular Positive 11° without hole



IC : 9.525 mm
S : 3.18 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX330	BX360
Finishing	3QP-TPMN160304	0.4	2.2	3		○					●	●
Finishing	Q-TPGN160304	0.4	2.3	1		○					●	
Finishing	3QP-TPMN160308	0.8	1.9	3		○					●	●
Finishing	Q-TPGN160308	0.8	1.9	1		○					●	

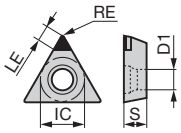
● : Line up

Reference pages : Edge preparation → CBN-6

● : Continuous cutting
ɔ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° with hole



IC : 5.56 mm
D1 : 2.5 mm
S : 2.38 mm

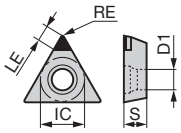
K	Cast iron
S	Superalloy
H	Hard material ●ɔ
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX360
Finishing	**TPGW090202-QBN**	0.2	3.3	1		○					●
Finishing	TPGW0902**04-QBN**	0.4	3.2	1		○					●

● : Line up

TP

Triangular Positive 11° with hole



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

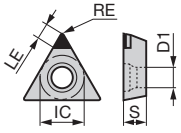
K	Cast iron
S	Superalloy
H	Hard material ●ɔ
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX360
Finishing	**TPGW110202-QBN**	0.2	3.9	1		○					●
Finishing	TPGW1102**04-QBN**	0.4	3.7	1		○					●

● : Line up

TP

Triangular Positive 11° with hole



IC : 7.94 mm
D1 : 3.4 mm
S : 3.18 mm

K	Cast iron
S	Superalloy
H	Hard material ●ɔ
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX360
Finishing	**TPGW130302-QBN**	0.2	3.9	1		○					●
Finishing	TPGW1303**04-QBN**	0.4	3.7	1		○					●

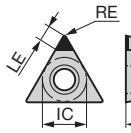
● : Line up

In.Toolholder

● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° with hole



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

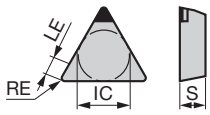
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BX360
Finishing	TPGW16T302-QBN	0.2	4.4	1		○					●
	TPGW16T304-QBN	0.4	4.2	1		○					●
	TPGW16T308-QBN	0.8	4	1		○					●

● : Line up

TP

Triangular Positive 11° without hole



IC : 6.35 mm
S : 3.18 mm

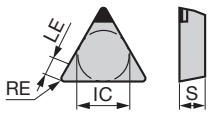
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BX360
Finishing	TPGN110304-QBN	0.4	3.7	1		○					●
	TPGN110308-QBN	0.8	3.5	1		○					●

● : Line up

TP

Triangular Positive 11° without hole



IC : 9.525 mm
S : 3.18 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BX360
Finishing	TPGN160304-QBN	0.4	4.2	1		○					●
	TPGN160308-QBN	0.8	4	1		○					●

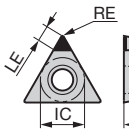
● : Line up

In.Toolholder

● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° with hole



IC : 5.56 mm
D1 : 3.2 mm
S : 2.38 mm

K	Cast iron
S	Superalloy
H	Hard material ●ⓒ
	Sintered metal

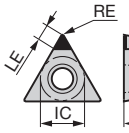
Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BX360
Finishing	TPGA090202-QBN	0.2	3.1	1		○					●
	TPGA090204-QBN	0.4	2.9	1		○					●

Tungaloy's standard hole specifi cation (ISO non-compliant)

● : Line up

TP

Triangular Positive 11° with hole



IC : 6.35 mm
D1 : 3 mm
S : 2.38 mm

K	Cast iron
S	Superalloy
H	Hard material ●ⓒ
	Sintered metal

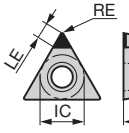
Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BX360
Finishing	TPGA110202-QBN	0.2	3.9	1		○					●
	TPGA110204-QBN	0.4	3.7	1		○					●

Tungaloy's standard hole specifi cation (ISO non-compliant)

● : Line up

TP

Triangular Positive 11° with hole



IC : 6.35 mm
D1 : 3.18 mm
S : 3 mm

K	Cast iron
S	Superalloy
H	Hard material ●ⓒ
	Sintered metal

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BX360
Finishing	TPGA110302-QBN	0.2	3.9	1		○					●
	TPGA110304-QBN	0.4	3.7	1		○					●

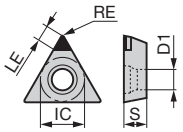
Tungaloy's standard hole specifi cation (ISO non-compliant)

● : Line up

In.Toolholder

● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP



IC : 9.525 mm
D1 : 4 mm
S : 3.18 mm

Triangular Positive 11° with hole

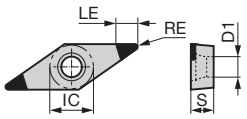
K	Cast iron	
S	Superalloy	
H	Hard material	●ⓒ
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX360
Finishing	**TPGA160302-QBN**	0.2	4.4	1		○					●
	TPGA160304-QBN	0.4	4.2	1		○					●
	TPGA160308-QBN	0.8	4	1		○					●

Tungaloy's standard hole specifi cation (ISO non-compliant)

● : Line up

VB



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

35° Rhombic Positive 5° with hole

K	Cast iron	
S	Superalloy	
H	Hard material	● ●ⓒ
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20
Finishing	**2QP-VBGW110202**	0.2	3.5	2		○					●	●
	2QP-VBGW110204	0.4	3.1	2		○					●	●
	2QP-VBGW110208	0.8	2.2	2		○					●	●

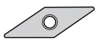
● : Line up

TP In.Toolholder

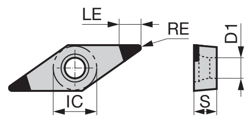
VB In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✤ : Heavy interrupted cutting

VB



35° Rhombic Positive 5° with hole



IC : 6.35 mm
D1 : 2.8 mm
S : 3.18 mm

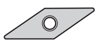
		BXA10	BXA20	BR35F	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
K	Cast iron										
S	Superalloy										
H	Hard material	●	●◐	✤	●	●◐	●	●◐	●	●	●◐
	Sintered metal										

Application	Designation	RE	LE	No. of corners	Wiper	Standard	Burr	Flank wear	Crater wear	Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
Precision finishing	2QP-VBGW110302-LF	0.2	3.5	2			○				●	●								
	2QP-VBGW110302-L		3.5	2				○			●	●								
	2QP-VBGW110304-LF	0.4	3.1	2			○				●	●								
	2QP-VBGW110304-L		3.1	2				○			●	●								
	2QP-VBGW110308-LF	0.8	2.2	2			○				●	●								
	2QP-VBGW110308-L		2.2	2				○			●	●								
Finishing	2QP-VBGW110301	0.1	3.7	2		○					●	●								
	2QP-VBGW110302	0.2	3.5	2		○					●	●								
	2QP-VBGW110302-LC		3.5	2					○		●	●								
	2QP-VBGW110304	0.4	3.1	2		○					●	●		●	●	●	●			
	2QP-VBGW110304SR		3.1	2		○							●							
	2QP-VBMW110304		3.1	2		○												●	●	●
	2QP-VBGW110304-LC		3.1	2					○		●	●								
	2QP-VBGW110308	0.8	2.2	2		○					●	●		●	●	●	●			
	2QP-VBGW110308SR		2.2	2		○							●							
	2QP-VBMW110308		2.2	2		○												●	●	●
	2QP-VBGW110308-LC		2.2	2					○		●	●								

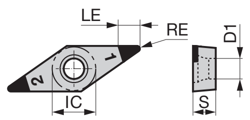
Dimension (mm): RE, LE. Problem: Burr, Flank wear, Crater wear, Chipping.

● : Line up

VB with chipbreaker



35° Rhombic Positive 5° with hole



IC : 6.35 mm
D1 : 2.8 mm
S : 3.18 mm

		BXA10	BXA20	BXM10
K	Cast iron			
S	Superalloy			
H	Hard material	●	●◐	●
	Sintered metal			

Application	Designation	RE	LE	No. of corners	Wiper	Standard	Burr	Flank wear	Crater wear	Chipping	BXA10	BXA20	BXM10
Precision finishing	2QP-VBGT110304-HP	0.4	3	2		○					●	●	●
	2QP-VBGT110304-HS		3	2		○					●	●	
	2QP-VBGT110308-HP	0.8	2.2	2		○					●	●	●
	2QP-VBGT110308-HS		2.2	2		○					●	●	

Dimension (mm): RE, LE. Problem: Burr, Flank wear, Crater wear, Chipping.

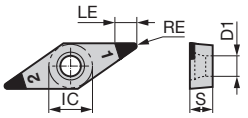
● : Line up

Reference pages : Edge preparation → CBN-6

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

VB



IC : 9.525 mm
D1 : 4.4 mm
S : 4.76 mm

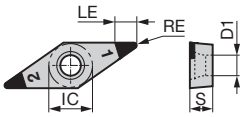
35° Rhombic Positive 5° with hole

K	Cast iron	
S	Superalloy	
H	Hard material	● ◐ ✣ ● ◐ ● ◐ ● ● ◐
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F	BXM10	BXM20	BXA30	BXA40	BX310	BX330	BX360
Precision finishing	2QP-VBGW160402-LF	0.2	3.5	2			○				●	●								
	2QP-VBGW160402-L		3.5	2				○			●	●								
	2QP-VBGW160404-LF	0.4	3.1	2			○				●	●								
	2QP-VBGW160404-L		3.1	2				○			●	●								
	2QP-VBGW160408-LF	0.8	2.2	2			○				●	●								
	2QP-VBGW160408-L		2.2	2				○			●	●								
Finishing	2QP-VBGW160402	0.2	3.5	2		○					●	●								
	2QP-VBGW160402-LC		3.5	2					○		●	●								
	2QP-VBGW160404	0.4	3.1	2		○					●	●		●	●	●	●			
	2QP-VBGW160404SR		3.1	2		○							●							
	2QP-VBMW160404		3.1	2		○												●	●	●
	2QP-VBGW160404-LC		3.1	2					○		●	●								
	2QP-VBGW160408	0.8	2.2	2		○					●	●		●	●	●	●			
	2QP-VBGW160408SR		2.2	2		○							●							
	2QP-VBMW160408		2.2	2		○												●	●	●
	2QP-VBGW160408-LC		2.2	2					○		●	●								
	2QP-VBGW160412	1.2	3	2		○					●	●								
Medium cutting	2QP-VBGW160402-H	0.2	3.5	2						○		●								
	2QP-VBGW160404-H	0.4	3.1	2						○		●								
	2QP-VBGW160404HC		3.1	2						○			●							
	2QP-VBGW160408-H	0.8	2.2	2						○		●								
	2QP-VBGW160408HC		2.2	2						○			●							

● : Line up

VB with chipbreaker



IC : 9.525 mm
D1 : 4.4 mm
S : 4.76 mm

35° Rhombic Positive 5° with hole

K	Cast iron	
S	Superalloy	
H	Hard material	● ◐ ●
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10
Precision finishing	2QP-VBGT160404-HP	0.4	3	2		○					●	●	●
	2QP-VBGT160404-HS		3	2		○					●	●	
	2QP-VBGT160408-HP	0.8	2.2	2		○					●	●	●
	2QP-VBGT160408-HS		2.2	2		○					●	●	

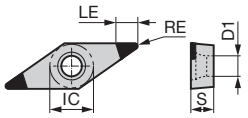
● : Line up

Reference pages : Edge preparation → CBN-6

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

VC



IC : 4.76 mm
D1 : 2.3 mm
S : 2.38 mm

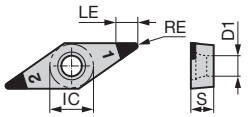
35° Rhombic Positive 7° with hole

K	Cast iron	
S	Superalloy	
H	Hard material	● ◐
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20
Finishing	2QP-VCGW080202	0.2	3.5	2		○					●	●
	2QP-VCGW080204	0.4	3.1	2		○					●	●
	2QP-VCGW080208	0.8	2.2	2		○					●	●

● : Line up

VC



IC : 9.525 mm
D1 : 4.4 mm
S : 4.76 mm

35° Rhombic Positive 7° with hole

K	Cast iron	
S	Superalloy	
H	Hard material	● ◐ ● ◐ ● ● ◐
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10	BXM20	BXA40	BX330	BX360
Finishing	2QP-VCGW160402	0.2	3.5	2		○					●	●					
	2QP-VCGW160404	0.4	3.1	2		○					●	●	●	●	●		
	2QP-VCMW160404		3.1	2		○										●	●
	2QP-VCGW160408	0.8	2.2	2		○					●	●					
Medium cutting	2QP-VCGW160402-H	0.2	3.5	2						○	●	●					
	2QP-VCGW160404-H	0.4	3.1	2						○	●	●					
	2QP-VCGW160408-H	0.8	2.2	2						○	●	●					

● : Line up

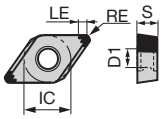
Reference pages : Edge preparation → CBN-6

Ex.Toolholder

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

DX



IC : 6.35 mm
D1 : 2.7 mm
S : 3.18 mm

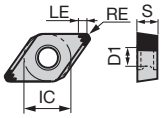
55° Rhombic with hole

		BXA10	BXA20	BR35F
K	Cast iron			
S	Superalloy			
H	Hard material	●	◐	✣
	Sintered metal			

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F
Finishing	4QS-DXGQ070302SPR	0.2	2.1	4		○					●	●	●
	4QS-DXGQ070302SPL		2.1	4		○					●	●	●
	4QS-DXGQ070304SPR	0.4	1.9	4		○					●	●	●
	4QS-DXGQ070304SPL		1.9	4		○					●	●	●
	4QS-DXGQ070308SPR	0.8	1.6	4		○					●	●	●
	4QS-DXGQ070308SPL		1.6	4		○					●	●	●

● : Line up

DX with chipbreaker



IC : 6.35 mm
D1 : 2.7 mm
S : 3.18 mm

55° Rhombic with hole

		BXA10	BXA20	BR35F
K	Cast iron			
S	Superalloy			
H	Hard material	●	◐	✣
	Sintered metal			

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BR35F
Precision finishing	4QS-DXGU070304R-HP	0.4	2	4		○					●	●	●
	4QS-DXGU070304L-HP		2	4		○					●	●	●
	4QS-DXGU070308R-HP	0.8	1.6	4		○					●	●	●
	4QS-DXGU070308L-HP		1.6	4		○					●	●	●

● : Line up

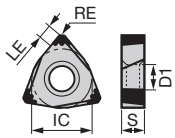
Reference pages : Edge preparation → CBN-6

Ex.Toolholder

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

WX



IC : 6.35 mm
D1 : 2.7 mm
S : 3.18 mm

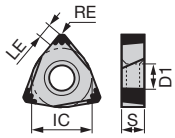
80° Trigon with hole

K	Cast iron	
S	Superalloy	
H	Hard material	● ◐ ✣
	Sintered metal	

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BXA10	BXA20	BR35F
Finishing	6QS-WXGQ040302SPR	0.2	1.8	6		○					●	●	●
	6QS-WXGQ040302SPL		1.8	6		○					●	●	●
	6QS-WXGQ040304SPR	0.4	1.8	6		○					●	●	●
	6QS-WXGQ040304SPL		1.8	6		○					●	●	●
	6QS-WXGQ040308SPR	0.8	1.7	6		○					●	●	●
	6QS-WXGQ040308SPL		1.7	6		○					●	●	●

● : Line up

WX with chipbreaker



IC : 6.35 mm
D1 : 2.7 mm
S : 3.18 mm

80° Trigon with hole

K	Cast iron	
S	Superalloy	
H	Hard material	● ◐ ✣
	Sintered metal	

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BXA10	BXA20	BR35F
Precision finishing	6QS-WXGU040304R-HP	0.4	1.8	6		○					●	●	●
	6QS-WXGU040304L-HP		1.8	6		○					●	●	●
	6QS-WXGU040308R-HP	0.8	1.7	6		○					●	●	●
	6QS-WXGU040308L-HP		1.7	6		○					●	●	●

● : Line up

Reference pages : Edge preparation → CBN-6

Ex.Toolholder

In.Toolholder

TUNGCUT

CHIPBREAKER GUIDE

External profiling of hardened steel

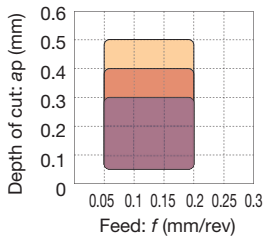
STR type (1 corner)

Full radius type

Profile insert with 3D chipbreaker that delivers excellent chip control during hard part turning.
CW = 3 - 5 mm

Note: This insert is not recommended for use in grooving applications.

Standard feed and DoC



Groove width: CW (mm)
3 4 5

High feed external/internal/face turning of hardened steel

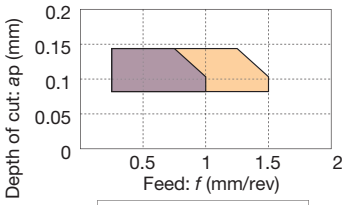
STH type (1 corner)

For high feed turning of hardened steel parts

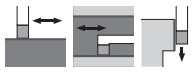
High efficiency machining using light D.O.C. and increased feeds
CW = 3, 5 mm

Note: This insert is not recommended for use in grooving applications.

Standard feed and DoC (for turning)



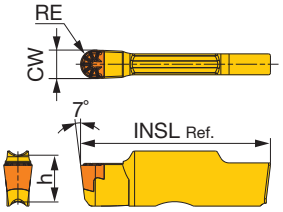
Groove width: CW (mm)
3 5



INSERTS

STR

Profiling



P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloys	
H	Hard materials	★

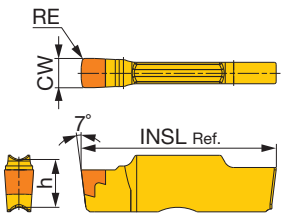
★ : First choice

Designation	Seat size	CW±0.05	RE	CBN BXA10	INSL	h
STR300-HP	3	3	1.5	●	20	5
STR400-HP	4	4	2	●	20	5
STR500-HP	5	5	2.5	●	20	5.5

●: Line up

STH

External and face turning



P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	
S	Superalloys	
H	Hard materials	★

★ : First choice

Designation	Seat size	CW±0.025	RE	CBN BXA10	INSL	h
STH300-SR	3	3	0.3	●	20	5
STH500-SR	5	5	0.3	●	25	5.5

●: Line up

STANDARD CUTTING CONDITIONS

STR

ISO	Workpiece material	Hardness	Priority	Grade	Cutting speed Vc (m/min)
H	External profiling	> 50 HRC	First choice	BXA10	80 - 180

STH

ISO	Grade	CW	Application	Cutting speed Vc (m/min)	Depth of cut ap (mm)	Feed f (mm/rev)
H	BXA10	3	External turning	100 - 230	0.08 - 0.12	0.4 - 1
			Face turning	100 - 230	0.08 - 0.12	0.4 - 0.8
		5	External turning	100 - 230	0.08 - 0.12	0.5 - 1.5
			Face turning	100 - 230	0.08 - 0.12	0.5 - 0.8

CBN Grooving

H Hard Materials

CHIPBREAKER GUIDE

TUNGCUT

External/internal/face grooving and turning of hardened steel

STX type (1 corner)

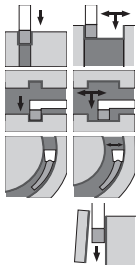
CBN-62

For hardened steel cutting

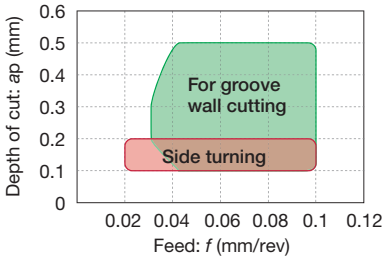
- Grooving insert with 3D chipbreaker for hardened steel parts. Provides excellent chip control
- High tolerance width for finishing

CW = 2 - 5 mm
(Tol. : ±0.025 mm)

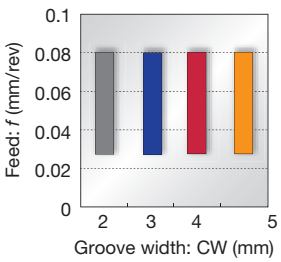
■ Standard feed and DoC



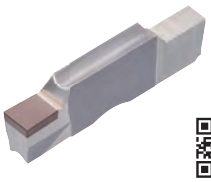
■ For groove wall cutting and side turning



■ For grooving



SGN type (1 corner)



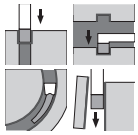
CBN-62

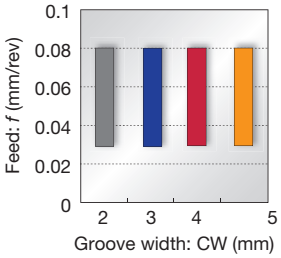
For hardened steel cutting

- Optimum cutting edge shape for grooving of hardened steels
- High tolerance width for finishing

CW = 2 - 5 mm
(Tol. : ±0.025 mm)

■ Standard feed





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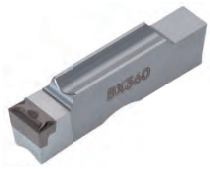
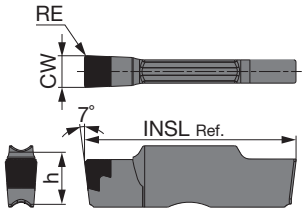
INSERTS

STX

External, face grooving





P	Steel
M	Stainless
K	Cast iron
N	Non-ferrous
S	Superalloys
H	Hard materials ★

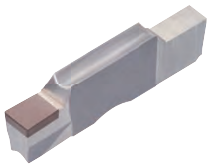
★ : First choice

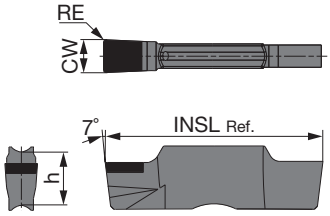
Designation	Seat size	CW±0.025	RE	CBN BX360	INSL	h
STX200-020	2	2	0.2	●	20	5
STX300-020	3	3	0.2	●	20	5
STX400-020	4	4	0.2	●	20	5
STX500-020	5	5	0.2	●	25	5.5

●: Line up

SGN

External grooving





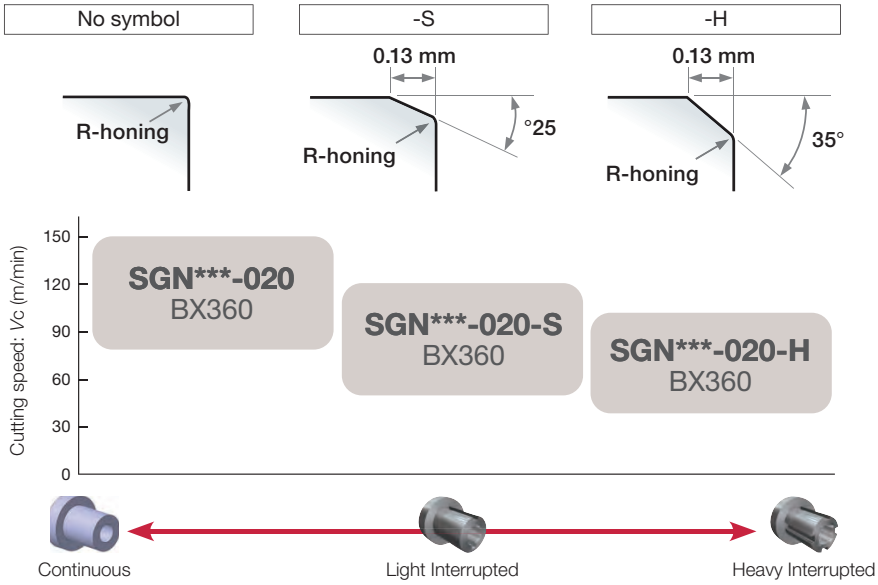
P	Steel
M	Stainless
K	Cast iron
N	Non-ferrous
S	Superalloys
H	Hard materials ★

★ : First choice

Designation	Seat size	CW±0.025	RE	CBN BX360	INSL	h	Condition: Continuous	Light interrupted	Heavy interrupted
SGN200-020	2	2	0.2	●	20	5	○		
SGN200-020-S	2	2	0.2	●	20	5		○	
SGN200-020-H	2	2	0.2	●	20	5			○
SGN300-020	3	3	0.2	●	20	5	○		
SGN300-020-S	3	3	0.2	●	20	5		○	
SGN300-020-H	3	3	0.2	●	20	5			○
SGN400-020	4	4	0.2	●	20	5	○		
SGN400-020-S	4	4	0.2	●	20	5		○	
SGN400-020-H	4	4	0.2	●	20	5			○
SGN500-020-S	5	5	0.2	●	25	5.5		○	
SGN500-020-H	5	5	0.2	●	25	5.5			○

●: Line up

Edge preparations



STANDARD CUTTING CONDITIONS

STX

ISO	Workpiece material	Hardness	Priority	Grade	Cutting speed *Vc* (m/min)
H	External grooving	> 50 HRC	First choice	BX360	80 - 150
	Groove wall cutting				
	Side turning				
	Internal grooving	> 50 HRC	First choice	BX360	80 - 120
	Face grooving				

SGN

ISO	Grade	Edge preparation	Workpiece condition	Cutting speed *Vc* (m/min)	Feed *f* (mm/rev)
H	BX360	No symbol	Continuous	80 - 150	0.03 - 0.08
		-S	Light interrupted	50 - 120	0.03 - 0.08
		-H	Heavy interrupted	40 - 100	0.03 - 0.06

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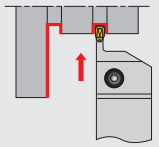
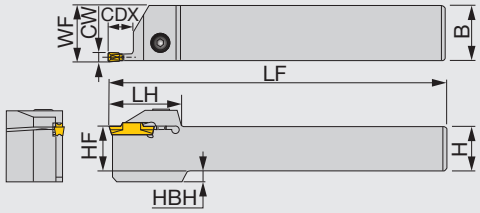
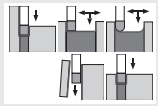
CTER/L

External grooving, parting and turning toolholder







Right hand (R) shown.

Designation	CW	Seat size	CDX	H	B	LF	LH	HF	WF (1)	HBH	Torque*
CTER/L1616-2T08	2	2	8	16	16	110	33	16	16.1	4	5
CTER/L2020-2T08	2	2	8	20	20	125	33	20	20.1	-	5
CTER/L2525-2T08	2	2	8	25	25	150	33	25	25.1	-	5
CTER/L1616-2T12	2	2	12	16	16	110	32	16	16.1	4	5
CTER/L2020-2T12	2	2	12	20	20	125	32	20	20.1	-	5
CTER/L2525-2T12	2	2	12	25	25	150	32	25	25.1	-	5
CTER/L1616-2T17	2	2	17	16	16	110	37	16	16.1	4	5
CTER/L2020-2T17	2	2	17	20	20	125	37	20	20.1	-	5
CTER/L2525-2T17	2	2	17	25	25	150	37	25	25.1	-	5
CTER/L2525-2T20	2	2	20	25	25	150	38.5	25	25.1	-	5
CTER/L1616-3T09	3	3	9	16	16	110	32	16	16.3	4	5
CTER/L2020-3T09	3	3	9	20	20	125	32	20	20.3	-	5
CTER/L2525-3T09	3	3	9	25	25	150	32	25	25.3	-	5
CTER/L1616-3T12	3	3	12	16	16	110	32	16	16.3	4	5
CTER/L2020-3T12	3	3	12	20	20	125	32	20	20.3	-	5
CTER/L2525-3T12	3	3	12	25	25	150	32	25	25.3	-	5
CTER/L1616-3T20	3	3	20	16	16	110	38.5	16	16.3	4	5
CTER/L2020-3T20	3	3	20	20	20	125	38.5	20	20.3	-	5
CTER/L2525-3T20	3	3	20	25	25	150	38.5	25	25.3	-	5
CTER/L2525-3T25	3	3	25	25	25	150	44.5	25	25.3	-	5
CTER/L1616-4T10	4	4	10	16	16	110	32	16	16.5	4	8.5
CTER/L2020-4T10	4	4	10	20	20	125	32	20	20.5	-	8.5
CTER/L2525-4T10	4	4	10	25	25	150	32	25	25.5	-	8.5
CTER/L2020-4T15	4	4	15	20	20	125	33	20	20.5	-	8.5
CTER/L2525-4T15	4	4	15	25	25	150	33	25	25.5	-	8.5
CTER/L1616-4T25	4	4	25	16	16	110	45	16	16.5	4	8.5
CTER/L2020-4T25	4	4	25	20	20	125	45	20	20.5	-	8.5
CTER/L2525-4T25	4	4	25	25	25	150	45	25	25.5	-	8.5
CTER/L3232-4T25	4	4	25	32	32	170	45	32	32.5	-	8.5
CTER/L2020-5T12	5	5	12	20	20	125	37	20	20.6	-	8.5
CTER/L2525-5T12	5	5	12	25	25	150	37	25	25.6	-	8.5
CTER/L2525-5T17	5	5	17	25	25	150	37	25	25.6	-	8.5
CTER/L2525-5T20	5	5	20	25	25	150	37	25	25.6	-	8.5
CTER/L2525-5T32	5	5	32	25	25	150	56	25	25.6	-	8.5
CTER/L3232-5T32	5	5	32	32	32	170	56	32	32.6	-	8.5
CTER/L2020-6T12	6	6	12	20	20	125	37	20	20.6	-	12
CTER/L2525-6T12	6	6	12	25	25	150	37	25	25.6	7	12
CTER/L2525-6T16	6	6	16	25	25	150	39	25	25.6	7	12
CTER/L2525-6T20	6	6	20	25	25	150	41	25	25.6	7	12
CTER/L2525-6T25	6	6	25	25	25	150	47	25	25.6	7	12
CTER/L2525-6T32	6	6	32	25	25	150	56	25	25.6	7	12
CTER/L3232-6T32	6	6	32	32	32	170	56	32	32.6	-	12
CTER/L2525-8T16	8	8	16	25	25	150	47	25	26.1	7	12
CTER/L2525-8T25	8	8	25	25	25	150	47	25	26.1	7	12
CTER/L3232-8T25	8	8	25	32	32	170	47	32	33.1	-	12
CTER/L3232-8T32	8	8	32	32	32	170	56	32	33.1	-	12
CTER/L2525-8T36	8	8	36	25	25	150	60	25	26.1	7	12
CTER/L3232-8T36	8	8	36	32	32	170	60	32	33.1	-	12

When groove depth is larger than (insert length - 1.5 mm), please use 1-cornered insert.
(1) "WF" value is calculated with groove width "CW" shown in the table.
Torque*: Recommended clamping torque (N·m)

SPARE PARTS

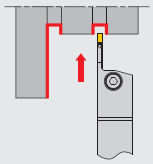

Designation	Clamping screw	Wrench
CTER/L1616-2T08	CM5X0.8X16-A	P-4
CTER/L2020-2T08	CM5X0.8X20-A	P-4
CTER/L2525-2T08	CM5X0.8X25-A	P-4
CTER/L1616-2T12	CM5X0.8X16-A	P-4
CTER/L2020-2T12	CM5X0.8X20-A	P-4
CTER/L2525-2T12	CM5X0.8X25-A	P-4
CTER/L1616-2T17	CM5X0.8X16-A	P-4
CTER/L2020-2T17	CM5X0.8X20-A	P-4
CTER/L2525-2T17	CM5X0.8X25-A	P-4
CTER/L2525-2T20	CM5X0.8X25-A	P-4
CTER/L1616-3T09	CM5X0.8X16-A	P-4
CTER/L2020-3T09	CM5X0.8X20-A	P-4
CTER/L2525-3T09	CM5X0.8X25-A	P-4
CTER/L1616-3T12	CM5X0.8X16-A	P-4
CTER/L2020-3T12	CM5X0.8X20-A	P-4
CTER/L2525-3T12	CM5X0.8X25-A	P-4
CTER/L1616-3T20	CM5X0.8X16-A	P-4
CTER/L2020-3T20	CM5X0.8X20-A	P-4
CTER/L2525-3T20	CM5X0.8X25-A	P-4
CTER/L2525-3T25	CM5X0.8X25-A	P-4
CTER/L1616-4T10	CM6X1X16-A	P-5
CTER/L2020-4T10	CM6X1X20-A	P-5
CTER/L2525-4T10	CM6X1X25-A	P-5
CTER/L2020-4T15	CM6X1X20-A	P-5
CTER/L2525-4T15	CM6X1X25-A	P-5
CTER/L1616-4T25	CM6X1X16-A	P-5
CTER/L2020-4T25	CM6X1X20-A	P-5
CTER/L2525-4T25	CM6X1X25-A	P-5
CTER/L3232-4T25	CM6X1X25-A	P-5
CTER/L2020-5T12	CM6X1X20-A	P-5
CTER/L2525-5T12	CM6X1X25-A	P-5
CTER/L2525-5T17	CM6X1X25-A	P-5
CTER/L2525-5T20	CM6X1X25-A	P-5
CTER/L2525-5T32	CM6X1X25-A	P-5
CTER/L3232-5T32	CM6X1X25-A	P-5
CTER/L2020-6T12	CM8X1.25X20-A	P-6
CTER/L2525-6T12	CM8X1.25X25-A	P-6
CTER/L2525-6T16	CM8X1.25X25-A	P-6
CTER/L2525-6T20	CM8X1.25X25-A	P-6
CTER/L2525-6T25	CM8X1.25X25-A	P-6
CTER/L2525-6T32	CM8X1.25X25-A	P-6
CTER/L3232-6T32	CM8X1.25X25-A	P-6
CTER/L2525-8T16	CM8X1.25X25-A	P-6
CTER/L2525-8T25	CM8X1.25X25-A	P-6
CTER/L3232-8T25	CM8X1.25X25-A	P-6
CTER/L3232-8T32	CM8X1.25X25-A	P-6
CTER/L2525-8T36	CM8X1.25X25-A	P-6
CTER/L3232-8T36	CM8X1.25X25-A	P-6

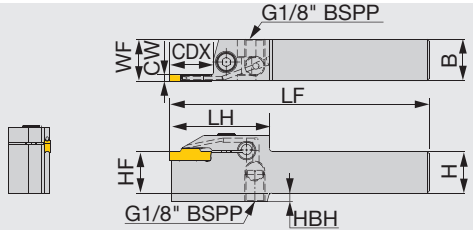
TUNGCUT

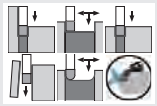
CTER/L-CHP

Tube connection

External grooving and parting toolholder, with high pressure coolant capability







Right hand (R) shown.

Designation	CW	Seat size	CDX	H	B	LF	LH	HF	WF (1)	HBH	Torque*
CTER/L2020-2T17-CHP	2	2	17	20	20	125	45	20	20.1	4	5.5
CTER/L2525-2T17-CHP	2	2	17	25	25	150	45	25	25.1	-	5.5
CTER/L2020-3T20-CHP	3	3	20	20	20	125	48	20	20.3	4	5.5
CTER/L2525-3T20-CHP	3	3	20	25	25	150	48	25	25.3	-	5.5
CTER/L2525-3T25-CHP	3	3	25	25	25	150	51	25	25.3	-	5.5
CTER/L2525-4T25-CHP	4	4	25	25	25	150	55	25	25.5	-	8
CTER/L2525-5T20-CHP	5	5	20	25	25	150	49	25	25.58	-	8
CTER/L2525-6T20-CHP	6	6	20	25	25	150	52	25	25.58	7	12

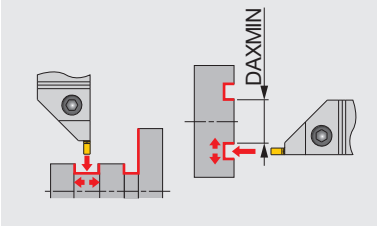
When groove depth is larger than (insert length - 1.5 mm), please use 1-cornered insert.
(1) "WF" value is calculated with groove width "CW" shown in the table.
Torque*: Recommended clamping torque (N·m)

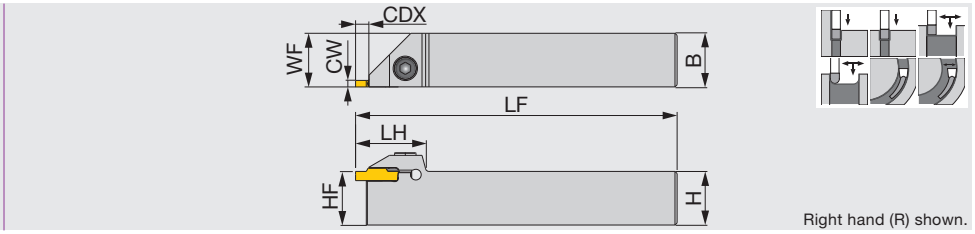
SPARE PARTS

Designation	Clamping screw	Wrench
CTER/L2020-2T17-CHP	CM5x0.8x20-A	P-4
CTER/L2525-2T17-CHP	CM5x0.8x25-A	P-4
CTER/L2020-3T20-CHP	CM5x0.8x20-A	P-4
CTER/L2525-3T20-CHP	CM5x0.8x25-A	P-4
CTER/L2525-3T25-CHP	CM5x0.8x25-A	P-4
CTER/L2525-4T25-CHP	CM6x1x16-A	P-5
CTER/L2525-5T20-CHP	CM6x1x16-A	P-5
CTER/L2525-6T20-CHP	CM8x1.25x20-A	P-6

CTEFR/L

External face grooving and turning toolholder





Designation	CW	Seat size	CDX	H	B	LF	LH	HF	WF (1)	Torque*
CTEFR/L2020-4T04	4	2, 3, 4	4.8	20	20	125	33	20	20.5	8.5
CTEFR/L2525-4T04	4	2, 3, 4	4.8	25	25	150	33	25	25.5	8.5
CTEFR/L2020-6T04	6	5, 6	4.8	20	20	125	37	20	20.6	8.5
CTEFR/L2525-6T04	6	5, 6	4.8	25	25	150	37	25	25.6	8.5

Use the right-hand insert for the right-hand holder with DTF insert.
(1) "WF" value is calculated with groove width "CW" shown in the table.
Torque*: Recommended clamping torque (N·m)

SPARE PARTS


Designation	Clamping screw	Wrench
CTEFR/L2020-4T04	CM6X1X20-A	P-5
CTEFR/L2525-4T04	CM6X1X25-A	P-5
CTEFR/L2020-6T04	CM6X1X20-A	P-5
CTEFR/L2525-6T04	CM6X1X25-A	P-5

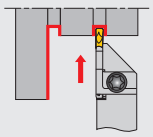
Insert	Groove width CW	Face grooving Min. machining dia. DAXMIN
DGM / DGS / SGN / DGL	2	295
DGM / DGS / SGN / DGL	3	92
DGM / DGS / SGN / DGL	4	37
DGM / DGS / SGN / DGL	5	60
DGM / DGS / DGL	6	57
DTX / DTM / DTR	2	295
DTE / DGG / DTM	3	62
DTE / DGG / DTM	4	42
DTE / DGG / DTM	5	64
DTE / DGG / DTM	6	61

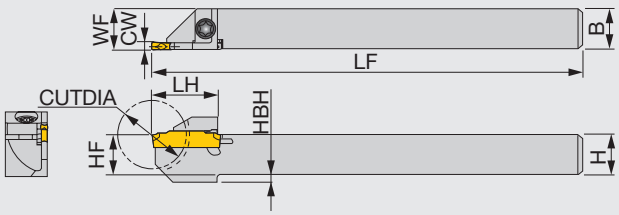
Insert	Groove width CW	Face grooving Min. machining dia. DAXMIN
DTR	3	44
DTR	4	32
DTR	5	48
DTR	6	48
DTX	3	22
DTX	4	20
DTX	5	20
DTX	6	23
DTF	3	20
DTF	4	20

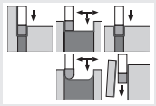
TUNGCUT

JCTER/L

External grooving and parting toolholder, for Swiss lathes







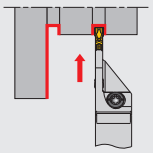
Right hand (R) shown.

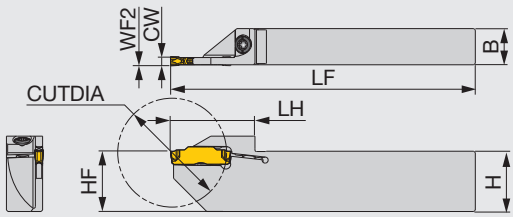
Designation	CW	Seat size	CUTDIA	H	B	LF	LH	HF	WF(1)	HBH	Torque*
JCTER/L1010X1.4T10	1.4	1	20	10	10	120	18	10	10.2	-	3
JCTER/L1212F1.4T12	1.4	1	24	12	12	85	19.5	12	12.2	-	3
JCTER/L1212X1.4T12	1.4	1	24	12	12	120	19.5	12	12.2	-	3
JCTER/L1414-1.4T12	1.4	1	24	14	14	125	19.5	14	14.2	-	3
JCTER/L1616X1.4T16	1.4	1	32	16	16	120	24	16	16.2	-	3
JCTER/L1010X2T10	2	2	20	10	10	120	19	10	10.1	2	3
JCTER/L1212F2T12	2	2	24	12	12	85	19	12	12.1	2	3
JCTER/L1212X2T12	2	2	24	12	12	120	19	12	12.1	2	3
JCTER/L1414-2T12	2	2	24	14	14	125	19	14	14.1	-	3
JCTER/L1616X2T16	2	2	32	16	16	120	24	16	16.1	-	3
JCTER/L1212F3T12	3	3	24	12	12	85	19	12	12.3	2	3
JCTER/L1212X3T12	3	3	24	12	12	120	19	12	12.3	2	3
JCTER/L1616X3T16	3	3	32	16	16	120	24	16	16.3	-	3
JCTER/L2020H3T16	3	3	32	20	20	100	24	20	20.3	-	3

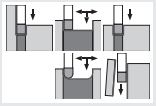
(1) "WF" value is calculated with groove width "CW" shown in the table.
Torque*: Recommended clamping torque (N·m)

JCTER/L2012

External grooving and parting toolholder, for Swiss lathes, with 20 mm shank height







Right hand (R) shown.

Designation	CW	Seat size	CUTDIA	H	B	LF	LH	HF	WF2(1)	Torque*
JCTER/L2012H2T18	2	2	36	20	12	100	25	20	0.1	3
JCTER/L2012H3T21	3	3	42	20	12	100	28	20	0.3	3

(1) "WF2" value is calculated with groove width "CW" shown in the table.
Torque*: Recommended clamping torque (N·m)

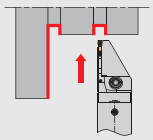
SPARE PARTS

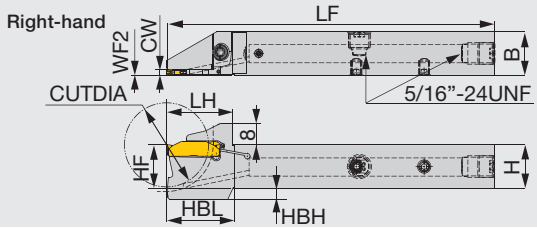
Designation	Clamping screw	Wrench
JCTER/L...	CSHB-4-A	T-15F

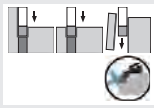
JCTER/L-CHP

Direct connection

External grooving and parting toolholder, with high pressure coolant capability







Designation	CW	Seat size	CUTDIA	H	B	LF	LH	HF	WF2(1)	HBH	HBL	Torque*
JCTER/L1212X2T12-CHP	2	2	25	12	12	120	24.7	12	0/12	5	24.7	3
JCTER/L1616X2T12-CHP	2	2	25	16	16	120	24.7	16	0/16	1	24.5	3
JCTER/L1616X2T16-CHP	2	2	32	16	16	120	24.7	16	0/16	4	24.7	3
JCTER/L2020X2T16-CHP	2	2	32	20	20	120	24.7	20	0/20	-	-	3

(1) "WF2" value is calculated with groove width "CW" shown in the table. The first value before "/" indicates the WF2 for the right-hand holder and the second value after "/" for the left-hand holder.
Torque*: Recommended clamping torque (N·m)

SPARE PARTS

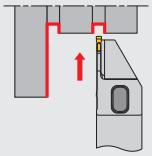


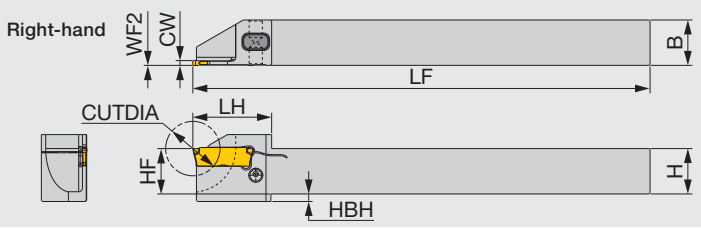


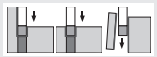

Designation	Clamping screw	Wrench 1	Coolant plug	Wrench 2	DirectJet plug	Wrench 3
JCTER/L...	CSHB-4-A	T-15F	SR5/16UNFTL360	P-4	SSHM4-6-TB	P-2

JTTER/L

External grooving and parting toolholder, for Swiss lathes







Designation	CW	Seat size	CUTDIA	H	B	LF	LH	HF	WF2(1)	HBH	Torque*
JTTER/L1010H1.2D12	1.2	0.9	12	10	10	100	17	10	0/10	-	1.5
JTTER/L1212F1.2D16	1.2	0.9	16	12	12	85	19	12	0/12	-	1.5
JTTER/L1212X1.2D16	1.2	0.9	16	12	12	120	19	12	0/12	-	1.5
JTTER/L1212X1.2D20	1.2	0.9	20	12	12	120	21	12	0/12	2	1.5
JTTER/L1616X1.2D20	1.2	0.9	20	16	16	120	21	16	0/16	-	2

(1) "WF2" value is calculated with groove width "CW" shown in the table. The first value before "/" indicates the WF2 for the right-hand holder and the second value after "/" for the left-hand holder.
Torque*: Recommended clamping torque (N·m)

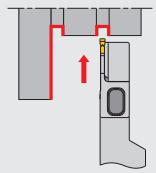
SPARE PARTS

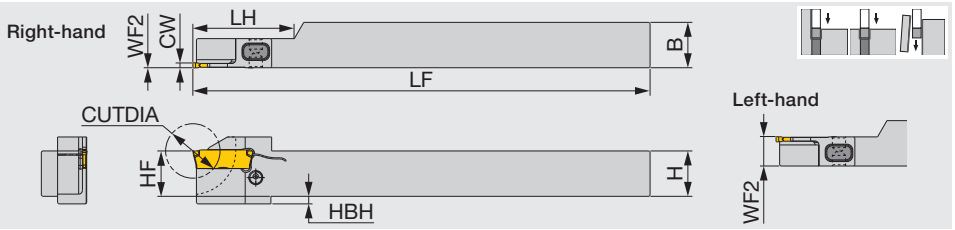


Designation	Clamping screw	Clamping pin	Wrench
JTTER/L1010...	SSM3.5x0.35	PIN-SL-TC	P-2F
JTTER/L1212...	SSM3.5x0.35	PIN-SL-TC	P-2F
JTTER/L1616...	SRM5-24145-RL	PIN-32121	P-2.5F

TUNGCUT
JTTER/L-S

External grooving and parting toolholder, for Swiss lathes (for sub spindle)





Designation	CW	Seat size	CUTDIA	H	B	LF	LH	HF	WF2(1)	HBH	Torque*
JTTER/L1010H1.2D12-S	1.2	0.9	12	10	10	100	22.8	10	0/7.7	-	1.5
JTTER1212F1.2D16-S (2)	1.2	0.9	16	12	12	85	22.8	12	0	-	1.5
JTTER/L1212X1.2D16-S	1.2	0.9	16	12	12	120	26.8	12	0/7.7	-	1.5
JTTER/L1212X1.2D20-S	1.2	0.9	20	12	12	120	26.8	12	0/7.7	2	1.5
JTTER/L1616X1.2D20-S	1.2	0.9	20	16	16	120	26.8	16	0/7.7	-	1.5

(1) "WF2" value is calculated with groove width "CW" shown in the table. The first value before "/" indicates the WF2 for the right-hand holder and the second value after "/" for the left-hand holder.
(2) No clamping screw from the insert side.
Torque*: Recommended clamping torque (N·m)

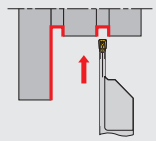
SPARE PARTS

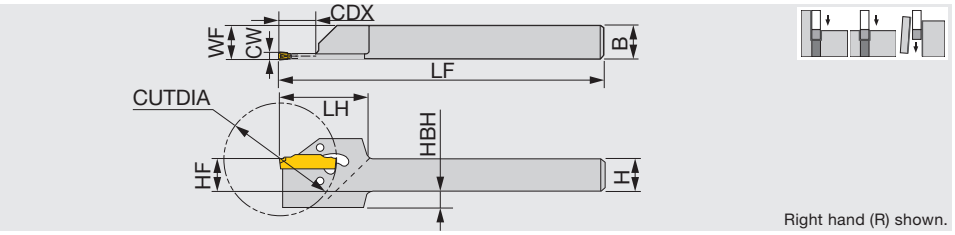


Designation	Clamping screw	Clamping pin	Wrench
JTTER/L**-S	SSM3.5x0.35	PIN-SL-TC	P-2F

CGER/L

External deep grooving and parting toolholder, for Swiss lathes





Right hand (R) shown.

Designation	CW	Seat size	CUTDIA(1)	CDX	H	B	LF	LH	HF	WF (2)	HBH
CGER/L2020-1.4T14	1.4	1	29/29	9.7	20	20	125	31	20	20.2	-
CGER/L1212-2T17	2	2	35/35	11.8	12	12	150	31	12	12.1	6
CGER/L1616-2T17	2	2	35/35	11.8	16	16	150	31	16	16.1	2
CGER/L2020-2T17	2	2	35/35	9.8	20	20	125	31	20	20.1	-
CGER/L1212-3T19	3	3	38/40	12	12	12	150	31	12	12.3	6
CGER/L1616-3T19	3	3	38/45	14.9	16	16	150	31	16	16.3	2
CGER/L2020-3T19	3	3	38/45	13.2	20	20	125	31	20	20.3	-
CGER/L2020-4T19	4	4	38/55	20.3	20	20	125	33	20	20.4	-

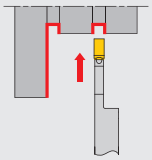
Wrench (CRW**) is not included. Please order it separately. Insert is clamped by the elastic deformation of the upper jaw.
(1) DG*/SG* maximum parting diameter will depend on the insert.
(2) "WF" value is calculated with groove width "CW" shown in the table.

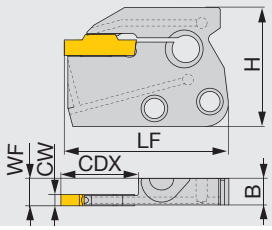
SPARE PARTS

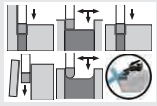
Designation	Wrench (Option)
CGER/L2020-1.4T14	CRW23
CGER/L***-2T17 - 4T19	CRW33

CAER/L-CHP

External grooving and parting adapter, with high pressure coolant capability







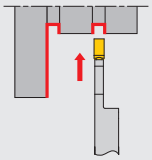
Right hand (R) shown.

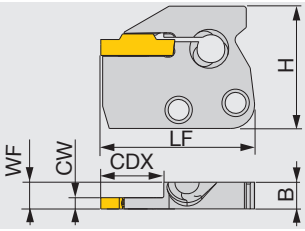
Designation	CW	Seat size	CDX	H	B	LF	WF (1)
CAER/L-2T16-CHP	2	2	16	33	7.2	41.5	7.3
CAER/L-2T20-CHP	2	2	20	33	7.2	45.5	7.3
CAER/L-3T16-CHP	3	3	16	33	7.2	41.5	7.4
CAER/L-3T20-CHP	3	3	20	33	7.2	45.5	7.5
CAER/L-4T16-CHP	4	4	16	33	7.2	41.5	7.7
CAER/L-4T20-CHP	4	4	20	33	7.2	45.5	7.7
CAER/L-5T20-CHP	5	5	20	33	7.2	46.3	7.8
CAER/L-6T20-CHP	6	6	20	33	7.2	46.3	7.8
CAER/L-8T25-CHP	8	8	25	33	7.2	51.1	8.3

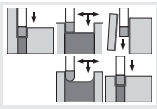
When groove depth is larger than (insert length - 1.5 mm), please use 1-cornered insert.
(1) WF is calculated with the groove width (CW) in the above table.

CAER/L-MD

External grooving and parting adapter







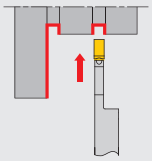
Right hand (R) shown.

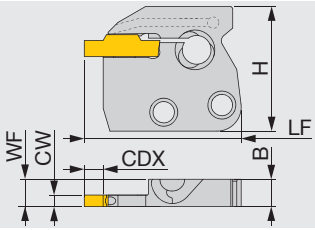
Designation	CW	Seat size	CDX	H	B	LF	WF (1)
CAER/L-2T16-MD	2	2	16	33	7.2	41.5	7.3
CAER/L-3T16-MD	3	3	16	33	7.2	41.5	7.4
CAER/L-4T16-MD	4	4	16	33	7.2	41.5	7.7
CAER/L-5T20-MD	5	5	20	33	7.2	46.3	7.8
CAER/L-6T20-MD	6	6	20	33	7.2	46.3	7.8
CAER/L-8T25-MD	8	8	25	33	7.2	51.1	8.3

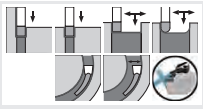
(1) WF is calculated with the groove width (CW) in the above table.

CAEFR/L-CHP

Face and external grooving adapter, with high pressure coolant capability







Right hand (R) shown.

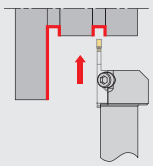
Designation	CW	Seat size	CDX	H	B	LF	WF (1)
CAEFR/L-4T04-CHP	4	2,3,4	4.8	33	7.2	41.5	7.7
CAEFR/L-6T04-CHP	6	5,6	4.8	33	7.2	46.3	7.8

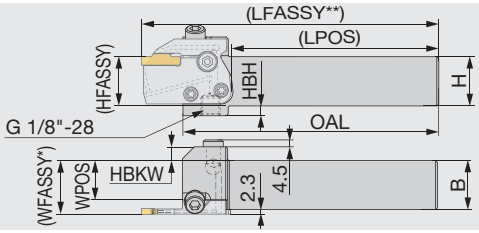
Use the right-hand insert for the right-hand holder with DTF insert.
(1) "WF" value is calculated with groove width "CW" shown in the table.

CHSR/L-CHP

Tube connection

Shank for adapter, with high pressure coolant capability





Right hand (R)
with right-hand adapter shown.

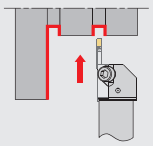
Designation	H	B	OAL	LPOS	WPOS	HBKW	HFASSY	HBH	Adapter (Option)	Torque*
CHSR/L2020-CHP	20	20	130	105.5	15.1	12	20	10	CAE*R/L**-CHP, -MD	6.5
CHSR/L2525-CHP	25	25	130	105.5	20.1	7	25	5	CAE*R/L**-CHP, -MD	6.5

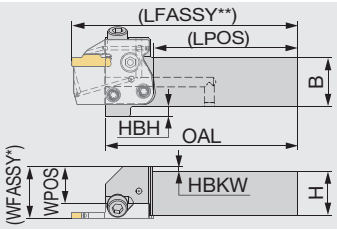
WFASSY* : Shank (WPOS) + adapter (WF)
LFASSY** : Shank (LPOS) + adapter (LF)
Depend on the adapter type, the value of LFASSY or WFASSY may change.
Torque*: Recommended clamping torque (N·m)
Applicable for 30 MPa coolant
Please see Tungaloy General catalog vol.5 page L053 for instructions on installing and removing the adapter or the insert.

CHSR/L-CHP-MC

Direct connection

Shank for adapter, with high pressure coolant capability





Right hand (R)
with right-hand adapter shown.

Designation	H	B	OAL	LPOS	WPOS	HBKW	HBH	Adapter (Option)	Torque*
CHSR/L2020-CHP-MC	20	20	98	73.5	14	6	10	CAE*R/L**-CHP, -MD	6.5
CHSR/L2525-CHP-MC	25	25	98	73.5	19	-	5	CAE*R/L**-CHP, -MD	6.5

WFASSY* : Shank (WPOS) + adapter (WF)
LFASSY** : Shank (LPOS) + adapter (LF)
Depend on the adapter type, the value of LFASSY or WFASSY may change.
Torque*: Recommended clamping torque (N·m)
Applicable for 30 MPa coolant
Please see Tungaloy General catalog vol.5 page L053 for instructions on installing and removing the adapter or the insert.

SPARE PARTS







Designation	Clamping screw 1	Wrench 1	Clamping screw 2	Clamping screw 3	Wrench 2	O-ring	Plug
CHSR/L**-CHP	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N	PLUGG1/8ISO1179
CHSR/L**-CHP-MC	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N	-

Recommended clamping torque (N·m)

Clamping screw	Torque (N·m)
SR M5-04451	2.5
SR M6X12DIN6912	6.5
SR M6X20-XT	6.5

Combination of adapter and shank

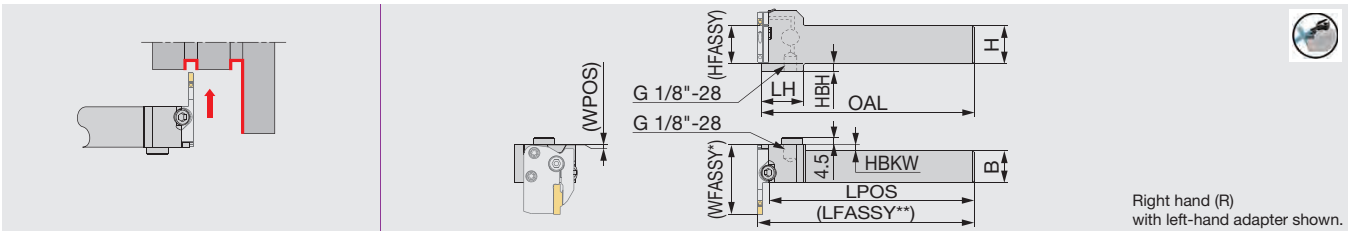
Shank	External grooving adapter		Face grooving adapter		External and face grooving adapter	
	CAER**-CHP, -MD	CAEL**-CHP, -MD	CAFR**-CHP	CAFL**-CHP	CAEFR**-CHP	CAEFL**-CHP
CHSR**-CHP (-MC)	●			●	●	
CHSL**-CHP (-MC)		●	●			●

● : Corresponding

CHFVR/L-CHP

Tube connection

Shank for perpendicularly-mounted adapter, with high pressure coolant capability



Designation	H	B	OAL	LH	LPOS	WPOS	HBKW	HFASSY	HBH	Adapter (Option)	Torque*
CHFVR/L2020-CHP	20	20	140	28	135.1	0.5	5	20	10	CAE*L/R**-CHP, -MD	6.5
CHFVR/L2525-CHP	25	25	140	28	135.1	0.5	0	25	5	CAE*L/R**-CHP, -MD	6.5

WFASSY* : Shank (WPOS) + adapter (LF)
LFASSY** : Shank (LPOS) + adapter (WF)
Depend on the adapter type, the value of LFASSY or WFASSY may change.
Torque*: Recommended clamping torque (N·m)
Applicable for 30 MPa coolant
Please see Tungaloy General catalog vol.5 page L053 for instructions on installing and removing the adapter or the insert.

SPARE PARTS

Designation	Clamping screw 1	Wrench 1	Clamping screw 2	Clamping screw 3	Wrench 2	O-ring	Plug
CHFVR/L...	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N	PLUGG1/8ISO1179

Recommended clamping torque (N·m)

Clamping screw	Torque (N·m)
SR M5-04451	2.5
SR M6X12DIN6912	6.5
SR M6X20-XT	6.5

Combination of adapter and shank

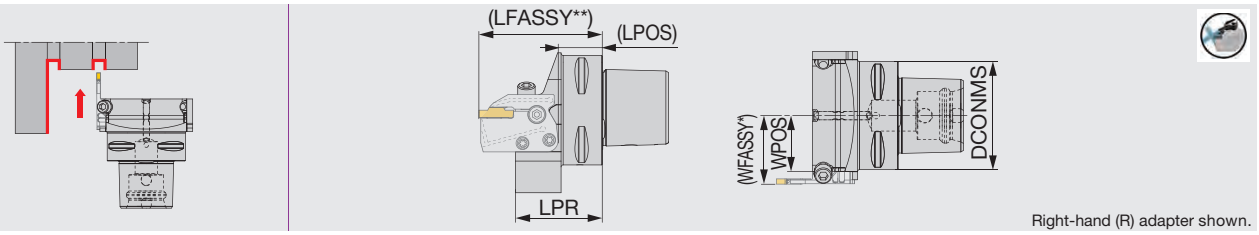
Shank	External grooving adapter		Face grooving adapter		External and face grooving adapter	
	CAER**-CHP, -MD	CAEL**-CHP, -MD	CAFR**-CHP	CAFL**-CHP	CAEFR**-CHP	CAEFL**-CHP
CHFVR**-CHP		●	●			●
CHFVL**-CHP	●			●	●	

● : Corresponding

TUNGCUT
C*CHSN-CHP

Direct connection

Toolholder with TungCap connection, for adapter, with high pressure coolant capability



Right-hand (R) adapter shown.

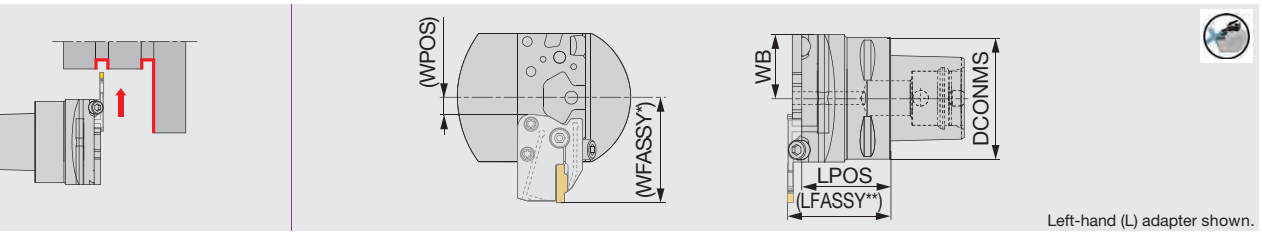
Designation	DCONMS	LPR	LPOS	WPOS	Adapter (Option)	Torque*
C3CHSN19045-CHP	32	45	17.5	18.5	CAE*R/L**-CHP, -MD	6.5
C4CHSN21047-CHP	40	46.5	21.5	21	CAE*R/L**-CHP, -MD	6.5
C5CHSN26047-CHP	50	47	22.5	26	CAE*R/L**-CHP, -MD	6.5
C6CHSN33050-CHP	63	50	24.5	32.5	CAE*R/L**-CHP, -MD	6.5

WFASSY* : Toolholder (WPOS) + adapter (WF)
LFASSY** : Toolholder (LPOS) + adapter (LF)
Depend on the adapter type, the value of LFASSY or WFASSY may change.
Torque*: Recommended clamping torque (N·m)
Applicable for 30 MPa coolant
Please see Tungaloy General catalog vol.5 page L053 for instructions on installing and removing the adapter or the insert.

C*CHFVN-CHP

Direct connection

Toolholder with TungCap connection, for perpendicularly-mounted adapter, with high pressure coolant capability



Left-hand (L) adapter shown.

Designation	DCONMS	LPOS	WB	WPOS	Adapter (Option)	Torque*
C3CHFVN26040-CHP	32	40	26	1.5	CAE*R/L**-CHP, -MD	6.5
C4CHFVN26046-CHP	40	46	26	1.5	CAE*R/L**-CHP, -MD	6.5
C5CHFVN26046-CHP	50	46	26	1.5	CAE*R/L**-CHP, -MD	6.5
C6CHFVN33046-CHP	63	46	33	8.5	CAE*R/L**-CHP, -MD	6.5

WFASSY* : Toolholder (WPOS) + adapter (LF)
LFASSY** : Toolholder (LPOS) + adapter (WF)
Depend on the adapter type, the value of LFASSY or WFASSY may change.
Torque*: Recommended clamping torque (N·m)
Applicable for 30 MPa coolant
Please see Tungaloy General catalog vol.5 page L053 for instructions on installing and removing the adapter or the insert.

SPARE PARTS

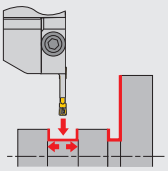
Designation	Clamping screw 1	Wrench 1	Clamping screw 2	Clamping screw 3	Wrench 2	O-ring
C*CH**N**-CHP	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N

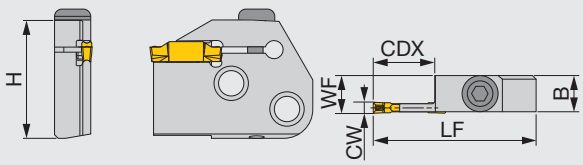
Recommended clamping torque (N·m)

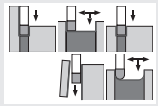
Clamping screw	Torque (N·m)
SR M5-04451	2.5
SR M6X12DIN6912	6.5
SR M6X20-XT	6.5

CAER/L

External grooving, parting and turning adapter







Right hand (R) shown.

Designation	CW	Seat size	CDX	H	B	LF	WF	Torque*
CAER/L-3T16	3	3	16	32.7	10	45	10.4	5
CAER/L-4T16	4	4	16	32.7	10	45	10.5	5
CAER/L-5T20	5	5	20	32.7	10	49	10.5	5
CAER/L-6T20	6	6	20	32.7	10	49	10.5	5

Torque*: Recommended clamping torque (N·m)
Not compatible with TungModularSystem
When groove depth is larger than insert length - 1.5 mm, please use 1-cornered insert.

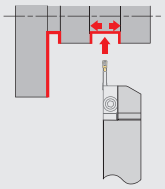
SPARE PARTS

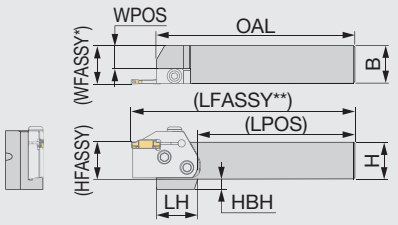
Designation	Clamping screw	Wrench
CAER/L...	BHM6-20-A	P-4

TUNGCUT

CHSR/L

Shank for adapter





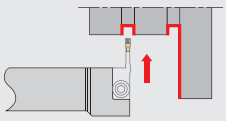
Right hand (R)
with right-hand adapter shown.

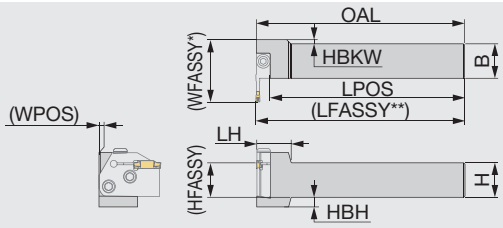
Designation	H	B	OAL	LPOS	LH	WPOS	HFASSY	HBH	Adapter (Option)
CHSR/L2020	20	20	133	105	35	10	20	12	CAER/L...
CHSR/L2525	25	25	133	105	28	15	25	7	CAER/L...
CHSR/L3232	32	32	153	125	-	22	32	-	CAER/L...

WFASSY* : Shank (WPOS) + adapter (WF)
LFASSY** : Shank (LPOS) + adapter (LF)
Depend on the adapter type, the value of LFASSY or WFASSY may change.
Not compatible with TungModularSystem

CHFVR/L

Shank for adapter, perpendicularly mounted





Right hand (R)
with left-hand adapter shown.

Designation	H	B	OAL	LPOS	LH	WPOS	HBKW	HFASSY	HBH	Adapter (Option)
CHFVR/L2020	20	20	150	140	25	0	8	20	12	CAEL/R...
CHFVR/L2525	25	25	150	140	25	0	3	25	7	CAEL/R...
CHFVR/L3232	32	32	170	160	25	4	-	32	-	CAEL/R...

WFASSY* : Shank (WPOS) + adapter (LF)
LFASSY** : Shank (LPOS) + adapter (WF)
Depend on the adapter type, the value of LFASSY or WFASSY may change.
Not compatible with TungModularSystem

SPARE PARTS

Designation	Clamping screw	Wrench
CH**R/L...	CSHB-6-A	P-4

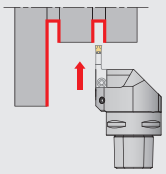
Combination of adapter and shank

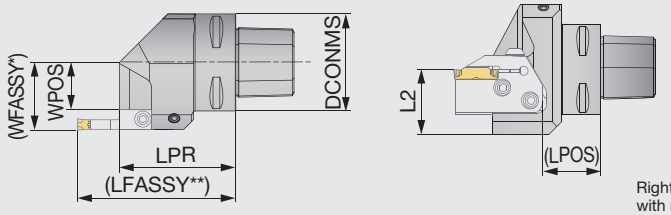
Shank	External grooving adapter		Face grooving adapter	
	CAER...	CAEL...	CAFR...	CAFL...
CHSR...	●			●
CHSL...		●	●	
CHFVR...		●	●	
CHFVL...	●			●

● : Corresponding

C-CHSR/L

Toolholder with TungCap connection for adapter





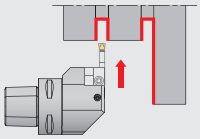
Right hand (R)
with right-hand adapter shown.

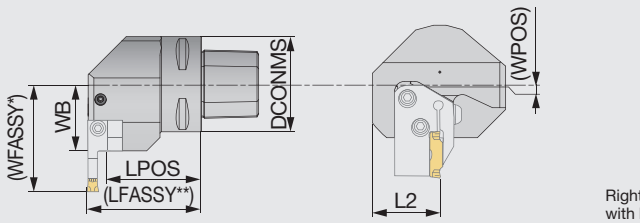
Designation	DCONMS	LPR	LPOS	L2	WPOS	Adapter (Option)
C3CHSR/L22050N	32	50	22.1	35	11.5	CAER/L...
C4CHSR/L27050N	40	50	22.1	36	16.5	CAER/L...
C5CHSR/L35060N	50	60	32.1	36	24.5	CAER/L...
C6CHSR/L45065N	63	65	32.1	41	34.5	CAER/L...

WFASSY* : Toolholder (WPOS) + adapter (WF)
LFASSY** : Toolholder (LPOS) + adapter (LF)
Depend on the adapter type, the value of LFASSY or WFASSY may change. If needed, the coolant direction can be adjusted by the nozzle.
Applicable for 7 MPa coolant. Not compatible with TungModularSystem.

C-CHFVR/L

Toolholder with TungCap connection for adapter, perpendicularly mounted





Right hand (R)
with left-hand adapter shown.

Designation	DCONMS	LPOS	L2	WB	WPOS	Adapter (Option)
C3CHFVR/L22040N	32	32.5	35	22	-5.9	CAEL/R...
C4CHFVR/L27050N	40	42.5	36	27	-0.9	CAEL/R...
C5CHFVR/L35060N	50	49.5	36	35	7.1	CAEL/R...
C6CHFVR/L45065N	63	54.5	41	45	17.1	CAEL/R...

WFASSY* : Toolholder (WPOS) + adapter (LF)
LFASSY** : Toolholder (LPOS) + adapter (WF)
Depend on the adapter type, the value of LFASSY or WFASSY may change. If needed, the coolant direction can be adjusted by the nozzle.
Applicable for 7 MPa coolant. Not compatible with TungModularSystem.

SPARE PARTS

Designation	Coolant parts	Clamping screw	Wrench
C3CH**R/L...	SATZ-M8X1-M3	CSHB-6-A	P-4
C4CH**R/L...	SATZ-M8X1-M3	CSHB-6-A	P-4
C5CH**R/L...	SATZ-M10X1-M5	CSHB-6-A	P-4
C6CH**R/L...	SATZ-M10X1-M5	CSHB-6-A	P-4

Combination of adapter and toolholder

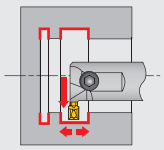
Toolholder	External grooving adapter		Face grooving adapter	
	CAER...	CAEL...	CAFR...	CAFL...
C*CHSR...	●			●
C*CHSL...		●	●	
C*CHFVR...		●	●	
C*CHFVL...	●			●

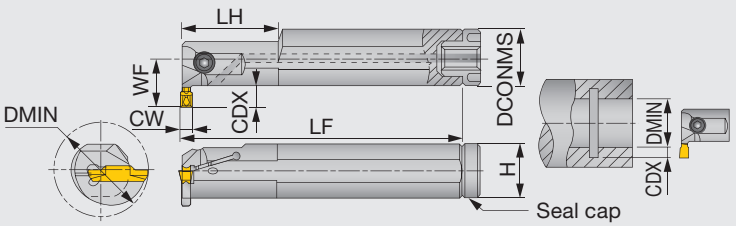
● : Corresponding

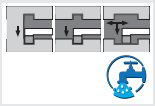
TUNGCUT

CTIR/L

Internal grooving and turning toolholder







Right hand (R) shown.

Designation	CW	DMIN	Seat size	CDX	DCONMS	H	LF (1)	LH	WF	Insert	Torque*
CTIR/L16-2T08-D250	2	25	2	8	16	14	125	-	16.5	DGIM..., DGIS..., DTX...	5
CTIR/L20-2T06-D250	2	25	2	6	20	18	160	40	15.8	DGIM..., DGIS..., DTX...	5
CTIR/L20-3T06-D250	3	25	3	6	20	18	160	40	15.8	DTI..., DTX...	5
CTIR/L25-3T05-D250	3	25	3	5.1	25	23	200	40	17.5	DTI..., DTX...	5
CTIR/L25-3T08-D320	3	32	3	8	25	23	200	40	21.5	DTI..., DTX...	5
CTIR/L32-3T10-D400	3	40	3	10	32	30	250	60	27	DTI..., DTX...	5
CTIR/L20-4T06-D250	4	25	4	6	20	18	160	40	15.8	DTI..., DTX...	5
CTIR/L25-4T08-D320	4	32	4	8	25	23	200	40	21.5	DTI..., DTX...	5
CTIR/L32-4T04-D310	4	31	4	4	32	30	250	60	20.8	DTI..., DTX...	5
CTIR/L32-4T10-D400	4	40	4	10	32	30	250	60	27	DTI..., DTX...	5
CTIR/L25-5T05-D310	5	31	5	5	25	23	200	60	17.3	DTI..., DTX...	8.5
CTIR/L32-5T10-D400	5	40	5	10	32	30	250	60	27	DTI..., DTX...	8.5
CTIR/L32-6T04-D310	6	31	6	4	32	30	250	60	20.8	DTI..., DTX...	8.5
CTIR/L32-6T10-D400	6	40	6	10	32	30	250	60	27	DTI..., DTX...	8.5
CTIR/L32-8T05-D370	8	37	8	5	32	30	250	60	21.3	DTI..., DTX...	8.5
CTIR/L40-8T05-D420	8	42	8	5.8	40	38	300	65	25.8	DTI..., DTX...	8.5

(1) LF is calculated with the groove width CW in the above table.
Torque*: Recommended clamping torque (N·m)

SPARE PARTS



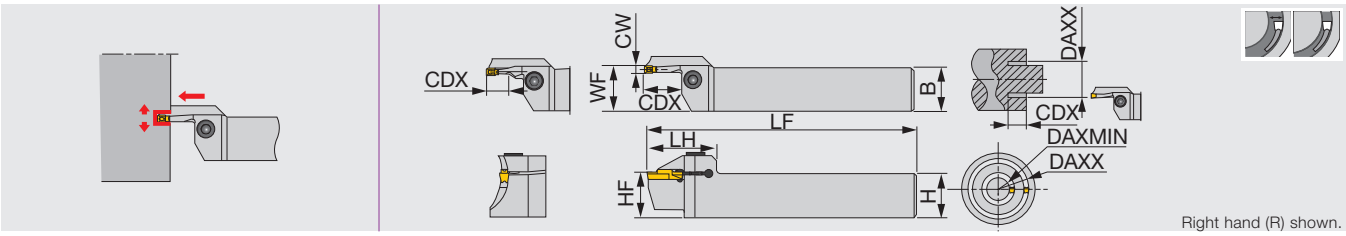
Designation	Clamping screw	Wrench	Seal cap	Thread type for connection
CTIR/L16-2T08-D250	CM5X0.8X10-A	P-4	CA-16	M6
CTIR/L20-2T06-D250	CM5X0.8X12-A	P-4	CA-20	M6
CTIR/L20-3T06-D250	CM5X0.8X12-A	P-4	CA-20	M6
CTIR/L25-3T05-D250	CM5X0.8X16-A	P-4	CA-25	R1/8"
CTIR/L25-3T08-D320	CM5X0.8X16-A	P-4	CA-25	R1/8"
CTIR/L32-3T10-D400	CM5X0.8X16-A	P-4	CA-32	R1/8"
CTIR/L20-4T06-D250	CM5X0.8X12-A	P-4	CA-20	M6
CTIR/L25-4T08-D320	CM5X0.8X16-A	P-4	CA-25	R1/8"
CTIR/L32-4T04-D310	CM5X0.8X16-A	P-4	CA-32	R1/8"
CTIR/L32-4T10-D400	CM5X0.8X16-A	P-4	CA-32	R1/8"
CTIR/L25-5T05-D310	CM6X1X16-A	P-5	CA-25	R1/8"
CTIR/L32-5T10-D400	CM6X1X20-A	P-5	CA-32	R1/8"
CTIR/L32-6T04-D310	CM6X1X20-A	P-5	CA-32	R1/8"
CTIR/L32-6T10-D400	CM6X1X20-A	P-5	CA-32	R1/8"
CTIR/L32-8T05-D370	CM6X1X20-A	P-5	CA-32	R1/8"
CTIR/L40-8T05-D420	CM6X1X25-A	P-5	CA-40	R1/8"

When using the inserts that are not in the above

INSERT	Groove width CW	Min. diameter DMIN
DGM / DGS / SGN / DGL / DTM	2	50
DGM / DGS / SGN / DGL / DTM	3	50
DGM / DGS / SGN / DTM / DGL	4	50
DGM / DGS / DTM / DGL	5	60
DGM / DGS / DTM / DGL	6	60
DGM / DGS / DTM	8	70
DTE / DGG	3	40
DTE / DGG	4	40
DTE / DGG	5	50
DTE / DGG	6	50
DTE / DGG	8	62
DTR	2	45
DTR	3	38
DTR	4	38
DTR	5	43
DTR	6	46
DTR	8	56

CTFR/L

Face grooving and turning toolholder



Designation	CW	DAXMIN	DAXX	Seat size	CDX	H	B	LF	LH	HF	WF (1)	Torque*
CTFR/L2525-3T10-024035	3	24	35	3	10	25	25	150	38	25	25.5	5
CTFR/L2525-3T10-029040	3	29	40	3	10	25	25	150	38	25	25.5	5
CTFR/L2525-3T10-034050	3	34	50	3	10	25	25	150	38	25	25.5	5
CTFR/L2525-3T15-044070	3	44	70	3	15	25	25	150	38	25	25.5	5
CTFR/L2525-3T15-064100	3	64	100	3	15	25	25	150	38	25	25.5	5
CTFR/L2525-4T10-022036	4	22	36	4	10	25	25	150	39	25	25.6	5
CTFR/L2525-4T20-028042	4	28	42	4	20	25	25	150	39	25	25.6	5
CTFR/L2525-4T20-034050	4	34	50	4	20	25	25	150	39	25	25.6	5
CTFR/L2525-4T20-042070	4	42	70	4	20	25	25	150	39	25	25.6	5
CTFR/L2525-4T20-062120	4	62	120	4	20	25	25	150	39	25	25.6	5
CTFR/L2525-4T20-112200	4	112	200	4	20	25	25	150	39	25	25.6	5
CTFR/L2525-5T25-050080	5	50	80	5	25	25	25	150	49	25	25.6	12
CTFR/L2525-5T25-070110	5	70	110	5	25	25	25	150	49	25	25.6	12
CTFR/L2525-5T25-100150	5	100	150	5	25	25	25	150	49	25	25.6	12
CTFR/L2525-5T25-140200	5	140	200	5	25	25	25	150	49	25	25.6	12
CTFR/L2525-6T25-048070	6	48	70	6	25	25	25	150	49	25	25.6	12
CTFR/L2525-6T25-058100	6	58	100	6	25	25	25	150	49	25	25.6	12
CTFR/L2525-6T25-088180	6	88	180	6	25	25	25	150	49	25	25.6	12
CTFR/L2525-6T25-168400	6	168	400	6	25	25	25	150	49	25	25.6	12

When depth is deeper than (insert length - 1.5 mm), 1 corner type is recommended.
Max. groove depth will be 15 mm with DTF insert.
Use the right-hand insert for the right-hand holder with DTF insert.
(1) WF is calculated with the groove width (CW) in the above table.
Torque*: Recommended clamping torque (N·m)

SPARE PARTS


Designation	Clamping screw	Wrench
CTFR/L2525-3T - 4T...	CM6X1X25-A	P-5
CTFR/L2525-5T - 6T...	CM8X1.25X25-A	P-6

INSERT

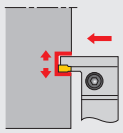
Designation	Seat size	Insert
CTFR/L2525-3T10-024035	3	DTF, DTX
CTFR/L2525-3T10-029040	3	DTF, DTX
CTFR/L2525-3T10-034050	3	DTF, DTX
CTFR/L2525-3T15-044070	3	DTF, DTX, DTR, DTE, DGG, DTM
CTFR/L2525-3T15-064100	3	DTF, DTX, DTE, DGG, DGM, DGS, DTR, SGN, DGL, DTM
CTFR/L2525-4T10-022036	4	DTF, DTX
CTFR/L2525-4T20-028042	4	DTF, DTX, DTR
CTFR/L2525-4T20-034050	4	DTF, DTX, DTE, DGG, DGM, DGS, DTR, DTM, DGL, SGN
CTFR/L2525-4T20-042070	4	DTF, DTX, DTE, DGG, DGM, DGS, DTR, SGN, DTM, DGL
CTFR/L2525-4T20-062120	4	DTF, DTX, DTE, DGG, DGM, DGS, DTR, SGN, DTM, DGL
CTFR/L2525-4T20-112200	4	DTF, DTX, DTE, DGG, DGM, DGS, DTR, SGN, DTM, DGL
CTFR/L2525-5T25-...	5	DTX, DTE, DGG, DGM, DGS, DTR, DTM, DGL, SGN
CTFR/L2525-6T25-...	6	DTX, DTE, DGG, DGM, DGS, DTR, DTM, DGL, SGN

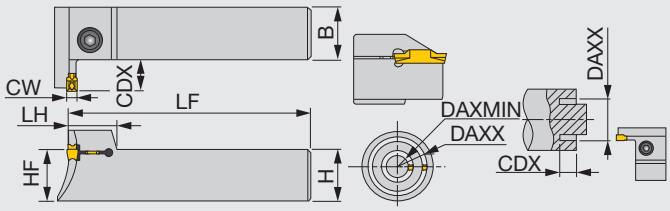
Insert	Groove width CW	Face grooving Min. machining dia. DAXMIN
DGM / DGS / SGN / DGL	3	92
DGM / DGS / SGN / DGL	4	37
DGM / DGS / SGN / DGL	5	60
DGM / DGS / DGL	6	57
DTE / DGG / DTM	3	62
DTE / DGG / DTM	4	42
DTE / DGG / DTM	5	64
DTE / DGG / DTM	6	61
DTR	3	44
DTR	4	32
DTR	5	48
DTR	6	48
DTX	3	22
DTX	4	20
DTX	5	20
DTX	6	23
DTF	3	20
DTF	4	20

TUNGCUT

CTFVR/L

Face grooving and turning perpendicular toolholder





Right hand (R) shown.

Designation	CW	DAXMIN	DAXX	Seat size	CDX	H	B	LF	LH	HF	Torque*
CTFVR/L2525-3T10-024035	3	24	35	3	10	25	25	150	18	25	5
CTFVR/L2525-3T10-029040	3	29	40	3	10	25	25	150	18	25	5
CTFVR/L2525-3T10-034050	3	34	50	3	10	25	25	150	18	25	5
CTFVR/L2525-3T15-044060	3	44	60	3	15	25	25	150	18	25	5
CTFVR/L2525-3T15-054085	3	54	85	3	15	25	25	150	18	25	5
CTFVR/L2525-4T12-022040	4	22	40	4	12	25	25	150	18.5	25	8.5
CTFVR/L2525-4T15-032050	4	32	50	4	15	25	25	150	18.5	25	8.5
CTFVR/L2525-4T15-042060	4	42	60	4	15	25	25	150	18.5	25	8.5
CTFVR/L2525-4T15-052085	4	52	85	4	15	25	25	150	18.5	25	8.5
CTFVR/L2525-5T20-050080	5	50	80	5	20	25	25	150	22	25	12
CTFVR/L2525-5T20-070110	5	70	110	5	20	25	25	150	22	25	12
CTFVR/L2525-5T20-100150	5	100	150	5	20	25	25	150	22	25	12
CTFVR/L2525-5T20-140200	5	140	200	5	20	25	25	150	22	25	12
CTFVR/L2525-6T20-048085	6	48	85	6	20	25	25	150	22	25	12
CTFVR/L2525-6T20-073150	6	73	150	6	20	25	25	150	22	25	12
CTFVR/L2525-6T20-138250	6	138	250	6	20	25	25	150	22	25	12

When depth is deeper than (insert length - 1.5 mm), 1 corner type is recommended
Max. groove depth will be 15 mm with DTF insert.
Use the right-hand insert for the right-hand holder with DTF insert.
Torque*: Recommended clamping torque (N·m)

SPARE PARTS

Designation	Clamping screw	Wrench
CTFVR/L2525-3T...	CM5X0.8X25-A	P-4
CTFVR/L2525-4T...	CM6X1X25-A	P-5
CTFVR/L2525-5T..., 6T...	CM8X1.25X25-A	P-6

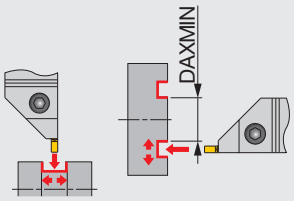
INSERT

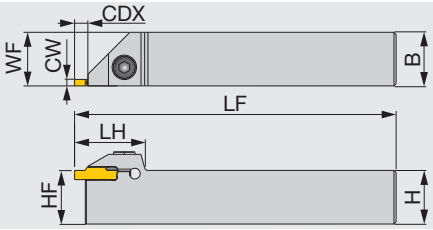
Designation	Seat size	Insert
CTFVR/L2525-3T10-024035	3	DTF, DTX
CTFVR/L2525-3T10-029040	3	DTF, DTX
CTFVR/L2525-3T10-034050	3	DTF, DTX, DTR
CTFVR/L2525-3T15-044060	3	DTF, DTX, DTR
CTFVR/L2525-3T15-054085	3	DTF, DTX, DTE, DGG, DTR, DTM
CTFVR/L2525-4T12-022040	4	DTF, DTX, DTR
CTFVR/L2525-4T15-032050	4	DTF, DTX, DTE, DGG, DGM, DGS, DTR, DTM, DGL, SGN
CTFVR/L2525-4T15-042060	4	DTF, DTX, DTE, DGG, DGM, DGS, DTR, SGN, DTM, DGL
CTFVR/L2525-4T15-052085	4	DTF, DTX, DTE, DGG, DGM, DGS, DTR, SGN, DTM, DGL
CTFVR/L2525-5T20-...	5	DTX, DTE, DGG, DGM, DGS, DTR, DTM, DGL, SGN
CTFVR/L2525-6T20-...	6	DTX, DTE, DGG, DGM, DGS, DTR, DTM, DGL

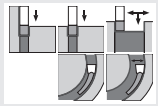
Insert	Groove width CW	Face grooving Min. machining dia. DAXMIN
DGM / DGS / SGN / DGL	3	92
DGM / DGS / SGN / DGL	4	37
DGM / DGS / SGN / DGL	5	60
DGM / DGS / DGL	6	57
DTE / DGG / DTM	3	62
DTE / DGG / DTM	4	42
DTE / DGG / DTM	5	64
DTE / DGG / DTM	6	61
DTR	3	44
DTR	4	32
DTR	5	48
DTR	6	48
DTX	3	22
DTX	4	20
DTX	5	20
DTX	6	23
DTF	3	20
DTF	4	20

CTEFR/L

External face grooving and turning toolholder







Right hand (R) shown.

Designation	CW	Seat size	CDX	H	B	LF	LH	HF	WF (1)	Torque*
CTEFR/L2020-4T04	4	2, 3, 4	4.8	20	20	125	33	20	20.5	8.5
CTEFR/L2525-4T04	4	2, 3, 4	4.8	25	25	150	33	25	25.5	8.5
CTEFR/L2020-6T04	6	5, 6	4.8	20	20	125	37	20	20.6	8.5
CTEFR/L2525-6T04	6	5, 6	4.8	25	25	150	37	25	25.6	8.5

(1) "WF" value is calculated with groove width "CW" shown in the table.
Torque*: Recommended clamping torque (N·m)

SPARE PARTS

Designation	Clamping screw	Wrench
CTEFR/L2020-4T04	CM6X1X20-A	P-5
CTEFR/L2525-4T04	CM6X1X25-A	P-5
CTEFR/L2020-6T04	CM6X1X20-A	P-5
CTEFR/L2525-6T04	CM6X1X25-A	P-5

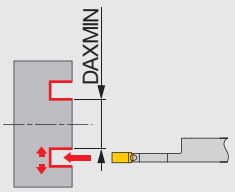
Insert	Groove width CW	Face grooving Min. machining dia. DAXMIN
DGM / DGS / SGN / DGL	2	295
DGM / DGS / SGN / DGL	3	92
DGM / DGS / SGN / DGL	4	37
DGM / DGS / SGN / DGL	5	60
DGM / DGS / DGL	6	57
DTX / DTM / DTR	2	295
DTE / DGG / DTM	3	62
DTE / DGG / DTM	4	42
DTE / DGG / DTM	5	64
DTE / DGG / DTM	6	61

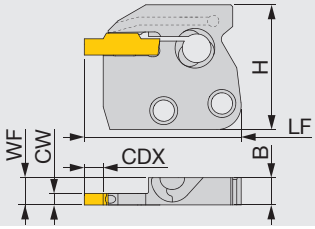
Insert	Groove width CW	Face grooving Min. machining dia. DAXMIN
DTR	3	44
DTR	4	32
DTR	5	48
DTR	6	48
DTX	3	22
DTX	4	20
DTX	5	20
DTX	6	23
DTF	3	20
DTF	4	20

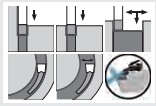
TUNGCUT

CAEFR/L-CHP

Face and external grooving adapter, with high pressure coolant capability







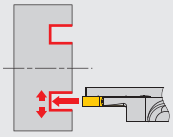
Right hand (R) shown.

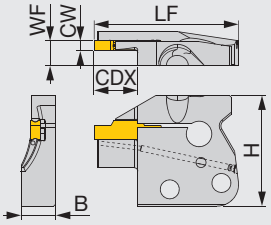
Designation	CW	Seat size	CDX	H	B	LF	WF (1)
CAEFR/L-4T04-CHP	4	2,3,4	4.8	33	7.2	41.5	7.7
CAEFR/L-6T04-CHP	6	5,6	4.8	33	7.2	46.3	7.8

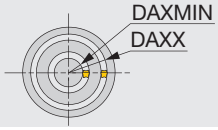
(1) "WF" value is calculated with groove width "CW" shown in the table.

CAFR/L-CHP

Face grooving and turning adapter, with high pressure coolant capability







Right hand (R) shown.

Designation	CW	DAXMIN	DAXX	Seat size	CDX	H	B	LF	WF (1)
CAFR/L-3T12-040055-CHP	3	40	55	3	12	33	10.2	43	7.5
CAFR/L-3T12-055075-CHP	3	55	75	3	12	33	10.2	43	7.5
CAFR/L-3T12-075100-CHP	3	75	100	3	12	33	10.2	43	7.5
CAFR/L-3T12-100140-CHP	3	100	140	3	12	33	10.2	43	7.5
CAFR/L-3T12-140200-CHP	3	140	200	3	12	33	10.2	43	7.5
CAFR/L-4T16-050070-CHP	4	50	70	4	16	33	10.2	43	8
CAFR/L-4T16-070100-CHP	4	70	100	4	16	33	10.2	43	8
CAFR/L-4T16-100150-CHP	4	100	150	4	16	33	10.2	43	8
CAFR/L-4T16-150250-CHP	4	150	250	4	16	33	10.2	43	8
CAFR/L-5T20-055080-CHP	5	55	80	5	20	33	10.2	47	8.5
CAFR/L-5T20-080120-CHP	5	80	120	5	20	33	10.2	47	8.5
CAFR/L-5T20-120180-CHP	5	120	180	5	20	33	10.2	47	8.5
CAFR/L-5T20-180300-CHP	5	180	300	5	20	33	10.2	47	8.5
CAFR/L-5T20-300000-CHP	5	300	∞	5	20	33	10.2	47	8.5
CAFR/L-6T25-060090-CHP	6	60	90	6	25	33	10.2	52	9
CAFR/L-6T25-090150-CHP	6	90	150	6	25	33	10.2	52	9
CAFR/L-6T25-150250-CHP	6	150	250	6	25	33	10.2	52	9
CAFR/L-6T25-250400-CHP	6	250	400	6	25	33	10.2	52	9

When groove depth is larger than (insert length - 1.5 mm), please use 1-cornered insert.
Max. groove depth will be 15 mm with DTF insert.
Use the right-hand insert for the right-hand holder with DTF insert.
(1) WF is calculated with the groove width (CW) in the above table.

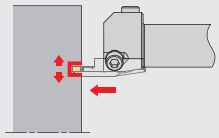
Insert	Groove width CW	Face grooving Min. machining dia. DAXMIN
DGM / DGS / SGN / DGL	2	295
DGM / DGS / SGN / DGL	3	92
DGM / DGS / SGN / DGL	4	37
DGM / DGS / SGN / DGL	5	60
DGM / DGS / DGL	6	57
DTX / DTM / DTR	2	295
DTE / DGG / DTM	3	62
DTE / DGG / DTM	4	42
DTE / DGG / DTM	5	64
DTE / DGG / DTM	6	61

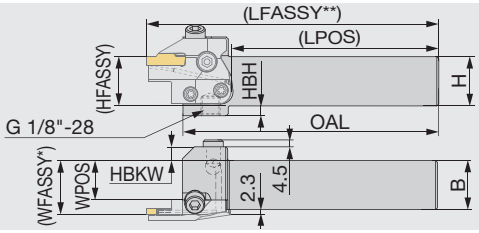
Insert	Groove width CW	Face grooving Min. machining dia. DAXMIN
DTR	3	44
DTR	4	32
DTR	5	48
DTR	6	48
DTX	3	22
DTX	4	20
DTX	5	20
DTX	6	23
DTF	3	20
DTF	4	20

CHSR/L-CHP

Tube connection

Shank for adapter, with high pressure coolant capability





Right hand (R)
with left-hand adapter shown.

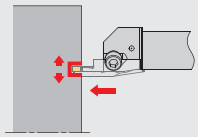
Designation	H	B	OAL	LPOS	WPOS	HBKW	HFASSY	HBH	Adapter (Option)	Torque*
CHSR/L2020-CHP	20	20	130	105.5	15.1	12	20	10	CA*FL/R**-CHP	6.5
CHSR/L2525-CHP	25	25	130	105.5	20.1	7	25	5	CA*FL/R**-CHP	6.5

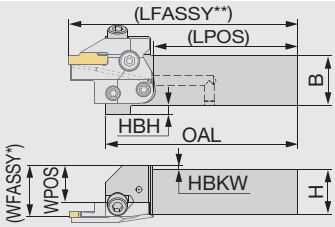
WFASSY* : Shank (WPOS) + adapter (WF)
LFASSY** : Shank (LPOS) + adapter (LF)
Depend on the adapter type, the value of LFASSY or WFASSY may change.
Torque*: Recommended clamping torque (N·m)
Applicable for 30 MPa coolant
Please see Tungaloy General catalog vol.5 page L053 for instructions on installing and removing the adapter or the insert.

CHSR/L-CHP-MC

Direct connection

Shank for adapter, with high pressure coolant capability





Right hand (R)
with left-hand adapter shown.

Designation	H	B	OAL	LPOS	WPOS	HBKW	HBH	Adapter (Option)	Torque*
CHSR/L2020-CHP-MC	20	20	98	73.5	14	6	10	CA*FL/R**-CHP	6.5
CHSR/L2525-CHP-MC	25	25	98	73.5	19	-	5	CA*FL/R**-CHP	6.5

WFASSY* : Shank (WPOS) + adapter (WF)
LFASSY** : Shank (LPOS) + adapter (LF)
Depend on the adapter type, the value of LFASSY or WFASSY may change.
Torque*: Recommended clamping torque (N·m)
Applicable for 30 MPa coolant
Please see Tungaloy General catalog vol.5 page L053 for instructions on installing and removing the adapter or the insert.

SPARE PARTS

Designation	Clamping screw 1	Wrench 1	Clamping screw 2	Clamping screw 3	Wrench 2	O-ring	Plug
CHSR/L**-CHP	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N	PLUGG1/8ISO1179
CHSR/L**-CHP-MC	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N	-

Recommended clamping torque (N·m)

Clamping screw	Torque (N·m)
SR M5-04451	2.5
SR M6X12DIN6912	6.5
SR M6X20-XT	6.5

Combination of adapter and shank

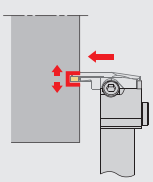
Shank	External grooving adapter		Face grooving adapter		External and face grooving adapter	
	CAER**-CHP, -MD	CAEL**-CHP, -MD	CAFR**-CHP	CAFL**-CHP	CAEFR**-CHP	CAEFL**-CHP
CHSR**-CHP (-MC)	●			●	●	
CHSL**-CHP (-MC)		●	●			●

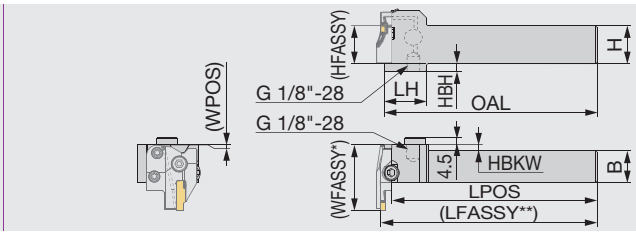
● : Corresponding

TUNGCUT
CHFVR/L-CHP

Tube connection

Shank for perpendicularly-mounted adapter, with high pressure coolant capability





Right hand (R)
with right-hand adapter shown.

Designation	H	B	OAL	LH	LPOS	WPOS	HBKW	HFASSY	HBH	Adapter (Option)	Torque*
CHFVR/L2020-CHP	20	20	140	28	135.1	0.5	5	20	10	CA*FR/L**-CHP	6.5
CHFVR/L2525-CHP	25	25	140	28	135.1	0.5	0	25	5	CA*FR/L**-CHP	6.5

WFASSY* : Shank (WPOS) + adapter (LF)
LFASSY** : Shank (LPOS) + adapter (WF)
Depend on the adapter type, the value of LFASSY or WFASSY may change.
Torque*: Recommended clamping torque (N·m)
Applicable for 30 MPa coolant
Please see Tungaloy General catalog vol.5 page L053 for instructions on installing and removing the adapter or the insert.

SPARE PARTS

Designation	Clamping screw 1	Wrench 1	Clamping screw 2	Clamping screw 3	Wrench 2	O-ring	Plug
CHFVR/L...	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N	PLUGG1/8ISO1179

Recommended clamping torque (N·m)

Clamping screw	Torque (N·m)
SR M5-04451	2.5
SR M6X12DIN6912	6.5
SR M6X20-XT	6.5

Combination of adapter and shank

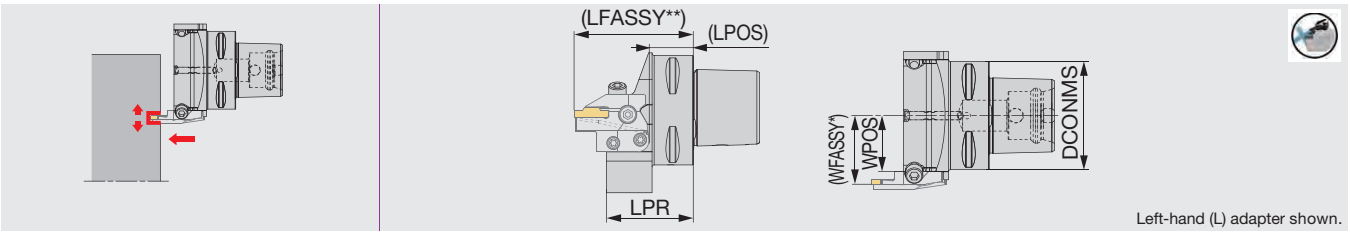
Shank	External grooving adapter		Face grooving adapter		External and face grooving adapter	
	CAER**-CHP, -MD	CAEL**-CHP, -MD	CAFR**-CHP	CAFL**-CHP	CAEFR**-CHP	CAEFL**-CHP
CHFVR**-CHP		●	●			●
CHFVL**-CHP	●			●	●	

● : Corresponding

C*CHSN-CHP

Direct connection

Toolholder with TungCap connection, for adapter, with high pressure coolant capability



Left-hand (L) adapter shown.

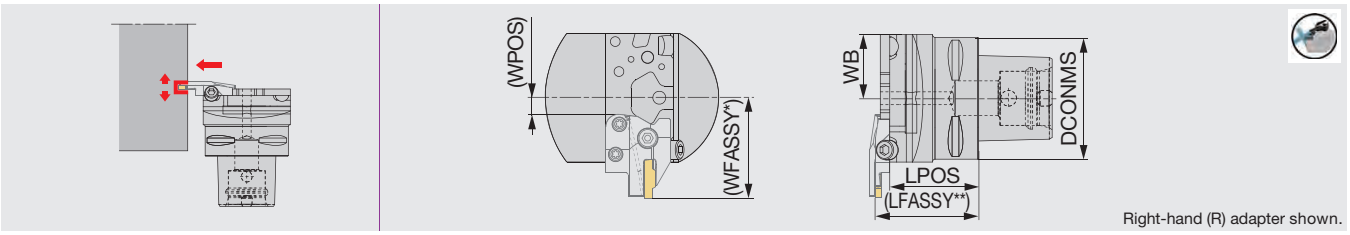
Designation	DCONMS	LPR	LPOS	WPOS	Adapter (Option)	Torque*
C3CHSN19045-CHP	32	45	17.5	18.5	CA*FR/L**-CHP	6.5
C4CHSN21047-CHP	40	46.5	21.5	21	CA*FR/L**-CHP	6.5
C5CHSN26047-CHP	50	47	22.5	26	CA*FR/L**-CHP	6.5
C6CHSN33050-CHP	63	50	24.5	32.5	CA*FR/L**-CHP	6.5

WFASSY* : Toolholder (WPOS) + adapter (WF)
LFASSY** : Toolholder (LPOS) + adapter (LF)
Depend on the adapter type, the value of LFASSY or WFASSY may change.
Torque*: Recommended clamping torque (N·m)
Applicable for 30 MPa coolant
Please see Tungaloy General catalog vol.5 page L053 for instructions on installing and removing the adapter or the insert.

C*CHFVN-CHP

Direct connection

Toolholder with TungCap connection, for perpendicularly-mounted adapter, with high pressure coolant capability



Right-hand (R) adapter shown.

Designation	DCONMS	LPOS	WB	WPOS	Adapter (Option)	Torque*
C3CHFVN26040-CHP	32	40	26	1.5	CA*FR/L**-CHP	6.5
C4CHFVN26046-CHP	40	46	26	1.5	CA*FR/L**-CHP	6.5
C5CHFVN26046-CHP	50	46	26	1.5	CA*FR/L**-CHP	6.5
C6CHFVN33046-CHP	63	46	33	8.5	CA*FR/L**-CHP	6.5

WFASSY* : Toolholder (WPOS) + adapter (LF)
LFASSY** : Toolholder (LPOS) + adapter (WF)
Depend on the adapter type, the value of LFASSY or WFASSY may change.
Torque*: Recommended clamping torque (N·m)
Applicable for 30 MPa coolant
Please see Tungaloy General catalog vol.5 page L053 for instructions on installing and removing the adapter or the insert.

SPARE PARTS

Designation	Clamping screw 1	Wrench 1	Clamping screw 2	Clamping screw 3	Wrench 2	O-ring
C*CH**N**-CHP	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N

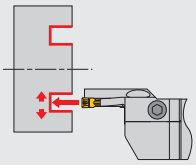
Recommended clamping torque (N·m)

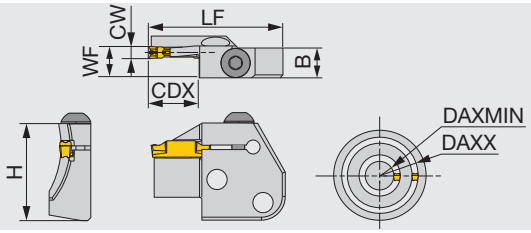
Clamping screw	Torque (N·m)
SR M5-04451	2.5
SR M6X12DIN6912	6.5
SR M6X20-XT	6.5

TUNGCUT

CAFR/L

Face grooving and turning adapter





Right hand (R) shown.

Designation	CW	DAXMIN	DAXX	Seat size	CDX	H	B	LF	WF (1)	Torque*
CAFR/L-3T12-040055	3	40	55	3	12	32.7	10	45	10.4	5
CAFR/L-3T12-055075	3	55	75	3	12	32.7	10	45	10.4	5
CAFR/L-3T12-075100	3	75	100	3	12	32.7	10	45	10.4	5
CAFR/L-3T12-100140	3	100	140	3	12	32.7	10	45	10.4	5
CAFR/L-3T12-140200	3	140	200	3	12	32.7	10	45	10.4	5
CAFR/L-4T16-050070	4	50	70	4	16	32.7	10	45	10.5	5
CAFR/L-4T16-070100	4	70	100	4	16	32.7	10	45	10.5	5
CAFR/L-4T16-100150	4	100	150	4	16	32.7	10	45	10.5	5
CAFR/L-4T16-150250	4	150	250	4	16	32.7	10	45	10.5	5
CAFR/L-5T20-055080	5	55	80	5	20	32.7	10	49	10.5	5
CAFR/L-5T20-080120	5	80	120	5	20	32.7	10	49	10.5	5
CAFR/L-5T20-120180	5	120	180	5	20	32.7	10	49	10.5	5
CAFR/L-5T20-180300	5	180	300	5	20	32.7	10	49	10.5	5
CAFR/L-5T20-300000	5	300	∞	5	20	32.7	10	49	10.5	5
CAFR/L-6T25-060090	6	60	90	6	25	32.7	10	55	10.5	5
CAFR/L-6T25-090150	6	90	150	6	25	32.7	10	55	10.5	5
CAFR/L-6T25-150250	6	150	250	6	25	32.7	10	55	10.5	5
CAFR/L-6T25-250400	6	250	400	6	25	32.7	10	55	10.5	5

When groove depth is larger than (insert length - 1.5 mm), please use 1-cornered insert.
Max. groove depth will be 15 mm with DTF insert.
Use the right-hand insert for the right-hand holder with DTF insert.
Not compatible with TungModularSystem
(1) WF is calculated with the groove width (CW) in the above table.
Torque*: Recommended clamping torque (N·m)

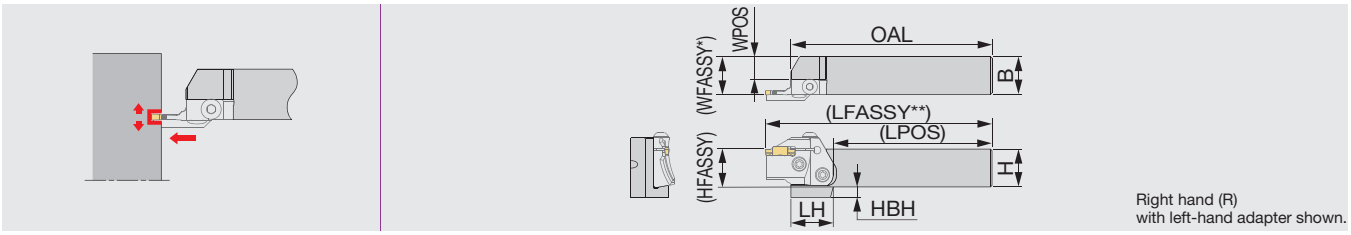
SPARE PARTS

Designation	Clamping screw	Wrench
CAFR/L...	BHM6-20-A	P-4

Insert	Groove width CW	Face grooving Min. machining dia. DAXMIN
DGM / DGS / SGN / DGL	3	92
DGM / DGS / SGN / DGL	4	37
DGM / DGS / SGN / DGL	5	60
DGM / DGS / DGL	6	57
DTE / DGG / DTM	3	62
DTE / DGG / DTM	4	42
DTE / DGG / DTM	5	64
DTE / DGG / DTM	6	61
DTR	3	44
DTR	4	32
DTR	5	48
DTR	6	48
DTX	3	22
DTX	4	20
DTX	5	20
DTX	6	23
DTF	3	20
DTF	4	20

CHSR/L

Shank for adapter

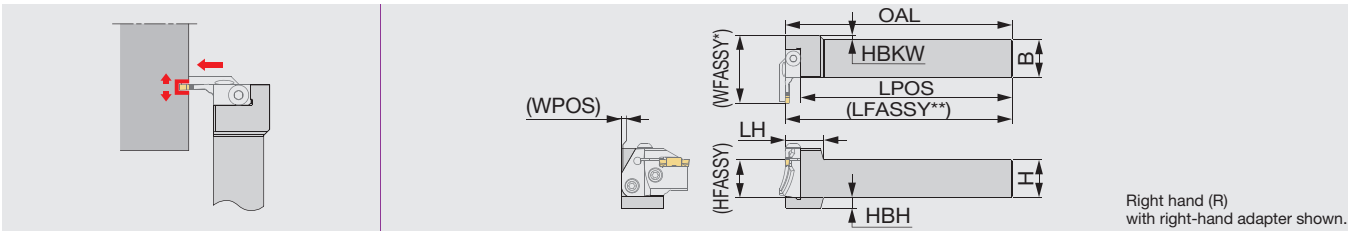


Designation	H	B	OAL	LPOS	LH	WPOS	HFASSY	HBH	Adapter (Option)
CHSR/L2020	20	20	133	105	35	10	20	12	CAFL/R...
CHSR/L2525	25	25	133	105	28	15	25	7	CAFL/R...
CHSR/L3232	32	32	153	125	-	22	32	-	CAFL/R...

WFASSY* : Shank (WPOS) + adapter (WF)
LFASSY** : Shank (LPOS) + adapter (LF)
Depend on the adapter type, the value of LFASSY or WFASSY may change.
Not compatible with TungModularSystem

CHFVR/L

Shank for adapter, perpendicularly mounted



Designation	H	B	OAL	LPOS	LH	WPOS	HBKW	HFASSY	HBH	Adapter (Option)
CHFVR/L2020	20	20	150	140	25	0	8	20	12	CAFR/L...
CHFVR/L2525	25	25	150	140	25	0	3	25	7	CAFR/L...
CHFVR/L3232	32	32	170	160	25	4	-	32	-	CAFR/L...

WFASSY* : Shank (WPOS) + adapter (LF)
LFASSY** : Shank (LPOS) + adapter (WF)
Depend on the adapter type, the value of LFASSY or WFASSY may change.
Not compatible with TungModularSystem

SPARE PARTS


Designation	Clamping screw	Wrench
CH**R/L...	CSHB-6-A	P-4

Combination of adapter and shank

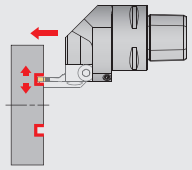
Shank	External grooving adapter		Face grooving adapter	
	CAER...	CAEL...	CAFR...	CAFL...
CHSR...	●			●
CHSL...		●	●	
CHFVR...		●	●	
CHFVL...	●			●

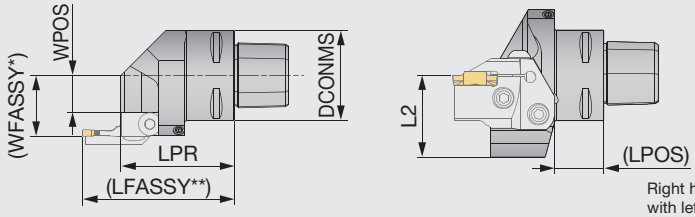
● : Corresponding

TUNGCUT

C-CHSR/L

Toolholder with TungCap connection for adapter





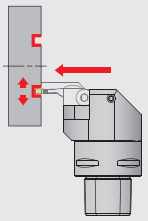
Right hand (R)
with left-hand adapter shown.

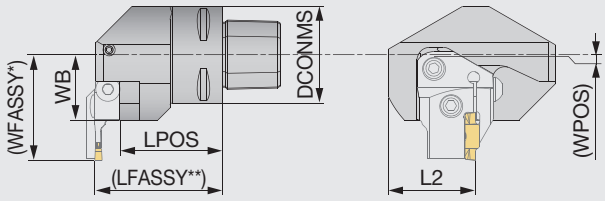
Designation	DCONMS	LPR	LPOS	L2	WPOS	Adapter (Option)
C3CHSR/L22050N	32	50	22.1	35	11.5	CAFL/R...
C4CHSR/L27050N	40	50	22.1	36	16.5	CAFL/R...
C5CHSR/L35060N	50	60	32.1	36	24.5	CAFL/R...
C6CHSR/L45065N	63	65	32.1	41	34.5	CAFL/R...

WFASSY* : Toolholder (WPOS) + adapter (WF)
LFASSY** : Toolholder (LPOS) + adapter (LF)
Depend on the adapter type, the value of LFASSY or WFASSY may change. If needed, the coolant direction can be adjusted by the nozzle.
Applicable for 7 MPa coolant. Not compatible with TungModularSystem.

C-CHFVR/L

Toolholder with TungCap connection for adapter, perpendicularly mounted





Right hand (R)
with right-hand adapter shown.

Designation	DCONMS	LPOS	L2	WB	WPOS	Adapter (Option)
C3CHFVR/L22040N	32	32.5	35	22	-5.9	CAFR/L...
C4CHFVR/L27050N	40	42.5	36	27	-0.9	CAFR/L...
C5CHFVR/L35060N	50	49.5	36	35	7.1	CAFR/L...
C6CHFVR/L45065N	63	54.5	41	45	17.1	CAFR/L...

WFASSY* : Toolholder (WPOS) + adapter (LF)
LFASSY** : Toolholder (LPOS) + adapter (WF)
Depend on the adapter type, the value of LFASSY or WFASSY may change. If needed, the coolant direction can be adjusted by the nozzle.
Applicable for 7 MPa coolant. Not compatible with TungModularSystem.

SPARE PARTS

Designation	Coolant parts	Clamping screw	Wrench
C3CH**R/L...	SATZ-M8X1-M3	CSHB-6-A	P-4
C4CH**R/L...	SATZ-M8X1-M3	CSHB-6-A	P-4
C5CH**R/L...	SATZ-M10X1-M5	CSHB-6-A	P-4
C6CH**R/L...	SATZ-M10X1-M5	CSHB-6-A	P-4

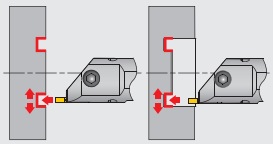
Combination of adapter and toolholder

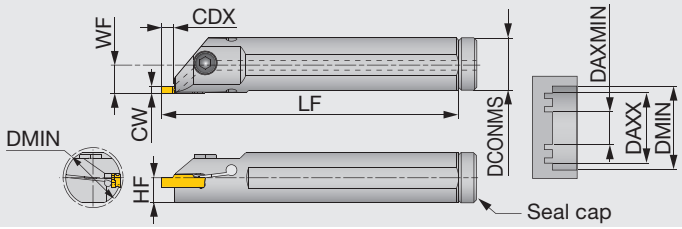
Toolholder	External grooving adapter		Face grooving adapter	
	CAER...	CAEL...	CAFR...	CAFL...
C*CHSR...	●			●
C*CHSL...		●	●	
C*CHFVR...		●	●	
C*CHFVL...	●			●

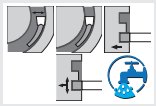
● : Corresponding

CTIFR/L

External/Internal face grooving and turning toolholder







Right hand (R) shown.

Designation	CW	Seat size	CDX	DCONMS	LF	HF	WF (1)	Torque*
CTIFR/L25-4T05-D270	4	2, 3, 4	5.5	25	200	11.5	13.3	5
CTIFR/L32-4T05-D340	4	2, 3, 4	5.5	32	250	15	16.8	5
CTIFR/L25-5T05-D270	6	5, 6	5.5	25	200	11.5	13.3	5
CTIFR/L32-5T05-D340	6	5, 6	5.5	32	250	15	16.8	5

Use the right-hand insert for the right-hand holder with DTF insert.
(1) WF is calculated with the groove width CW in the above table.
Torque*: Recommended clamping torque (N·m)

SPARE PARTS

Designation	Clamping screw	Wrench	Seal cap
CTIFR/L25-4T05-D270	CM6X1X16-A	P-5	CA-25
CTIFR/L32-4T05-D340	CM6X1X20-A	P-5	CA-32
CTIFR/L25-5T05-D270	CM6X1X16-A	P-5	CA-25
CTIFR/L32-5T05-D340	CM6X1X20-A	P-5	CA-32

Seat size	Min. machining dia.: DMIN	
	DCONMS = 25 mm	DCONMS = 32 mm
2	299	299
3	26.3	33.3
4	26.8	33.8
5	26.3	33.3
6	26.8	33.8

Insert	Groove width CW	Face grooving Min. machining dia. DAXMIN
DGM / DGS / SGN / DGL	2	295
DGM / DGS / SGN / DGL	3	92
DGM / DGS / SGN / DGL	4	37
DGM / DGS / SGN / DGL	5	60
DGM / DGS / DGL	6	57
DTX / DTM / DTR	2	295
DTE / DGG / DTM	3	62
DTE / DGG / DTM	4	42
DTE / DGG / DTM	5	64
DTE / DGG / DTM	6	61

Insert	Groove width CW	Face grooving Min. machining dia. DAXMIN
DTR	3	44
DTR	4	32
DTR	5	48
DTR	6	48
DTX	3	22
DTX	4	20
DTX	5	20
DTX	6	23
DTF	3	20
DTF	4	20

TUNGCUT

CGP

External deep grooving and parting blade

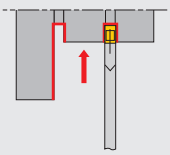


Fig.1

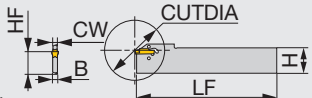


Fig.2

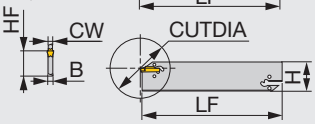
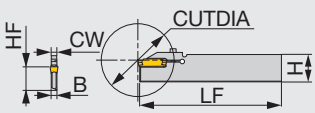
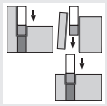


Fig.3





Designation	CW	Seat size	CUTDIA	H	B	LF	HF	Fig.	Torque*
CGP26-1.4S	1.4	1	26	26	1	150	21.4	1	-
CGP32-1.4D	1.4	1	26	32	1	150	24.8	2	-
CGP26-2S	2	2	40	26	1.8	150	21.4	1	-
CGP32-2D	2	2	50	32	1.8	150	24.8	2	-
CGP26-3S	3	3	50	26	2.4	150	21.4	1	-
CGP32-3D	3	3	100	32	2.4	150	24.8	2	-
CGP26-4S	4	4	80	26	3.2	150	21.4	1	-
CGP32-4D	4	4	100	32	3.2	150	24.9	2	-
CGP45-4D	4	4	120	45	3.2	150	38.1	2	-
CGP32-5D	5	5	120	32	4	150	24.9	2	-
CGP32-6D	6	6	120	32	5.2	150	24.9	2	-
CGP32-8S-CL	8	8	80	32	6.2	150	24.9	3	3

When depth is deeper than (insert length - 1.5mm), 1 corner type is recommended.
Wrench (CRW...) is not included. Please order it separately.
*Torque: Recommended clamping torque (N·m)

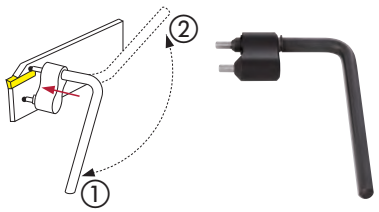
SPARE PARTS

Designation	Clamping screw	Wrench	Wrench (Optional)
CGP**-1.4*	-	-	CRW23
CGP**-2/3/4/5/6	-	-	CRW33
CGP32-8S-CL	CM4X0.7X20-M0-A	P-3	-

Caution

Newly developed clamp

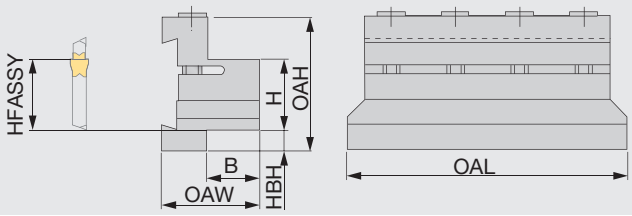
Insert is clamped by the elastic deformation of upper jaw.
Low clamping stress increases the stability and tool life.



①→②: unclamp
②→①: clamp

CTBF

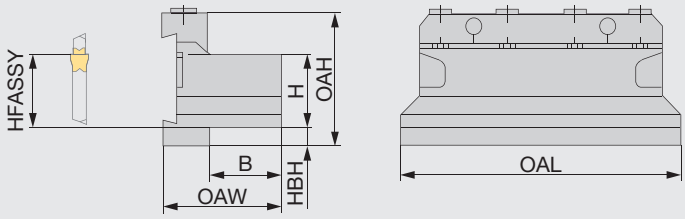
Tool block for CGP blade, mono block



Designation	H	B	OAL	HFASSY	HBH	OAH	OAW	Blade (Optional)
CTBF25-45	25	22	110	25	25	66	40	CGP45...
CTBF32-45	32	28	120	32	18	66	45	CGP45...

CTBU

Tool block for CGP blade



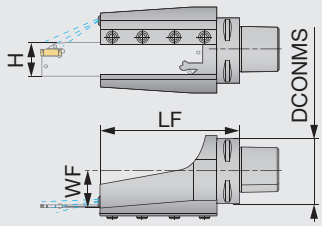
Designation	H	B	OAL	HFASSY	HBH	OAH	OAW	Blade (Optional)
CTBU20-26	20	21	86	20	9	43	38	CGP26...
CTBU25-26	25	23	110	25	5	45	43	CGP26...
CTBU20-32	20	19	100	20	13	50	38	CGP32...
CTBU25-32	25	23	110	25	8	50	42	CGP32...
CTBU32-32	32	29	110	32	5	54	48	CGP32...

SPARE PARTS

Designation	Clamp	Clamping screw	Wrench
CTBU20-26	CT-86	CM6X30-S	P-5
CTBU25-26	CT-105	CM6X30-S	P-5
CTBU20-32	CT-100	CM6X30-S	P-5
CTBU25-32	CT-110	CM6X30-S	P-5
CTBU32-32	CT-110	CM6X30-S	P-5

C-TBK-R/L

Toolholder with TungCap connection for parting-off blade



Right hand (R) shown.

Designation	DCONMS	WF	LF	H
C6TBK-32R/L	63	32	138	32

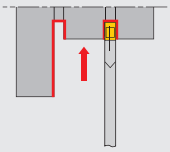
Applicable for 3 MPa coolant

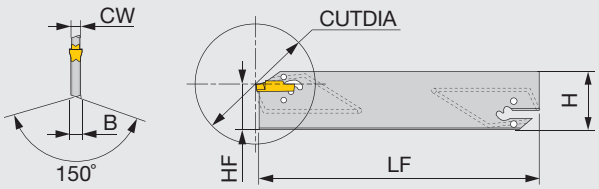
SPARE PARTS

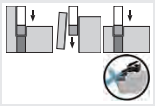
Designation	Clamp	Clamping screw	Wrench	Coolant parts
C6TBK-32R/L	BK32-9WEDG	SRM6X16DIN912-12.9	HW5.0	EZ125

TUNGCUT
CGP32-CHP

External deep grooving and parting blade, with high pressure coolant capability







Designation	CW	Seat size	CUTDIA	H	B	LF	HF
CGP32-2D-CHP	2	2	50	32	1.8	150	24.8
CGP32-3D-CHP	3	3	90	32	2.5	150	24.8
CGP32-4D-CHP	4	4	90	32	3.2	150	24.9
CGP32-5D-CHP	5	5	110	32	4	150	24.9
CGP32-6D-CHP	6	6	110	32	5.2	150	24.9

When depth is deeper than (insert length - 1.5mm), 1 corner type is recommended.
Wrench (CRW...) is not included. Please order it separately.

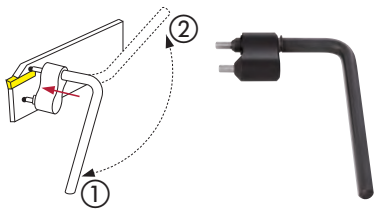
SPARE PARTS

Designation	Sealing screw	Wrench (Optional)
CGP32-*D-CHP	SGC340	CRW33

Caution

Newly developed clamp

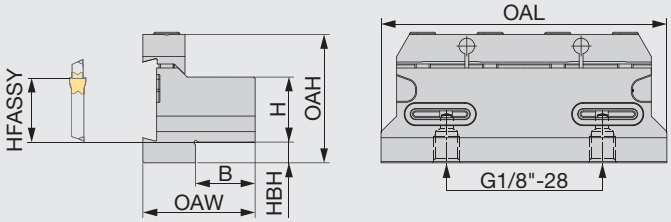
Insert is clamped by the elastic deformation of upper jaw.
Low clamping stress increases the stability and tool life.



①→②: unclamp
②→①: clamp

CTBU-CHP

Tool block for CGP-CHP blade, with high pressure coolant capability



Designation	H	B	OAL	HFASSY	HBH	OAH	OAW	Blade (Optional)
CTBU25-32-CHP	25	23	110	25	8	50	43.2	CGP32-*D-CHP

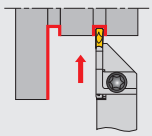
Applicable for 14 MPa coolant

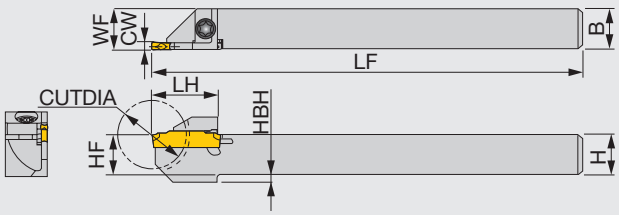
SPARE PARTS

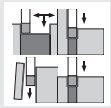
Designation	Clamping screw	Clamp	Wrench	O-ring
CTBU25-32-CHP	SRM6X16DIN912-12.9	CT-110	P-5	OR14X2.5NN

JCTER/L

External grooving and parting toolholder, for Swiss lathes







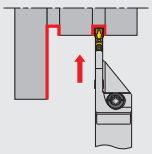
Right hand (R) shown.

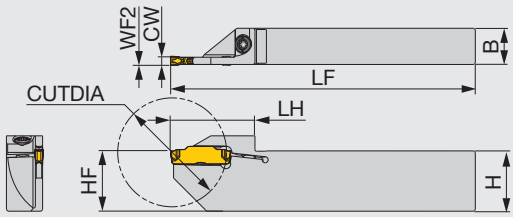
Designation	CW	Seat size	CUTDIA	H	B	LF	LH	HF	WF(1)	HBH	*Torque
JCTER/L1010X1.4T10	1.4	1	20	10	10	120	18	10	10.2	-	3
JCTER/L1212F1.4T12	1.4	1	24	12	12	85	19.5	12	12.2	-	3
JCTER/L1212X1.4T12	1.4	1	24	12	12	120	19.5	12	12.2	-	3
JCTER/L1414-1.4T12	1.4	1	24	14	14	125	19.5	14	14.2	-	3
JCTER/L1616X1.4T16	1.4	1	32	16	16	120	24	16	16.2	-	3
JCTER/L1010X2T10	2	2	20	10	10	120	19	10	10.1	2	3
JCTER/L1212F2T12	2	2	24	12	12	85	19	12	12.1	2	3
JCTER/L1212X2T12	2	2	24	12	12	120	19	12	12.1	2	3
JCTER/L1414-2T12	2	2	24	14	14	125	19	14	14.1	-	3
JCTER/L1616X2T16	2	2	32	16	16	120	24	16	16.1	-	3
JCTER/L1212F3T12	3	3	24	12	12	85	19	12	12.3	2	3
JCTER/L1212X3T12	3	3	24	12	12	120	19	12	12.3	2	3
JCTER/L1616X3T16	3	3	32	16	16	120	24	16	16.3	-	3
JCTER/L2020H3T16	3	3	32	20	20	100	24	20	20.3	-	3

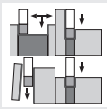
(1) "WF" value is calculated with groove width "CW" shown in the table.
Torque*: Recommended clamping torque (N·m)

JCTER/L2012

External grooving and parting toolholder, for Swiss lathes, with 20 mm shank height







Right hand (R) shown.

Designation	CW	Seat size	CUTDIA	H	B	LF	LH	HF	WF2(1)	*Torque
JCTER/L2012H2T18	2	2	36	20	12	100	25	20	0.1	3
JCTER/L2012H3T21	3	3	42	20	12	100	28	20	0.3	3

(1) "WF2" value is calculated with groove width "CW" shown in the table.
Torque*: Recommended clamping torque (N·m)

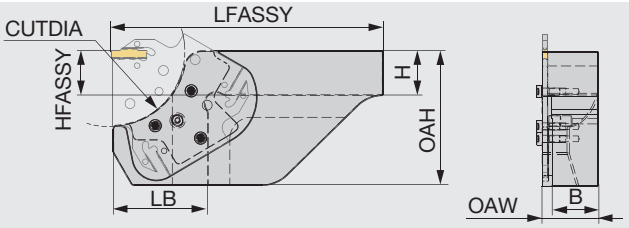
SPARE PARTS

Designation	Clamping screw	Wrench
JCTER/L...	CSHB-4-A	T-15F

TUNGCUT

CHTBR/L

Tool block for CHGP blade



Right hand (R) shown.

Designation	CUTDIA	H	B	OAL	OAH	OAW	LB
CHTBR/L2020-52	52	20	20.5	100	50	26.5	37
CHTBR/L2525-52	52	25	25.5	125	50	31.5	37
CHTBR/L2020-82	82	20	20.5	140	75	26.5	53
CHTBR/L2525-82	82	25	25.5	150	75	31.5	53

Note: The blade clamping screw heads protrude out for as much as 3.1 mm over the insert cutting edge point.
Maintain the clearance from the chucking device to avoid interference.

SPARE PARTS

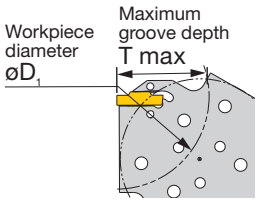


Designation	Clamping screw	Grip	Torx bit
CHTBR/L...	SR ISO 14580 M4X10	SW6-SD	BLDT20/S7

Maximum groove depth (T max) as function of workpiece diameter (øD$_1$)

Designation	øD$_1$																	
CHTBR/L****-D52	53	54	55	56	58	60	62	65	68	72	78	84	92	102	115	133	159	198
CHTBR/L****-D82	104	108	112	116	121	127	134	142	151	162	176	192	212	237	270	313	375	468
T max	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4

Designation	øD$_1$											
CHTBR/L****-D82	83	84	85	86	87	89	90	92	94	96	98	101
T max	34	33	31	30	29	28	27	26	25	24	23	22



● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

CBN Turning

K Cast Iron

Key Points for the Selection of Grade Types in Cast iron

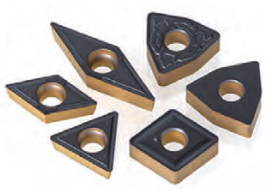
- **CBN Inserts:**
- **High Speed:** Enable faster cutting for increased efficiency.
- **Long Life:** Extend tool life and reduce downtime.
- **High Productivity:** Deliver top performance for cast iron machining.

**Overall, CBN inserts offer superior speed and durability, making them the best choice for high-efficiency cast iron machining.

■ Grey cast iron

Cutting speed *Vc* (m/min)	150 - 700	200 - 1,000	300 - 2,000
Grade	Carbide 	Ceramic 	CBN 
Tool cost	**Low**	**Low**	**High**

■ Ductile Cast Iron

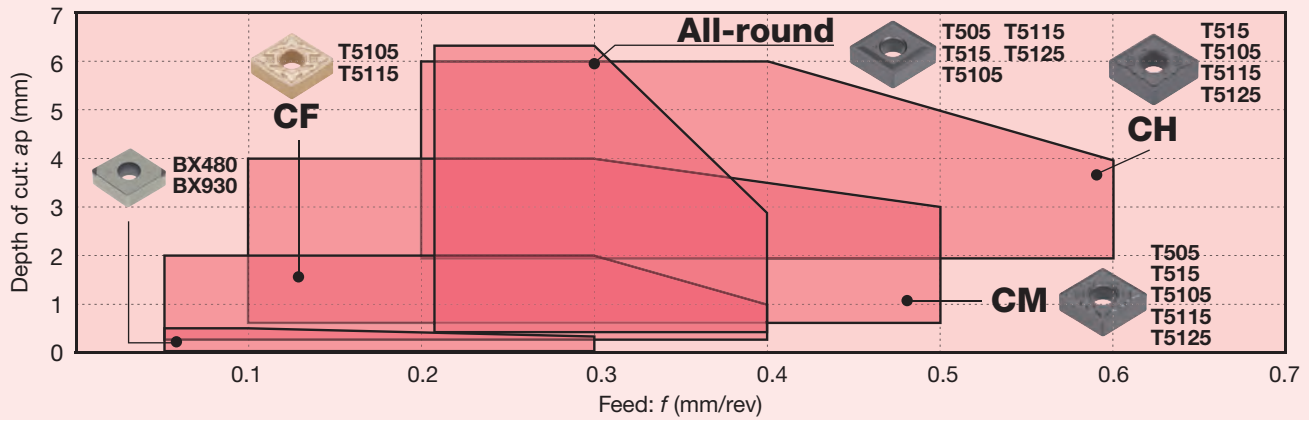
Cutting speed *Vc* (m/min)	150 - 300	150 - 500	200 - 500
Grade	Carbide 	Ceramic 	CBN 
Tool cost	**Low**	**Low**	**High**

Chipbreaker Guide

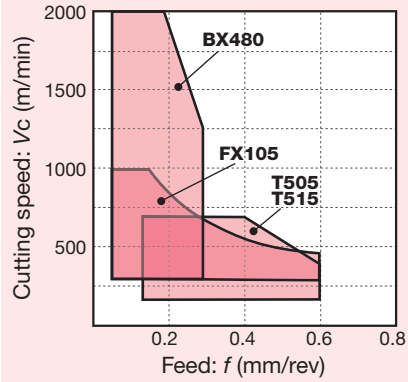
BASIC CHIPBREAKER: NEGATIVE TYPE

K Cast Iron

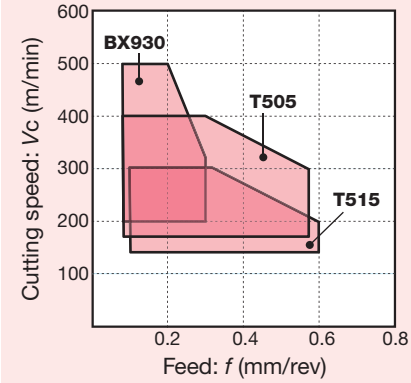
Chipbreaker System for Turning (Negative type)

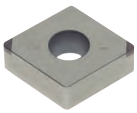
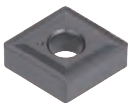


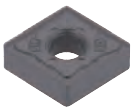
Grey cast iron



Ductile cast iron



Chipbreaker	Shape	Feature
-		Excellent performance in high-speed finishing of cast iron with CBN sintered body on the cutting edge.
CF		Low cutting force chipbreaker for cast iron. Combined with an arc-shaped high rake angle (substantially 20°) drastically reduces cutting force and prevents the deformation and burr of thin-walled components.
All-round		Excellent performance in interrupted cutting. Highly reliable chipbreaker with great stability.

Chip-breaker	Shape	Feature
CM		First choice for cast iron. Versatile chipbreaker for a wide range of applications from continuous to interrupted cutting thanks to the positive land and wide chip pocket.
CH		Chipbreaker with reinforced cutting edge. The negative land and the land support provide stable insert seating and increase cutting edge strength, resulting in no fracture even in heavy cutting.

STANDARD CUTTING CONDITIONS

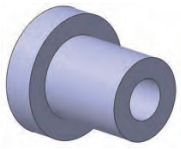
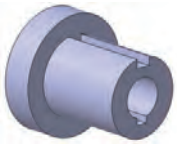
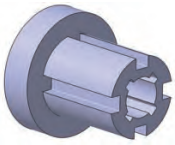
ISO	Operation	Chip-breaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed: *Vc* (m/min)	
						Grey cast iron	Ductile cast iron
K	High speed cutting	-	BX930	0.05 - 0.5	0.05 - 0.2	300 - 1200	200 - 500
		-	BX480	0.05 - 0.5	0.05 - 0.3	300 - 2000	200 - 300
	Finishing	All-round	T505	1 - 5	0.1 - 0.5	180 - 700	180 - 400
		All-round	T515	1 - 5	0.1 - 0.5	150 - 700	150 - 300
	Medium cutting	All-round	T505	1 - 5	0.1 - 0.5	180 - 700	180 - 400
		All-round	T515	1 - 5	0.1 - 0.5	150 - 700	150 - 300
		CH	T515	3 - 6	0.2 - 0.6	150 - 700	150 - 300
	Medium to heavy cutting	All-round	T515	1 - 5	0.1 - 0.5	150 - 700	150 - 300
		CH	T515	3 - 6	0.2 - 0.6	150 - 700	150 - 300

Grey cast iron: FC250, etc. 250, etc. Ductile cast iron: FCD450, etc. 450-10S, etc.

Selection System

SELECTION SYSTEM: NEGATIVE TYPE

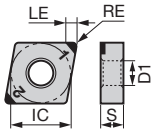
K Cast Iron

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [a_p = ~ 0.5 mm]	Basic: BX480	Basic: BX480 → Fracture: All-round T515	
Finishing [a_p = 0.5 ~ 2 mm]	Basic: All-round T505 → Fracture: All-round T515; Burr occurrence: CF T5105	Basic: All-round T515 → Wear: All-round T505; Fracture: CH T515; Burr occurrence: CF T5115	Basic: CH T515 → Wear: All-round T505; Burr occurrence: All-round T515
Medium cutting [a_p = 1 ~ 5 mm]	Basic: All-round T505 → Fracture: All-round T515; Burr occurrence: CF T5105	Basic: All-round T515 → Wear: All-round T505; Fracture: CH T515; Burr occurrence: CF T5115	Basic: CH T515 → Wear: All-round T505; Fracture: CH T5125; Burr occurrence: All-round T515
Medium to heavy cutting [a_p = 3 ~ 6 mm]	Basic: All-round T515 → Wear: All-round T505; Burr occurrence: CF T5105	Basic: All-round T515 → Wear: All-round T505; Fracture: CH T515; Burr occurrence: CF T5115	Basic: CH T515 → Wear: All-round T505; Fracture: CH T5125; Burr occurrence: All-round T515

● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

CN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

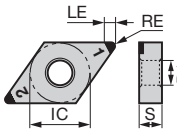
80°Rhombic with hole

K	Cast iron	●ⓒ ●
S	Superalloy	
H	Hard material	
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480	BX930
Finishing	**2QP-CNGA120404**	0.4	2.3	2		○					●	●
	2QP-CNGA120408	0.8	2.2	2		○					●	●
	2QP-CNGA120412	1.2	2.4	2		○					●	●

● : Line up

DN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

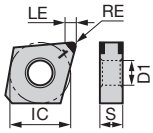
55° Rhombic with hole

K	Cast iron	●ⓒ ●
S	Superalloy	
H	Hard material	
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480	BX930
Finishing	**2QP-DNGA150404**	0.4	2.5	2		○					●	●
	2QP-DNGA150408	0.8	2.1	2		○					●	●
	2QP-DNGA150412	1.2	2	2		○					●	●

● : Line up

GN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

70° Rhombic with hole

K	Cast iron	●
S	Superalloy	
H	Hard material	
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX930
Finishing	**2QP-GNGA120408**	0.8	2.1	2		○					●
	2QP-GNGA120412	1.2	2.2	2		○					●

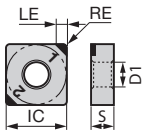
● : Line up

CN, GN Ex.Toolholder In.Toolholder
DN Ex.Toolholder In.Toolholder

● : Continuous cutting
ᑕ : Light interrupted cutting
✣ : Heavy interrupted cutting

SN

Square with hole



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

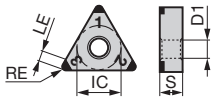
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480	BX930
Finishing	2QP-SNGA120404	0.4	2.4	2		○					●	●
	2QP-SNGA120408	0.8	2.4	2		○					●	●
	2QP-SNGA120412	1.2	2.4	2		○					●	●

● : Line up

TN

Triangular with hole



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480	BX930
Finishing	3QP-TNGA160404	0.4	2.2	3		○					●	●
	3QP-TNGA160408	0.8	1.9	3		○					●	●
	3QP-TNGA160412	1.2	2.4	3		○					●	●

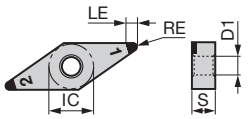
● : Line up

SN Ex.Toolholder | SN In.Toolholder | TN Ex.Toolholder | TN In.Toolholder

● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

VN

35° Rhombic with hole



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

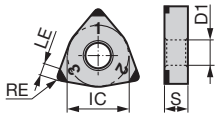
K	Cast iron	●ⓒ ●
S	Superalloy	
H	Hard material	
	Sintered metal	

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BX480	BX930
Finishing	2QP-VNGA160404	0.4	3.1	2		○					●	●
Finishing	2QP-VNGA160408	0.8	2.2	2		○					●	●

● : Line up

WN

80° Trigon with hole



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

K	Cast iron	●ⓒ ●
S	Superalloy	
H	Hard material	
	Sintered metal	

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BX480	BX930
Finishing	3QP-WNGA080408	0.8	2.2	3		○					●	●

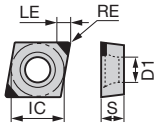
● : Line up

VN Ex.Toolholder | VN In.Toolholder | WN Ex.Toolholder | WN In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

CC

80°Rhombic with hole, Positive 7°



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

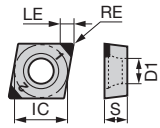
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480	BX930
Finishing	2QP-CCGW060204	0.4	2.3	2		○					●	
	2QP-CCMW060204		2.3	2		○						●

● : Line up

CC

80°Rhombic with hole, Positive 7°



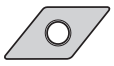
IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

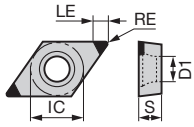
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480	BX930
Finishing	2QP-CCGW09T304	0.4	2.3	2		○					●	
	2QP-CCMW09T304		2.3	2		○						●

● : Line up

DC



55° Rhombic with hole, Positive 7°



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

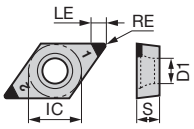
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480	BX930
Medium cutting	2QP-DCGW070204	0.4	2.5	2		○					●	
	2QP-DCMW070204		2.5	2		○						●

● : Line up

CC Ex.Toolholder In.Toolholder DC Ex.Toolholder In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

DC



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

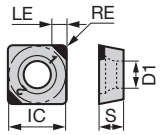
55° Rhombic with hole, Positive 7°

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480	BX930
Finishing	2QP-DCGW11T304	0.4	2.5	2		○					●	
Finishing	2QP-DCMW11T304		2.5	2		○						●

● : Line up

SP



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

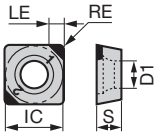
Square Positive 11° with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX910
Finishing	2QP-SPGW09T308	0.8	2.4	2		○					●
Finishing	2QP-SPGW09T312	1.2	2.4	2		○					●

● : Line up

SP



IC : 12.7 mm
D1 : 5.5 mm
S : 4.76 mm

Square Positive 11° with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX910
Finishing	2QP-SPGW120408	0.8	2.4	2		○					●
Finishing	2QP-SPGW120412	1.2	2.4	2		○					●
Finishing	2QP-SPGW120416	1.6	2.4	2		○					●

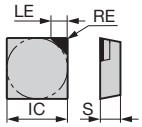
● : Line up

DC Ex.Toolholder
DC In.Toolholder
SP In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

SP

Square Positive 11° without hole



IC : 12.7 mm
S : 3.18 mm

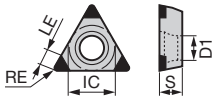
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flank wear	Crater wear	Chipping	BX910	BX930
Finishing	2QP-SPMN090304	0.4	2.4	2		○						●
	2QP-SPGN090308	0.8	2.4	2		○					●	
	2QP-SPMN090308		2.4	2		○						●
	2QP-SPGN090312	1.2	2.4	2		○					●	

● : Line up

TP

Triangular Positive 11° with hole



IC : 5.56 mm
D1 : 2.5 mm
S : 2.38 mm

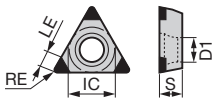
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flank wear	Crater wear	Chipping	BX930
Finishing	3QP-TPMW090202	0.2	2.3	3		○					●
	3QP-TPMW090204	0.4	2.2	3		○					●

● : Line up

TP

Triangular Positive 11° with hole



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flank wear	Crater wear	Chipping	BX930
Finishing	3QP-TPMW110202	0.2	2.3	3		○					●
	3QP-TPMW110204	0.4	2,2	3		○					●

● : Line up

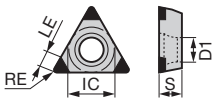
SP In.Toolholder

TP In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° with hole



IC : 6.35 mm
D1 : 3.4 mm
S : 3.18 mm

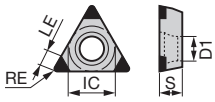
K	Cast iron	◐ ● ●
S	Superalloy	
H	Hard material	
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480	BX910	BX930
Finishing	3QP-TPGW110302	0.2	2.3	3		○					●		
	3QP-TPMW110302		2.3	3		○							●
	3QP-TPGW110304	0.4	2.2	3		○					●		
	3QP-TPMW110304		2.2	3		○							●
	3QP-TPGW110308	0.8	1.9	3		○					●	●	
	3QP-TPMW110308		1.9	3		○							●

● : Line up

TP

Triangular Positive 11° with hole



IC : 7.94 mm
D1 : 3.4 mm
S : 3.18 mm

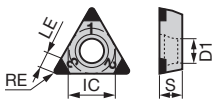
K	Cast iron	◐ ●
S	Superalloy	
H	Hard material	
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480	BX930
Finishing	3QP-TPGW130302	0.2	2.3	3		○					●	
	3QP-TPMW130302		2.3	3		○						●
	3QP-TPGW130304	0.4	2.2	3		○					●	
	3QP-TPMW130304		2.2	3		○						●

● : Line up

TP

Triangular Positive 11° with hole



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

K	Cast iron	◐ ●
S	Superalloy	
H	Hard material	
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480	BX930
Finishing	3QP-TPGW16T304	0.4	2.2	3		○					●	
	3QP-TPMW16T304		2.2	3		○						●

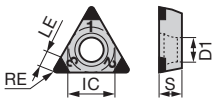
● : Line up

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° with hole



IC : 9.525 mm
D1 : 4.4 mm
S : 4.76 mm

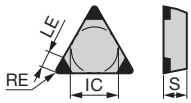
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX930
Finishing	3QP-TPMW160404	0.4	2.2	3		○					●
	3QP-TPMW160408	0.8	1.9	3		○					●

● : Line up

TP

Triangular Positive 11° without hole



IC : 6.35 mm
S : 3.18 mm

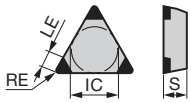
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480	BX910	BX930
Finishing	3QP-TPGN110302	0.2	2.3	3		○					●		
	3QP-TPMN110302		2.3	3		○							●
	3QP-TPGN110304	0.4	2.2	3		○					●		
	3QP-TPMN110304		2.2	3		○							●
	3QP-TPGN110308	0.8	1.9	3		○					●	●	
	3QP-TPMN110308		1.9	3		○							●
	3QP-TPGN110312	1.2	2.4	3		○						●	

● : Line up

TP

Triangular Positive 11° without hole



IC : 9.525 mm
S : 3.18 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

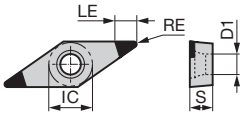
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480	BX930
Finishing	3QP-TPGN160304	0.4	2.2	3		○					●	
	3QP-TPMN160304		2.2	3		○						●
	3QP-TPGN160308	0.8	1.9	3		○					●	
	3QP-TPMN160308		1.9	3		○						●

● : Line up

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

VB



IC : 6.35 mm
D1 : 2.8 mm
S : 3.18 mm

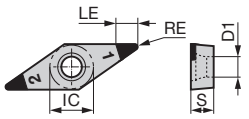
35° Rhombic Positive 5° with hole

K	Cast iron	●
S	Superalloy	
H	Hard material	
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX930
Finishing	2QP-VBMW110304	0.4	3.1	2		○					●
Finishing	2QP-VBMW110308	0.8	2.2	2		○					●

● : Line up

VC



IC : 9.525 mm
D1 : 4.4 mm
S : 4.76 mm

35° Rhombic Positive 7° with hole

K	Cast iron	●
S	Superalloy	
H	Hard material	
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX930
Finishing	2QP-VCMW160404	0.4	3.1	2		○					●

● : Line up

Ex.Toolholder In.Toolholder

CBN Milling

K Cast Iron

TPW / EPW

TPW13

Square shoulder mill, with screw clamp system

GAMP = +11.5°, GAMF = -13° ~ -10.5°

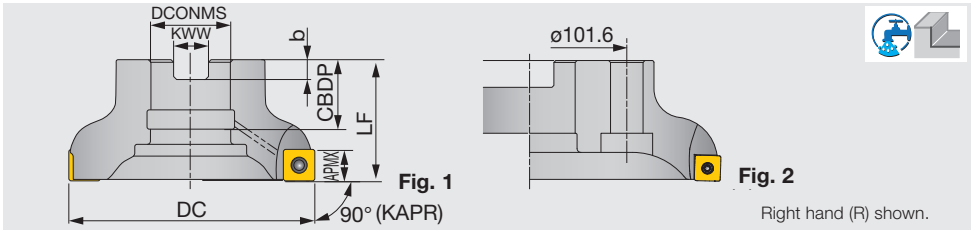


Fig. 1

Fig. 2

Right hand (R) shown.

Designation	APMX	DC	CICT	LF	DCONMS	CBDP	KWW	b	WT(kg)	Air hole	Insert	Fig.
TPW13R050M22.0-03	10	50	3	40	22	20	10	6	0.3	With	SW*T1304...	1
TPW13R050M22.0-04	10	50	4	40	22	20	10	6	0.3	With	SW*T1304...	1
TPW13R050M22.0E04	10	50	4	40	22	20	10.4	6.3	0.3	With	SW*T1304...	1
TPW13R050M22.0E05	10	50	5	40	22	20	10.4	6.3	0.3	With	SW*T1304...	1
TPW13R063M22.0-04	10	63	4	40	22	20	10	6	0.5	With	SW*T1304...	1
TPW13R063M22.0-05	10	63	5	40	22	20	10	6	0.5	With	SW*T1304...	1
TPW13R063M22.0E05	10	63	5	40	22	20	10.4	6.3	0.4	With	SW*T1304...	1
TPW13R063M22.0E06	10	63	6	40	22	20	10.4	6.3	0.4	With	SW*T1304...	1
TPW13R080M25.4-04	10	80	4	50	25.4	26	9.5	6	0.8	With	SW*T1304...	1
TPW13R080M25.4-06	10	80	6	50	25.4	26	9.5	6	0.8	With	SW*T1304...	1
TPW13R080M27.0E06	10	80	6	50	27	22	12.4	7	0.8	With	SW*T1304...	1
TPW13R080M27.0E08	10	80	8	50	27	22	12.4	7	0.8	With	SW*T1304...	1
TPW13R100M31.7-05	10	100	5	50	31.75	38	12.7	8	1.2	With	SW*T1304...	1
TPW13R100M31.7-07	10	100	7	50	31.75	38	12.7	8	1.2	With	SW*T1304...	1
TPW13R100M32.0E07	10	100	7	50	32	28.5	14.4	8	1.2	With	SW*T1304...	1
TPW13R100M32.0E10	10	100	10	50	32	28.5	14.4	8	1.2	With	SW*T1304...	1
TPW13R125M38.1-06	10	125	6	63	38.1	38	15.9	10	2.4	With	SW*T1304...	1
TPW13R125M38.1-08	10	125	8	63	38.1	38	15.9	10	2.4	With	SW*T1304...	1
TPW13R125M40.0E08	10	125	8	63	40	32	16.4	9	2.4	With	SW*T1304...	1
TPW13R125M40.0E12	10	125	12	63	40	32	16.4	9	2.5	With	SW*T1304...	1
TPW13R160M50.8-08	10	160	8	63	50.8	38	19	11	4	Without	SW*T1304...	1
TPW13R160M50.8-12	10	160	12	63	50.8	38	19	11	4	Without	SW*T1304...	1
TPW13R200M47.6-10	10	200	10	63	47.625	38	25.4	14	7.4	Without	SW*T1304...	2

SPARE PARTS

Designation	Clamping screw	Lubricant	Shim screw	Shell locking bolt 1	Shell locking bolt 2	Shim	Wrench	Wrench
TPW13R050, 063...	CSPB-3.5	M-1000	DTS5-3.5SS	-	CM10X30H	FSSP1102	IP-15D	P-3.5
TPW13R080M...	CSPB-3.5	M-1000	DTS5-3.5SS	-	CM12X30H	FSSP1102	IP-15D	P-3.5
TPW13R100M...	CSPB-3.5	M-1000	DTS5-3.5SS	TMBA-M16H	-	FSSP1102	IP-15D	P-3.5
TPW13R125M...	CSPB-3.5	M-1000	DTS5-3.5SS	TMBA-M20H	-	FSSP1102	IP-15D	P-3.5
TPW13R160, 200...	CSPB-3.5	M-1000	DTS5-3.5SS	-	-	FSSP1102	IP-15D	P-3.5

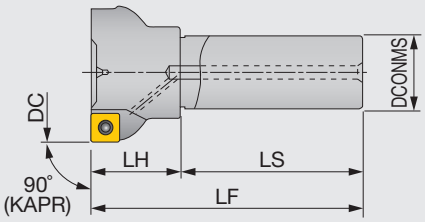
Recommended clamping torque：3.5 N·m

Reference pages:Inserts, Standard cutting conditions → CBN-108

EPW13

Square shoulder endmill, shank type, with screw clamp system

GAMP = +11.5°, GAMF = -13° ~ -10.5°



Right hand (R) shown.

Designation	APMX	DC	CICT	DCONMS	LS	LH	LF	WT(kg)	Air hole	Insert
EPW13R032M32.0-02	10	32	2	32	80	35	115	0.6	With	SW*T1304...
EPW13R040M32.0-03	10	40	3	32	80	35	115	0.7	With	SW*T1304...
EPW13R050M32.0-03	10	50	3	32	80	40	120	0.9	With	SW*T1304...
EPW13R050M32.0-04	10	50	4	32	80	40	120	0.9	With	SW*T1304...
EPW13R063M32.0-04	10	63	4	32	80	40	120	1	With	SW*T1304...
EPW13R063M32.0-05	10	63	5	32	80	40	120	1	With	SW*T1304...
EPW13R080M32.0-04	10	80	4	32	80	40	120	1.3	With	SW*T1304...
EPW13R080M32.0-06	10	80	6	32	80	40	120	0.8	With	SW*T1304...

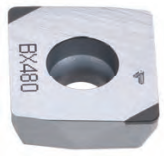
SPARE PARTS

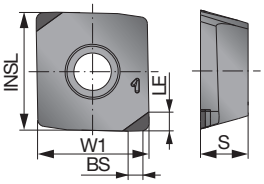
Designation	Clamping screw	Lubricant	Shim screw	Shim	Wrench	Wrench
EPW13R032, 040...	CSPB-3.5	M-1000	-	-	IP-15D	-
EPW13R050 - 080...	CSPB-3.5	M-1000	DTS5-3.5SS	FSSP1102	IP-15D	P-3.5

Recommended clamping torque : 3.5 N·m

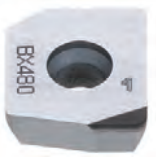
INSERTS

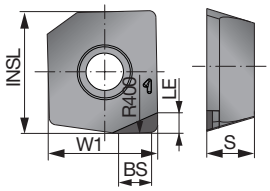
F2-SWGW...





WSGW... (Wiper edge)





P	Steel	
M	Stainless	
K	Cast iron	★
N	Non-ferrous	
S	Superalloys	
H	Hard materials	

★ : First choice

Designation	RE	APMX	CBN BX480	LE	INSL	W1	S	BS
F2-SWGW130508PDLSR	0.8	0.5	●	2	13.8	13.1	5.6	1.5
WSGW130508PDLSR	0.8	-	●	2	14.3	12.8	5.6	3.7

CBN inserts are not designed to be reground.
F2-SWGW.... inserts are sold in 5 pcs per box. (The prefix "F" indicates five)

● : Line up

STANDARD CUTTING CONDITIONS

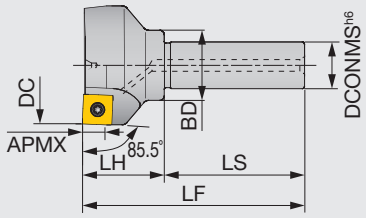
ISO	Workpiece materials	Grades	Shape	Cutting speed *Vc* (m/min)	Feed per tooth *fz* (mm/t)
K	Grey cast iron FC250, etc. 250, etc.	BX480	2-SWGW130508PDLSR	800 - 1500	0.05 - 0.3

EFE / TFE

EFE12R

Face endmill for aluminium machining, shank type, with screw clamp system

GAMP = +13°, GAMF = +7°

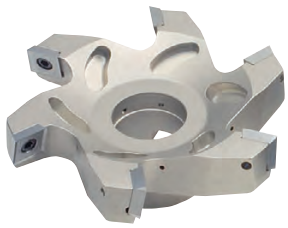


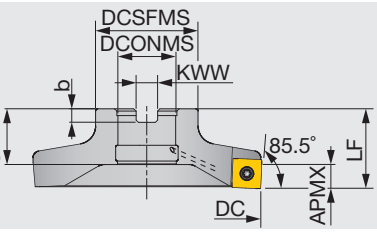
Designation	APMX	DC	CICT	DCONMS	BD	LS	LH	LF	WT(kg)	Air hole	Insert
EFE12050R	8	50	3	20	30	60	35	95	0.37	With	SEG*12X4...

TFE12R

Face mill for aluminium machining, with screw clamp system, light weight

GAMP = +13°, GAMF = +7°



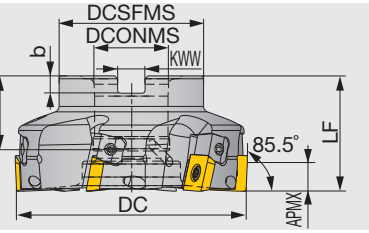


Designation	APMX	DC	CICT	DCSFMS	LF	DCONMS	CBDP	KWW	b	WT(kg)	Air hole	Insert
TFE12063R	8	63	3	45	35	22	19	10	6	0.34	With	SEG*12X4...
TFE12080R	8	80	4	50	35	25.4	24.5	9.5	6	0.45	With	SEG*12X4...
TFE12100R	8	100	6	50	35	25.4	24.5	9.5	6	0.59	With	SEG*12X4...
TFE12125R	8	125	6	50	35	25.4	24.5	9.5	6	0.9	With	SEG*12X4...

TFE12R...-...A

Face mill for aluminium machining, with screw clamp system

GAMP = +13°, GAMF = +7°



Designation	APMX	DC	CICT	DCSFMS	LF	DCONMS	CBDP	KWW	b	WT(kg)	Air hole	Insert
TFE12R080M25.4-06A	8	80	6	50	40	25.4	26	9.5	6	0.70	With	SEG*12X4...
TFE12R080M27.0E06A	8	80	6	55	40	27	22	12.4	7	0.69	With	SEG*12X4...
TFE12R100M25.4-08A	8	100	8	50	40	25.4	26	9.5	6	1.15	With	SEG*12X4...
TFE12R100M27.0E08A	8	100	8	55	40	27	22	12.4	7	1.11	With	SEG*12X4...
TFE12R125M31.7-10A	8	125	10	70	50	31.7	32	12.7	8	2.24	With	SEG*12X4...
TFE12R125M32.0E10A	8	125	10	70	50	32	28.5	14.4	8	2.14	With	SEG*12X4...

SPARE PARTS







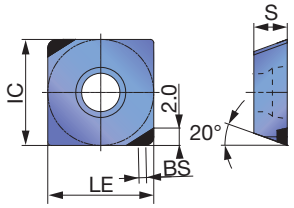

Designation	Clamping screw	Adjustable Wedge	Lubricant	Shell locking bolt 1	Shell locking bolt 2	Right-left screw	Wrench	Wrench
EFE12000R	CSPB-4S	-	M-1000	-	-	-	-	IP-15D
TFE12063R	CSPB-4S	-	M-1000	-	CM10X30H	-	-	IP-15D
TFE12080R - TFE12125R	CSPB-4S	-	M-1000	TMBA-M12H	-	-	-	IP-15D
TFE12R**A	CSTB-4	FW-701R	M-1000	TMBA-M12H	-	MCS520-2.5	P-2.5T	T-15LB

Recommended clamping torque: 3.5 N·m

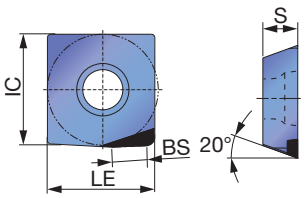
Reference pages:Inserts, Standard cutting conditions → CBN-110

INSERT

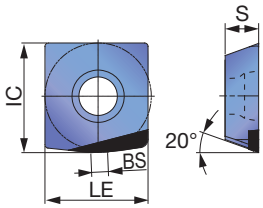
2QP-SECW12X412ZETR



1QP-SECW12X4ZETR-W



1QP-SECW12X4ZETR-B



		CBN
P	Steel	
M	Stainless	
K	Cast iron	★
N	Non-ferrous	
S	Superalloys	
H	Hard materials	

★ : First choice

Designation	APMX	CBN BX480	IC	LE	S	BS
2QP-SECW12X412ZETR	1.5	●	12.7	12.7	4	0.9
1QP-SECW12X4ZETR-W	-	●	12.9	12.3	4	4
1QP-SECW12X4ZETR-B	-	●	13.1	12.3	4	2

● : Line up

BX480: 1 piece per package

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Hardness	Grade	Designation	Cutting speed *Vc* (m/min)	Feed per tooth *fz* (mm/t)
K	Grey and ductile cast irons	150 - 250 HB	AH120	SEGW12X4ZEPR	100 - 200	0.03 - 0.15
	Grey cast iron	150 - 250 HB	BX480	2QP-SECW12X412ZETR	800 - 1500	0.05 - 0.3
	Ductile cast irons	150 - 250 HB	BX480	2QP-SECW12X412ZETR	500 - 800	0.05 - 0.2

Notes:
- In milling aluminium and copper alloys:
  (1) For improved surface finish, use together with wiper insert SEGW12X4ZEFR-WD
  (2) For reducing burr occurrence, use together with deburring inserts SEGW12X4ZEFR-BD
- When milling aluminium and copper alloys, use of a water soluble cutting fluid is recommended. When milling steels, cast irons, and stainless steels, dry cutting is recommended.
- When the length-to-diameter overhang ratio of the tool (L/D) exceeds 3, reduce cutting speed and feed to 70 to 80% of the values given in the table.

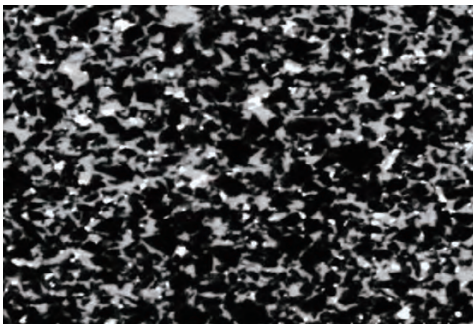
CBN Turning

S Superalloys

New CBN grade for high speed finishing of super alloys

BX815

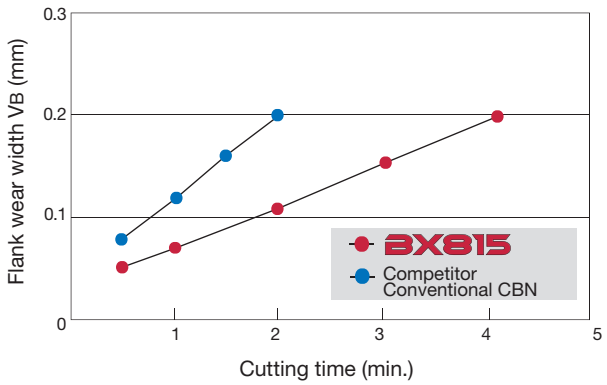
- Heat resistance and oxidation resistance are improved by using Alumina-based binders. Maximizes high-speed machining of super alloys
- Well-dispersed Zirconia grains improve fracture resistance
- Excellent finished surface is obtained by using fine cBN particles.



Microstructure image of BX815

CUTTING PERFORMANCE

Comparison of wear resistance

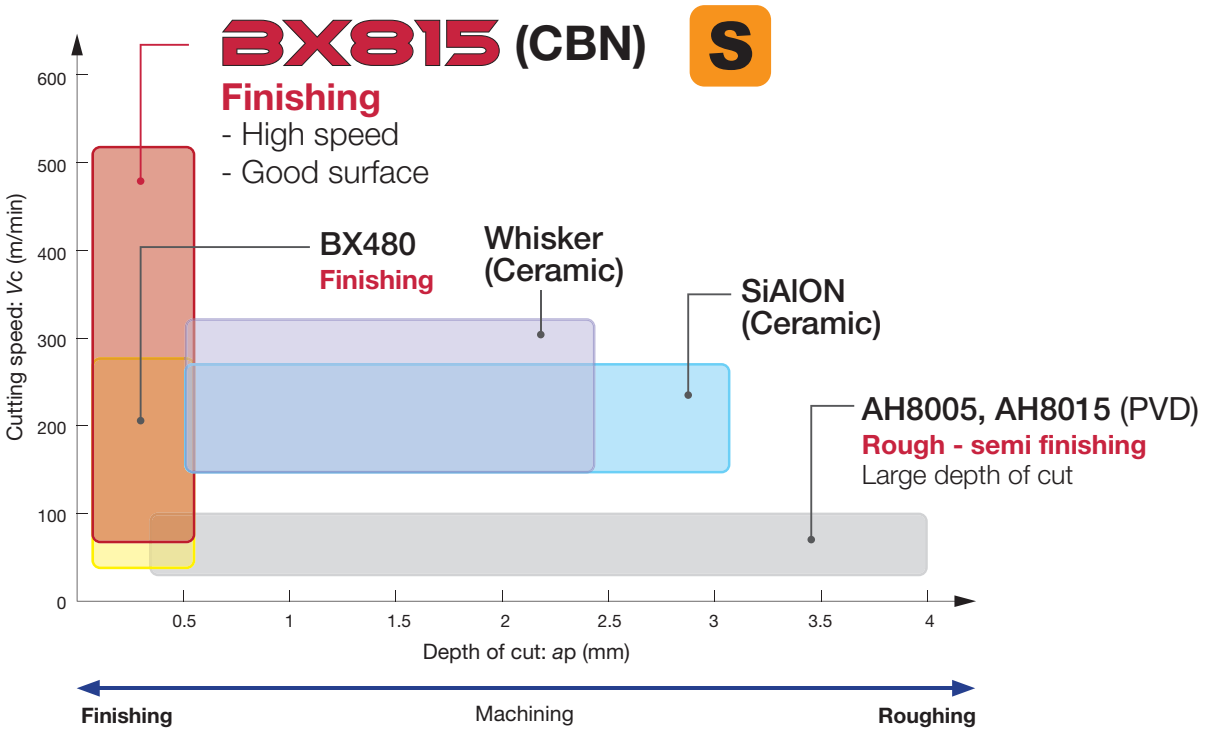


S

Insert	: DNGA150412 BX815
Workpiece material	: Inconel 718 (44 HRC) Continuous cutting
Cutting speed	: ***Vc* = 400 m/min**
Feed	: *f* = 0.2 mm/rev
Depth of cut	: *a*p = 0.2 mm
Coolant	: Wet

BX815 exhibited excellent wear resistance in high speed machining of superalloy.

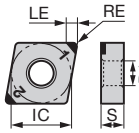
APPLICATION AREAS



● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

CN

80°Rhombic with hole



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

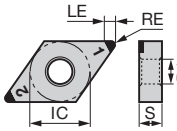
K	Cast iron	
S	Superalloy	◐ ●
H	Hard material	
	Sintered metal	

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BX480	BX815
Precision finishing	2QP-CNGA120404-E	0.4	2.3	2		○						●
	2QP-CNGA120404-LT		2.3	2						○		●
	2QP-CNGA120408-E	0.8	2.2	2								●
	2QP-CNGA120408-LT		2.2	2								●
	2QP-CNGA120412-E	1.2	2.4	2								●
	2QP-CNGA120412-LT		2.4	2								●
	2QP-CNGA120416-E	1.6	3.3	2								●
	2QP-CNGA120416-LT		3.3	2								●
	2QP-CNGA120420-E	2	3.2	2								●
	2QP-CNGA120420-LT		3.2	2								●
Finishing	2QP-CNGA120404	0.4	2.3	2		○					●	
	2QP-CNGA120408	0.8	2.2	2		○					●	

● : Line up

DN

55° Rhombic with hole



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

K	Cast iron	
S	Superalloy	◐ ●
H	Hard material	
	Sintered metal	

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BX480	BX815
Precision finishing	2QP-DNGA150404-E	0.4	2.5	2		○						●
	2QP-DNGA150404-LT		2.5	2						○		●
	2QP-DNGA150408-E	0.8	2.1	2								●
	2QP-DNGA150408-LT		2.1	2								●
	2QP-DNGA150412-E	1.2	2	2								●
	2QP-DNGA150412-LT		2	2								●
Finishing	2QP-DNGA150404	0.4	2.5	2		○					●	
	2QP-DNGA150408	0.8	2.1	2		○					●	
	2QP-DNGA150412	1.2	2	2		○					●	

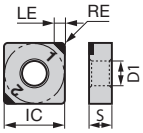
● : Line up

Reference pages : Edge preparation → CBN-6

CN Ex.Toolholder | CN In.Toolholder | DN Ex.Toolholder | DN In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

SN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

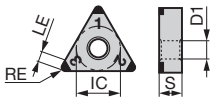
Square with hole

K	Cast iron	●◐
S	Superalloy	●◐
H	Hard material	
	Sintered metal	◐✣

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480
Finishing	2QP-SNGA120404	0.4	2.4	2		○					●
	2QP-SNGA120408	0.8	2.4	2		○					●
	2QP-SNGA120412	1.2	2.4	2		○					●

● : Line up

TN



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

Triangular with hole

K	Cast iron	●◐
S	Superalloy	●◐
H	Hard material	
	Sintered metal	◐✣

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480	BX815
Precision finishing	3QP-TNGA160408-E	0.8	1.9	3		○						●
	3QP-TNGA160408-LT		1.9	3						○		●
Finishing	3QP-TNGA160404	0.4	2.2	3		○					●	
	3QP-TNGA160408	0.8	1.9	3		○					●	
	3QP-TNGA160412	1.2	2.4	3		○					●	

● : Line up

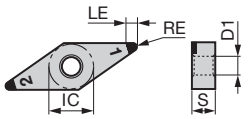
Reference pages : Edge preparation → CBN-6

SN Ex.Toolholder In.Toolholder
TN Ex.Toolholder In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

VN

35° Rhombic with hole



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

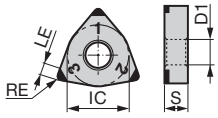
K	Cast iron	
S	Superalloy	●◐
H	Hard material	
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480
Finishing	2QP-VNGA160404	0.4	3.1	2		○					●
Finishing	2QP-VNGA160408	0.8	2.2	2		○					●

● : Line up

WN

80° Trigon with hole



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

K	Cast iron	
S	Superalloy	●◐
H	Hard material	
	Sintered metal	

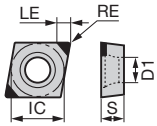
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480
Finishing	3QP-WNGA080408	0.8	2.2	3		○					●

● : Line up

VN Ex.Toolholder | VN In.Toolholder | WN Ex.Toolholder | WN In.Toolholder

● : Continuous cutting
ᑕ : Light interrupted cutting
✣ : Heavy interrupted cutting

CC



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

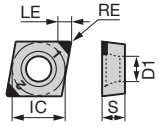
80°Rhombic with hole, Positive 7°

K	Cast iron	
S	Superalloy	●ᑕ
H	Hard material	
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480
Finishing	2QP-CCGW060204	0.4	2.3	2		○					●

● : Line up

CC



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

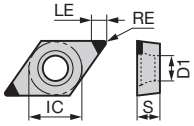
80°Rhombic with hole, Positive 7°

K	Cast iron	
S	Superalloy	●ᑕ
H	Hard material	
	Sintered metal	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480
Finishing	2QP-CCGW09T304	0.4	2.3	2		○					●

● : Line up

DC



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

55° Rhombic with hole, Positive 7°

K	Cast iron	●ᑕ
S	Superalloy	●ᑕ
H	Hard material	
	Sintered metal	ᑕ✣

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480
Medium cutting	2QP-DCGW070204	0.4	2.5	2		○					●

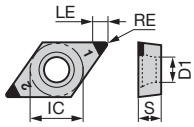
● : Line up

Reference pages : Edge preparation → CBN-6

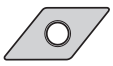
CC Ex.Toolholder | CC In.Toolholder | DC Ex.Toolholder | DC In.Toolholder

● : Continuous cutting
ᑕ : Light interrupted cutting
✣ : Heavy interrupted cutting

DC



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm



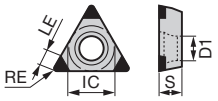
55° Rhombic with hole, Positive 7°

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480	BX815
Precision finishing	**2QP-DCGW11T304-E**	0.4	2.5	2		○						●
	2QP-DCGW11T3**04-LT**		2.5	2						○		●
Finishing	**2QP-DCGW11T304**	0.4	2.5	2		○					●	

● : Line up

TP



IC : 6.35 mm
D1 : 3.4 mm
S : 3.18 mm

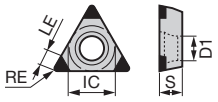
Triangular Positive 11° with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480
Finishing	**3QP-TPGW110302**	0.2	2.3	3		○					●
	3QP-TPGW1103**04**	0.4	2.2	3		○					●
	3QP-TPGW1103**08**	0.8	1.9	3		○					●

● : Line up

TP



IC : 7.94 mm
D1 : 3.4 mm
S : 3.18 mm

Triangular Positive 11° with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480
Finishing	**3QP-TPGW130302**	0.2	2.3	3		○					●
	3QP-TPGW1303**04**	0.4	2.2	3		○					●

● : Line up

DC Ex.Toolholder | In.Toolholder

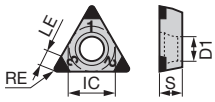
TP In.Toolholder

Reference pages : Edge preparation → CBN-6

● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° with hole



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

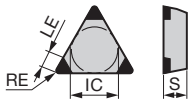
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480
Finishing	3QP-TPGW16T304	0.4	2.2	3		○					●

● : Line up

TP

Triangular Positive 11° without hole



IC : 6.35 mm
S : 3.18 mm

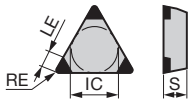
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480
Finishing	3QP-TPGN110302	0.2	2.3	3		○					●
Finishing	3QP-TPGN110304	0.4	2.2	3		○					●
Finishing	3QP-TPGN110308	0.8	1.9	3		○					●

● : Line up

TP

Triangular Positive 11° without hole



IC : 9.525 mm
S : 3.18 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480
Finishing	3QP-TPGN160304	0.4	2.2	3		○					●
Finishing	3QP-TPGN160308	0.8	1.9	3		○					●

● : Line up

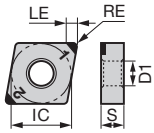
In.Toolholder

CBN Turning

Sintered Metal

●: Continuous cutting
◐: Light interrupted cutting
✣: Heavy interrupted cutting

CN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

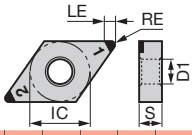
80°Rhombic with hole

	K	Cast iron																					
	S	Superalloy																					
	H	Hard material																					
		Sintered metal	◐	✣																			

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX470	BX480
Precision finishing	2QP-CNGA120404F	0.4	2.3	2			○				●	
	2QP-CNGA120408F	0.8	2.2	2			○				●	
Finishing	2QP-CNGA120404	0.4	2.3	2		○					●	●
	2QP-CNGA120408	0.8	2.2	2		○					●	●
	2QP-CNGA120412	1.2	2.4	2		○					●	●

●: Line up

DN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

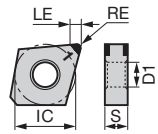
55° Rhombic with hole

	K	Cast iron																					
	S	Superalloy																					
	H	Hard material																					
		Sintered metal	◐	✣																			

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX470	BX480
Finishing	2QP-DNGA150404	0.4	2.5	2		○					●	●
	2QP-DNGA150408	0.8	2.1	2		○					●	●
	2QP-DNGA150412	1.2	2	2		○						●

●: Line up

GN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

70° Rhombic with hole

	K	Cast iron																					
	S	Superalloy																					
	H	Hard material																					
		Sintered metal	◐																				

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX470
Finishing	2QP-GNGA120408	0.8	2.1	2		○					●
	2QP-GNGA120412	1.2	2.2	2		○					●

●: Line up

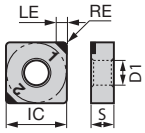
CN, GN Ex.Toolholder | In.Toolholder

DN Ex.Toolholder | In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

SN

Square with hole



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

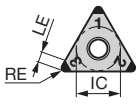
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480
Finishing	2QP-SNGA120404	0.4	2.4	2		○					●
	2QP-SNGA120408	0.8	2.4	2		○					●
	2QP-SNGA120412	1.2	2.4	2		○					●

● : Line up

TN

Triangular with hole



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

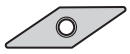
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX470	BX480
Precision finishing	3QP-TNGA160404F	0.4	2.2	3			○				●	
	3QP-TNGA160408F	0.8	1.9	3			○				●	
Finishing	3QP-TNGA160404	0.4	2.2	3		○					●	●
	3QP-TNGA160408	0.8	1.9	3		○					●	●
	3QP-TNGA160412	0.8	1.9	3		○					●	●

● : Line up

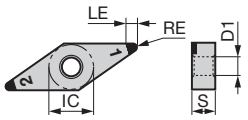
SN Ex.Toolholder In.Toolholder TN Ex.Toolholder In.Toolholder

● : Continuous cutting
ᑕ : Light interrupted cutting
✣ : Heavy interrupted cutting

VN



35° Rhombic with hole



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

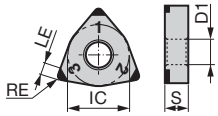
K	Cast iron	●ᑕ
S	Superalloy	●ᑕ
H	Hard material	
	Sintered metal	●ᑕ ✣

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX470	BX480
Finishing	**2QP-VNGA160404**	0.4	3.1	2		○					●	●
Finishing	2QP-VNGA1604**08**	0.8	2.2	2		○					●	●

● : Line up

WN

80° Trigon with hole



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

K	Cast iron	
S	Superalloy	
H	Hard material	
	Sintered metal	✣

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480
Finishing	**3QP-WNGA080408**	0.8	2.2	3		○					●

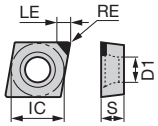
● : Line up

VN Ex.Toolholder | VN In.Toolholder | WN Ex.Toolholder | WN In.Toolholder

● : Continuous cutting
ᑕ : Light interrupted cutting
✣ : Heavy interrupted cutting

CC

80°Rhombic with hole, Positive 7°



IC : 3.57 mm
D1 : 1.9 mm
S : 1.39 mm

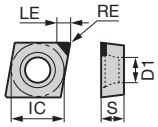
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX470
Precision finishing	1QP-CCGW03X102	0.2	1.4	1		○					●
	1QP-CCGW03X104	0.4	1.3	1		○					●

● : Line up

CC

80°Rhombic with hole, Positive 7°



IC : 4.37 mm
D1 : 2.3 mm
S : 1.79 mm

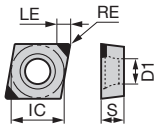
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX470
Precision finishing	1QP-CCGW04T102	0.2	1.9	1		○					●
	1QP-CCGW04T104	0.4	1.8	1		○					●

● : Line up

CC

80°Rhombic with hole, Positive 7°



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

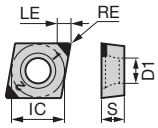
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX470	BX480
Finishing	2QP-CCGW060204	0.4	2.3	2		○					●	●

● : Line up

Ex.Toolholder In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

CC



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

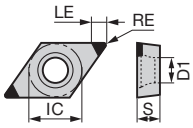
80°Rhombic with hole, Positive 7°

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX470	BX480
Finishing	2QP-CCGW09T304	0.4	2.3	2		○					●	●
	2QP-CCGW09T308	0.8	2.2	2		○					●	

● : Line up

DC



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

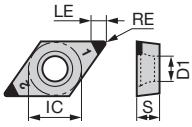
55° Rhombic with hole, Positive 7°

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX470	BX480
Medium cutting	2QP-DCGW070204	0.4	2.5	2		○					●	●
	2QP-DCGW070208	0.8	2.1	2		○					●	

● : Line up

DC



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

55° Rhombic with hole, Positive 7°

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

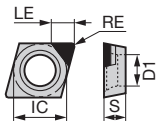
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX470	BX480
Precision finishing	2QP-DCGW11T302F	0.2	2.7	2			○				●	
	2QP-DCGW11T304F	0.4	2.5	2			○				●	
Finishing	2QP-DCGW11T304	0.4	2.5	2		○					●	●
	2QP-DCGW11T308	0.8	2.1	2		○					●	

● : Line up

CC Ex.Toolholder | CC In.Toolholder | DC Ex.Toolholder | DC In.Toolholder

● : Continuous cutting
ᑕ : Light interrupted cutting
✣ : Heavy interrupted cutting

EP



IC : 3.57 mm
D1 : 1.9 mm
S : 1.39 mm

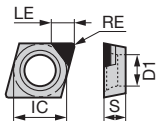
75° Rhombic, Positive 11° with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX470
Finishing	1QP-EPGW03X102	0.2	1.4	1		○					●
Finishing	1QP-EPGW03X104	0.4	1.3	1		○					●

● : Line up

EP



IC : 3.97 mm
D1 : 2.3 mm
S : 1.59 mm

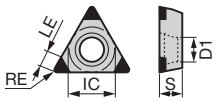
75° Rhombic, Positive 11° with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX470
Finishing	1QP-EPGW040102	0.2	1.7	1		○					●
Finishing	1QP-EPGW040104	0.4	1.6	1		○					●

● : Line up

TP



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

Triangular Positive 11° with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX470
Finishing	3QP-TPGW110204	0.4	2.2	3		○					●
Finishing	3QP-TPGW110208	0.8	1.9	3		○					●

● : Line up

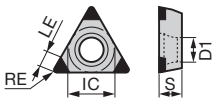
EP In.Toolholder

TP In.Toolholder

● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° with hole



IC : 6.35 mm
D1 : 3.4 mm
S : 3.18 mm

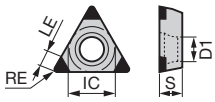
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX470	BX480
Precision finishing	3QP-TPGW110304F	0.4	2,2	3			○				●	
	3QP-TPGW11030**8F**	0.8	1.9	3			○				●	
Finishing	3QP-TPGW110302	0.2	2.3	3		○						●
	3QP-TPGW11030**4**	0.4	2.2	3		○					●	●
Medium cutting	3QP-TPGW110308	0.8	1.9	3		○					●	●

● : Line up

TP

Triangular Positive 11° with hole



IC : 7.94 mm
D1 : 3.4 mm
S : 3.18 mm

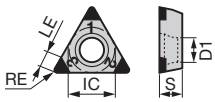
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480
Finishing	3QP-TPGW130302	0.2	2.3	3		○					●
	3QP-TPGW13030**4**	0.4	2.2	3		○					●

● : Line up

TP

Triangular Positive 11° with hole



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flnak wear	Problem: Crater wear	Problem: Chipping	BX480
Finishing	3QP-TPGW16T304	0.4	2.2	3		○					●

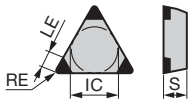
● : Line up

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° without hole



IC : 6.35 mm
S : 3.18 mm

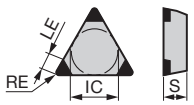
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BX480
Finishing	3QP-TPGN110302	0.2	2.3	3		○					● ✣
	3QP-TPGN110304	0.4	2.2	3		○					● ✣
	3QP-TPGN110308	0.8	1.9	3		○					● ✣

● : Line up

TP

Triangular Positive 11° without hole



IC : 9.525 mm
S : 3.18 mm

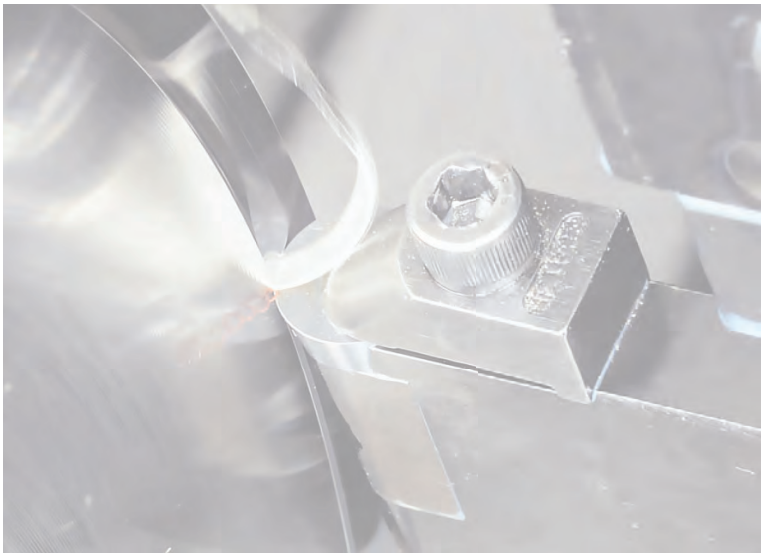
K	Cast iron
S	Superalloy
H	Hard material
	Sintered metal

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flnak wear	Crater wear	Chipping	BX480
Finishing	3QP-TPGN160304	0.4	2.2	3		○					● ✣
	3QP-TPGN160308	0.8	1.9	3		○					● ✣

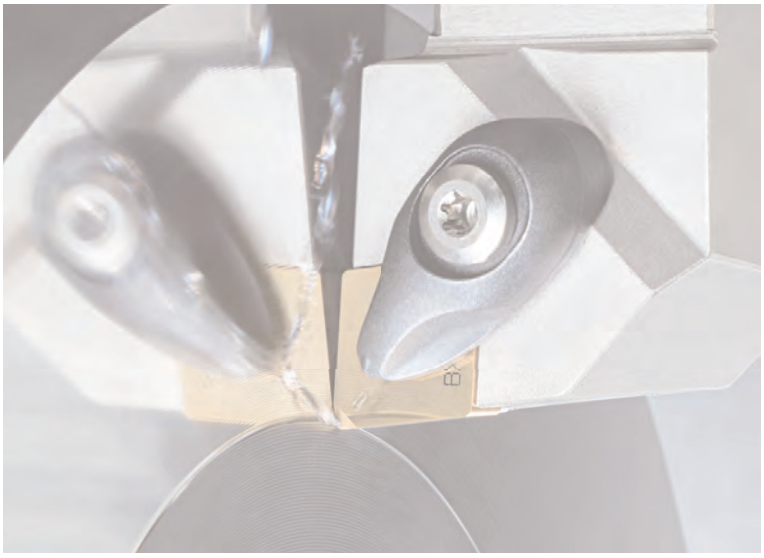
● : Line up

In.Toolholder

ADVANCED
MATERIALS SOLUTIONS



CERAMIC
SOLUTIONS



CBN
SOLUTIONS

PCD
SOLUTIONS

PCD Turning

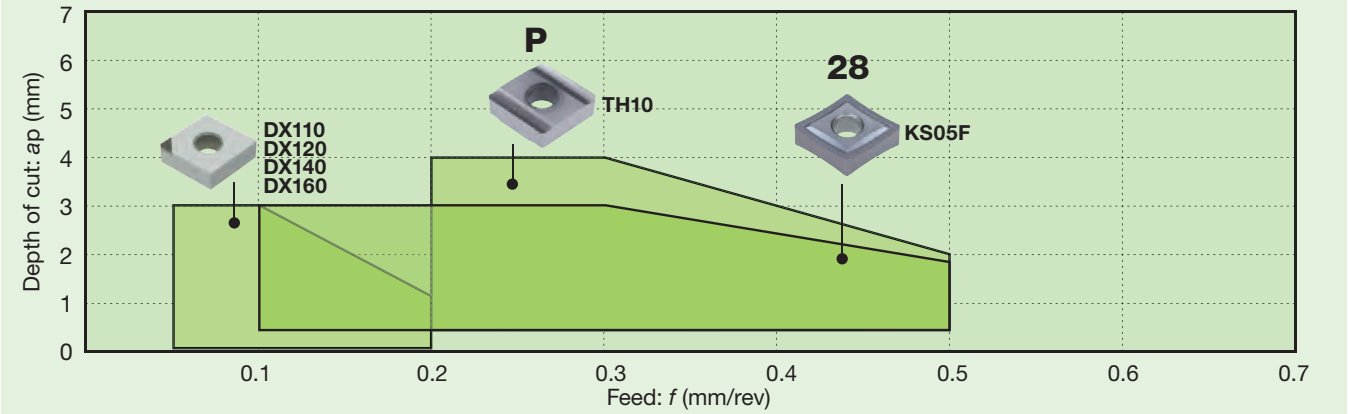
N Non-Ferrous Metal

Chipbreaker Guide

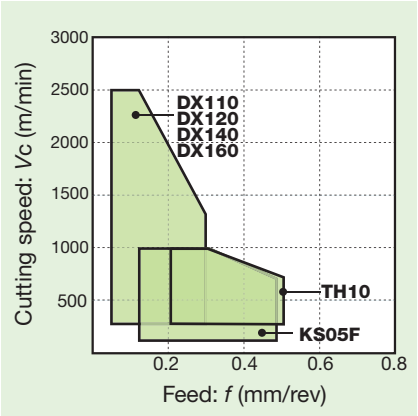
BASIC CHIPBREAKER: NEGATIVE TYPE

N Non-ferrous Metal

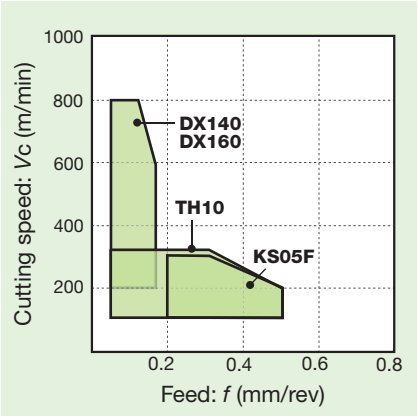
Chipbreaker System for Turning (Negative type)



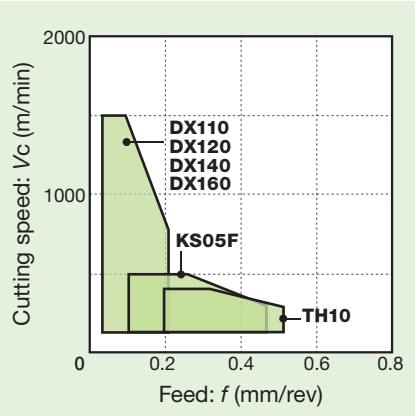
Aluminium alloy (Si < 12%)

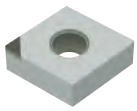
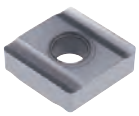


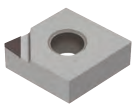
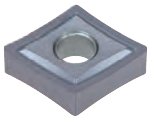
Aluminium alloy (Si ≥ 12%)



Copper alloy



Chipbreaker	Shape	Feature
-		Excellent performance in high-speed finishing of non-ferrous metal, such as aluminium and copper alloy, with diamond sintered body on the cutting edge.
P		Excellent sharpness for non-ferrous metal, such as aluminium and copper alloy.

Chipbreaker	Shape	Feature
With chip-breaker		Wide chipbreaker for excellent chip control.
28		Low cutting geometry with large inclination for finishing to medium cutting range.

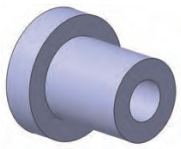
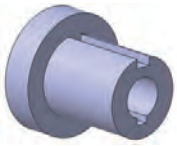
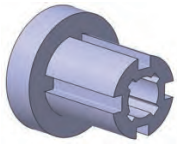
STANDARD CUTTING CONDITIONS

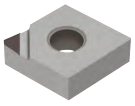
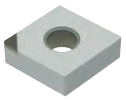
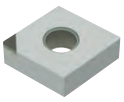
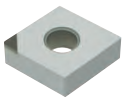
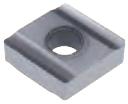
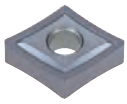
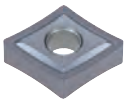
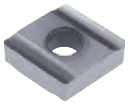
ISO	Operation	Chip-breaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed: *Vc* (m/min) Aluminium alloy (Si < 12%)	Aluminium alloy (Si ≥ 12%)	Copper alloy
N	Precision finishing	With	DX160	0.03 - 0.5	0.05 - 0.15	300 - 2500	300 - 800	300 - 1500
	Finishing	With	DX160	0.05 - 2	0.05 - 0.15	500 - 2500	400 - 800	500 - 1500
		P	TH10	0.5 - 4	0.2 - 0.5	100 - 1000	100 - 300	100 - 300
	Medium cutting	P	KS05F	0.5 - 3	0.1 - 0.5	100 - 1200	100 - 300	100 - 300
		P	KS05F	0.5 - 3	0.1 - 0.5	100 - 1200	100 - 300	100 - 300
		P	TH10	0.5 - 4	0.2 - 0.5	100 - 1000	100 - 300	100 - 300

Selection System

SELECTION SYSTEM: NEGATIVE TYPE

N Non-ferrous Metal

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [ap = ~ 0.5 mm]	Basic  With chipbreaker **DX160** → Surface quality → With chipbreaker **DX110**	Basic  **DX160** → Surface quality → With chipbreaker **DX110**	
Finishing [ap = 0.5 ~2 mm]	Basic  With chipbreaker **DX160** → Surface quality → With chipbreaker **DX110**	Basic  **DX160** → Fracture → **P TH10**	Basic  **P TH10**
Medium cutting [ap = 1 ~ 4 mm]	Basic  **28 KS05F** → Wear → **DX160**	Basic  **28 KS05F** → Wear → **DX160**	Basic  **P TH10**

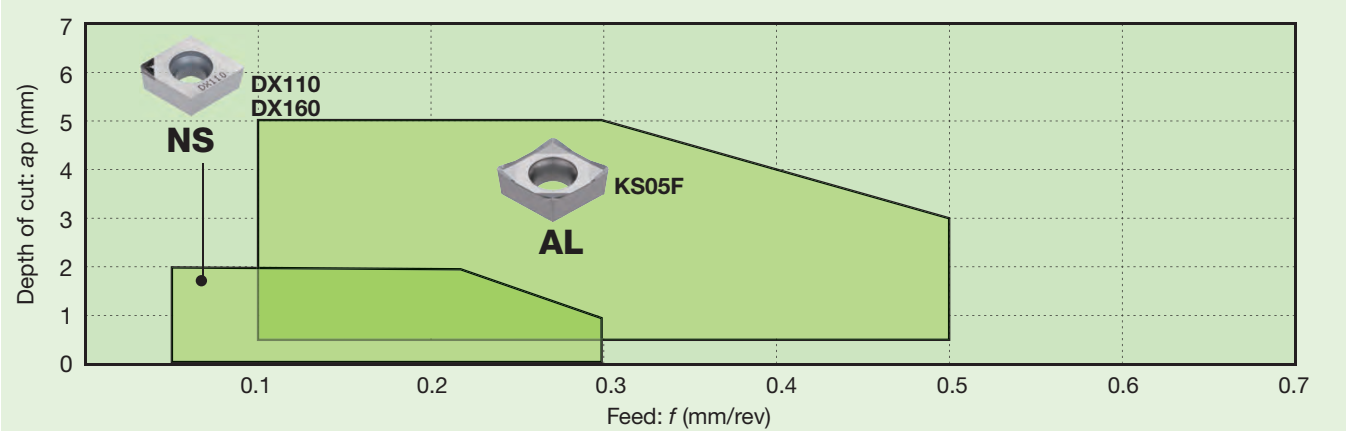
More info

Chipbreaker Guide

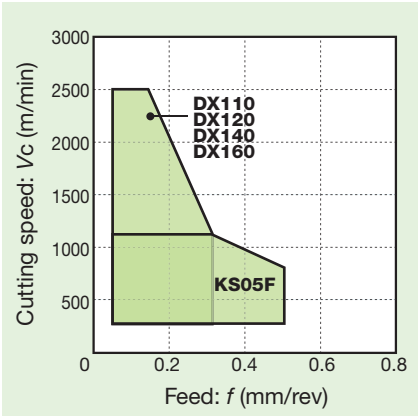
BASIC CHIPBREAKER: POSITIVE TYPE

N Non-ferrous Metal

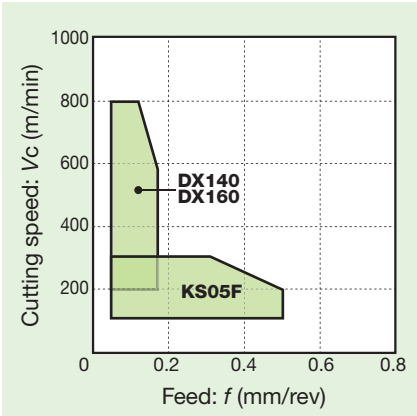
Chipbreaker System for Turning (Positive Type)



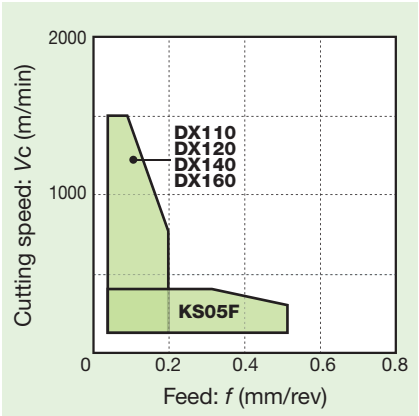
Aluminium alloy (Si < 12%)

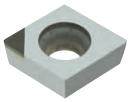
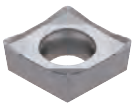


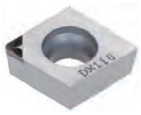
Aluminium alloy (Si ≥ 12%)



Copper alloy



Chipbreaker	Shape	Feature
-		Excellent performance in high-speed finishing of non-ferrous metal with diamond sintered body on the cutting edge.
AL		Large rake angle and sharp cutting edge reduce cutting force. Lapped rake face prevents adhesion. Large inclination on the cutting edge (wavy cutting edge) for more stable chip control.

Chipbreaker	Shape	Feature
NS		A unique three-dimensional chipbreaker. Covers a wide range of condition from roughing to finishing.

STANDARD CUTTING CONDITIONS

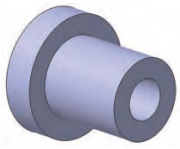
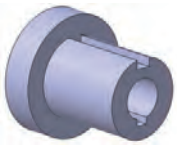
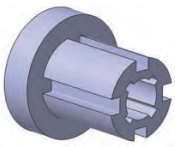
ISO	Operation	Work condition	Chip-breaker	Grade	Depth of cut *ap* (mm)	Feed *f* (mm/rev)	Cutting speed: *Vc* (m/min) Aluminium alloy (Si < 12%)	Aluminium alloy (Si ≥ 12%)	Copper alloy
N	Precision finishing	Continuous	NS	DX160	0.03 - 0.5	0.03 - 0.15	300 - 2500	300 - 800	300 - 1500
		Light interrupted	-	DX160	0.03 - 0.5	0.05 - 0.2	300 - 2500	300 - 600	300 - 1500
	Finishing	Continuous	NS	DX160	0.05 - 2	0.03 - 0.3	300 - 2500	300 - 800	300 - 1500
		Light interrupted	-	DX160	0.05 - 1	0.05 - 0.15	300 - 1800	300 - 600	300 - 1200
		Heavy interrupted	AL	KS05F	0.5 - 5	0.1 - 0.5	100 - 600	100 - 200	100 - 300
	Medium cutting	Continuous	AL	KS05F	0.5 - 5	0.1 - 0.5	100 - 1200	100 - 300	100 - 300
		Light interrupted	AL	KS05F	0.5 - 5	0.1 - 0.5	100 - 900	100 - 200	100 - 200
		Heavy interrupted	AL	KS05F	0.5 - 5	0.1 - 0.5	100 - 600	100 - 200	-

Selection System

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

SELECTION SYSTEM: POSITIVE TYPE

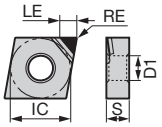
N Non-ferrous Metal

	Continuous	Light interrupted	Heavy interrupted
Precision finishing [a_p = ~ 0.5 mm]	Basic: **NS DX160** → Surface quality: **NS DX110**	Basic: **With chipbreaker DX160** → Surface quality: **With chipbreaker DX110**; Fracture: **DX160**	
Finishing [a_p = 0.5 ~ 2 mm]	Basic: **NS DX160** → Surface quality: **NS DX110**	Basic: **DX160** → Fracture: **AL KS05F**	Basic: **AL KS05F**
Medium cutting [a_p = 1 ~ 5 mm]	Basic: **AL KS05F** → Wear: **With chipbreaker DX160**	Basic: **AL KS05F** → Wear: **DX160**	Basic: **AL KS05F**

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

CN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

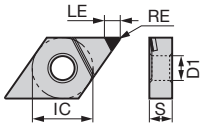
80°Rhombic with hole

N Non-ferrous

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	DX110 ●◐	DX120 ●◐	DX140 ●◐	DX160 ●◐
Finishing	1QP-CNMM120402	0.2	2.8	1	○	●			
	1QP-CNMM120402F		2.6	1	○				●
	CNMM120402-DIA		3.5	1	○		●		
	1QP-CNMM120404	0.4	2.8	1	○	●			
	1QP-CNMM120404F		2.6	1	○				●
	CNMM120404-DIA		3.5	1	○		●		
	CNGA120404-DIA		3.5	1				●	
	1QP-CNMM120408F	0.8	2.5	1	○				●
	CNGA120408-DIA		2.8	1				●	
	1QP-CNMM120412F	1.2	2.4	1	○				●

● : Line up

DN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

55° Rhombic with hole

N Non-ferrous

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	DX120 ●◐	DX140 ●◐	DX160 ●◐
Finishing	1QP-DNMM150402F	0.2	2.6	1	○			●
	DNMM150402-DIA		3.3	1	○	●		
	1QP-DNMM150404F	0.4	2.5	1	○			●
	DNMM150404-DIA		3.1	1	○	●		
	DNGA150404-DIA		3.1	1			●	●
	1QP-DNMM150408F	0.8	2.5	1	○			●
	DNGA150408-DIA		2.8	1			●	
	1QP-DNMM150412F	1.2	2.5	1	○			●

● : Line up

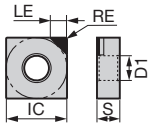
CN Ex.Toolholder In.Toolholder

DN Ex.Toolholder In.Toolholder

● : Continuous cutting
ɔ : Light interrupted cutting
✣ : Heavy interrupted cutting

SN

Square with hole



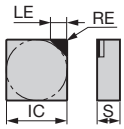
IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX140
Finishing	SNGA120404-DIA	0.4	3.6	1		●
	SNGA120408-DIA	0.8	3.6	1		●

● : Line up

SN

Square without hole



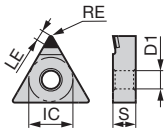
IC : 12.7 mm
S : 4.76 mm

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX140
Finishing	SNGN120408-DIA	0.8	3.6	1		●

● : Line up

TN

Triangular with hole



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

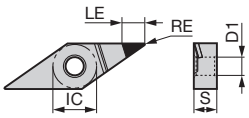
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX110	DX120	DX140	DX160
Finishing	1QP-TNMM160402	0.2	2.7	1	○	●			
	1QP-TNMM160402F		2.6	1	○				●
	TNMM160402-DIA		3.3	1	○		●		
	1QP-TNMM160404	0.4	2.6	1	○	●			
	1QP-TNMM160404F		2.4	1	○				●
	TNMM160404-DIA		3.2	1	○		●		
	TNGA160404-DIA		3.2	1				●	●
	1QP-TNMM160408F	0.8	2.1	1	○				●
	TNGA160408-DIA		2.9	1				●	●

● : Line up

SN Ex.Toolholder In.Toolholder
TN Ex.Toolholder In.Toolholder

● : Continuous cutting
ɔ : Light interrupted cutting
✣ : Heavy interrupted cutting

VN



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

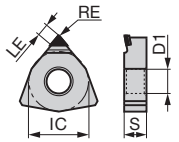
35° Rhombic with hole

N Non-ferrous ●ɔ ●ɔ

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX120	DX160
Finishing	1QP-VNMM160402F	0.2	2.5	1	○		●
	VNMM160402-DIA		4.8	1	○	●	
	1QP-VNMM160404F	0.4	2.3	1	○		●
	VNMM160404-DIA		4.4	1	○	●	
	1QP-VNMM160408F	0.8	2.1	1	○		●
	VNMM160408-DIA		3.6	1	○	●	
	1QP-VNMM160412F	1.2	2.1	1	○		●

● : Line up

WN



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

80° Trigon with hole

N Non-ferrous ●ɔ

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX160
Finishing	1QP-WNMM080402F	0.2	2.6	1	○	●
	1QP-WNMM080404F	0.4	2.6	1	○	●

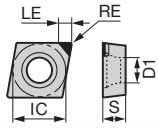
● : Line up

VN Ex.Toolholder In.Toolholder WN Ex.Toolholder In.Toolholder

● : Continuous cutting
ⓒ : Light interrupted cutting
✣ : Heavy interrupted cutting

CC

80°Rhombic Positive 7° with hole



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

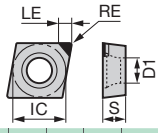
N Non-ferrous

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX200
Finishing	1QP-CCGW04T102F	0.2	1.7	1		●
	CCGW04T104F	0.4	1.6	1		●

● : Line up

CC

80°Rhombic Positive 7° with hole



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

N Non-ferrous

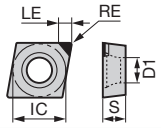
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX110	DX120	DX140	DX160	DX200
Finishing	CCGW060200-DIA	0.05	2.4	1				●		
	1QP-CCGT060201-NS	0.1	3.1	1	○	●				
	1QP-CCMT060202F	0.2	2	1	○				●	
	CCMT060202-DIA		2.4	1	○		●			
	1QP-CCGT060202-NS		3.1	1	○	●			●	
	1QP-CCGW060202F		3.5	1						●
	CCGW060202-DIA		2.4	1				●		
	1QP-CCGT060204-NS	0.4	3.1	1	○	●			●	
	1QP-CCMT060204		2.4	1	○	●				
	1QP-CCMT060204F		2.1	1	○				●	
	CCMT060204-DIA		2.4	1	○		●			
	1QP-CCGW060204F		3	1						●
	CCGW060204-DIA		2.4	1				●		

● : Line up

Ex.Toolholder In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

CC



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

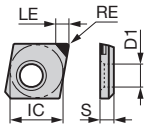
80°Rhombic Positive 7° with hole

N Non-ferrous

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX110 ◐	DX120 ◐	DX140 ◐	DX160 ◐	DX200 ◐
Finishing	1QP-CCGT09T301-NS	0.1	3.1	1	○	●				
	1QP-CCMT09T302F	0.2	2.1	1	○				●	
	CCMT09T302-DIA		2.4	1	○		●			
	1QP-CCGT09T302-NS		3.1	1	○	●			●	
	1QP-CCGW09T302F		3	1						●
	CCGW09T302-DIA		3.5	1				●		
	1QP-CCGT09T304-NS	0.4	3.1	1	○	●			●	
	1QP-CCMT09T304		2.4	1	○	●				
	1QP-CCMT09T304F		2.1	1	○				●	
	CCMT09T304-DIA		2.4	1	○		●			
	1QP-CCGW09T304F		3	1						●
	CCGW09T304-DIA		3.5	1				●	●	
	1QP-CCMT09T308F		2	1	○				●	
	1QP-CCGT09T308-NS	0.8	3	1	○	●			●	
	CCGW09T308-DIA		3.4	1				●		

● : Line up

CP



IC : 9.525 mm
D1 : 4 mm
S : 2.38 mm

80° Rhombic Positive 11° with hole

N Non-ferrous

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX140 ◐
Finishing	CPGA090202-DIA	0.2	2.4	1		●
	CPGA090204-DIA	0.4	2.4	1		●

Tungaloy's standard hole specifi cation (ISO non-compliant)

● : Line up

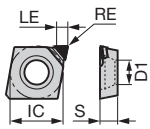
Ex.Toolholder

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

CP

80° Rhombic Positive 11° with hole



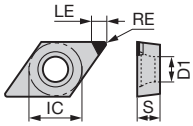
IC : 9.525 mm
D1 : 4.4 mm
S : 3.18 mm

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX160
	N Non-ferrous					◐
Finishing	1QP-CPMT090302F	0.2	2	1	○	●
Finishing	1QP-CPMT090304F	0.4	2	1	○	●
Finishing	1QP-CPMT090308F	0.8	1.9	1	○	●

● : Line up

DC

55° Rhombic Positive 7° with hole



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX110	DX120	DX140	DX160	DX200
	N Non-ferrous					◐	◐	◐	◐	◐
Finishing	DCGW070200-DIA	0.05	2.4	1				●		
Finishing	1QP-DCGT070201-NS	0.1	3.3	1	○	●				
Finishing	1QP-DCGT070202-NS	0.2	3.2	1	○	●			●	
Finishing	1QP-DCMT070202F	0.2	2.5	1	○				●	
Finishing	DCMT070202-DIA	0.2	2.3	1	○		●			
Finishing	1QP-DCGW070202F	0.2	3	1						●
Finishing	DCGW070202-DIA	0.2	2.3	1			●	●		
Finishing	1QP-DCGT070204-NS	0.4	3	1	○	●			●	
Finishing	1QP-DCMT070204F	0.4	2.5	1	○				●	
Finishing	DCMT070204-DIA	0.4	2.1	1	○		●			
Finishing	1QP-DCGW070204F	0.4	3	1						●
Finishing	DCGW070204-DIA	0.4	2.1	1				●		

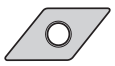
● : Line up

CP Ex.Toolholder In.Toolholder

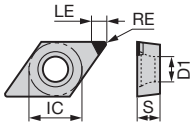
DC Ex.Toolholder In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

DC



55° Rhombic Positive 7° with hole



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

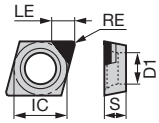
N	Non-ferrous	●◐	●◐	●◐	●◐	●◐

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX110	DX120	DX140	DX160	DX200
Finishing	1QP-DCGT11T301-NS	0.1	3.3	1	○	●				
	1QP-DCGT11T302-NS	0.2	3.2	1	○	●			●	
	1QP-DCMT11T302F		2.6	1	○				●	
	DCMT11T302-DIA		3.2	1	○		●			
	1QP-DCGW11T302F		3	1						●
	DCGW11T302-DIA		3.2	1				●		
	1QP-DCGT11T304-NS	0.4	3	1	○	●			●	
	1QP-DCMT11T304F		2.4	1	○				●	
	DCMT11T304-DIA		3	1	○		●			
	1QP-DCGW11T304F		3	1						●
	DCGW11T304-DIA		3	1				●		
	1QP-DCGW11T308F	0.8	4	1						●
	1QP-DCMT11T308F		2.4	1	○				●	
	1QP-DCGT11T308-NS		3	1	○	●			●	
	DCGW11T308-DIA		2.7	1				●		

● : Line up

EP

75° Rhombic Positive 11° with hole



IC : 3.97 mm
D1 : 2.3 mm
S : 1.59 mm

N	Non-ferrous	●◐

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX140
Finishing	EPGW040102-DIA	0.2	2	1		●
	EPGW040104-DIA	0.4	1.9	1		●

● : Line up

DC Ex.Toolholder

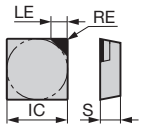
DC In.Toolholder

EP In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

SP

Square Positive 11° without hole



IC : 9.525 mm
S : 3.18 mm

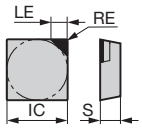
N Non-ferrous

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX140 ●◐
Finishing	SPGN090308-DIA	0.8	3.6	1		●

● : Line up

SP

Square Positive 11° without hole



IC : 12.7 mm
S : 3.18 mm

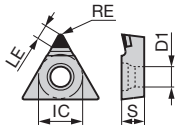
N Non-ferrous

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX140 ●◐	DX160 ●◐
Finishing	SPGN120302-DIA	0.2	3.6	1		●	
Finishing	SPGN120304-DIA	0.4	3.6	1		●	
Finishing	SPGN120308-DIA	0.8	3.6	1		●	●

● : Line up

TC

Triangular Positive 7° with hole



IC : 4.76 mm
D1 : 2.7 mm
S : 2.38 mm

N Non-ferrous

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX120 ●◐
Finishing	TCMT080202-DIA	0.2	2.2	1	○	●
Finishing	TCMT080204-DIA	0.4	2	1	○	●

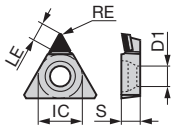
● : Line up

SP In.Toolholder
TP Ex.Toolholder
In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TC

Triangular Positive 7° with hole



IC : 5.56 mm
D1 : 2.58 mm
S : 2.38 mm

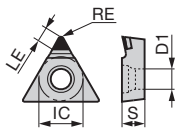
N Non-ferrous

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	DX110	DX160
Finishing	1QP-TCGT090202-NS	0.2	3.1	1	○	●	●
	1QP-TCMT090202F		2.3	1	○		●
	1QP-TCGT090204-NS	0.4	3	1	○		●
	1QP-TCMT090204F		2.2	1	○		●

● : Line up

TC

Triangular Positive 7° with hole



IC : 6.35 mm
D1 : 2.86 mm
S : 2.38 mm

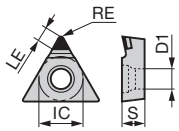
N Non-ferrous

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	DX160
Finishing	1QP-TCGT110202-NS	0.2	3.1	1	○	●
	1QP-TCGT110204-NS	0.4	3	1	○	●

● : Line up

TC

Triangular Positive 7° with hole



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

N Non-ferrous

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	DX160
Finishing	1QP-TCGT16T304-NS	0.4	3	1	○	●
	1QP-TCGT16T308-NS	0.8	3.1	1	○	●

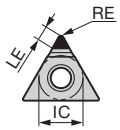
● : Line up

Ex.Toolholder In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TC

Triangular Positive 7° with hole



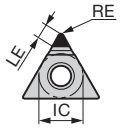
IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	N Non-ferrous ●◐ DX120	N Non-ferrous ●◐ DX160
Finishing	1QP-TCMT110202F	0.2	2.3	1	○		●
	TCMT110202-DIA		2.4	1	○	●	
	1QP-TCMT110204F	0.4	2.2	1	○		●
	TCMT110204-DIA		2.2	1	○	●	

● : Line up

TC

Triangular Positive 7° with hole



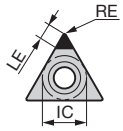
IC : 6.35 mm
D1 : 2.8 mm
S : 3.18 mm

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	N Non-ferrous ●◐ DX110	N Non-ferrous ●◐ DX120
Finishing	TCMT110302-DIA	0.2	2.4	1	○		●
	1QP-TCMT110304	0.4	2.2	1	○	●	
	TCMT110304-DIA		2.2	1	○		●

● : Line up

TP

Triangular Positive 11° with hole



IC : 5.56 mm
D1 : 2.5 mm
S : 2.38 mm

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	N Non-ferrous ●◐ DX140
Finishing	TPGA090202-DIA	0.2	2.4	1		●
	TPGA090204-DIA	0.4	2.2	1		●

Tungaloy's standard hole specifi cation (ISO non-compliant)

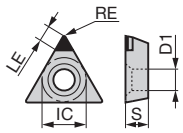
● : Line up

TC Ex.Toolholder
TC In.Toolholder
TP In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° with hole



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

N Non-ferrous ●◐

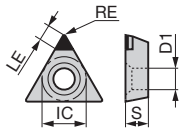
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX140
Finishing	TPGA110202-DIA	0.2	2.4	1		●
Finishing	TPGA110204-DIA	0.4	2.2	1		●

Tungaloy's standard hole specifi cation (ISO non-compliant)

● : Line up

TP

Triangular Positive 11° with hole



IC : 6.35 mm
D1 : 3 mm
S : 3.18 mm

N Non-ferrous ●◐

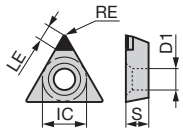
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX140
Finishing	TPGA110302-DIA	0.2	2.4	1		●
Finishing	TPGA110304-DIA	0.4	2.2	1		●
Finishing	TPGA110308-DIA	0.8	2.9	1		●

Tungaloy's standard hole specifi cation (ISO non-compliant)

● : Line up

TP

Triangular Positive 11° with hole



IC : 4.76 mm
D1 : 2.3 mm
S : 2.38 mm

N Non-ferrous ●◐

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX160
Finishing	1QP-TPGT080202-NS	0.2	2.7	1	○	●
Finishing	1QP-TPGT080204-NS	0.4	2.6	1	○	●

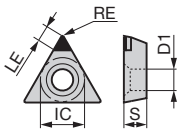
● : Line up

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° with hole



IC : 5.56 mm
D1 : 2.58 mm
S : 2.38 mm

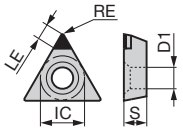
N Non-ferrous

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX160
Finishing	1QP-TPGT090202-NS	0.2	3.1	1	○	●
Finishing	1QP-TPGT090204-NS	0.4	3	1	○	●

● : Line up

TP

Triangular Positive 11° with hole



IC : 6.35 mm
D1 : 3.4 mm
S : 3.18 mm

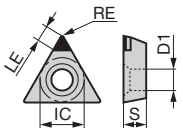
N Non-ferrous

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX160
Finishing	1QP-TPGT110302-NS	0.2	3.1	1	○	●
Finishing	1QP-TPGT110304-NS	0.4	3	1	○	●

● : Line up

TP

Triangular Positive 11° with hole



IC : 9.525 mm
D1 : 4 mm
S : 3.18 mm

N Non-ferrous

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX140
Finishing	TPGA160302-DIA	0.2	3.3	1		●
Finishing	TPGA160304-DIA	0.4	3.2	1		●
Finishing	TPGA160308-DIA	0.8	2.9	1		●

Tungaloy's standard hole specification (ISO non-compliant)

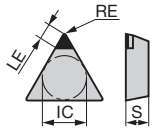
● : Line up

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° without hole



IC : 5.56 mm
S : 2.38 mm

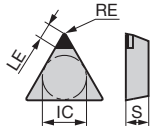
N Non-ferrous

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	DX140
Finishing	TPGN090204-DIA	0.4	2.2	1		●

● : Line up

TP

Triangular Positive 11° without hole



IC : 6.35 mm
S : 3.18 mm

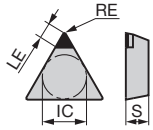
N Non-ferrous

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	DX120	DX140
Finishing	TPGN110304-DIA	0.4	3.2	1		●	●
	TPGN110308-DIA	0.8	2.9	1			●

● : Line up

TP

Triangular Positive 11° without hole



IC : 9.525 mm
S : 3.18 mm

N Non-ferrous

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	DX120	DX140
Finishing	TPGN160302-DIA	0.2	3.3	1			●
	TPGN160304-DIA	0.4	3.2	1		●	●
	TPGN160308-DIA	0.8	2.9	1			●

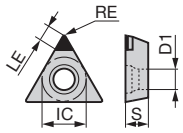
● : Line up

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° with hole



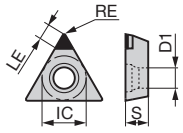
IC : 4.76 mm
D1 : 2.3 mm
S : 2.38 mm

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	N Non-ferrous ◐ DX140
Finishing	TPGW080202-DIA	0.2	2.4	1		●
	TPGW080204-DIA	0.4	2.3	1		●

● : Line up

TP

Triangular Positive 11° with hole



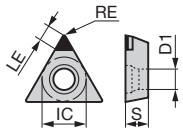
IC : 5.56 mm
D1 : 2.5 mm
S : 2.38 mm

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	N Non-ferrous ◐ DX120	◐ DX140
Finishing	TPGW090202-DIA	0.2	2.4	1		●	●
	TPGW090204-DIA	0.4	2.2	1			●

● : Line up

TP

Triangular Positive 11° with hole



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	N Non-ferrous ◐ DX120	◐ DX140
Finishing	TPGW110202-DIA	0.2	2.4	1		●	●
	TPGW110204-DIA	0.4	2.2	1			●

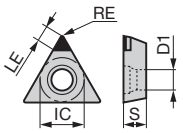
● : Line up

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° with hole



IC : 7.94 mm
D1 : 3.4 mm
S : 3.18 mm

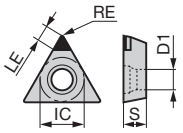
N Non-ferrous

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	DX120	DX140
Finishing	TPGW130302-DIA	0.2	3.3	1		●	●
	TPGW130304-DIA	0.4	3.2	1			●

● : Line up

TP

Triangular Positive 11° with hole



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

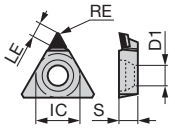
N Non-ferrous

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	DX140
Finishing	TPGW16T302-DIA	0.2	3.3	1		●
	TPGW16T304-DIA	0.4	3.2	1		●
	TPGW16T308-DIA	0.8	2.9	1		●

● : Line up

TP

Triangular Positive 11° with hole



IC : 4.76 mm
D1 : 2.3 mm
S : 2.38 mm

N Non-ferrous

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	DX160
Finishing	1QP-TPMT080202F	0.2	1.8	1	○	●
	1QP-TPMT080204F	0.4	1.7	1	○	●

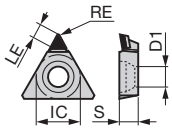
● : Line up

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

TP

Triangular Positive 11° with hole



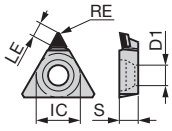
IC : 5.56 mm
D1 : 2.58 mm
S : 2.38 mm

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	N Non-ferrous ●◐ DX160
Finishing	1QP-TPMT090202F	0.2	1.8	1	○	●
Finishing	1QP-TPMT090204F	0.4	1.7	1	○	●

● : Line up

TP

Triangular Positive 11° with hole



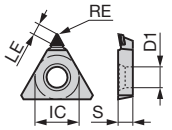
IC : 6.35 mm
D1 : 3.4 mm
S : 3.18 mm

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	N Non-ferrous ●◐ DX160
Finishing	1QP-TPMT110302F	0.2	2.3	1	○	●
Finishing	1QP-TPMT110304F	0.4	2.2	1	○	●

● : Line up

TP

Triangular Positive 11° with hole



IC : 9.525 mm
D1 : 4.5 mm
S : 3.18 mm

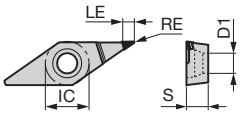
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	N Non-ferrous ●◐ DX160
Finishing	1QP-TPMH160302F	0.2	2.4	1		●
Finishing	1QP-TPMH160304F	0.4	2.3	1		●

● : Line up

In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

VB



IC : 6.35 mm
D1 : 2.86 mm
S : 3.18 mm

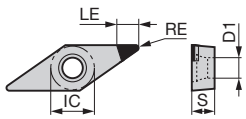
35° Rhombic Positive 5° with hole

N Non-ferrous ●◐

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX160
Finishing	1QP-VBMT110302F	0.2	2.5	1	○	●
	1QP-VBMT110304F	0.4	2.3	1	○	●
	1QP-VBMT110308F	0.8	2.1	1	○	●

● : Line up

VB



IC : 9.525 mm
D1 : 4.4 mm
S : 4.76 mm

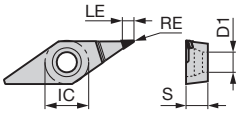
35° Rhombic Positive 5° with hole

N Non-ferrous ●◐ ●◐

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX110	DX160
Finishing	1QP-VBGT160401-NS	0.1	2.8	1	○	●	
	1QP-VBMT160402F	0.2	2.5	1	○		●
	1QP-VBGT160402-NS		3.4	1	○	●	●
	1QP-VBGT160404-NS	0.4	3	1	○	●	●
	1QP-VBMT160404F		2.3	1	○		●
	1QP-VBGT160408-NS	0.8	3	1	○	●	●
	1QP-VBMT160408F		2.1	1	○		●

● : Line up

VC



IC : 4.76 mm
D1 : 2.3 mm
S : 2.38 mm

35° Rhombic Positive 7° with hole

N Non-ferrous ●◐ ●◐

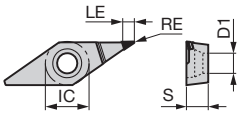
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Chipbreaker	DX110	DX160
Finishing	1QP-VCGT080202-NS	0.2	3.4	1	○	●	●
	1QP-VCMT080202F	0.2	2.5	1	○		●
	1QP-VCMT080204F	0.4	2.3	1	○		●
	1QP-VCMT080208F	0.8	2.1	1	○		●

● : Line up

Ex.Toolholder In.Toolholder

● : Continuous cutting
◐ : Light interrupted cutting
✣ : Heavy interrupted cutting

VC



IC : 6.35 mm
D1 : 2.86 mm
S : 3.18 mm

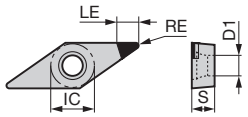
35° Rhombic Positive 7° with hole

N Non-ferrous

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	DX110	DX160	DX200
Finishing	1QP-VCGT110302-NS	0.2	3.4	1	○	●	●	
	1QP-VCMT110302F		2.5	1	○		●	
	1QP-VCGW110302F		3.4	1				●
	1QP-VCGT110304-NS	0.4	3	1	○		●	
	1QP-VCMT110304F		2.3	1	○		●	

● : Line up

VC



IC : 9.525 mm
D1 : 4.4 mm
S : 4.76 mm

35° Rhombic Positive 7° with hole

N Non-ferrous

Application	Designation	Dimension (mm) RE	LE	No. of corners	Chipbreaker	DX110	DX120	DX140	DX160
Finishing	1QP-VCGT160401-NS	0.1	2.8	1	○	●			
	1QP-VCGT160402-NS	0.2	3.4	1	○	●			●
	1QP-VCMT160402F		2.5	1	○				●
	VCMT160402-DIA		4.8	1	○		●		
	VCGW160402-DIA		4.8	1				●	
	1QP-VCGT160404-NS	0.4	3	1	○	●			●
	1QP-VCMT160404F		2.3	1	○				●
	VCMT160404-DIA		4.4	1	○		●		
	VCGW160404-DIA		4.4	1				●	
	1QP-VCGT160408-NS	0.8	3	1	○	●			●
	1QP-VCMT160408F		2.1	1	○				●
	1QP-VCMT160412F	1.2	2.1	1	○				●

● : Line up

Ex.Toolholder In.Toolholder

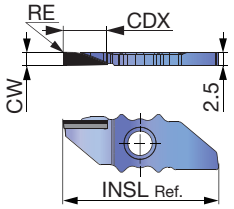
PCD Grooving

N Non-Ferrous Metal

DUOJCUT

INSERTS

JXDX**R-F (PCD insert)



P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	★
S	Superalloys	
H	Hard materials	

★ : First choice

Designation	HAND	CW±0.05	RE	PCD DX110	CDX	INSL
JXDX12R20F	R	2	< 0.1	●	6	25
JXDX12R25F	R	2.5	< 0.1	●	6.5	25
JXDX16R25F	R	2.5	< 0.1	●	7	29

● : Line up

More info

STANDARD CUTTING CONDITIONS

For aluminium and non-ferrous metal PCD insert

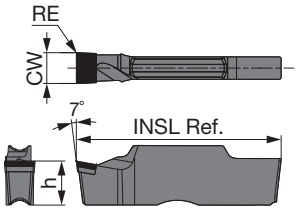
ISO	Workpiece materials	Grades	Operation	Cutting speed *Vc* (m/min)	Feed *f* (mm/rev)	Depth of cut *ap* (mm)
N	Aluminium alloys A5056, A6061, etc.	DX110	Grooving	100 - 300	0.03 - 0.15	-
		DX110	Turning	100 - 300	0.03 - 0.15	< 6

TUNGCUT

New

STX

External/internal/face grooving and turning



P	Steel	
M	Stainless	
K	Cast iron	
N	Non-ferrous	★
S	Superalloys	
H	Hard materials	

★ : First choice

Designation	Seat size	HAND	CW±0.05	RE	PCD	INSL	h
					DX160		
STX200R-010	2	R	2	0.1	★	20	5
STX200L-010	2	L	2	0.1	★	20	5
STX200R-020	2	R	2	0.2	●	20	5
STX200L-020	2	L	2	0.2	●	20	5
STX300R-020	3	R	3	0.2	●	20	5
STX300L-020	3	L	3	0.2	●	20	5
STX400R-020	4	R	4	0.2	●	20	5
STX400L-020	4	L	4	0.2	●	20	5
STX400R-040	4	R	4	0.4	●	20	5
STX400L-040	4	L	4	0.4	●	20	5
STX500R-020	5	R	5	0.2	●	25	5.5
STX500L-020	5	L	5	0.2	●	25	5.5
STX500R-040	5	R	5	0.4	●	25	5.5
STX500L-040	5	L	5	0.4	●	25	5.5

★: Will be released in July 2025
●: New product

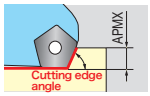
More info

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Grade	Operation	Cutting speed *Vc* (m/min)	Feed *f* (mm/rev)	Depth of cut *ap* (mm)
N	Aluminium alloys Si ≤ 12%	DX160	Grooving	200 - 2000	0.05 - 0.15	-
		DX160	Turning	200 - 2000	0.07 - 0.3	< 1
	Aluminium alloys Si ≥ 12%	DX160	Grooving	200 - 1500	0.05 - 0.15	-
		DX160	Turning	200 - 1500	0.07 - 0.3	< 1
	Copper and copper alloys	DX160	Grooving	200 - 1500	0.05 - 0.15	-
		DX160	Turning	200 - 1500	0.07 - 0.3	< 1
	Carbon / Graphite	DX160	Grooving	200 - 500	0.05 - 0.15	-
		DX160	Turning	200 - 500	0.07 - 0.3	< 1
	Ceramic	DX160	Grooving	100 - 200	0.02 - 0.1	-
		DX160	Turning	100 - 200	0.02 - 0.1	< 1
	Tungsten carbide (HRA80 - 95)	DX160	Grooving	5 - 30	0.02 - 0.1	-
		DX160	Turning	5 - 30	0.02 - 0.1	0.02 - 0.2

PCD Milling

N Non-Ferrous Metal

	TUNGSMILL T/EPYD	TFE	HFC	HPC
				
Cutting edge angle	90°	85.5°	90°	90°
Depth of cut (APMX)	4.5 / 7.5	8 / 3.5 / 1.5	6.5 / 7.5	4 / 5
Tool diameter	ø40 - ø160	ø63 - ø125	ø50 - ø125	ø20 - ø35
Workpiece material	N	P M K N	N	N
No. of corners (insert)	1	4 / 1 / 2	1	1 / 2
 Face milling	★ ★ ★ ☆	★ ★ ★ ☆	★ ★ ★	★ ★ ★
 Shoulder milling	★			
Reference pages	PCD-28	PCD-31	PCD-35	PCD-36

Icon

Thin workpiece
Hollow workpiece
Face milling
Shoulder milling
Interrupted surface

TUNGSMILL SPEED

Super high density PCD cutter for efficient finishing of aluminum

The number of insert settings that can be used for a wide range of machining forms

TPYD06..., EPYD06...

DC (mm)	Number of inserts on the cutter		
	Coarse pitch	Close pitch	Extra close pitch
40	-	-	8
50	6	8	10
63	8	10	14
80	-	10	16
100	-	12	22
125	-	14	26
160	-	20	34

TPYD06...(Lightweight type)

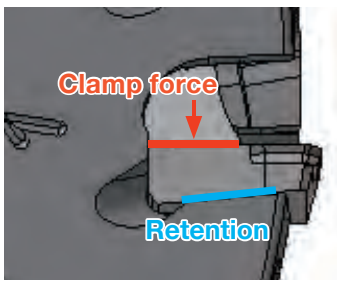
DC (mm)	Cutter weight (kg, Insert-included)	Number of inserts on the cutter	
		Close pitch	Extra close pitch
100	< 1.3*	12	22
125	< 1.8*	14	26

*Including the arbor weight, it must be 3 kg or less.

Safety measures for high speed milling

Safety insert lock to protect against centrifugal force

Inserts are securely retained in place, preventing displacement due to centrifugal force during high-speed milling.



Wedge shape design prevents the insert from dislodging from its seat due to centrifugal inertia force.

Note: Do not exceed the maximum rotation (n max) inscribed on the cutter body.

DC (mm)	Max. rotation number (min^{-1})
40	24,000
50	20,000
63	19,000
80	17,000
100	15,000
125	14,000
160	12,000

More info

TUNGSPEED MILL

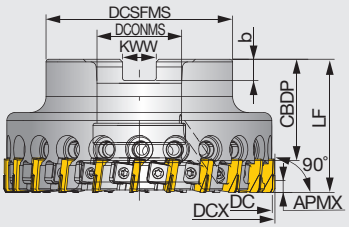
TPYD06

Face milling cutter for non-ferrous applications, bore type, with PCD inserts

GAMP = +9°, GAMF = +4°

ø40 - ø63 mm

ø63 - ø160 mm



Designation	APMX	DC	DCX	CICT	DCSFMS	LF	DCONMS	CBDP	KWW	b	WT(kg)	Air hole	RPMX(min^{-1})	Insert
TPYD06M040B16.0R08*	4.5	40	42	8	38	40	16	18	8.4	5.6	0.28	With	24000	YDEN0603...
TPYD06M050B22.0R10*	4.5	50	52	10	47	40	22	20	10.4	6.3	0.42	With	21000	YDEN0603...
TPYD06M063B22.0R08	4.5	63	65	8	45	40	22	20	10.4	6.3	0.59	With	19,000	YDEN0603...
TPYD06M063B22.0R10	4.5	63	65	10	45	40	22	20	10.4	6.3	0.57	With	19,000	YDEN0603...
TPYD06M063B22.0R14*	4.5	63	65	14	47	40	22	20	10.4	6.3	0.42	With	19000	YDEN0603...
TPYD06M080B27.0R10	4.5	80	82	10	60	50	27	22	12.4	7	1.3	With	17,000	YDEN0603...
TPYD06M080B27.0R16	4.5	80	82	16	60	50	27	22	12.4	7	1.24	With	17,000	YDEN0603...
TPYD06J080B25.4R10	4.5	80	82	10	60	50	25.4	26	9.5	6	1.31	With	17,000	YDEN0603...
TPYD06J080B25.4R16	4.5	80	82	16	60	50	25.4	26	9.5	6	1.26	With	17,000	YDEN0603...
TPYD06M100B32.0R12	4.5	100	102	12	70	50	32	25	14.4	8	1.85	With	15,000	YDEN0603...
TPYD06M100B32.0R22	4.5	100	102	22	70	50	32	25	14.4	8	1.78	With	15,000	YDEN0603...
TPYD06J100B31.7R12	4.5	100	102	12	70	50	31.75	32	12.7	8	1.84	With	15,000	YDEN0603...
TPYD06J100B31.7R22	4.5	100	102	22	70	50	31.75	32	12.7	8	1.76	With	15,000	YDEN0603...
TPYD06M125B40.0R14	4.5	125	127	14	90	60	40	32	16.4	9	3.59	With	14,000	YDEN0603...
TPYD06M125B40.0R26	4.5	125	127	26	90	60	40	32	16.4	9	3.48	With	14,000	YDEN0603...
TPYD06J125B38.1R14	4.5	125	127	14	90	60	38.1	38	15.9	10	3.61	With	14,000	YDEN0603...
TPYD06J125B38.1R26	4.5	125	127	26	90	60	38.1	38	15.9	10	3.56	With	14,000	YDEN0603...
TPYD06M160B40.0R20	4.5	160	162	20	90	60	40	32	16.4	9	5.34	With	12,000	YDEN0603...
TPYD06M160B40.0R34	4.5	160	162	34	90	60	40	32	16.4	9	5.2	With	12,000	YDEN0603...
TPYD06J160B38.1R20	4.5	160	162	20	90	60	38.1	38	15.9	10	5.43	With	12,000	YDEN0603...
TPYD06J160B38.1R34	4.5	160	162	34	90	60	38.1	38	15.9	10	5.29	With	12,000	YDEN0603...

*Wrench, Grip, and Shell locking bolt are not included in the box.

SPARE PARTS






Designation	Insert locking wedge	Wedge fixing screw	Adjusting wedge screw (Optional)	Grip (Optional)	Shell locking bolt (Optional)	Wedge tightening wrench (Optional)
TPYD06M040B16.0R08	WF385N	SSHM5-4PF-S	(AJC08-BLDS635)	(TBJ)	(SRPS118-0416)	(P-2.5F)
TPYD06M050B22.0R10	WF385N	SSHM5-4PF-S	(AJC08-BLDS635)	(TBJ)	(FSHM10-40H)	(P-2.5F)
TPYD06M063B22.0R14	WF385N	SSHM5-4PF-S	(AJC08-BLDS635)	(TBJ)	(CM10X30H)	(P-2.5F)

SPARE PARTS






Designation	Insert locking wedge	Wedge fixing screw	Adjusting cam	Torx bit	Cam tightening screw	Wrench	Grip	Shell locking bolt
TPYD06M063B22.0R**	WF875N	DS-5T	AJC08	BLDT10/S7-A	SSHM4-4	P-2	H-TB2W	CM10x30H
TPYD06*080B2*.*R**	WF875N	DS-5T	AJC08	BLDT10/S7-A	SSHM4-4	P-2	H-TB2W	CM12x30H
TPYD06M100B32.0R**	WF875N	DS-5T	AJC08	BLDT10/S7-A	SSHM4-4	P-2	H-TB2W	CM16x40H
TPYD06J100B31.7R**	WF875N	DS-5T	AJC08	BLDT10/S7-A	SSHM4-4	P-2	H-TB2W	TMBA-M16H
TPYD06*125B**.*R**	WF875N	DS-5T	AJC08	BLDT10/S7-A	SSHM4-4	P-2	H-TB2W	TMBA-M20H
TPYD06*160B**.*R**	WF875N	DS-5T	AJC08	BLDT10/S7-A	SSHM4-4	P-2	H-TB2W	TMBA-M20H

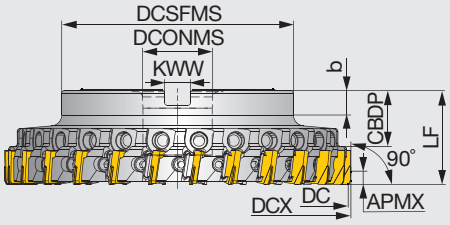
Reference pages:Inserts, Standard cutting conditions → PCD-30

TUNGSMILL FEED

TPYD06

Face milling cutter for non-ferrous applications, bore type, with PCD inserts

GAMP = +9°, GAMF = +4°



Designation	APMX	DC	DCX	CICT	DCSFMS	LF	DCONMS	CBDP	KWW	b	WT(kg)	Air hole	RPMX(min^{-1})	Insert
TPYD06J100B25.4R12	4.5	100	102	12	70	35	25.4	24.5	9.5	6	1.29	With	15000	YDEN0603...
TPYD06M100B27.0R12	4.5	100	102	12	76	35	27	24.5	12.4	7	1.27	With	15000	YDEN0603...
TPYD06J100B25.4R22	4.5	100	102	22	70	35	25.4	24.5	9.5	6	1.29	With	15000	YDEN0603...
TPYD06M100B27.0R22	4.5	100	102	22	76	35	27	24.5	12.4	7	1.27	With	15000	YDEN0603...
TPYD06J125B25.4R14	4.5	125	127	14	70	35	25.4	24.5	9.5	6	1.71	With	13000	YDEN0603...
TPYD06M125B27.0R14	4.5	125	127	14	76	35	27	24.5	12.4	7	1.69	With	13000	YDEN0603...
TPYD06J125B25.4R26	4.5	125	127	26	70	35	25.4	24.5	9.5	6	1.71	With	13000	YDEN0603...
TPYD06M125B27.0R26	4.5	125	127	26	76	35	27	24.5	12.4	7	1.68	With	13000	YDEN0603...

Wrench, Grip, and Shell locking bolt are not included in the box.

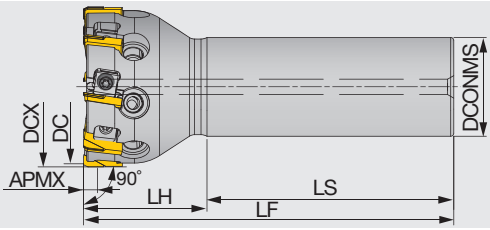
SPARE PARTS

Designation	Insert locking wedge	Wedge fixing screw	Adjusting wedge screw (Optional)	Grip (Optional)	Shell locking bolt (Optional)	Wedge tightening wrench (Optional)
TPYD06M100B**.*R...	WF385N	SSHM5-4PF-S	(AJC08-BLDS635)	(TBJ)	(HM12-26OH)	(P-2.5F)
TPYD06M125B**.*R...	WF385N	SSHM5-4PF-S	(AJC08-BLDS635)	(TBJ)	(HM12-26OH)	(P-2.5F)

EPYD06

Face milling cutter for non-ferrous applications, shank type, with PCD inserts

GAMP = +9°, GAMF = +4°



Designation	APMX	DC	DCX	CICT	DCONMS	LF	LH	LS	WT(kg)	Air hole	RPMX(min^{-1})	Insert
EPYD06M050C32.0R06	4.5	50	52	6	32	120	40	80	0.91	With	20,000	YDEN0603...
EPYD06M050C32.0R08	4.5	50	52	8	32	120	40	80	0.9	With	20,000	YDEN0603...

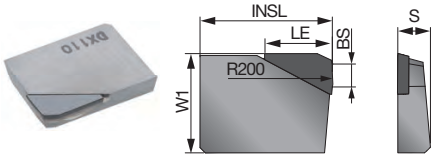
SPARE PARTS

Designation	Insert locking wedge	Wedge fixing screw	Adjusting cam	Torx bit	Cam tightening screw	Wrench	Grip
EPYD06M050C32.0R**	WF875N	DS-5T	AJC08	BLDT10/S7-A	SSHM4-4	P-2	H-TB2W

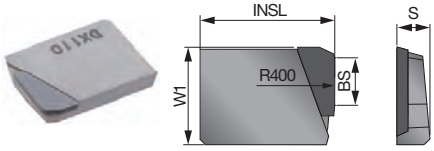
Reference pages:Inserts, Standard cutting conditions → PCD-30

INSERT

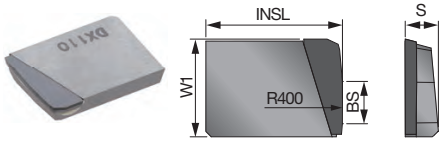
YDEN0603PD(F/S)R-D



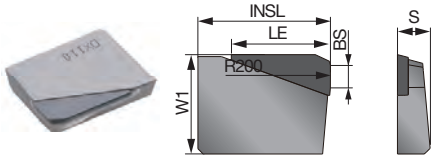
YDEN0603PDFR-WD



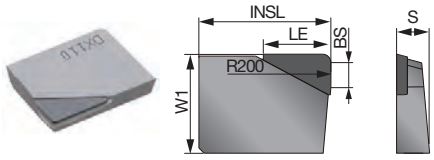
YDEN0603PDFR-BD



YDEN0603PDCR-LD



YDEN0603(04/08)PDFR-D



P	Steel
M	Stainless
K	Cast iron
N	Non-ferrous ★
S	Superalloys
H	Hard materials

★ : First choice

Designation	APMX	Edge prep.	PCD DX110	W1	INSL	S	BS	LE
YDEN0603PDFR-D	4.5	Without	●	9.5	12.7	3.1	2.2	6.5
YDEN0603PDSR-D	4.5	With	●	9.5	12.7	3.1	2.2	6.5
YDEN060304PDFR-D	4.5	Without	●	9.5	12.7	3.1	2.8	6.5
YDEN060308PDFR-D	4.5	Without	●	9.5	12.7	3.1	2.4	6.5
YDEN0603PDCR-LD	7.5	With*	●	9.5	12.7	3.1	2.2	9.5
YDEN0603PDFR-WD	-	Without	●	9.2	12.8	3.1	4.5	-
YDEN0603PDFR-BD	-	Without	●	9.2	12.9	3.1	4	-

* Edge preparation is applied only on the peripheral and chamfered sections. The remaining section of the cutting edge is left sharp.

● : Line up
Package quantity = 1 pc. per box

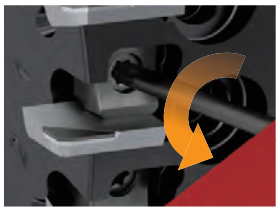
STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Grades	Cutting speed *Vc* (m/min)	Feed per tooth *fz* (mm/t)
N	Cast aluminum alloy / Die-cast (Si < 13%)	DX110	500 - 4,000	0.05 - 0.2
	Cast aluminum alloy / Die-cast (Si ≥ 13%)	DX110	200 - 800	0.05 - 0.2
	Aluminum alloy (1000 - 7000 series)	DX110	500 - 4,000	0.05 - 0.2
	Copper alloy	DX110	200 - 500	0.05 - 0.2

- The values in the above list are of standard recommendations and may require adjustments in consideration with cutting depths and/or workpiece/machine rigidity.
- Use wiper inserts (-WD) for better surface requirements and deburring inserts (-BD) to remove burrs.
- Always use wet cutting (emulsion coolant) for machining aluminum or copper alloys.
- To make the best of the cutter's deburring ability, make sure to place a deburring insert immediately behind every standard insert on the cutter.

INSERT SETTING PROCEDURE FOR UNIQUE AXIAL ADJUSTING MECHANISM CUTTER (DC 63 - 160 mm / Exterior color: Black)

1 Loosening the wedge



Loosen the wedge so that they do not exceed the cutter's outer diameter.

2 Cleaning insert pockets

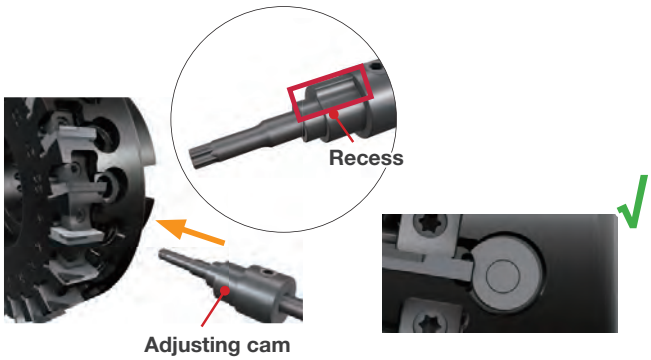
Remove all the inserts from the pockets. Use compressed air to thoroughly clean the pockets of dust and chips.

3 Mounting the inserts, LIGHTLY tighten the wedge

Place the insert in the pocket and LIGHTLY tighten the wedge at 1 N·m (0.74 ft-lb). Make sure that there are no gaps between the insert and cutter body.
Fix all inserts on the cutter in the same manner.

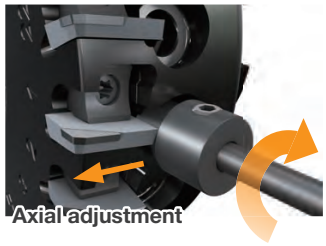
4 Place the Adjusting cam

The recessed part of the cam should be placed on the insert bottom.



5 Initially adjusting the axial height

Place the adjusting cam in the hole located at the bottom of the pocket. Adjust the insert axial height by rotating the cam in the CW direction to gradually increase the axial measure. Stop when it reaches 30 µm ~ 40 µm just below the desired position. Then, slightly rotate the cam in the CCW direction before removing the cam from the cutter body.



6 Tighten the wedges

Firmly tighten the wedges to 3.5 N·m (2.58 ft-lb).
In order to prevent body deformation from tightening, it is recommended to perform the final tightening alternately.
Do not exceed the recommended clamping torque when fixing the insert. This may damage or fracture the screw.

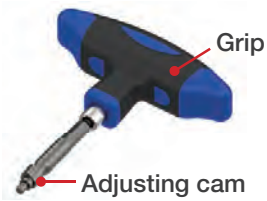
7 Final adjustments

For the final axial adjustment, instead of setting the insert height close to the target position, set so that it reaches approximately 8 µm above the target.
Slightly rotate the cam CCW to remove the key off the body. The insert will go down by 8 µm to the target height when the cam is removed. It is recommended that the inserts be set to less than 5 µm axially in relation to one another.

INSERT SETTING PROCEDURE (DC 40 - 63mm, 100 - 120 mm / Exterior color: Silver)

Preparing the key wrenches

■ The key for axial adjustment of insert



■ The key for tightening the wedge screws

Note: The key wrenches are not included with the cutter. Please purchase them separately.

1 Loosening the wedge

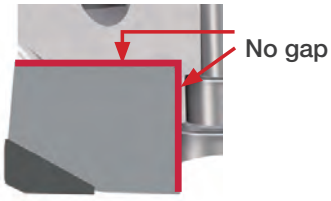
Loosen the wedge so that they do not exceed the cutter's outer diameter.

2 Cleaning insert pockets

Remove all the inserts from the pockets. Use compressed air to thoroughly clean the pockets of dust and chips.

3 Mounting the inserts, LIGHTLY tighten the wedge

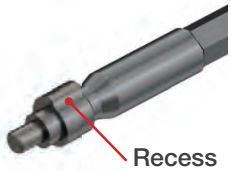
Place the insert in the pocket and LIGHTLY tighten the wedge to 1 N·m (0.74 ft-lb). Make sure that there are no gaps between the insert and cutter body.
Fix all inserts on the cutter in the same manner.



Direction to place the insert

4 Place the Adjusting cam

The recessed part of the cam should be placed on the insert bottom.



5 Initially adjusting the axial height

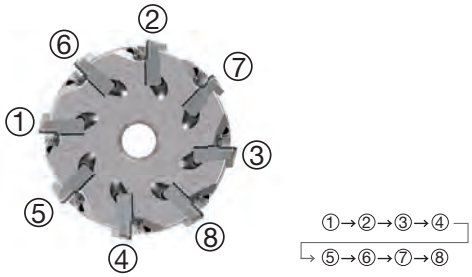
Place the adjusting cam in the hole located at the bottom of the pocket. Adjust the insert axial height by rotating the cam in the CW direction to gradually increase the axial measure. Stop when it reaches 20 µm just below the desired position. Then, slightly rotate the cam in the CCW direction before removing the cam from the cutter body.

Note: Make sure to place the cam all the way in.

Note: If the desired height is not reached and is exceeded during adjustment, loosen the wedge and push the insert all the way to the pocket bottom, then start from Step 3.

6 Tighten the wedges

Firmly tighten the wedges to 2 N·m (2.58 ft-lb).
In order to prevent body deformation from tightening, it is recommended to perform the final tightening alternatively. Do not exceed the recommended clamping torque when fixing the insert. This may damage or fracture the screw.



7 Final adjustments

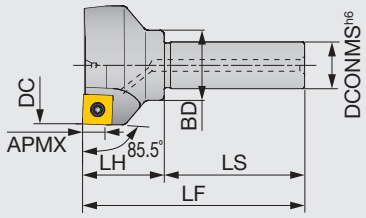
For the final axial adjustment, instead of setting the insert height close to the target position, set so that it reaches approximately 5 µm above the target.
Slightly rotate the cam CCW to remove the key off the body. The insert will go down by 5 µm to the target height when the cam is removed. It is recommended that the inserts be set to less than 5µm axially in relation to one another.

EFE / TFE

EFE12R

Face endmill for aluminium machining, shank type, with screw clamp system

GAMP = +13°, GAMF = +7°

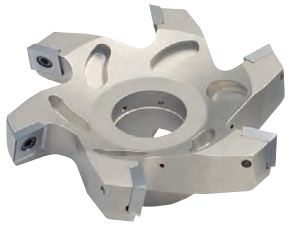


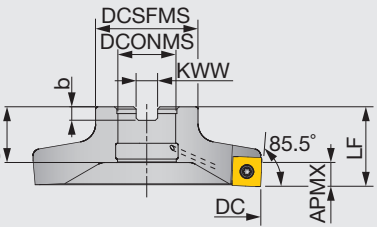
Designation	APMX	DC	CICT	DCONMS	BD	LS	LH	LF	WT(kg)	Air hole	Insert
EFE12050R	8	50	3	20	30	60	35	95	0.37	With	SEG*12X4...

TFE12R

Face mill for aluminium machining, with screw clamp system, light weight

GAMP = +13°, GAMF = +7°



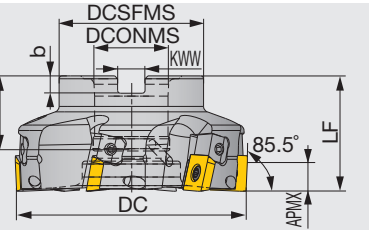


Designation	APMX	DC	CICT	DCSFMS	LF	DCONMS	CBDP	KWW	b	WT(kg)	Air hole	Insert
TFE12063R	8	63	3	45	35	22	19	10	6	0.34	With	SEG*12X4...
TFE12080R	8	80	4	50	35	25.4	24.5	9.5	6	0.45	With	SEG*12X4...
TFE12100R	8	100	6	50	35	25.4	24.5	9.5	6	0.59	With	SEG*12X4...
TFE12125R	8	125	6	50	35	25.4	24.5	9.5	6	0.9	With	SEG*12X4...

TFE12R...-...A

Face mill for aluminium machining, with screw clamp system

GAMP = +13°, GAMF = +7°



Designation	APMX	DC	CICT	DCSFMS	LF	DCONMS	CBDP	KWW	b	WT(kg)	Air hole	Insert
TFE12R080M25.4-06A	8	80	6	50	40	25.4	26	9.5	6	0.70	With	SEG*12X4...
TFE12R080M27.0E06A	8	80	6	55	40	27	22	12.4	7	0.69	With	SEG*12X4...
TFE12R100M25.4-08A	8	100	8	50	40	25.4	26	9.5	6	1.15	With	SEG*12X4...
TFE12R100M27.0E08A	8	100	8	55	40	27	22	12.4	7	1.11	With	SEG*12X4...
TFE12R125M31.7-10A	8	125	10	70	50	31.7	32	12.7	8	2.24	With	SEG*12X4...
TFE12R125M32.0E10A	8	125	10	70	50	32	28.5	14.4	8	2.14	With	SEG*12X4...

SPARE PARTS








Designation	Clamping screw	Adjustable Wedge	Lubricant	Shell locking bolt 1	Shell locking bolt 2	Right-left screw	Wrench	Wrench
EFE12000R	CSPB-4S	-	M-1000	-	-	-	-	IP-15D
TFE12063R	CSPB-4S	-	M-1000	-	CM10X30H	-	-	IP-15D
TFE12080R - TFE12125R	CSPB-4S	-	M-1000	TMBA-M12H	-	-	-	IP-15D
TFE12R**A	CSTB-4	FW-701R	M-1000	TMBA-M12H	-	MCS520-2.5	P-2.5T	T-15LB

Recommended clamping torque: 3.5 N·m

Reference pages: Inserts → PCD-35, Standard cutting conditions → PCD-36

INSERT SETTING PROCEDURE – ADJUSTABLE-TYPE TFE FACE MILLING CUTTER

① Cleaning insert pockets

Remove all the inserts. Use air pressure to thoroughly clean the pockets of dust and chips.

② Loosening wedges

Use the included key for wedge adjustment to loosen all the wedges so that they do not exceed the cutter's outer diameter.

③ Clamping inserts for adjustments

Place the insert in the pocket and lightly tighten the clamping screw with the included key. Suggested method: Tighten the screw first with the straight end of the key (Fig A) until finger tight, then use the angled end to further tighten the screw for insert steadiness (Fig B). Do NOT fully tighten the screw at this moment as this procedure is prior to insert adjustment. Repeat the procedure for all inserts.

④ Axial height adjustment of inserts

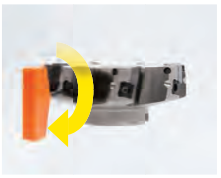
Mount the cutter in Step ③ on the setting fixture of the pre-setter. Determine the highest insert, and, while carefully monitoring each insert's axial position, rotate the wedge screw in the CW direction to raise the insert in the axial direction, as close as possible to that of the highest insert. Repeat this procedure for all inserts.

Note:
Since the insert is clamped, loosening the wedge screw will not bring down the insert. To lower insert height, both the insert and wedge screws need to be loosened. Start the adjusting procedure for this insert again from Step 1.

⑤ Tighten insert screws

Tighten the insert clamping screw at 3.5 Nm, using the key as shown to the left. Repeat the procedure for all inserts.

⑥ Final adjustments



After final tightening of all insert screws, measure to ensure all inserts are at the desired axial heights. If necessary, further tighten any wedge screws in the CW direction for the final few microns. For inserts exceeding the required runout, re-start the adjustment procedure from Step ① .

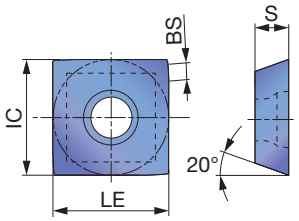
Note:
Do not re-tighten the insert screw after insert adjustment is completed. Additional tightening may weaken wedge clamping torque.

Cautions:

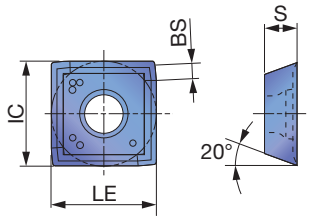
① Always clean all the insert pockets thoroughly of dust and chips. Any objects present in the pocket may shift the insert's position during machining and cause poor surface finishing quality.
② Always loosen the wedge screw before installing the insert as described in Step ② . If the wedge is left tightened in the cutter, the adjustment range of the wedge will be limited, and insert height may not be as freely adjustable as possible.
③ With a finger, firmly press and hold the insert into the wedge while tightening the insert screw. If the insert is not in contact, the wedge has to be driven until the gap in between is closed, with no actual insert movement.
④ Loosening the wedge will not lower the insert. When the insert height exceeds the desired setting during adjustment, loosen both the insert and wedge screws and re-start the adjustment procedure from Step ① . If the insert slides downward when the wedge screw is loosened, the clamping torque of the insert screw is too low. Tighten the insert screw with a slightly higher torque. Suggested clamping method: First use the straight end of the key to tighten the screw until finger tight, then switch the key to the angled side and turn an additional 45°.
⑤ Do not exceed the recommended clamping torque when fixing the insert. This may damage or fracture the insert screw.

INSERT

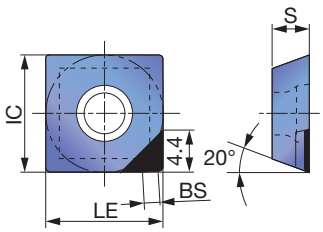
SEGW12X4ZEPR / ZEFR



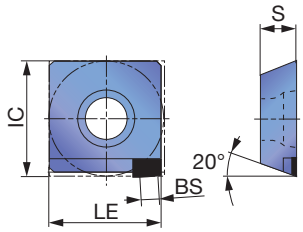
SEGT12X4-AJ



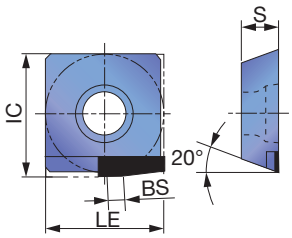
SEGW12X4ZEFR-D



SEGW12X4ZEFR-WD



SEGW12X4ZEFR-BD



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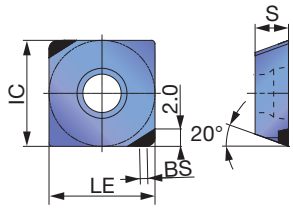

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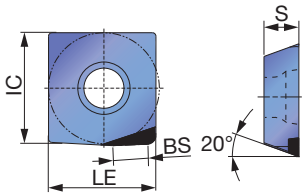

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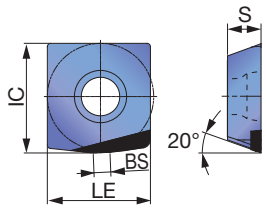


		Coated			Cermet	Uncoated	PCD	CBN
P	Steel	★			★			
M	Stainless		★					
K	Cast iron	★						★
N	Non-ferrous			★		★	★	
S	Superalloys							
H	Hard materials							

★ : First choice

Designation	APMX	AH120	AH140	DS1100	NS740	KS05F	DX140	BX480	IC	LE	S	BS
SEGW12X4ZEFR	8					●			12.7	12.7	4	1.8
SEGW12X4ZEPR	8	●	●		●				12.7	12.7	4	1.4
SEGT12X4ZEFR-AJ	8			●		●			12.7	12.7	4	1.8
SEGW12X4ZEFR-D	3.5						●		12.7	12.7	4	1.8
SEGW12X4ZEFR-WD	-						●		12.8	12.4	4	2
SEGW12X4ZEFR-BD	-						●		13.1	12.4	4	1.8
2QP-SECW12X412ZETR	1.5							●	12.7	12.7	4	0.9
1QP-SECW12X4ZETR-W	-							●	12.9	12.3	4	4
1QP-SECW12X4ZETR-B	-							●	13.1	12.3	4	2

● : Line up

DX140: 2 pieces per package
BX480: 1 piece per package

How to put each insert together

			For general	Accuracy of machining surface priority	Burr reduction priority
Applicable insert	General insert	SEGW12X4ZEFR-D DX140 2QP-SECW12X412ZETR BX480	◎	◎	◎
	Wiper insert	SEGW12X4ZEFR-WD DX140 1QP-SECW12X4ZETR-W BX480	–	◎	–
	Wiper insert for burr reduction	SEGW12X4ZEFR-BD DX140 1QP-SECW12X4ZETR-B BX480	–	–	◎
	Number of Inserts by type		All general	1 or 2 wiper inserts in cutter body	General insert : Burr wiper insert = 1 : 1
Accuracy of machining surface (roughness and undulation)			△	◎	○
Burr of machining surface			△	○	◎

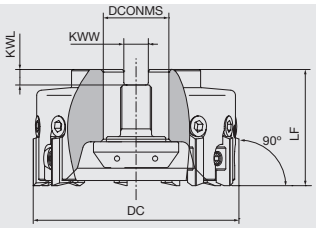
STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Hardness	Grade	Designation	Cutting speed *Vc* (m/min)	Feed per tooth *fz* (mm/t)
P	Carbon steels and alloy steels	< 300HB	AH120	SEGW12X4ZEPR	100 - 180	0.03 - 0.15
		< 300HB	NS740	SEGW12X4ZEPR	100 - 180	0.03 - 0.15
M	Stainless steels	< 250HB	AH140	SEGW12X4ZEPR	80 - 180	0.03 - 0.15
K	Grey and ductile cast irons	150 - 250 HB	AH120	SEGW12X4ZEPR	100 - 200	0.03 - 0.15
	Grey cast iron	150 - 250 HB	BX480	2QP-SECW12X412ZETR	800 - 1500	0.05 - 0.3
	Ductile cast irons	150 - 250 HB	BX480	2QP-SECW12X412ZETR	500 - 800	0.05 - 0.2
N	Cast aluminium alloy / Die-cast Si < 13%	-	KS05F	SEGT12X4ZEFR-AJ	200 - 1500	0.05 - 0.2
		-	DX140	SEGW12X4ZEFR-D	200 - 1500	0.05 - 0.2
	Cast aluminium alloy / Die-cast Si ≥ 13%	-	KS05F	SEGT12X4ZEFR-AJ	80 - 200	0.05 - 0.2
		-	DX140	SEGW12X4ZEFR-D	200 - 500	0.05 - 0.2
	Aluminium alloy Tensile strength < 350 N/mm²	-	KS05F	SEGT12X4ZEFR-AJ	200 - 1500	0.05 - 0.2
		-	DX140	SEGW12X4ZEFR-D	200 - 1500	0.05 - 0.2
	Aluminium alloy Tensile strength > 350 N/mm²	-	KS05F	SEGW12X4ZEFR	200 - 1500	0.05 - 0.2
		-	DX140	SEGW12X4ZEFR-D	200 - 1500	0.05 - 0.2
	Copper alloy	-	KS05F	SEGT12X4ZEFR-AJ	200 - 500	0.05 - 0.2
		-	DX140	SEGW12X4ZEFR-D	200 - 500	0.05 - 0.2

Notes:
- In milling aluminium and copper alloys:
  (1) For improved surface finish, use together with wiper insert SEGW12X4ZEFR-WD
  (2) For reducing burr occurrence, use together with deburring inserts SEGW12X4ZEFR-BD
- When milling aluminium and copper alloys, use of a water soluble cutting fluid is recommended. When milling steels, cast irons, and stainless steels, dry cutting is recommended.
- When the length-to-diameter overhang ratio of the tool (L/D) exceeds 3, reduce cutting speed and feed to 70 to 80% of the values given in the table.

JHF...

Face mill, bore type, lightweight aluminum body, 1 corner type insert



Designation	DC	CICT	LF	DCONMS	KWL	KWW	WT(kg)	Air hole	RPMX(min^{-1})	Insert
JHF050C2200R07	50	7	45	22	6.3	10.4	0.23	Without	20000	HFT...
JHF063C2200R10	63	10	45	22	6.3	10.4	0.38	Without	20000	HFT...
JHF080A2540R12	80	12	45	25.4	6	9.5	0.48	Without	18000	HFT...
JHF100A2540R16	100	16	45	25.4	6	9.5	0.74	Without	18000	HFT...
JHF125A2540R22	125	22	45	25.4	6	9.5	1.1	Without	15000	HFT...

SPARE PARTS

Designation	Wedge	Clamp screw	Screw (for Axial set)	Wrench (for Clamp screw	Wrench (for Axial set))	Clamping bolt
JHF050C2200R07, JHF063C2200R10	HLW179	WS0512	CS0510A	LW-2.5	LW-4	CS1040A
JHF080A2540R12, JHF100A2540R16 JHF125A2540R22	HLW179	WS0512	CS0510A	LW-2.5	LW-4	MBC-M12

INSERT

HFT...

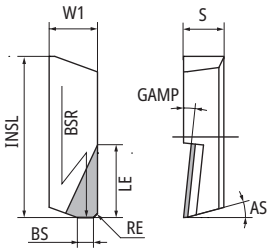


Fig.1

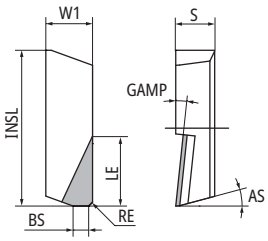


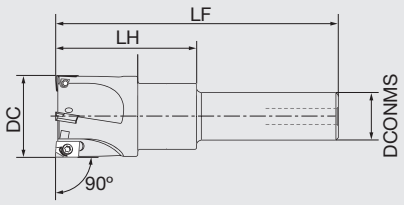
Fig.2

Designation	PCD PD1	Chipbreaker	Wiper	AS	BS	BSR	GMAP	INSL	LE	RE	S	W1	Figure
HFT802006C05	●	No	Arch	5°	2	150	6°	20	7.5	C0.5	5	6	1
HFT802006R04	●	No	Arch	5°	2	150	6°	20	7.5	0.4	5	6	1
HFT702010W05	●	No	Arch	5°	2	-	10°	20	6.5	Double chamfer	5	6	2

More info

RD...

Face mill, shank type cutter, Steel body, fixed type



Designation	DC	CICT	LH	LF	DCONMS	WT(kg)	Air hole	RPMX(min^{-1})	Insert
RD020T20070R03	20	3	30	100	20	0.23	Without	18000	HDA...
RD025T25070R03	25	3	40	110	25	0.37	Without	18000	HDA...
RD030T20060R04	30	4	60	120	20	0.33	Without	18000	HDA...
RD032T20060R04	32	4	60	120	20	0.36	Without	18000	HDA...
RD035T20060R04	35	4	60	120	20	0.36	Without	18000	HDA...

SPARE PARTS

Designation	Clamp screw	Wrench (for Clamp screw)
RD0**T2****R...	FSI0306A	(6300-T10-80)

INSERT

HDA...

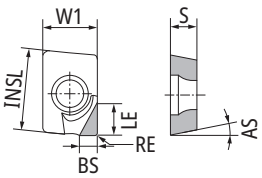


Fig.1

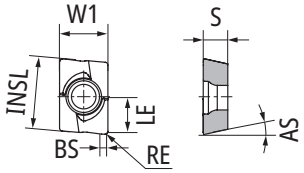


Fig.2

Designation	PCD PD1	Carbide PVD TM1	Chipbreaker	Wiper	AS	BS	GAMF	GMAP	INSL	LE	RE	S	W1	Figure
HDA4015R04	●		No	Arch	14	-1.5	4°	9°	10	4	0.4	3.4	6.7	1
HDA405R04		●	Yes	Arch	14	-0.9	4°	9°	10	MIN 5.0	0.4	3.4	6.7	2

More info

Adjusting and handling instructions for High Feed Cutter

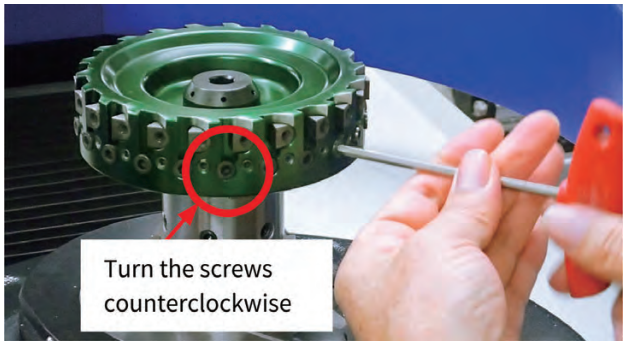
Procedures

1. Loosen the axial adjustment screw
2. Insert installation (temporary tightening)
3. Cleaning the insert edge
4. Cutting edge height adjustment (Rough)
5. Insert installation (main tightening)
6. Cutting edge height adjustment (Finish)

Preparations

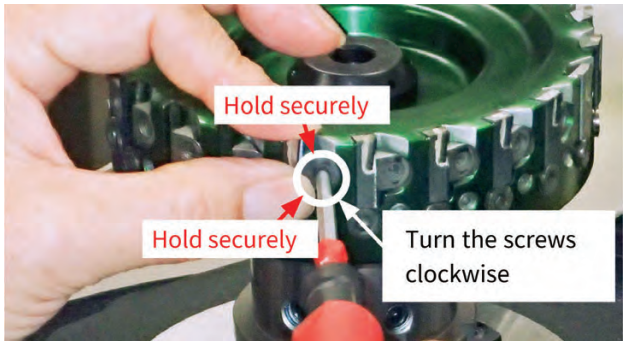
- Tool presetter
- Air blower
- 4.0mm Hex wrench
- 2.5mm Hex torque-wrench(1-4 N-m)

1. Loosen the axial adjustment screw



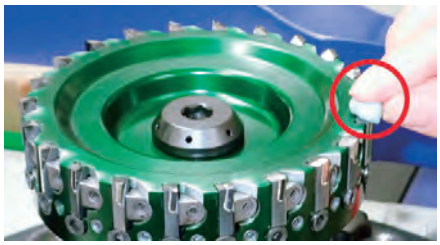
Loosen the axial adjustment screw and move it out about 1~2mm from the outer circumference of the body. When re-setting, clean the insert mounting area with air after removing the insert.

2. Install the inserts (initially tighten)



Install the insert to cutter pocket. Tighten wedge set screw with 1Nm torque while pushing insert to cutter center using two fingers. (do not overtighten)

3. cleaning the cutting edge

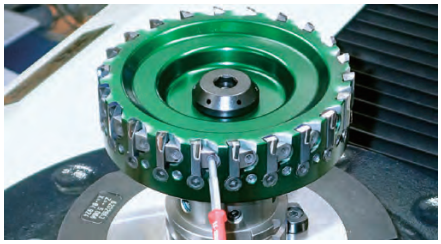


Clean the cutting edge with clay or other material to prevent misalignment of accuracy due to dust.

4. Cutting edge height adjustment (rough)

Turn the axial adjustment screw until it is near the position where it does not come out of the outer circumference of the body. (clockwise) [Approximate height of the blade edge: 44.980 mm] Adjust all edge heights according to that height. (within about 10μm)

5. insert installation (final tightening)



Tighten the wedge fixing screw to 4 N-m. (Clockwise)

4. cutting edge height adjustment (finishing)

Turn the axial adjustment screw to further increase the height of all blades by 10 μm and adjust the cutting edge height to within ±2 μm. Adjust the blade tip height to within ±2μm. The approximate height of the cutting edge is 45.000 mm.

*If the cutting edge height is raised too high during adjustment, if it is only a few micrometers, the highest cutting edge should be adjusted again.
If it is too far off, it is necessary to start over from the beginning.
(Because distortion occurs due to stress.)

Note(s): After tightening (4 N-m), the lower surface of the insert and the axial adjustment screw may not be in contact, and the full blade-up operation described above is necessary as a measure to prevent the axial adjustment screw from falling out.

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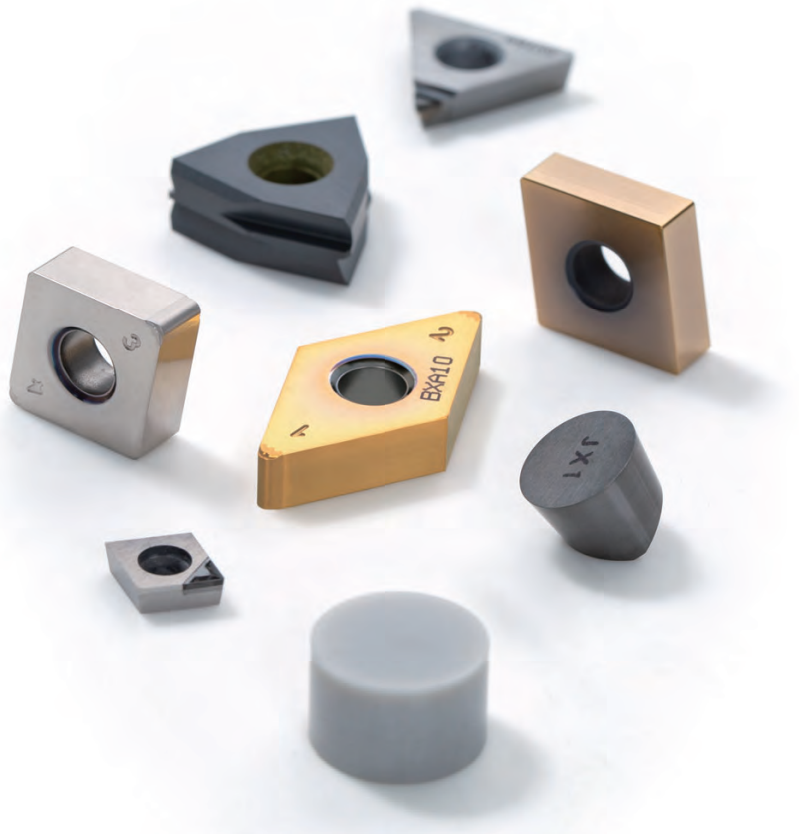

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