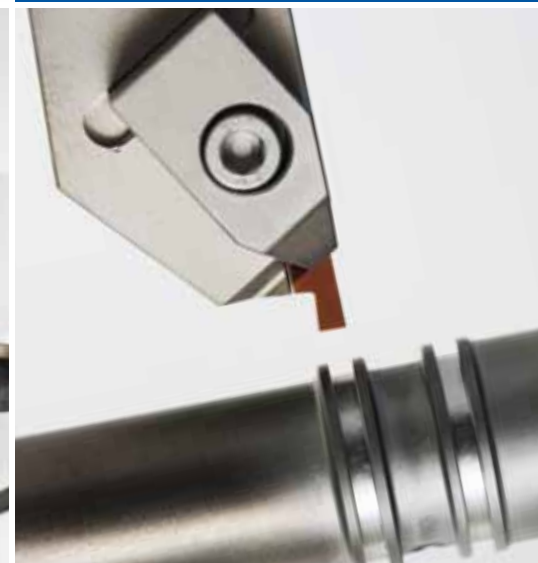
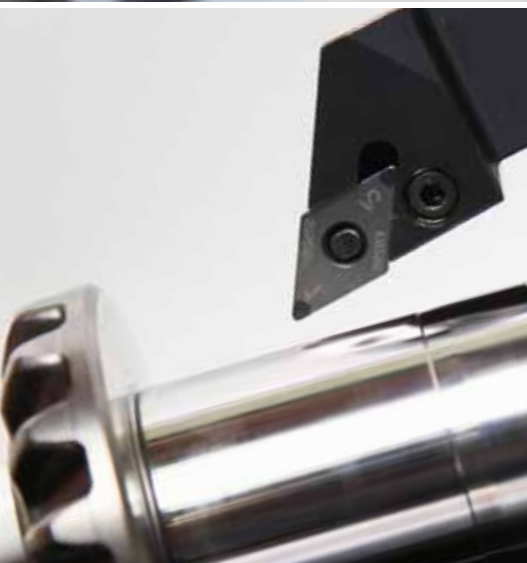


INNOVATOR IN
TECHNOLOGY



PCD | PCBN | CVD • MONO DIAMOND

CUTTING TOOLS

EHWA

EHWA

- 1975. Founded in Seoul, Korea
- 1981. Established subsidiary in California, USA
- 1985. Headquarters moved to Osan, Korea
- 1993. ISO9001 certified (TÜV)
 - Established plant in Fujian, China
- 1995. Opened sales office in Nagoya, Japan
- 1997. Established plant in Weihai, China
- 2002. Established plant in Shanghai, China
 - Acquired revised ISO 9001 and ISO 14001
- 2003. OSA (Organization for the Safety of Abrasives) certified
- 2004. Opened sales office in Frankfurt, Germany
- 2005. Selected as "Certified excellent company of quality competitiveness" by the Korean government
- 2008. Awarded \$100M export Presidential award
- 2011. Selected as "World class 300 company" by the Korean government (First round)
- 2012. Established plant in Jakarta, Indonesia
- 2013. Opened new facility in Dongtan (R&D center and new business development)
 - Opened sales subsidiary in India
- 2015. Opened sales subsidiary in Mexico
- 2016. Certified KOSHA 18001 (Safety and Health Management System)
- 2017. Designated as a Compliance Program Trader (Ministry of Trade, Industry and Energy)



TÜV





Worldwide competence -

The most advanced technology for diamond tools and quality

EHWA has become an international benchmark for success because of our ability to adapt quickly to the changing markets and diverse needs of customers, and by leading the way in applying the most advanced technology for manufacturing industrial diamond tools.

Since 1975, EHWA has been able to greatly expand its market share throughout the world because we have established a world renowned reputation of high quality products, service and expertise in the industry. EHWA is deeply committed to keeping customers up-to-date and equipped with the most competitive products and technical information. Our success can only be measured by the success of our customers.

The key to our flexibility and strength in the global marketplace is our many alliances with reliable overseas partners and customers throughout the world. EHWA purchases only the highest quality raw materials, industrial diamonds and CBN from reputable sources. In addition to having strong supply lines with major suppliers, EHWA has successfully teamed up with high-tech manufacturers in Europe, Japan, and U.S. under several joint-ventures for the research and development of high precision diamond tools, rotary dressers, and precision electroplated diamond tools.

The success of a company depends on its ability to adapt and compete in the global marketplace. EHWA is able to survive in the age of globalization because we are already globalized.

EHWA diamond tools are your partner for success.



EHWA = Cooperation

'E(二)' means Two Parties: EHWA and People such as customers, employees, partners and our society. 'HWA(和)' means Cooperation. Our philosophy is to nurture and grow long-term partnerships with our customers. Ever since 1975 when EHWA was established, EHWA has been striving to develop into the very best in our industry not only in size but more importantly in quality. We are convinced that we are the best partner for you.

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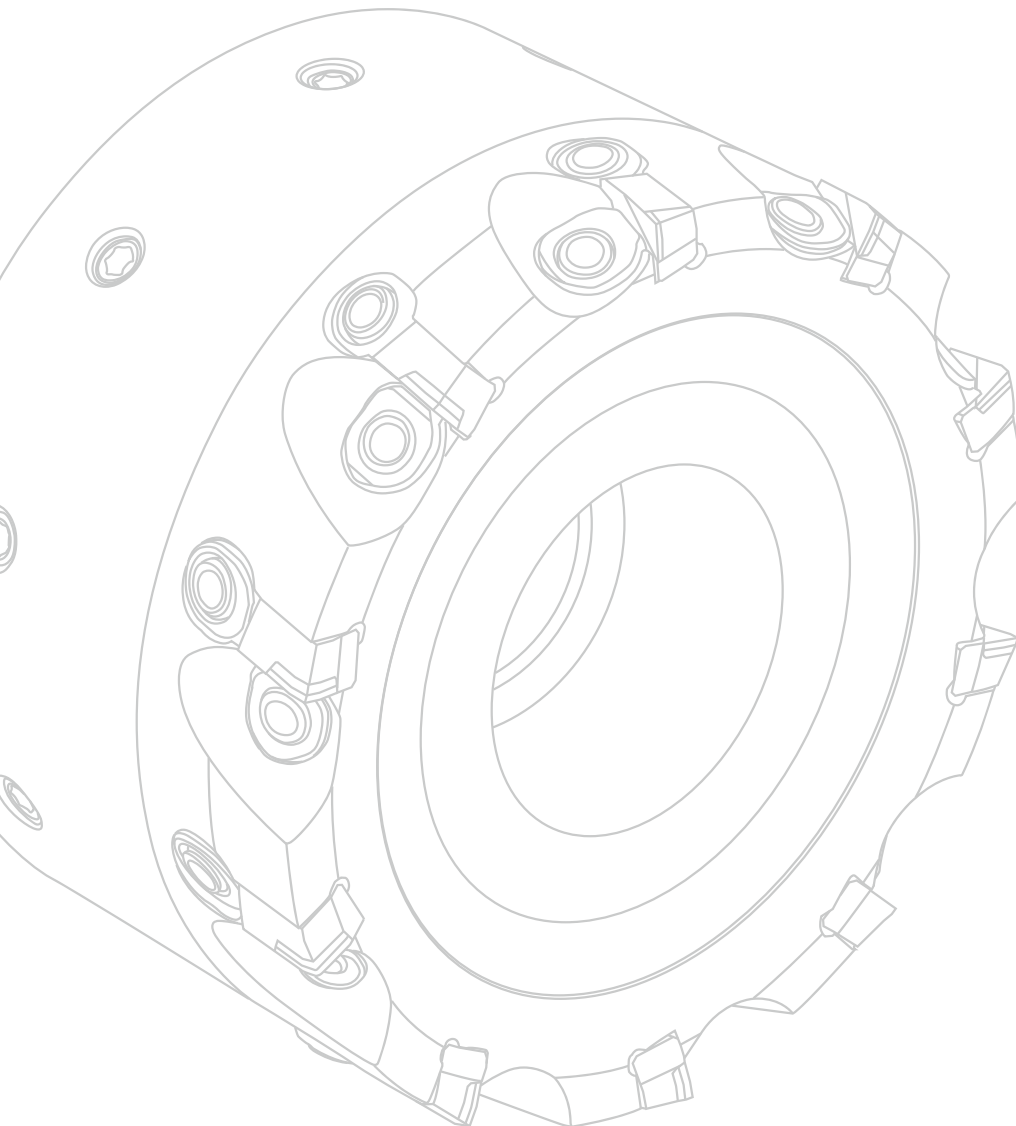
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Tooling Improvement Service



Bottlenecks in production causes multiple problems. They not only reduce productivity, but also increases cycle time and decreases tool life. Customers can easily solve bottlenecks with EHWA tooling improvement service.

improvement



Current production

- Bottle neck
- Cycle time
- Shortened tool life
- Inefficient tool setting
- High C.P.U.
- High defect rate



Process Analysis / Propose solution

- Bottle neck
- Simulate the process with 3D program and check suitability
- Change the current process
- Change PCD/PCBN raw materials
- Propose cost saving solution

Evaluate the process suitability (OK/NG)



Sample test

- Internal test
- Field test

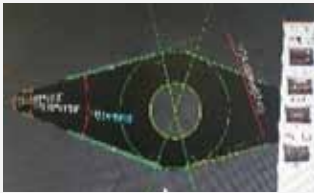
Apply the tool on mass production

Review the tool with its application and working conditions

Item	Check point
Workpiece	Workpiece material, hardness, roughness
Tool information	Specification, tool material
Operation	Application, tool layout
Working condition	Wet/dry, cutting speed(Vc), feed rate, depth of cut

Current tool analysis

Tool shape and edge analysis



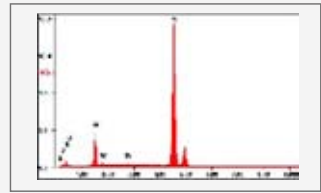
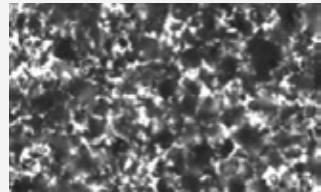
- Check the tool shape
- Measure the dimensions
- Analyze the edge preparation

Wear analysis



- Analyze the wear pattern
 - Analyze the wear location
 - Analyze the wear amount
 - Analyze the chip size and crack
- With optical microscope

Raw material analysis



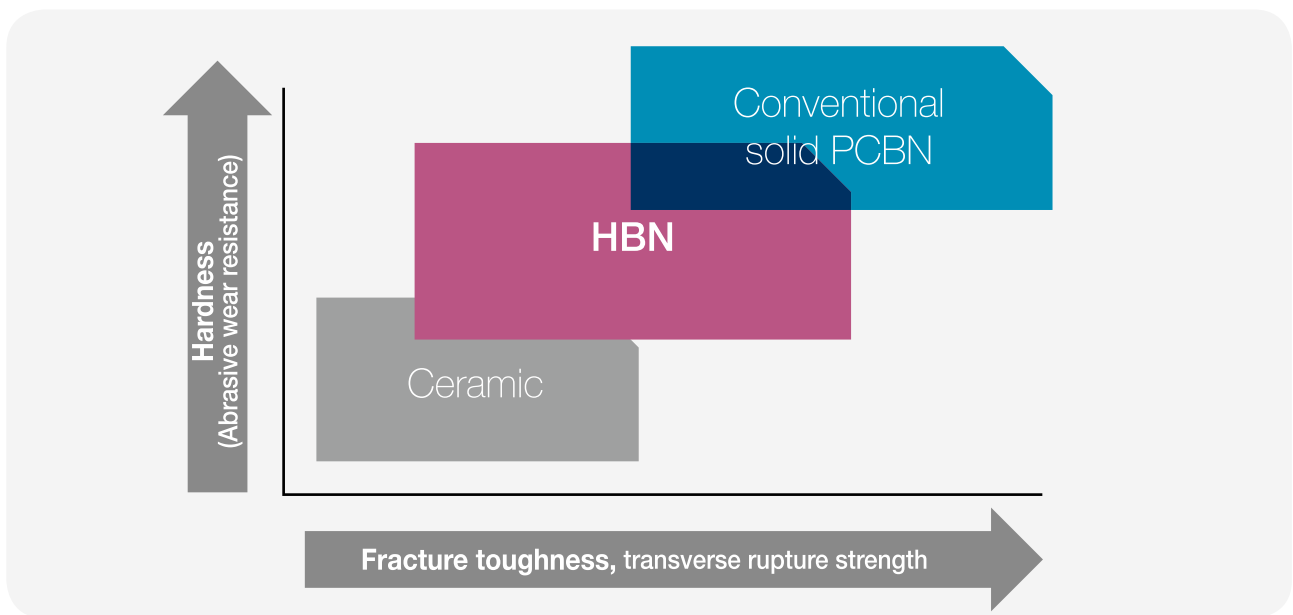
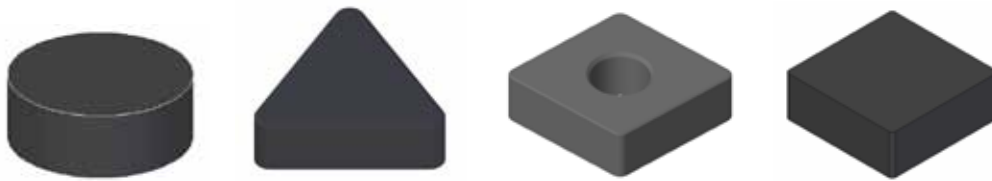
- SEM1 : Grit array analysis
- EDAX2 : Component analysis

Propose technical solutions

EHWA new PCBN material






HBN | Hybrid solid PCBN

HBN is an EHWA hybrid PCBN manufactured by using a special sintering process with a ceramic binder and CBN powder. It's much more competitive than conventional PCBN and it has stronger outstanding wear-resistance & toughness compared to ceramics. Therefore, it's a good solution for both roughing and finishing of cast iron.



Nonferrous material	Conventional solid PCBN	HBN	Ceramic
Chemical resistance	□ □	□ □	□ □ □
Wear resistance	□ □ □ □ □	□ □ □ □	□
Impact resistance	□ □ □	□ □ □	□



C type	D type	T type	S type	R type
				
CNGN0903(32)	DNGN1104(33)	TNGN1103(22)	SNGN0903(32)	RNGN0603(22)
CNGN0904(33)	DNGN1504(43)	TNGN1104(23)	SNGN0904(33)	RNGN0904(33)
CNGN1204(43)		TNGN1604(33)	SNGN1204(43)	RNGN1204(43)
CNGN1207(45)		TNGN2204(43)	SNGN1207(45)	RNGN1207(45)

* Special inserts with various shapes are available for turning and milling applications.

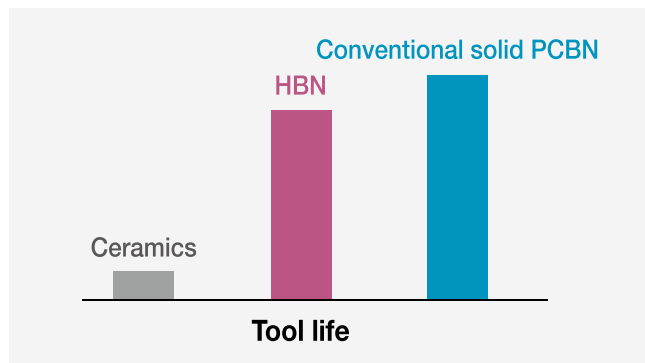
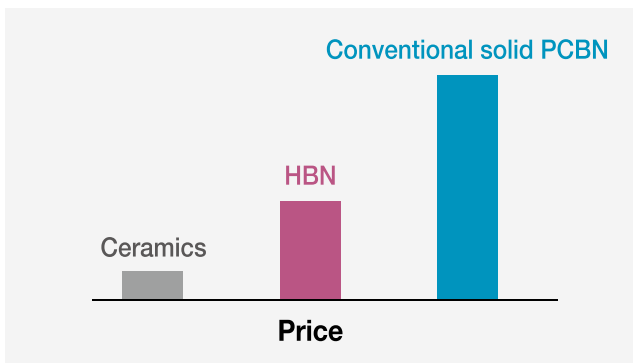


Applications

Brake disk, brake drum, cast iron engine block, impeller, slurry pumps, rolling mill iron rolls



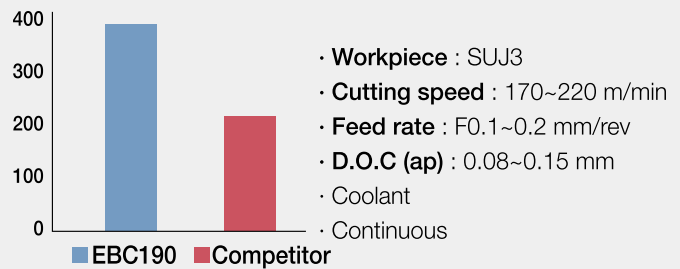
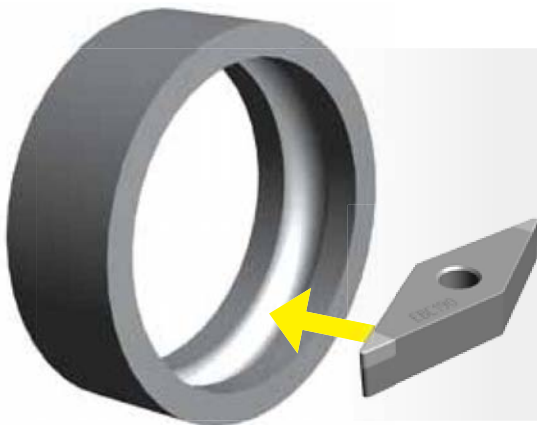
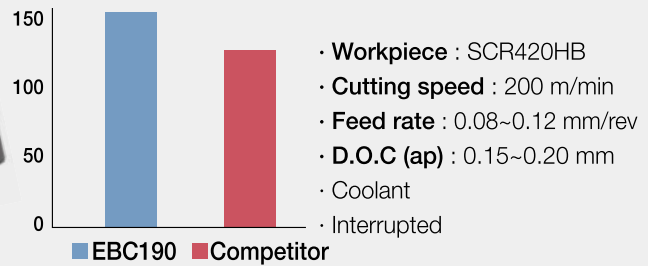
Performance comparison



EHWA new PCBN material

EBC190 | new coated grade for hardened steel

EBC190 is a new PCBN grade which has high toughness and wear resistance. This coated grade performs well in bearing steel and hardened steel applications. EBC190 also performs well in both continuous and interrupted cutting applications.

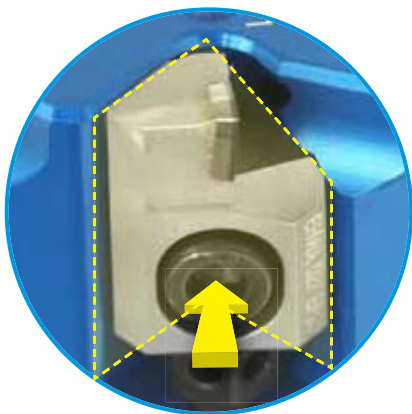


EHWA new milling cutter

CF milling cutter | chip flow cutter

EHWA original design for better chip flow

- Direct coolant spray to the tip edge
- Good chip flowing
- Longer tool life by strong mounting stability
- Good surface finish
- Easy to handle due to the light aluminum body
- Excellent durability and low cutting load
- High productivity and process stability
(more cutting edge → high feed → cycle time reduction)



Strong mounting stability



Direct coolant spray

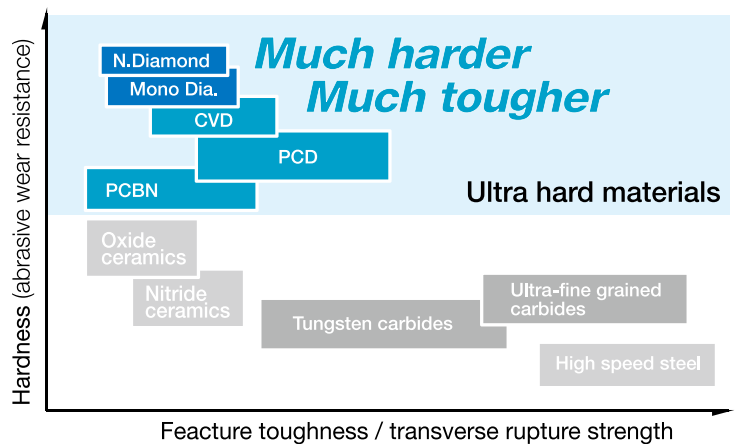


Advantages of diamond tools



Today's modern industrial society continues to push the development and uses of new and advanced materials, and high precision machining to new heights. Along with the improvements in producing processes and difficulties that arise from machining new and advanced materials, there is an increasing demand for new forms of cutting tools that go beyond the conventional cutting tools such as those made out of high speed steel, tungsten carbides, cermets, and ceramics.

Polycrystalline Diamond (PCD), is a synthetic diamond product that is produced by sintering selected diamond particles with a metal matrix using very sophisticated temperature and high pressure technology.



Characteristics of diamond types

	PCD	PCBN	CVD diamond	Mono diamond natural diamond
Definition	Polycrystalline diamond	Polycrystalline cubic boron nitride	Polycrystalline diamond (chemical vapor deposition method)	Single crystal diamond
Applicable work material	Non-ferrous such as Al, copper alloys, etc. & nonmetallic such as wood working, advanced composite, etc.	Ferrous material such as cast iron, hardened steel, super alloy material, etc.	Non-ferrous such as Al, copper alloys, etc. & nonmetallic such as wood working, advanced composite, etc.	Superior edge quality for nonmetallic material
Hardness (Hv, GPa)	50 ~ 70	30 ~ 40	70 ~ 80	80 ~ 100
Magnified structure				

PCD by its nature, is high in uniform hardness, and also more abrasive and shock resistant in all directions than natural diamonds because of its random-oriented structure of the diamond particles.

Polycrystalline cubic boron nitride (PCBN) is an artificially synthesized material. except for diamond, PCBN is the hardest material. however, unlike diamond, PCBN is stable under conditions of high temperature (up to 1000°C), normally seen when machining hardened ferrous or super alloy materials. PCBN tools permit metal cutting with feed and speed rates that are much higher than conventional cutting tools.

Diamond tools advantage

- Good surface finish
 - High accuracy
 - Longer tool life
- Lower stock management
- Fast material removal rate
 - Lower energy cost
 - Eco friendly



Poly Crystalline Diamond

PCD distinction & application

Grit size	Ultra Fine	Fine	Medium	Coarse	Multi modal		
Micro structure (1000 x)							
Type	Carbide backed	Carbide backed	Carbide backed	Carbide backed	Carbide backed		
Grain size	0.5 μm	3~4 μm	8~10 μm	20~25 μm	30+2 μm		
Diamond (%)	85	90	90	94	94		
Grade	EP20	EP51	EP55	EP58	EP29		
Surface finish	Better	→	→	→	→	→	Worse
Wear resistance	Worse	→	→	→	→	→	Better
Application	Wood working						
	Copper alloy						
	Rubber / Acryl_glass						
				(Si <13%) Al-Si alloy (Si >13%)			
				Tungsten carbide			
				Ceramic (sintered/unsintered)			
				M.M.C / CFRP / glass fiber			
	General purpose						

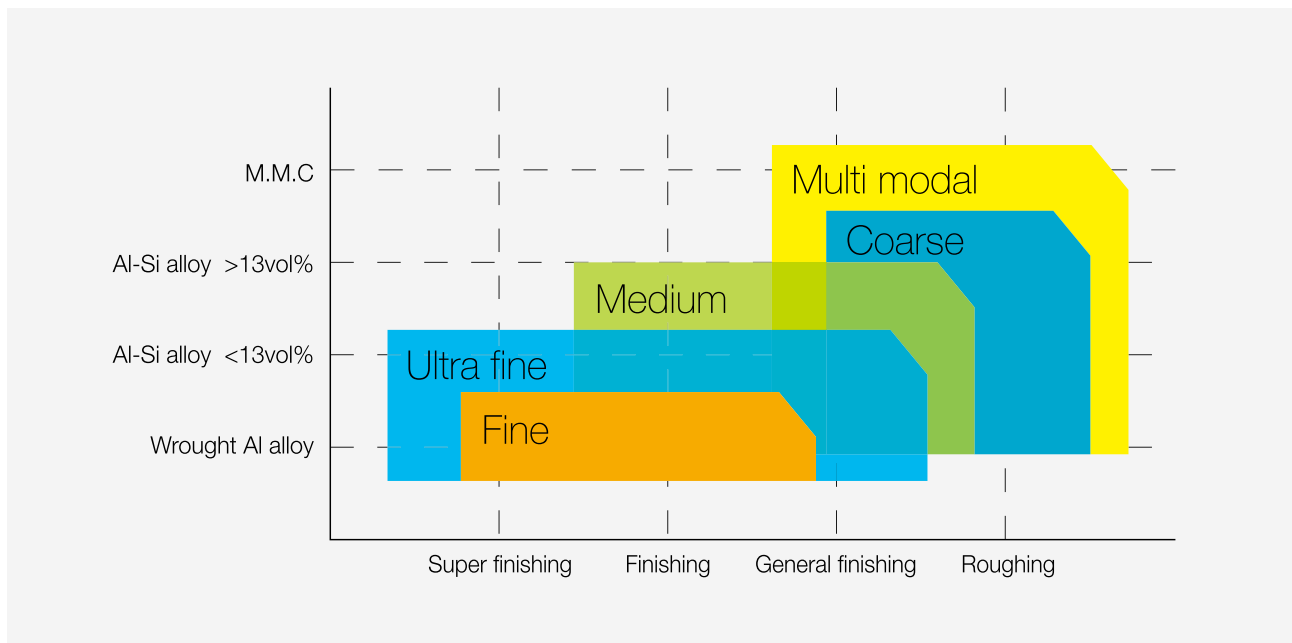
EHWA PCD grade

Grade	Binder	Diamond vol. (%)	Grit size (μm)	Characteristic
EP10	W+Co	85	1.5	Excellent sharp edge, superb sharpness cutting edge
EP20	W+Co	85	0.5	Excellent surface finish, ultra fine grade and fine grade
EP51	W+Co	90	3~4	Excellent surface finish
EP13	W+Co	92	5~6	General purpose, excellent WEDM
EP55	W+Co	90	8~10	General purpose
EP75	W+Co	90	6~8	General purpose, excellent WEDM
EP750	W+Co	90	8+2	Multi-modal, good wear resistance
EP58	W+Co	94	20~25	Excellent wear resistance
EP59	W+Co	95	25+2	Multi-modal, good wear resistance
EP29	W+Co	94	30+2	Multi-modal, good wear resistance, adequate for difficult-to-cut-materials
EP69	W+Co	95	50+ α	Multi-modal, good wear resistance, adequate for difficult-to-cut-materials

EHWA PCD working parameter

Materials	Ultra fine	Fine	Medium	Coarse	Multi modal	Vc (m/min)	f (mm/rev)	ap (μm)
Al alloy (Si <13%)	EP10, EP20		EP13, EP55, EP75			~ 3,000	~ 0.2	~ 3
Al alloy (Si >13%)			EP750	EP58	EP29, EP59, EP69	~ 3,000	~ 0.2	~ 3
Copper alloy	EP10, EP20	EP51	EP13			~ 1,000	~ 0.2	~ 3
Carbide / ceramic			EP55, EP75, EP750	EP58	EP29, EP59, EP69	10~30	~ 0.2	~ 0.5
Engineering plastic	EP10, EP20		EP13, EP55, EP75		EP29, EP59, EP69	~ 1,000	~ 0.4	~ 2
Wood		EP51	EP55, EP75, EP750			~ 4,000	~ 0.4	-
Ti alloy	EP20					50~100	~ 0.3	~ 0.5

Application range by PCD grade



Applicable work material

Nonferrous material		Nonmetallic material	
Al alloy	High Si >13% / low-medium Si <13% / metal matrix composites	Wood working	High density fiberboard / chipboard / hardboard / laminates
Copper alloy	Brass / bronze / zinc	Advanced composite	Graphite-epoxy / carbon fiber / fiberglass plastic / engineering plastic
Tungsten carbide	Sintered / unsintered	Ceramic & stone	Sintered / unsintered / granite / imitation marble
Ti alloy		Quartz	

Polycrystalline Cubic Boron Nitride

Characteristic of PCBN

Contents	CBN vol. (%)	Grit size (μm)	Binder phase	Strength & toughness	Thermal conductivity	Chemical stability	Wear resistance
Low contents	40~70	0.5~5	Ceramics (TIC, TIN..)	■ ■ □ □	■ ■ □ □	■ ■ ■ ■	■ ■ ■ □
High contents	70~95	1~20	Metal (Co, WC...)	■ ■ ■ ■	■ ■ ■ ■	■ ■ □ □	■ ■ ■ ■

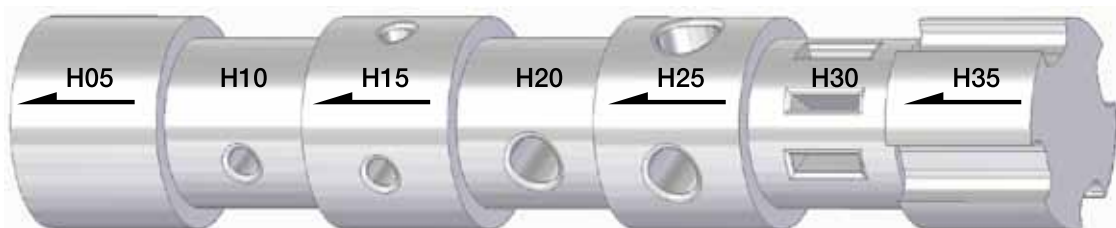
EHWA PCBN grade

 Carbide backed
  Solid tip

Grade	CBN vol%	Type	Application
Low contents	40%	EB19X	Carbide Backed
		EB29X(EB29S)	Carbide Backed, Solid
		EB28X(EB28S)	Carbide Backed, Solid
		EB180	Carbide Backed
		EB570(EB57S)	Carbide Backed, Solid
		EB160	Carbide Backed, Solid
		EB560(EB56S)	Carbide Backed, Solid
		EB550(EB55S)	Carbide Backed, Solid
		EB150	Carbide Backed
		EB190	Carbide Backed
		EB73	Carbide Backed
		EB54X	Solid
		EB170	Carbide Backed
		EB14	Carbide Backed
High contents	75%	EB130	Carbide Backed
		EB710	Carbide Backed
		EB120	Carbide Backed
		EB22	Carbide Backed
		EB11	Carbide Backed
		EB51	Carbide Backed
		EB71	Carbide Backed & Double side
		EB210	Carbide Backed
		EB71X	Carbide Backed
		EB100X	Solid
		EB50	Solid
		EB1000	Solid
		HBN	Solid
		HBN-T	Solid
		HBN-W	Solid
		HBN-N	Solid
HBN-R	Solid		
	95%		

Interruption of hard steel turning

H05 : Continuous / H15 : Light Interruption / H25 : Medium Interruption / H35 : Heavy Interruption



EHWA PCBN working parameter

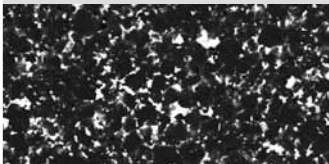

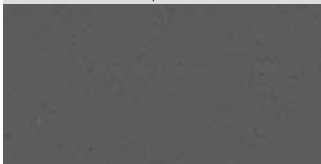
	Continuous cutting	Interrupt cutting			Working parameter		
		Light	Medium	Heavy	Vc (m/min)	f (mm/rev)	ap (mm)
H Hardened steel	EB19X, EB29X(S)				150~300	0.05~0.15	0.05~0.15
	EB28X(S)				120~280	0.05~0.2	0.05~0.2
	EB180, EB570(S)				100~230	0.05~0.15	0.05~0.2
	EB160, EB560(S)				80~200	0.05~0.2	0.05~0.2
	EB550(S), EB150				80~180	0.05~0.2	0.05~0.3
	EB190				70~170	0.05~0.2	0.05~0.3
	EB54X, EB73				70~120	0.05~0.15	0.05~0.2
K Cast iron	EB51, EB71				50~100	0.05~0.15	0.05~0.2
	EB51, EB71				300~1000	0.1~0.5	0.1~2
	EB210, EB71X				300~1500	0.05~0.3	0.1~2
	EB50, EB1000				150~1500	0.1~0.5	0.1~4
	EB100X				150~1000	0.1~0.3	0.1~4
	HBN-W, HBN-T				300~1000	0.1~0.5	0.1~4
	HBN, HBN-N				300~1000	0.1~0.5	0.1~4
P/M High alloyed	EB28X(S)				100~250	0.05~0.2	0.05~0.2
	EB170, EB14				100~200	0.05~0.2	0.05~0.2
P/M Low alloyed	EB550(S)				50~150	0.05~0.25	0.05~0.2
	EB51, EB71				50~150	0.05~0.3	0.05~0.2
	EB710, EB130, EB22				50~150	0.05~0.3	0.05~0.2
		EB120, EB71X			50~150	0.05~0.3	0.05~0.2

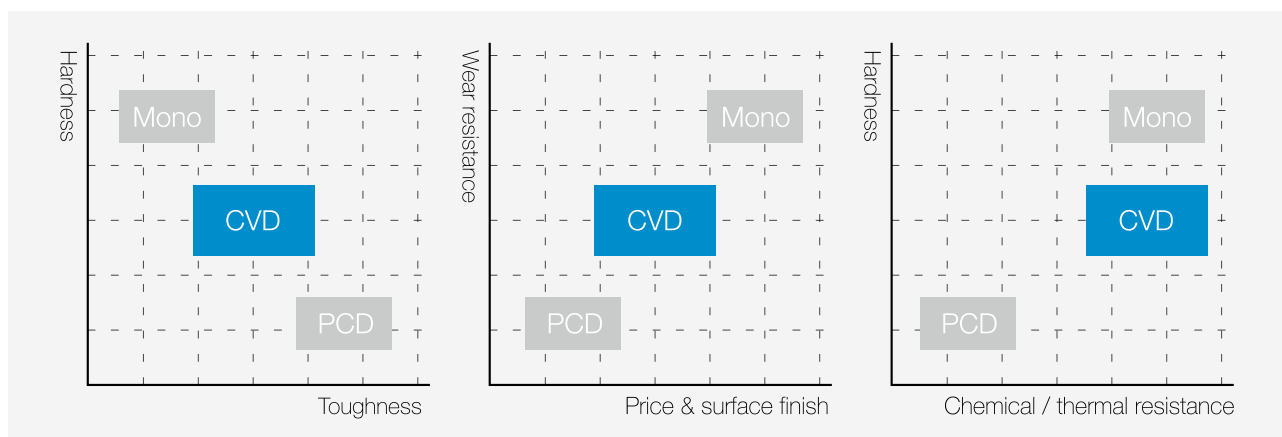
EHWA PCBN working parameter

Low CBN contents	High CBN contents
Hardened steel Tool steel / die steel / hardened steel / Bearing steel / Hi-Cr, Mo steel Work example Gear / transmission / shaft / bearing / die / punch	Cast iron Gray cast iron / Ni-hard cast iron / Alloy cast iron / Chilled cast iron / Nodular cast iron Work example Engine block / brake disc / brake drum / clutch plate / roll / pump / Impeller
Powder metal Sintered metal Work example Valve seat / valve guide / con-rod / oil-pump / gear	Super alloy Inconel 718,901,600 / rene76,77,95 / stellite Work example Turbine / turbine disc / turbine blade / turbine vane

Chemical Vapoured Deposition diamond

General properties of CVD diamond

Property	PCD	CVD (Poly crystalline diamond)	Mono (Single crystalline diamond)
Thermal conductivity	560	560	2,000
Hardness (Gpa)	50~70	70~80	80~100
Toughness (Mpa-m ^{1/2})	8~9	8~9	3~4
Tensile strength (Gpa)	1,260	1,260	2,000
Micro structure (1000 x)			



EHWA CVD diamond grade

Grade	ED501	ED502
Wear resistance	■■■□	■■■■
Toughness	■■■□	■■□□

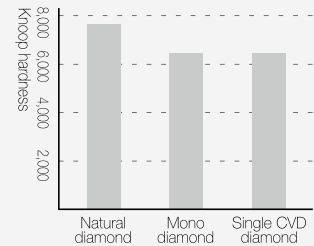
Applicable work material

Nonferrous material	Nonmetallic material
Al alloy High Si >13% / low-medium Si <13% / metal matrix composites	Wood working High density fiberboard / Chipboard / Hardboard / Laminates
Copper alloy Brass / bronze / zinc	Advanced composite Graphite-epoxy / Carbon-fiber / Fiberglass plastic / Engineering plastic
Tungsten carbide Sintered / unsintered	Ceramic & Stone Sintered / Unsintered / Granite / Imitation marble
	Quartz

Single Crystalline Diamond

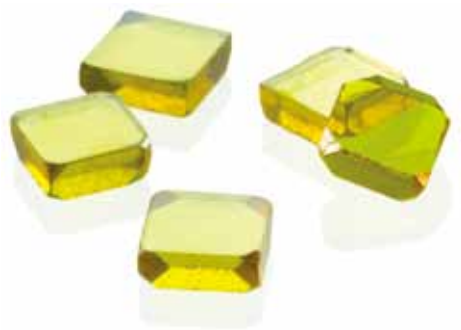
Application

- Non-ferrous metal
- Acrylic
- Lens
- Microscopic pattern
- FPD (flat panel display)
- BLU (back light unit)



Natural diamond

- Excellent surface finish
- Colorless
- Longest tool life, excellent wear
- Highest thermal conductivity/resistance



Mono diamond

- Available alternative to natural diamond
- Yellow color
- High pressure, High temperature synthesis
- Enhanced and more consistent performance



Single CVD diamond

- Similar to natural diamond
- Colorless
- Superior edge quality for ultra precision machining applications
- Highly consistent material properties

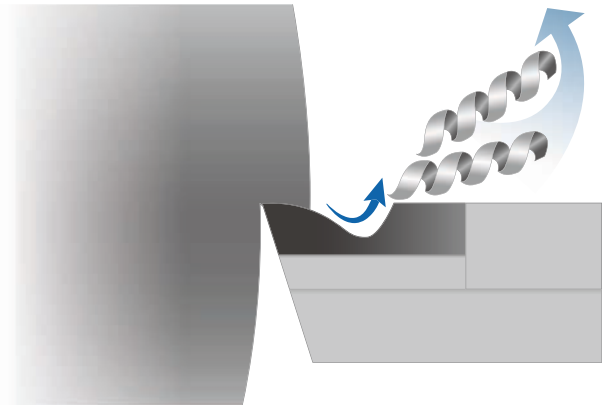
Coating Type

Coating grade (Ehwa code)	Color	Hardness (Hv)	Temperature (°C)	Characteristic
TIN	Gold	2,300	600	Mono layer Traditionally used for wear part Easily identify used edge
TA	Purple grey	3,400	900	Good heat resistance Good wear resistance Traditionally used for cutting tool
AC	Silver grey	3,200	1,100	Better heat resistance Higher hot hardness Higher oxidation resistance
EL	Dark grey	3,500	1,000	Better wear resistance Better chemical resistance Good performer for hardened steel & bearing steel
NEW TNP	Light dark grey	3,500	1,000	Excellent wear resistance Excellent heat resistance Very good surface finish Best performer for hardened steel & bearing steel

Application Area

EHWA coating	Cast iron	Hardened steel (HRC45~)	Bearing steel	Powder metal (45HRC~)
TIN	TIN			
TA	TA			
AC		AC		AC
EL			EL	
TNP		TNP		

PCD/CVD Chip breaker

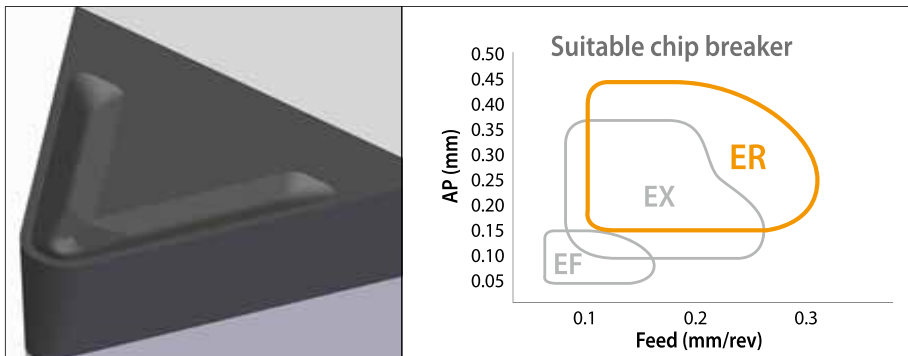


EHWA's 3D chip breaker

- Easy to control long chips
- Smooth and stable cutting at low & high feed rates
- Easy chip control for a variety of cutting conditions
- Various chip breaker design for CCGW, DCGW, VBGW, TCGW etc.

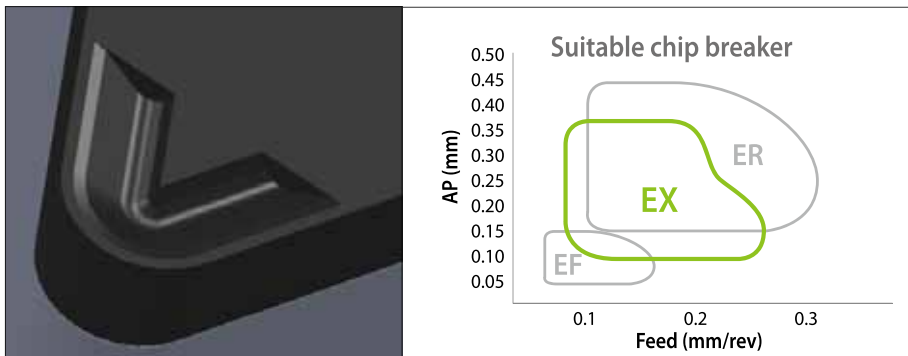
Various PCD chip breaker | ER, EX, EF, ES

ER type



- Excellent chip control for heavy depth of cut
- Perfect chip control by specially designed chip breaker

EX type

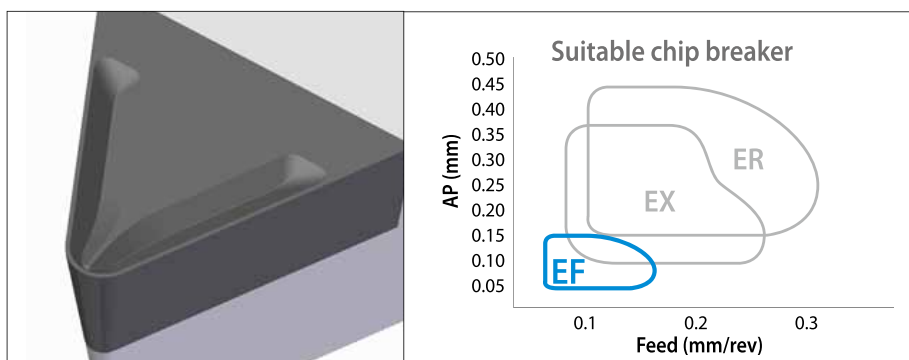


- Excellent chip control for medium depth of cut
- Special design enhancing cutting edge
- Outstanding chip-resistance at roughing & semi finishing

EHWA 3D chip breaker

PCD/CVD Chip breaker

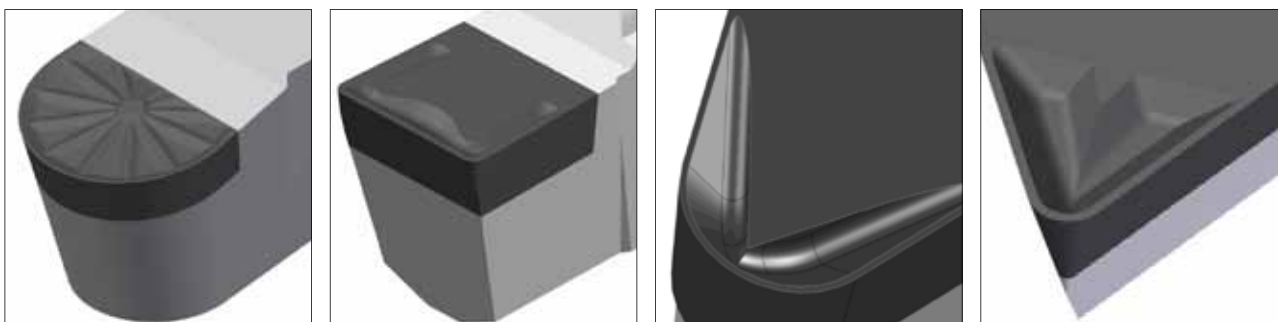
EF type



- Excellent chip control for smaller depths of cut
- Standard design for finishing

ES type

Customized design



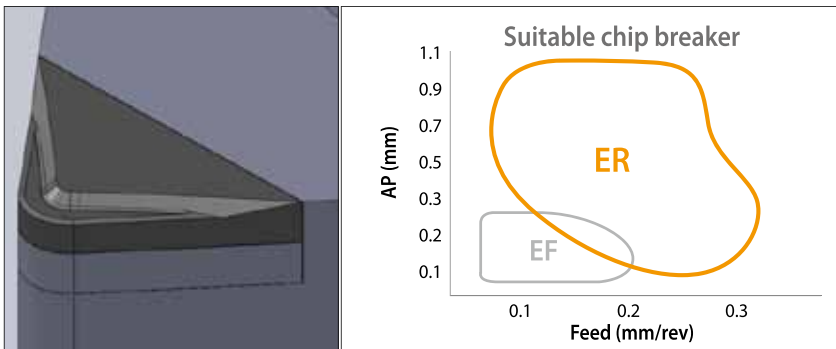
Needed information for ES design

Tool/work piece information		Cutting condition	
Tool spec	VCGW160408	Cutting speed (m/min)	1,800
Holder spec	SWCN2525-16	RPM (rev/min)	2,500
Part name	Aluminium wheel	Feed (mm/rev)	0.15
Workpiece material	ADC12	Depth of cut (mm)	0.3

PCBN Chip breaker

Various PCBN chip breaker | ER, EF, ES

ER type



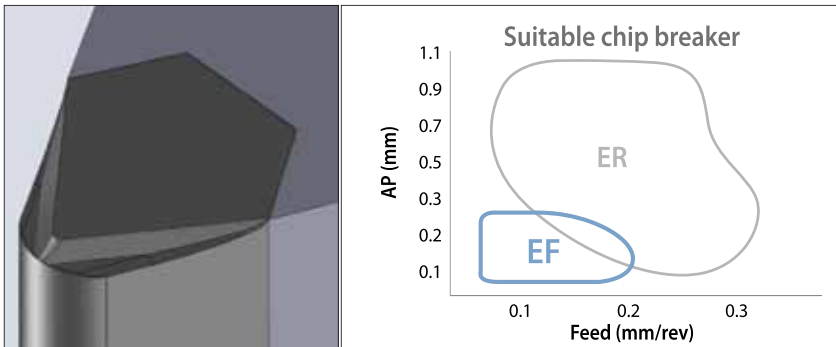
- Excellent chip control for heavy depth of cut
- Special design enhancing cutting edge
- Round corner easily curling chip

ES type

Customized design



EF type



- Excellent chip control for small depth of cut
- Standard design for finishing

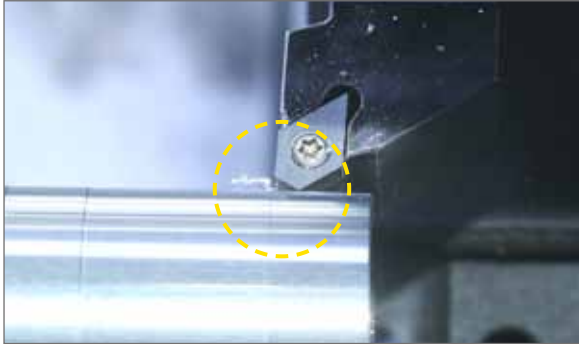
Needed information for ES design

Tool/work piece information		Cutting condition	
Tool spec	CNGA120408	Cutting speed (m/min)	850
Holder spec	DCLN R/L3232	RPM (rev/min)	1,000
Part name	Brake disk	Feed (mm/rev)	0.3
Workpiece material	FC250	Depth of cut (mm)	0.4

EHWA 3D chip breaker

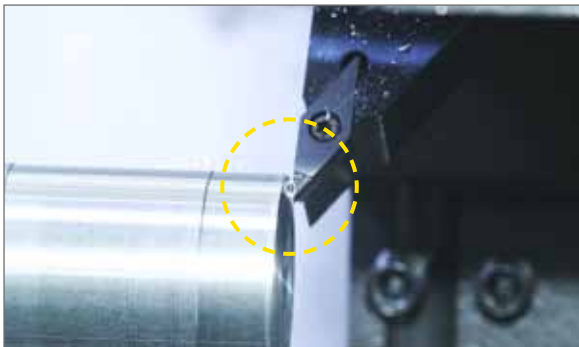
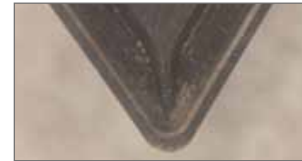
PCD/CVD

Case history



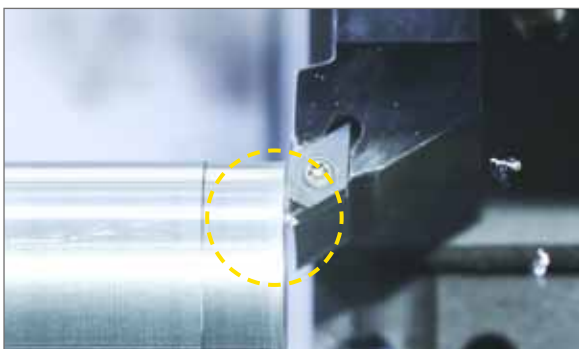
DCGW11T308_ER

- Work : Al alloy
- Vc : \approx 500 m/min
- D.O.C : 0.5 mm
- Feed : 0.15 mm/rev



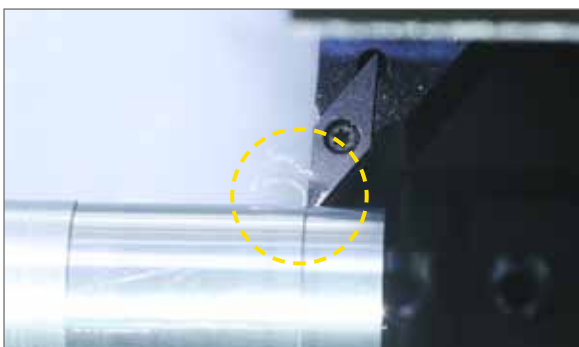
VCGW110302_EF

- Work : Al alloy
- Vc : \approx 500 m/min
- D.O.C : 0.1 mm
- Feed : 0.1 mm/rev



DCGW11T304_EX

- Work : Al alloy
- Vc : \approx 800 m/min
- D.O.C : 0.2 mm
- Feed : 0.15 mm/rev



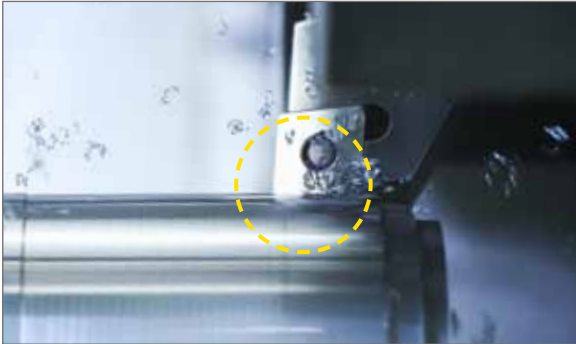
VBGW160408_ES

- Work : Al alloy
- Vc : \approx 1500 m/min
- D.O.C : 0.2 mm
- Feed : 0.3 mm/rev



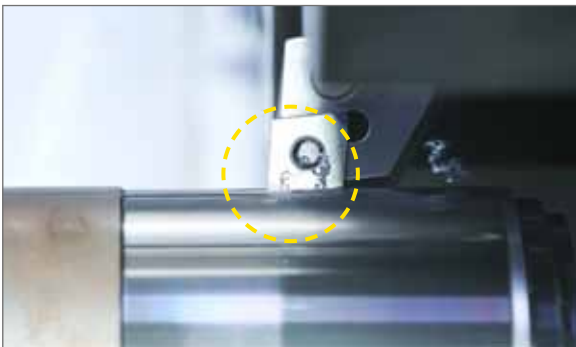
PCBN

Case history



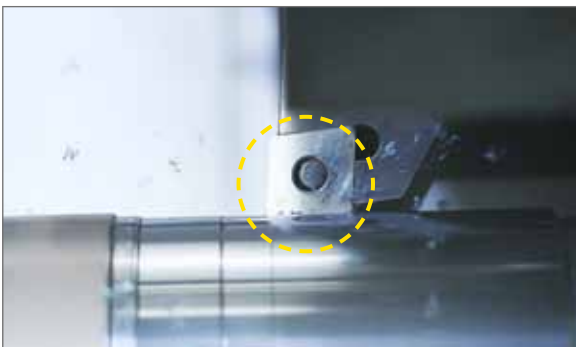
CNGA120408_ER

- Work : SCM420 steel
- Vc : \approx 150 m/min
- D.O.C : 0.25 mm
- Feed : 0.1 mm/rev



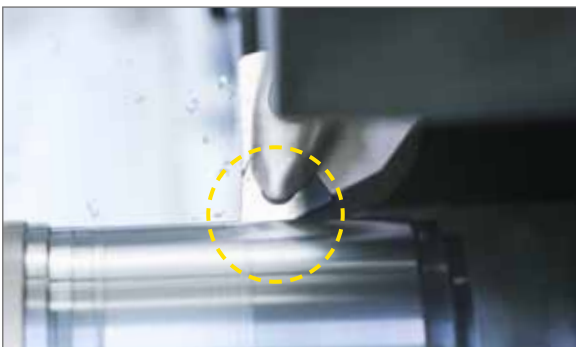
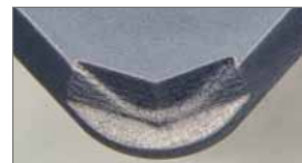
CNGA120408_EF

- Work : SCM420 steel
- Vc : \approx 150 m/min
- D.O.C : 0.1 mm
- Feed : 0.1 mm/rev



CNGA120408_ES

- Work : Scm420 steel
- Vc : \approx 150 m/min
- D.O.C : 0.2 mm
- Feed : 0.1 mm/rev



WNGA080408_ES

- Work : Scm420 steel
- Vc : \approx 100 m/min
- D.O.C : 0.15 mm
- Feed : 0.1 mm/rev



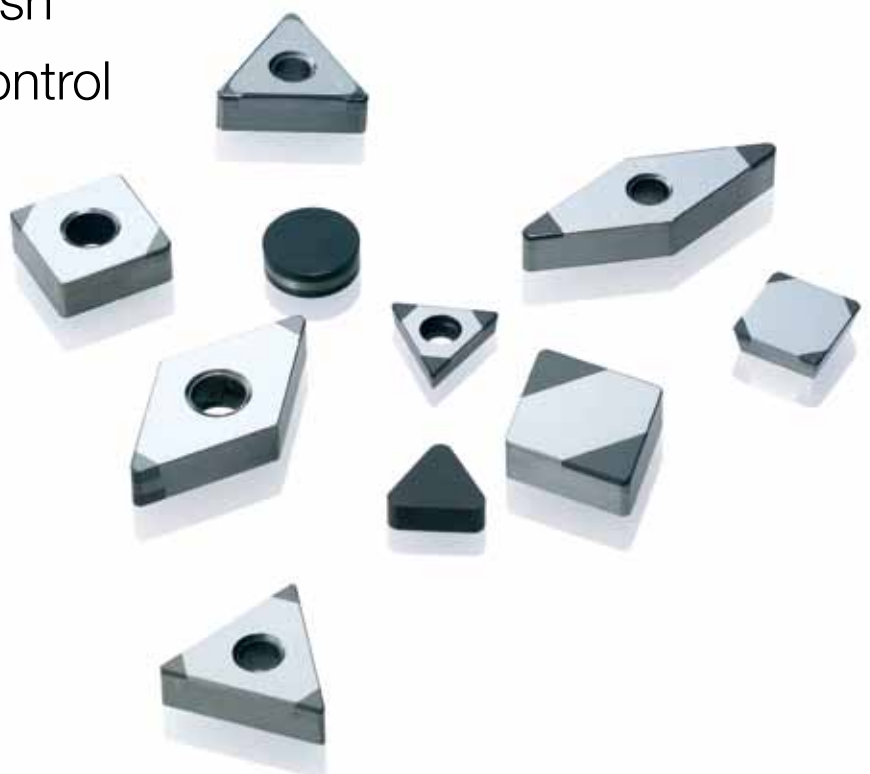
Turning





EHWA offers a wide range of PCD & PCBN inserts for turning. Customers looking for high productivity can count on EHWA's turning tools. Here is the right choice for an excellent and economical solution.

- Maximum metal removal & higher productivity
- Stronger wear resistance & longer tool life
- Superior surface finish
- Precise tolerance control

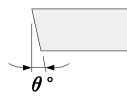


Designation system | unit: metric

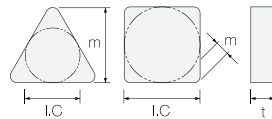
C N M G

Insert shape Clearance angle Tolerances Clamp type

Symbol	Shape
C	
D	
E	
K	
R	
S	
T	
V	
W	



Symbol	Angle
N	0°
A	3°
B	5°
C	7°
P	11°
D	15°
E	20°
F	25°



Class	I.C size (mm)	Tolerance		
		m (mm)	t (mm)	I.C (mm)
A	6.35	±0.005	±0.025	±0.025
F	9.525	±0.005	±0.025	±0.013
C	12.7	±0.013	±0.025	±0.025
	15.875			
H	19.05	±0.013	±0.025	±0.013
E	25.4	±0.025	±0.025	±0.025
G	31.75	±0.025	±0.13	±0.025
M	6.35	±0.08	±0.13	±0.05
	9.525	±0.08	±0.13	±0.05
	12.7	±0.13	±0.13	±0.08
	15.875	±0.15	±0.13	±0.1
	19.05	±0.15	±0.13	±0.1
	25.4	±0.18	±0.13	±0.13
U	31.75	±0.18	±0.13	±0.13
	6.36	±0.13	±0.13	±0.08
	9.525	±0.13	±0.13	±0.08
	12.7	±0.2	±0.13	±0.13
	15.875	±0.27	±0.13	±0.13
	19.05	±0.27	±0.13	±0.18
	25.4	±0.38	±0.13	±0.25
	31.75	±0.38	±0.13	±0.25

Symbol	Shape
A	
G	
M	
R	
B, W	
T, H	
N	
Z, X	Special

12

04

08

T2501

(R)

1

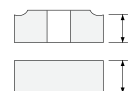
2

Cutting edge length

Thickness

Corner radius

C	D	E	R	S	T	V	W	K	I.C size (mm)
03	04			03	06				3.97
05	06			05	09	09	03		5.56
06	07			06	11	11	04		6.35
08	09			07	13	13	05		7.94
			08						8
09	11		09	09	16	16	06	16	9.525
			10						10
			12						12
12	15	13	12.7	12	22	22	08		12.7
16	19		15	15	27	27	10		15.875
			16						16
19	23		19	19	33	33	13		19.05
			20						20
			25						25
25	31		25	25	44				25.4
			32						32



Symbol	t (mm)
01	1.59
T1	1.98
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35
07	7.94
09	9.52



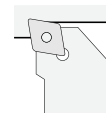
Symbol	R (mm)
01	0.1
02	0.2
04	0.4
05	0.5
08	0.8
12	1.2
16	1.6
20	2
24	2.4
32	3.2

1 Edge shape

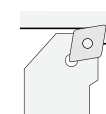
2 Hand of insert

Symbol	Shape
F	
E	
T	
S	

R Right hand



L Left hand

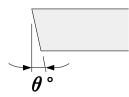


Designation system | unit: inch

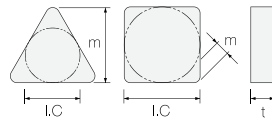
C N M G

Insert shape Clearance angle Tolerances Clamp type

Symbol	Shape
C	
D	
E	
K	
R	
S	
T	
V	
W	



Symbol	Angle
N	0°
A	3°
B	5°
C	7°
P	11°
D	15°
E	20°
F	25°



Class	I.C size	Tolerance		
		m (inch)	t (inch)	I.C (inch)
A	2	±0.002	±0.001	±0.001
F	3	±0.002	±0.001	±0.0005
C	4	±0.0005	±0.001	±0.001
	5			
H	6	±0.0005	±0.001	±0.0005
	8			
E	8	±0.001	±0.001	±0.001
G	10	±0.001	±0.005	±0.001
	2			
M	2	±0.003	±0.005	±0.002
	3	±0.003	±0.005	±0.002
	4	±0.005	±0.005	±0.003
	5	±0.006	±0.005	±0.004
	6	±0.006	±0.005	±0.004
	8	±0.007	±0.005	±0.005
U	10	±0.007	±0.005	±0.005
	2	±0.007	±0.005	±0.003
	3	±0.007	±0.005	±0.003
	4	±0.008	±0.005	±0.005
	5	±0.01	±0.005	±0.005
	6	±0.01	±0.005	±0.007
	8	±0.015	±0.005	±0.01
	10	±0.015	±0.005	±0.01

Symbol	Shape
A	
G	
M	
R	
B, W	
T, H	
N	
Z, X	Special

4

3

2

T2501

(R)

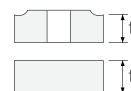
1

2

Cutting edge length

C	D	E	R	S	T	V	W	K	Symbol	C size (inch)
03	04			03	06				1.2	5/32
05	06			05	09	09	03		1.8	7/32
06	07			06	11	11	04		2	1/4
08	09			07	13	13	05		2.5	5/16
			08						-	-
09	11		09	09	16	16	06	16	3	3/8
			10						-	-
			12						-	-
12	15	13	12.7	12	22	22	08		4	1/2
16	19		15	15	27	27	10		5	5/8
			16						-	-
19	23		19	19	33	33	13		6	3/4
			20						-	-
			25						-	-
25	31		25	25	44				8	1
			32						10	1-1/4

Thickness



Symbol	t (inch)
1	1/16
1.2	5/64
1.5	3/32
1.75	7/64
2	1/8
2.5	5/32
3	3/16
3.5	7/32
4	1/4
5	5/16
6	3/8

Corner radius



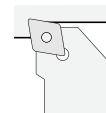
Symbol	R (inch)
0.2	0.004
0.5	0.008
1	1/64
2	1/32
3	3/64
4	1/16
5	5/64
6	3/32
7	7/64
8	1/8

1 Edge shape

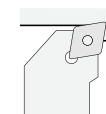
Symbol	Shape
F	
E	
T	
S	

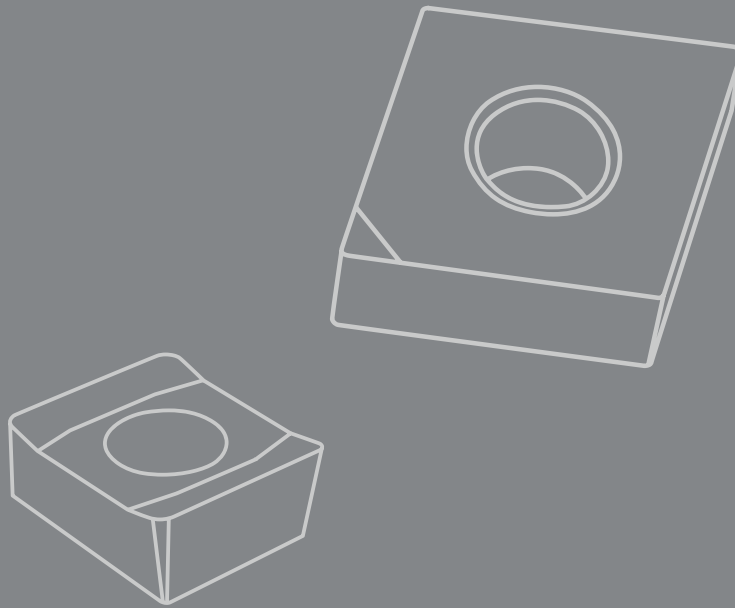
2 Hand of insert

R Right hand



L Left hand

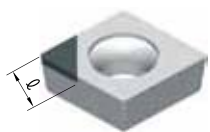




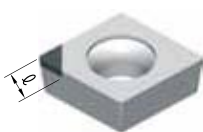
Turning_
PCD/CVD



Insert tip types



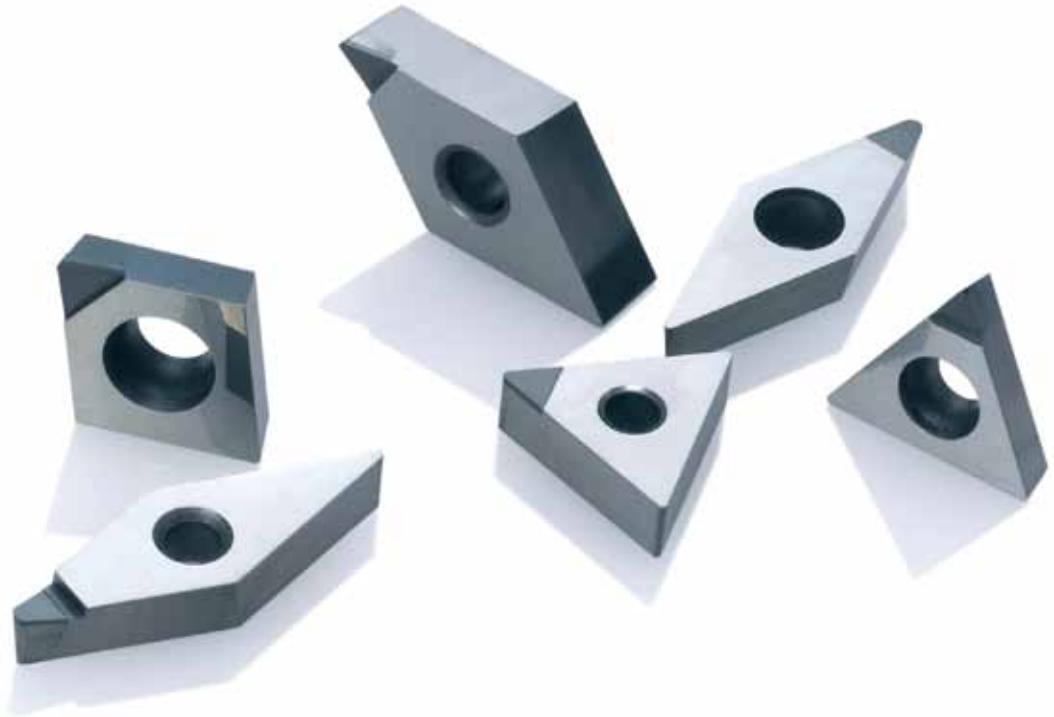
Standard



Mini tip (MT)



3D Chip breaker



CN
NEGATIVE _ hole

CNGA			ISO code		Dimensions (mm)					PCD							CVD						
			Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502		
	Standard	CNGA 120402	CNGA 43(0.5)	12.7	4.76	0.2	5.16	4.3															
			120404	431	12.7	4.76	0.4	5.16	4.3														
			120408	432	12.7	4.76	0.8	5.16	4.2														
			120412	433	12.7	4.76	1.2	5.16	4.1														
		MT	CNGA 120402	CNGA 43(0.5)	12.7	4.76	0.2	5.16	2.8														
				120404	431	12.7	4.76	0.4	5.16	2.8													
			120408	432	12.7	4.76	0.8	5.16	2.7														
			120412	433	12.7	4.76	1.2	5.16	3.1														

■ MT : Mini Tip

Holder : 75p, 79p, 82p, 83p, 108p, 119p

CNGX			ISO code		Dimensions (mm)					PCD							CVD						
			Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502		
	Standard	CNGX 120402	CNGX 43(0.5)	12.7	4.76	0.2	5.16	4.3															
			120404	431	12.7	4.76	0.4	5.16	4.3														
			120408	432	12.7	4.76	0.8	5.16	4.2														
			120412	433	12.7	4.76	1.2	5.16	4.1														
		MT	CNGX 120402	CNGX 43(0.5)	12.7	4.76	0.2	5.16	2.8														
				120404	431	12.7	4.76	0.4	5.16	2.8													
			120408	432	12.7	4.76	0.8	5.16	2.7														
			120412	433	12.7	4.76	1.2	5.16	3.1														

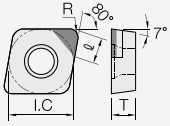
■ MT : Mini Tip

Holder : 75p, 79p, 82p, 83p, 108p, 119p

CC
POSITIVE 7° hole

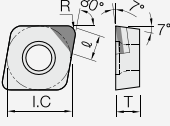
Turning

CCGW			ISO code		Dimensions (mm)				PCD								CVD				
			Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502
Standard	CCGW	09T302	CCGW	3(2.5)0.5	9.525	3.97	0.2	4.4	4.3												
		09T304		3(2.5)1	9.525	3.97	0.4	4.4	4.3												
		09T308		3(2.5)2	9.525	3.97	0.8	4.4	4.2												
		120402		430	12.7	4.76	0.2	5.5	4.3												
		120404		431	12.7	4.76	0.4	5.5	4.3												
		120408		432	12.7	4.76	0.8	5.5	4.2												
		120412		433	12.7	4.76	1.2	5.5	4.1												
	MT	CCGW	060202	CCGW	2(1.5)0.5	6.35	2.38	0.2	2.8	2.8											
			060204		2(1.5)1	6.35	2.38	0.4	2.8	2.8											
			060208		2(1.5)2	6.35	2.38	0.8	2.8	2.7											
			09T302		3(2.5)0.5	9.525	3.97	0.2	4.4	2.8											
			09T304		3(2.5)1	9.525	3.97	0.4	4.4	2.8											
			09T308		3(2.5)2	9.525	3.97	0.8	4.4	2.7											
			120402		430	12.7	4.76	0.2	5.5	2.8											
		120404		431	12.7	4.76	0.4	5.5	2.8												
		120408		432	12.7	4.76	0.8	5.5	2.7												
		120412		433	12.7	4.76	1.2	5.5	3.1												
Chip breaker	CCGW	060202	CCGW	2(1.5)0.5	6.35	2.38	0.2	2.8	2.8												
		060204		2(1.5)1	6.35	2.38	0.4	2.8	2.8												
		060208		2(1.5)2	6.35	2.38	0.8	2.8	2.7												
		09T302		3(2.5)0.5	9.525	3.97	0.2	4.4	4.3												
		09T304		3(2.5)1	9.525	3.97	0.4	4.4	4.3												
		09T308		3(2.5)2	9.525	3.97	0.8	4.4	4.2												
		120402		430	12.7	4.76	0.2	5.5	4.3												
		120404		431	12.7	4.76	0.4	5.5	4.3												
		120408		432	12.7	4.76	0.8	5.5	4.2												
		120412		433	12.7	4.76	1.2	5.5	4.1												



■ MT : Mini Tip Chip breaker type : Rough / Finish / Semi Finish Holder : 88p, 112p

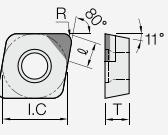
CCGT			ISO code		Dimensions (mm)				PCD								CVD			
			Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501
Standard	CCGT	09T302	CCGT	3(2.5)0.5	9.525	3.97	0.2	4.4	4.3											
		09T304		3(2.5)1	9.525	3.97	0.4	4.4	4.3											
		09T308		3(2.5)2	9.525	3.97	0.8	4.4	4.2											
		120402		430	12.7	4.76	0.2	5.5	4.3											
		120404		431	12.7	4.76	0.4	5.5	4.3											
		120408		432	12.7	4.76	0.8	5.5	4.2											
		120412		433	12.7	4.76	1.2	5.5	4.1											
MT	CCGT	060202	CCGT	2(1.5)0.5	6.35	2.38	0.2	2.8	2.8											
		060204		2(1.5)1	6.35	2.38	0.4	2.8	2.8											
		060208		2(1.5)2	6.35	2.38	0.8	2.8	2.7											
		09T302		3(2.5)0.5	9.525	3.97	0.2	4.4	2.8											
		09T304		3(2.5)1	9.525	3.97	0.4	4.4	2.8											
		09T308		3(2.5)2	9.525	3.97	0.8	4.4	2.7											
		120402		430	12.7	4.76	0.2	5.5	2.8											
		120404		431	12.7	4.76	0.4	5.5	2.8											
		120408		432	12.7	4.76	0.8	5.5	2.7											
		120412		433	12.7	4.76	1.2	5.5	3.1											



■ MT : Mini Tip Holder : 88p, 112p

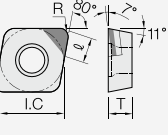
CP

POSITIVE 11 _ hole

CPGW	ISO code		Dimensions (mm)					PCD								CVD					
	Metric	Inch	I.C	T	R	Hole	φ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502		
	Standard	CPGW 090302	CPGW 320.5	9.525	3.18	0.2	4.4	4.3													
			090304	321	9.525	3.18	0.4	4.4	4.3												
			090308	322	9.525	3.18	0.8	4.4	4.2												
	MT	CPGW 080202	CPGW 2.5(1.5)0.5	7.94	2.38	0.2	3.4	2.8													
			080204	2.5(1.5)1	7.94	2.38	0.4	3.4	2.8												
			090302	320.5	9.525	3.18	0.2	4.4	2.8												
			090304	321	9.525	3.18	0.4	4.4	2.8												
			090308	322	9.525	3.18	0.8	4.4	2.7												
			090308	322	9.525	3.18	0.8	4.4	4.2												
Chip breaker	CPGW 080202	CPGW 2.5(1.5)0.5	7.94	2.38	0.2	3.4	4.3														
		080204	2.5(1.5)1	7.94	2.38	0.4	3.4	4.3													
		090302	320.5	9.525	3.18	0.2	4.4	4.3													
		090304	321	9.525	3.18	0.4	4.4	4.3													
		090308	322	9.525	3.18	0.8	4.4	4.2													
		090308	322	9.525	3.18	0.8	4.4	4.2													

■ MT : Mini Tip Chip breaker type : Rough / Finish / Semi Finish

 Holder : 112p

CPGT	ISO code		Dimensions (mm)					PCD								CVD					
	Metric	Inch	I.C	T	R	Hole	φ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502		
	Standard	CPGT 090302	CPGT 320.5	9.525	3.18	0.2	4.4	4.3													
			090304	321	9.525	3.18	0.4	4.4	4.3												
			090308	322	9.525	3.18	0.8	4.4	4.2												
	MT	CPGT 080202	CPGT 2.5(1.5)0.5	7.94	2.38	0.2	3.4	2.8													
			080204	2.5(1.5)1	7.94	2.38	0.4	3.4	2.8												
			090302	320.5	9.525	3.18	0.2	4.4	2.8												
			090304	321	9.525	3.18	0.4	4.4	2.8												
			090308	322	9.525	3.18	0.8	4.4	2.7												
			090308	322	9.525	3.18	0.8	4.4	2.7												

■ MT : Mini Tip

 Holder : 112p

DN

NEGATIVE _ hole

Turning

DNGA		ISO code		Dimensions (mm)					PCD								CVD						
		Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502			
	Standard	DNGA	110404	DNGA	331	9.525	4.76	0.4	3.81	3.9													
			110408		332	9.525	4.76	0.8	3.81	3.5													
			150404		431	12.7	4.76	0.4	5.16	3.9													
			150408		432	12.7	4.76	0.8	5.16	3.5													
			150412		433	12.7	4.76	1.2	5.16	3.1													
			DNGA	110404	DNGA	331	9.525	4.76	0.4	3.81	2.4												
	MT		110408		332	9.525	4.76	0.8	3.81	2													
			150404		431	12.7	4.76	0.4	5.16	2.4													
			150408		432	12.7	4.76	0.8	5.16	2													
			150412		433	12.7	4.76	1.2	5.16	2.1													

■ MT : Mini Tip

Holder : 75p, 79p, 80p, 83p, 84p, 108p, 109p

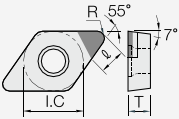
DNGX		ISO code		Dimensions (mm)					PCD								CVD						
		Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502			
	Standard	DNGX	110404	DNGX	331	9.525	4.76	0.4	3.81	3.9													
			110408		332	9.525	4.76	0.8	3.81	3.5													
			150404		431	12.7	4.76	0.4	5.16	3.9													
			150408		432	12.7	4.76	0.8	5.16	3.5													
			150412		433	12.7	4.76	1.2	5.16	3.1													
			DNGX	110404	DNGX	331	9.525	4.76	0.4	3.81	2.4												
	MT		110408		332	9.525	4.76	0.8	3.81	2													
			150404		431	12.7	4.76	0.4	5.16	2.4													
			150408		432	12.7	4.76	0.8	5.16	2													
			150412		433	12.7	4.76	1.2	5.16	2.1													

■ MT : Mini Tip

Holder : 75p, 79p, 80p, 83p, 84p, 108p, 109p

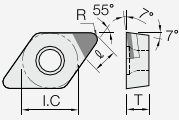
DC

POSITIVE 7₋ hole

DCGW	ISO code		Dimensions (mm)						PCD										CVD		
	Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502		
	Standard	DCGW 11T302	DCGW 3(2.5)0.5	9.525	3.97	0.4	4.4	4													
			11T304	3(2.5)1	9.525	3.97	0.4	4.4	3.9												
			11T308	3(2.5)2	9.525	3.97	0.8	4.4	3.5												
			150404	431	12.7	4.76	0.4	5.16	3.9												
			150408	432	12.7	4.76	0.8	5.16	3.5												
	MT	DCGW 070202	DCGW 2(1.5)0.5	6.35	2.38	0.2	2.8	2.5													
			070204	2(1.5)1	6.35	2.38	0.4	2.8	2.4												
			11T302	3(2.5)0.5	9.525	3.97	0.4	4.4	2.5												
			11T304	3(2.5)1	9.525	3.97	0.4	4.4	2.4												
			11T308	3(2.5)2	9.525	3.97	0.8	4.4	2												
Chip breaker	DCGW 070202	DCGW 2(1.5)0.5	6.35	2.38	0.2	2.8	2.5														
		070204	2(1.5)1	6.35	2.38	0.4	2.8	2.4													
		11T302	3(2.5)0.5	9.525	3.97	0.4	4.4	4													
		11T304	3(2.5)1	9.525	3.97	0.4	4.4	3.9													
		11T308	3(2.5)2	9.525	3.97	0.8	4.4	3.5													

■ MT : Mini Tip Chip breaker type : Rough / Finish / Semi Finish

Holder : 89p, 113p, 114p

DCGT	ISO code		Dimensions (mm)						PCD										CVD		
	Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502		
	Standard	DCGT 11T302	DCGT 3(2.5)0.5	9.525	3.97	0.4	4.4	4													
			11T304	3(2.5)1	9.525	3.97	0.4	4.4	3.9												
			11T308	3(2.5)2	9.525	3.97	0.8	4.4	3.5												
			150404	431	12.7	4.76	0.4	5.16	3.9												
			150408	432	12.7	4.76	0.8	5.16	3.5												
	MT	DCGT 070202	DCGT 2(1.5)0.5	6.35	2.38	0.2	2.8	2.5													
			070204	2(1.5)1	6.35	2.38	0.4	2.8	2.4												
			11T302	3(2.5)0.5	9.525	3.97	0.4	4.4	2.5												
			11T304	3(2.5)1	9.525	3.97	0.4	4.4	2.4												
			11T308	3(2.5)2	9.525	3.97	0.8	4.4	2												

■ MT : Mini Tip

Holder : 89p, 113p, 114p

DP

POSITIVE 11 _ hole

Turning

DPGW			ISO code		Dimensions (mm)					PCD								CVD				
			Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502	
	Standard	DPGW 11T302	DPGW 3(2.5)0.5	9.525	3.97	0.4	4.4	4														
		11T304	3(2.5)1	9.525	3.97	0.4	4.4	3.9														
		11T308	3(2.5)2	9.525	3.97	0.8	4.4	3.5														
	MT	DPGW 070202	DPGW 2(1.5)0.5	6.35	2.38	0.2	2.8	2.5														
		070204	2(1.5)1	6.35	2.38	0.4	2.8	2.4														
		11T302	3(2.5)0.5	9.525	3.97	0.4	4.4	2.5														
	Chip breaker	11T304	3(2.5)1	9.525	3.97	0.4	4.4	2.4														
		11T308	3(2.5)2	9.525	3.97	0.8	4.4	2														
		DPGW 070202	DPGW 2(1.5)0.5	6.35	2.38	0.2	2.8	2.5														
		070204	2(1.5)1	6.35	2.38	0.4	2.8	2.4														
		11T302	3(2.5)0.5	9.525	3.97	0.4	4.4	4														
		11T304	3(2.5)1	9.525	3.97	0.4	4.4	3.9														
11T308	3(2.5)2	9.525	3.97	0.8	4.4	3.5																

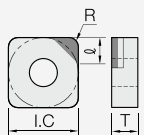
■ MT : Mini Tip Chip breaker type : Rough / Finish / Semi Finish

DPGT			ISO code		Dimensions (mm)					PCD								CVD				
			Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502	
	Standard	DPGT 11T302	DPGT 3(2.5)0.5	9.525	3.97	0.4	4.4	4														
		11T304	3(2.5)1	9.525	3.97	0.4	4.4	3.9														
		11T308	3(2.5)2	9.525	3.97	0.8	4.4	3.5														
	MT	DPGT 070202	DPGT 2(1.5)0.5	6.35	2.38	0.2	2.8	2.5														
		070204	2(1.5)1	6.35	2.38	0.4	2.8	2.4														
		11T302	3(2.5)0.5	9.525	3.97	0.4	4.4	2.5														
		11T304	3(2.5)1	9.525	3.97	0.4	4.4	2.4														
		11T308	3(2.5)2	9.525	3.97	0.8	4.4	2														

■ MT : Mini Tip

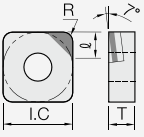
SN

NEGATIVE _ hole

SNGA		ISO code		Dimensions (mm)					PCD										CVD				
		Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502			
	Standard	SNGA	090304	SNGA	321	9.525	3.18	0.4	3.81	4.4													
				090308		322	9.525	3.18	0.8	3.81	4.4												
					120404		431	12.7	4.76	0.4	5.16	4.4											
					120408		432	12.7	4.76	0.8	5.16	4.4											
					120412		433	12.7	4.76	1.2	5.16	4.4											
	MT	SNGA	090304	SNGA	321	9.525	3.18	0.4	3.81	2.9													
				090308		322	9.525	3.18	0.8	3.81	2.9												
					120404		431	12.7	4.76	0.4	5.16	2.9											
					120408		432	12.7	4.76	0.8	5.16	2.9											
					120412		433	12.7	4.76	1.2	5.16	3.4											

■ MT : Mini Tip

Holder : 76p, 77p, 80p, 81p, 84p, 85p, 109p, 119p

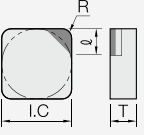
SNGX		ISO code		Dimensions (mm)					PCD										CVD				
		Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502			
	Standard	SNGX	090304	SNGX	321	9.525	3.18	0.4	3.81	4.4													
				090308		322	9.525	3.18	0.8	3.81	4.4												
					120404		431	12.7	4.76	0.4	5.16	4.4											
					120408		432	12.7	4.76	0.8	5.16	4.4											
					120412		433	12.7	4.76	1.2	5.16	4.4											
	MT	SNGX	090304	SNGX	321	9.525	3.18	0.4	3.81	2.9													
				090308		322	9.525	3.18	0.8	3.81	2.9												
					120404		431	12.7	4.76	0.4	5.16	2.9											
					120408		432	12.7	4.76	0.8	5.16	2.9											
					120412		433	12.7	4.76	1.2	5.16	3.4											

■ MT : Mini Tip

Holder : 76p, 77p, 80p, 81p, 84p, 85p, 109p, 119p

SNGN

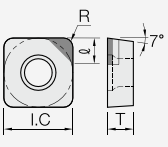
NEGATIVE

SNGN		ISO code		Dimensions (mm)					PCD										CVD				
		Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502			
	Standard	SNGN	090304	SNGN	321	9.525	3.18	0.4	3.81	4.4													
				090308		322	9.525	3.18	0.8	3.81	4.4												
					120404		431	12.7	4.76	0.4	5.16	4.4											
					120408		432	12.7	4.76	0.8	5.16	4.4											
					120412		433	12.7	4.76	1.2	5.16	4.4											
	MT	SNGN	090304	SNGN	321	9.525	3.18	0.4	3.81	2.9													
				090308		322	9.525	3.18	0.8	3.81	2.9												
					120404		431	12.7	4.76	0.4	5.16	2.9											
					120408		432	12.7	4.76	0.8	5.16	2.9											
					120412		433	12.7	4.76	1.2	5.16	3.4											

■ MT : Mini Tip

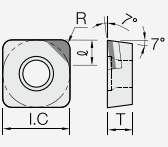
SC

POSITIVE 7 _ hole

	ISO code		Dimensions (mm)					PCD								CVD						
	SCGW		I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502			
	Metric	Inch																				
	Standard	SCGW 120404	SCGW 431	12.7	4.76	0.4	5.5	4.4														
			120408	432	12.7	4.76	0.8	5.5	4.4													
			120412	433	12.7	4.76	1.2	5.5	4.4													
		MT	SCGW 120404	SCGW 431	12.7	4.76	0.4	5.5	2.9													
				120408	432	12.7	4.76	0.8	5.5	2.9												
				120412	433	12.7	4.76	1.2	5.5	3.4												

■ MT : Mini Tip

Holder : 91p, 114p

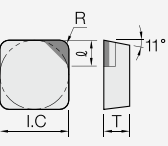
	ISO code		Dimensions (mm)					PCD								CVD						
	SCGT		I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502			
	Metric	Inch																				
	Standard	SCGT 120404	SCGT 431	12.7	4.76	0.4	5.5	4.4														
			120408	432	12.7	4.76	0.8	5.5	4.4													
			120412	433	12.7	4.76	1.2	5.5	4.4													
		MT	SCGT 120404	SCGT 431	12.7	4.76	0.4	5.5	2.9													
				120408	432	12.7	4.76	0.8	5.5	2.9												
				120412	433	12.7	4.76	1.2	5.5	3.4												

■ MT : Mini Tip

Holder : 91p, 114p

SPGN

POSITIVE 11

	ISO code		Dimensions (mm)					PCD								CVD						
	SPGN		I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502			
	Metric	Inch																				
	Standard	SPGN 090304	SPGN 321	9.525	3.18	0.4		4.4														
			090308	322	9.525	3.18	0.8		4.4													
			120304	421	12.7	4.76	0.4		4.4													
			120308	422	12.7	4.76	0.8		4.4													
		MT	SPGN 090304	SPGN 321	9.525	3.18	0.4		2.9													
				090308	322	9.525	3.18	0.8		2.9												
	120304		421	12.7	4.76	0.4		2.9														

■ MT : Mini Tip

SP

POSITIVE 11 _ hole

SPGW		ISO code		Dimensions (mm)					PCD							CVD					
		Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502	
	Standard	SPGW 090304	SPGW 321	12.7	4.76	0.4	4.4	4.4													
			090308	322	12.7	4.76	0.8	4.4	4.4												
			120404	431	12.7	4.76	0.4	5.5	4.4												
			120408	432	12.7	4.76	0.8	5.5	4.4												
			120412	433	12.7	4.76	1.2	5.5	4.4												
	MT	SPGW 090304	SPGW 321	12.7	4.76	0.4	4.4	2.9													
			090308	322	12.7	4.76	0.8	4.4	2.9												
			120404	431	12.7	4.76	0.4	5.5	2.9												
			120408	432	12.7	4.76	0.8	5.5	2.9												
			120412	433	12.7	4.76	1.2	5.5	3.4												

■ MT : Mini Tip

Holder : 115p

SPGT		ISO code		Dimensions (mm)					PCD							CVD					
		Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502	
	Standard	SPGT 090304	SPGT 321	12.7	4.76	0.4	4.4	4.4													
			090308	322	12.7	4.76	0.8	4.4	4.4												
			120404	431	12.7	4.76	0.4	5.5	4.4												
			120408	432	12.7	4.76	0.8	5.5	4.4												
			120412	433	12.7	4.76	1.2	5.5	4.4												
	MT	SPGT 090304	SPGT 321	12.7	4.76	0.4	4.4	2.9													
			090308	322	12.7	4.76	0.8	4.4	2.9												
			120404	431	12.7	4.76	0.4	5.5	2.9												
			120408	432	12.7	4.76	0.8	5.5	2.9												
			120412	433	12.7	4.76	1.2	5.5	3.4												

■ MT : Mini Tip

Holder : 115p

SEGN

POSITIVE 20

SEGN		ISO code		Dimensions (mm)					PCD							CVD				
		Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502
	Standard	SEGN 120304	SEGN 431	12.7	3.18	0.4		4.4												
			120308	432	12.7	3.18	0.8		4.4											

TN

NEGATIVE _ hole

Turning

TNGA		ISO code		Dimensions (mm)					PCD									CVD					
		Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502			
	Standard	TNGA	110302	TNGA	22(0.5)	6.35	3.18	0.2	2.4	4.1													
			110304		221	6.35	3.18	0.4	2.4	4													
			160402		33(0.5)	9.525	4.76	0.2	3.81	4.1													
			160404		331	9.525	4.76	0.4	3.81	4													
			160408		332	9.525	4.76	0.8	3.81	3.7													
			220404		431	12.7	4.76	0.4	5.16	4													
	MT	TNGA	110302	TNGA	22(0.5)	6.35	3.18	0.2	2.4	2.6													
			110304		221	6.35	3.18	0.4	2.4	2.5													
			160402		33(0.5)	9.525	4.76	0.2	3.81	2.6													
			160404		331	9.525	4.76	0.4	3.81	2.5													
			160408		332	9.525	4.76	0.8	3.81	2.2													

■ MT : Mini Tip

Holder : 77p, 81p, 85p, 86p, 110p, 111p

TNGX		ISO code		Dimensions (mm)					PCD									CVD					
		Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502			
	Standard	TNGX	110302	TNGX	22(0.5)	6.35	3.18	0.2	2.4	4.1													
			110304		221	6.35	3.18	0.4	2.4	4													
			160402		33(0.5)	9.525	4.76	0.2	3.81	4.1													
			160404		331	9.525	4.76	0.4	3.81	4													
			160408		332	9.525	4.76	0.8	3.81	3.7													
			220404		431	12.7	4.76	0.4	5.16	4													
	MT	TNGX	110302	TNGX	22(0.5)	6.35	3.18	0.2	2.4	2.6													
			110304		221	6.35	3.18	0.4	2.4	2.5													
			160402		33(0.5)	9.525	4.76	0.2	3.81	2.6													
			160404		331	9.525	4.76	0.4	3.81	2.5													
			160408		332	9.525	4.76	0.8	3.81	2.2													

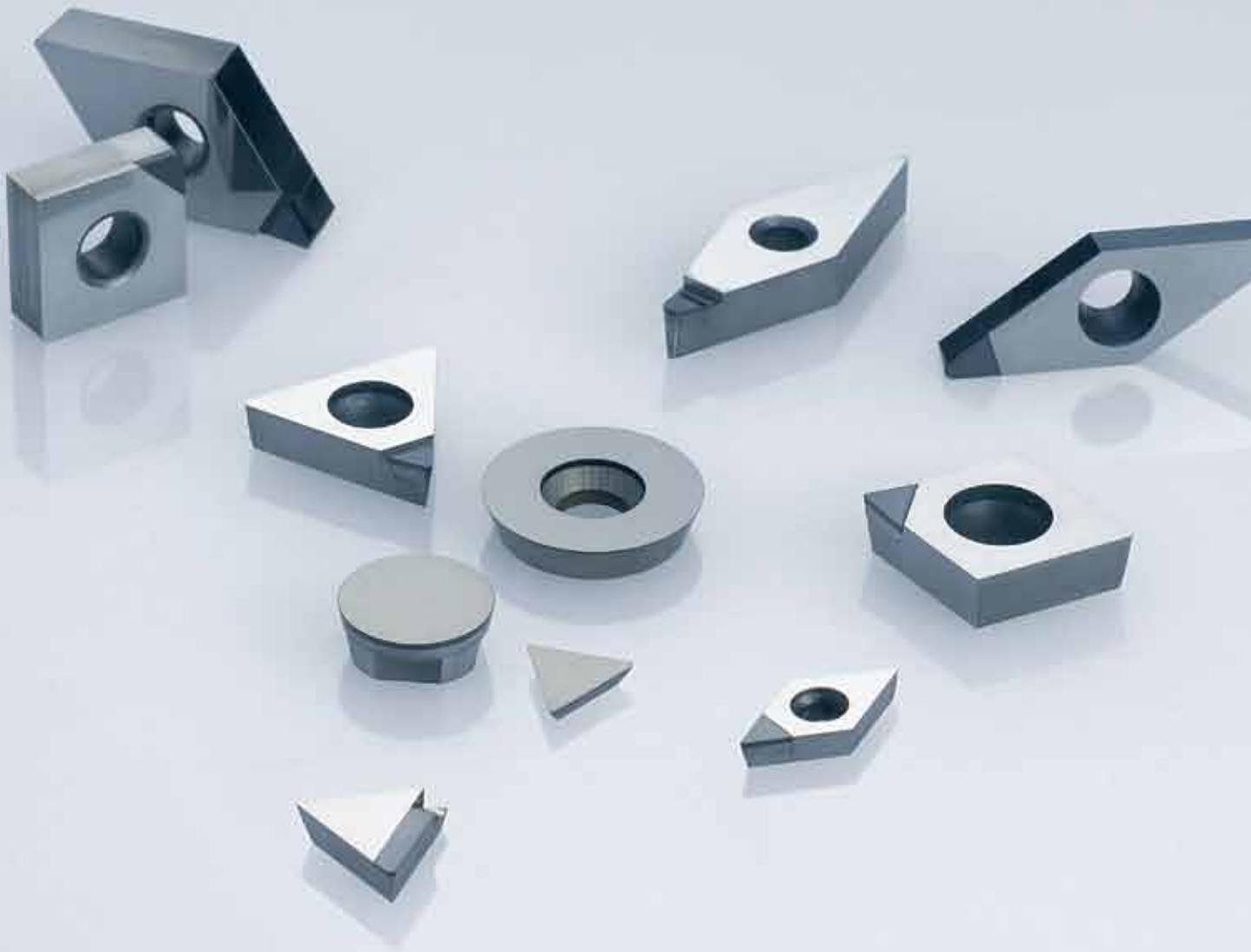
■ MT : Mini Tip

Holder : 77p, 81p, 85p, 86p, 110p, 111p

TBGN

POSITIVE 5

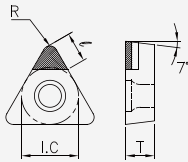
TBGN		ISO code		Dimensions (mm)					PCD									CVD					
		Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502			
	Standard	TBGN	060102	TBGN	(1.2)10.5	3.97	1.59	0.2		2.1													
			060104		(1.2)11	3.97	1.59	0.4		2													
			080202		1.5(1.5)0.5	4.76	2.38	0.2		2.6													
			080204		1.5(1.5)1	4.76	2.38	0.4		2.5													



TCGW

POSITIVE 7 _ hole

TCGW	ISO code		Dimensions (mm)						PCD										CVD	
	Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502	
Standard	TCGW 090202	TCGW 2(1.5)0.5	5.56	2.38	0.2	2.5	3.6													
	090204	2(1.5)1	5.56	2.38	0.4	2.5	3.5													
	110202	2(1.5)0.5	6.35	2.38	0.2	2.8	4.1													
	110204	2(1.5)1	6.35	2.38	0.4	2.8	4													
	110208	2(1.5)2	6.35	2.38	0.8	2.8	3.7													
	16T302	3(2.5)0.5	9.525	3.97	0.2	4.4	4.1													
	16T304	3(2.5)1	9.525	3.97	0.4	4.4	4													
	16T308	3(2.5)2	9.525	3.97	0.8	4.4	3.7													
MT	TCGW 090202	TCGW 2(1.5)0.5	5.56	2.38	0.2	2.5	2.6													
	090204	2(1.5)1	5.56	2.38	0.4	2.5	2.5													
	110202	2(1.5)0.5	6.35	2.38	0.2	2.8	2.6													
	110204	2(1.5)1	6.35	2.38	0.4	2.8	2.5													
	110208	2(1.5)2	6.35	2.38	0.8	2.8	2.2													
	16T302	3(2.5)0.5	9.525	3.97	0.2	4.4	2.6													
	16T304	3(2.5)1	9.525	3.97	0.4	4.4	2.5													
	16T308	3(2.5)2	9.525	3.97	0.8	4.4	2.2													
Chip breaker	TCGW 090202	TCGW 2(1.5)0.5	5.56	2.38	0.2	2.5	3.6													
	090204	2(1.5)1	5.56	2.38	0.4	2.5	3.5													
	110202	2(1.5)0.5	6.35	2.38	0.2	2.8	4.1													
	110204	2(1.5)1	6.35	2.38	0.4	2.8	4													
	110208	2(1.5)2	6.35	2.38	0.8	2.8	3.7													
	16T302	3(2.5)0.5	9.525	3.97	0.2	4.4	4.1													
	16T304	3(2.5)1	9.525	3.97	0.4	4.4	4													
	16T308	3(2.5)2	9.525	3.97	0.8	4.4	3.7													

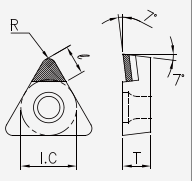


■ MT : Mini Tip Chip breaker type : Rough / Finish / Semi Finish

Holder : 92p, 93p, 115p

TCGT

POSITIVE 7 _ hole

TCGT	ISO code		Dimensions (mm)						PCD										CVD				
	Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP760	EP58	EP59	EP29	EP69	ED501	ED502				
	Standard	TCGT	090202	TCGT	2(1.5)0.5	5.56	2.38	0.2	2.5	3.6													
				090204		2(1.5)1	5.56	2.38	0.4	2.5	3.5												
					110202		2(1.5)0.5	6.35	2.38	0.2	2.8	4.1											
					110204		2(1.5)1	6.35	2.38	0.4	2.8	4											
					110208		2(1.5)2	6.35	2.38	0.8	2.8	3.7											
					16T302		3(2.5)0.5	9.525	3.97	0.2	4.4	4.1											
					16T304		3(2.5)1	9.525	3.97	0.4	4.4	4											
					16T308		3(2.5)2	9.525	3.97	0.8	4.4	3.7											
	MT	TCGT	090202	TCGT	2(1.5)0.5	5.56	2.38	0.2	2.5	2.6													
					090204		2(1.5)1	5.56	2.38	0.4	2.5	2.5											
					110202		2(1.5)0.5	6.35	2.38	0.2	2.8	2.6											
					110204		2(1.5)1	6.35	2.38	0.4	2.8	2.5											
					110208		2(1.5)2	6.35	2.38	0.8	2.8	2.2											
					16T302		3(2.5)0.5	9.525	3.97	0.2	4.4	2.6											
			16T304		3(2.5)1	9.525	3.97	0.4	4.4	2.5													
			16T308		3(2.5)2	9.525	3.97	0.8	4.4	2.2													

■ MT : Mini Tip

Holder : 92p, 93p, 115p

TPGN

POSITIVE 11

TPGN			ISO code		Dimensions (mm)					PCD								CVD				
		Metric	Inch	I.C	T	R	Hole	φ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502		
	Standard	TPGN 110302	TPGN 22(0.5)	6.35	3.18	0.2		4.1														
			110304	221	6.35	3.18	0.4		4													
			110308	222	6.35	3.18	0.8		3.7													
			160302	32(0.5)	9.525	3.18	0.2		4.1													
			160304	321	9.525	3.18	0.4		4													
			160308	322	9.525	3.18	0.8		3.7													
	MT	TPGN 110302	TPGN 22(0.5)	6.35	3.18	0.2		2.6														
			110304	221	6.35	3.18	0.4		2.5													
			110308	222	6.35	3.18	0.8		2.2													
			160302	32(0.5)	9.525	3.18	0.2		2.6													
			160304	321	9.525	3.18	0.4		2.5													
			160308	322	9.525	3.18	0.8		2.2													
	Chip breaker	TPGN 110302	TPGN 22(0.5)	6.35	3.18	0.2		4.1														
			110304	221	6.35	3.18	0.4		4													
			110308	222	6.35	3.18	0.8		3.7													
			160302	32(0.5)	9.525	3.18	0.2		4.1													
			160304	321	9.525	3.18	0.4		4													
			160308	322	9.525	3.18	0.8		3.7													

■ MT : Mini Tip Chip breaker type : Rough / Finish / Semi Finish

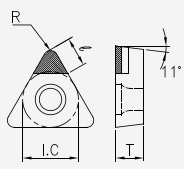
TPGN (L)			ISO code		Dimensions (mm)					PCD								CVD			
		Metric	Inch	I.C	T	R	Hole	φ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502	
	Standard	TPGN 160304 L	TPGN 331 L	9.525	3.18	0.4															
			160308 L	332 L	9.525	3.18	0.8														

TPGN (R)			ISO code		Dimensions (mm)					PCD								CVD			
		Metric	Inch	I.C	T	R	Hole	φ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502	
	Standard	TPGN 160304 R	TPGN 331 R	9.525	3.18	0.4															
			160308 R	332 R	9.525	3.18	0.8														

TPGW

POSITIVE 11 _ hole

TPGW	ISO code		Dimensions (mm)						PCD										CVD	
	Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502	
Standard	TPGW 110202	TPGW 210.5	6.35	2.38	0.2	2.8	4.1													
	110204	211	6.35	2.38	0.4	2.8	4													
	110304	221	6.35	3.18	0.4	3.4	4													
	110308	222	6.35	3.18	0.8	3.4	3.7													
	160302	32(0.5)	9.525	3.18	0.2	4.4	4.1													
	160304	321	9.525	3.18	0.4	4.4	4													
	160308	322	9.525	3.18	0.8	4.4	3.7													
	160404	331	9.525	4.76	0.4	4.4	4													
	160408	332	9.525	4.76	0.8	4.4	3.7													
MT	TPGW 080202	TPGW 1.5(1.5)0.5	4.76	2.38	0.2	2.3	2.6													
	080204	1.5(1.5)1	4.76	2.38	0.4	2.3	2.5													
	110202	210.5	6.35	2.38	0.2	2.8	2.6													
	110204	211	6.35	2.38	0.4	2.8	2.5													
	110304	221	6.35	3.18	0.4	3.4	2.5													
	110308	222	6.35	3.18	0.8	3.4	2.2													
	160302	32(0.5)	9.525	3.18	0.2	4.4	2.6													
	160304	321	9.525	3.18	0.4	4.4	2.5													
	160308	322	9.525	3.18	0.8	4.4	2.2													
Chip breaker	TPGW 080202	TPGW 1.5(1.5)0.5	4.76	2.38	0.2	2.3	2.6													
	080204	1.5(1.5)1	4.76	2.38	0.4	2.3	2.5													
	110202	210.5	6.35	2.38	0.2	2.8	4.1													
	110204	211	6.35	2.38	0.4	2.8	4													
	110304	221	6.35	3.18	0.4	3.4	4													
	110308	222	6.35	3.18	0.8	3.4	3.7													
	160302	32(0.5)	9.525	3.18	0.2	4.4	4.1													
	160304	321	9.525	3.18	0.4	4.4	4													
	160308	322	9.525	3.18	0.8	4.4	3.7													
160404	331	9.525	4.76	0.4	4.4	4														
160408	332	9.525	4.76	0.8	4.4	3.7														

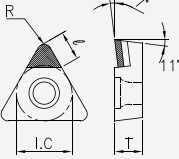


■ MT : Mini Tip Chip breaker type : Rough / Finish / Semi Finish

Holder : 116p

TPGT

POSITIVE 11 _ hole

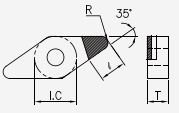
TPGT	ISO code		Dimensions (mm)					PCD									CVD							
	Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502					
	Standard	TPGT	110202	TPGT	210.5	6.35	2.38	0.2	2.8	4.1														
	MT	TPGT	080202	TPGT	1.5(1.5)0.5	4.76	2.38	0.2	2.3	2.6														

■ MT : Mini Tip

Holder : 116p

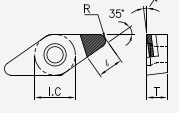
VN

NEGATIVE _ hole

VNGA	ISO code		Dimensions (mm)					PCD									CVD						
	Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502				
	Standard	VNGA	160402	VNGA	33(0.5)	9.525	4.76	0.2	3.81	5													
	MT	VNGA	160402	VNGA	33(0.5)	9.525	4.76	0.2	3.81	3													
		Chip breaker	VNGA	160402	VNGA	33(0.5)	9.525	4.76	0.2	3.81	5												

■ MT : Mini Tip Chip breaker type : Rough / Finish / Semi Finish

Holder : 78p, 87p, 111p

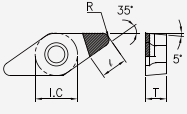
VNGX	ISO code		Dimensions (mm)					PCD									CVD					
	Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502			
	Standard	VNGX	160402	VNGX	33(0.5)	9.525	4.76	0.2	3.81	5												
	MT	VNGX	160402	VNGX	33(0.5)	9.525	4.76	0.2	3.81	3												

■ MT : Mini Tip


Holder : 78p, 87p, 111p

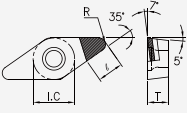
VB

POSITIVE 5 _ hole


VBGW		ISO code		Dimensions (mm)					PCD										CVD							
		Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502						
	Standard	VBGW	110302	VBGW	220.5	6.35	3.18	0.2	2.8	5																
	MT	VBGW	110302	VBGW	220.5	6.35	3.18	0.2	2.8	3																
Chip breaker	VBGW	110302	VBGW	220.5	6.35	3.18	0.2	2.8	5																	

■ MT : Mini Tip Chip breaker type : Rough / Finish / Semi Finish

 Holder : 93p, 94p, 117p

VBGT		ISO code		Dimensions (mm)					PCD										CVD							
		Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502						
	Standard	VBGT	110302	VBGT	220.5	6.35	3.18	0.2	2.8	5																
	MT	VBGT	110302	VBGT	220.5	6.35	3.18	0.2	2.8	3																

■ MT : Mini Tip

 Holder : 93p, 94p, 117p

VC
POSITIVE 7 _ hole

Turning

VCGW		ISO code		Dimensions (mm)					PCD								CVD				
		Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502	
	Standard	VCGW 110302	VCGW 220.5	6.35	3.18	0.2	2.8	5													
			110304	221	6.35	3.18	0.4	2.8	4.5												
			110308	222	6.35	3.18	0.8	2.8	3.7												
			160402	32(0.5)	9.525	4.76	0.2	4.4	5												
			160404	331	9.525	4.76	0.4	4.4	4.5												
			160408	332	9.525	4.76	0.8	4.4	3.7												
			160412	333	9.525	4.76	1.2	4.4	3.3												
			220512	4(3.5)3	12.7	5.56	1.2	5.5	3.3												
		220520	4(3.5)5	12.7	5.56	2	5.5	3.1													
	MT	VCGW 110302	VCGW 220.5	6.35	3.18	0.2	2.8	3													
			110304	221	6.35	3.18	0.4	2.8	2.5												
			110308	222	6.35	3.18	0.8	2.8	2.2												
			160402	32(0.5)	9.525	4.76	0.2	4.4	3												
			160404	331	9.525	4.76	0.4	4.4	2.5												
			160408	332	9.525	4.76	0.8	4.4	2.2												
	Chip breaker	VCGW 110302	VCGW 220.5	6.35	3.18	0.2	2.8	5													
		110304	221	6.35	3.18	0.4	2.8	4.5													
		110308	222	6.35	3.18	0.8	2.8	3.7													
		160402	32(0.5)	9.525	4.76	0.2	4.4	5													
		160404	331	9.525	4.76	0.4	4.4	4.5													
		160408	332	9.525	4.76	0.8	4.4	3.7													

■ MT : Mini Tip Chip breaker type : Rough / Finish / Semi Finish

Holder : 95p, 116p, 117p, 118p

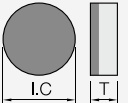
VCGT		ISO code		Dimensions (mm)					PCD								CVD				
		Metric	Inch	I.C	T	R	Hole	ℓ	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69	ED501	ED502	
	Standard	VCGT 110302	VCGT 220.5	6.35	3.18	0.2	2.8	5													
			110304	221	6.35	3.18	0.4	2.8	4.5												
			110308	222	6.35	3.18	0.8	2.8	3.7												
			160402	32(0.5)	9.525	4.76	0.2	4.4	5												
			160404	331	9.525	4.76	0.4	4.4	4.5												
			160408	332	9.525	4.76	0.8	4.4	3.7												
			160412	333	9.525	4.76	1.2	4.4	3.3												
			220512	4(3.5)3	12.7	5.56	1.2	5.5	3.3												
		220520	4(3.5)5	12.7	5.56	2	5.5	3.1													
	MT	VCGT 110302	VCGT 220.5	6.35	3.18	0.2	2.8	3													
			110304	221	6.35	3.18	0.4	2.8	2.5												
			110308	222	6.35	3.18	0.8	2.8	2.2												
			160402	32(0.5)	9.525	4.76	0.2	4.4	3												
			160404	331	9.525	4.76	0.4	4.4	2.5												
			160408	332	9.525	4.76	0.8	4.4	2.2												
			160412	333	9.525	4.76	1.2	4.4	1.8												

■ MT : Mini Tip

Holder : 95p, 116p, 117p, 118p

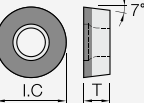
RNGN

NEGATIVE

RNGN	ISO code		Dimensions (mm)				PCD											
	Metric	Inch	I.C	T	R	Hole	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69		
	Standard	RNGN 090300	RNGN 320	9.525	3.18													
		090400	330	9.525	4.76													
		120300	420	12.7	3.18													
		120400	430	12.7	4.76													
		150400	530	15.875	4.76													

RCGW

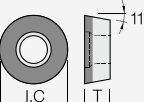
POSITIVE 7° hole

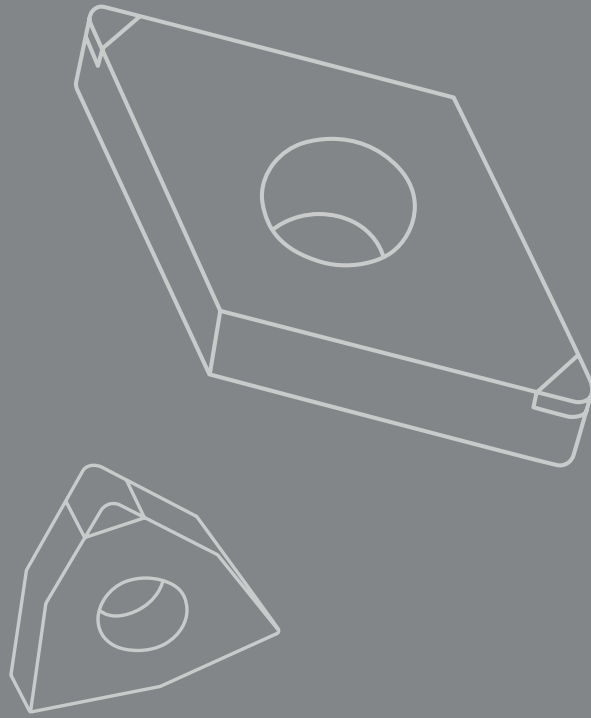
RCGW	ISO code		Dimensions (mm)				PCD											
	Metric	Inch	I.C	T	R	Hole	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69		
	Standard	RCGW 060200	RCGW 21.5	6.35	2.38	2.8												
		080300	-	8.0	3.18	3.4												
		10T300	-	10	3.18	4.4												
		12T300	42.5	12.7	3.97	4.4												

Holder : 90p

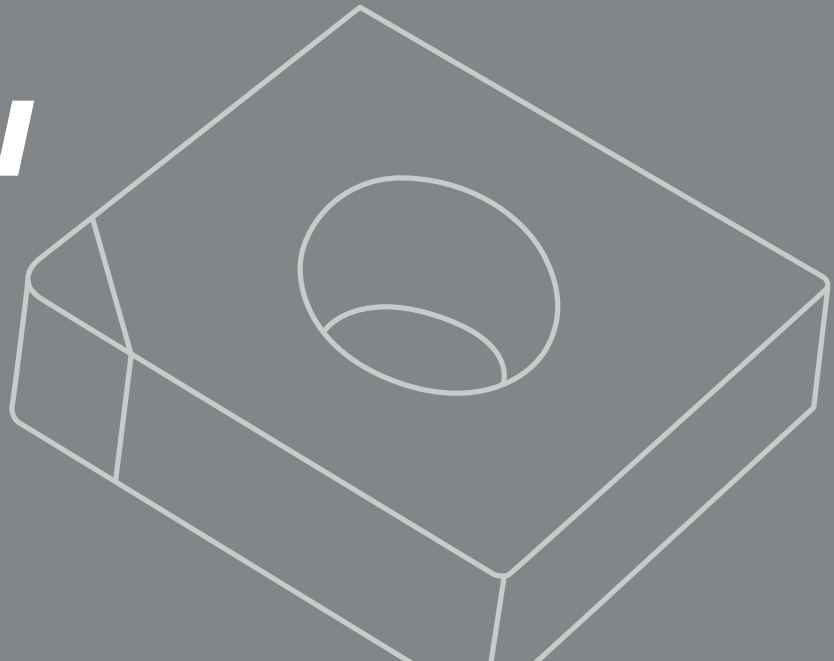
RPGW

POSITIVE 11° hole

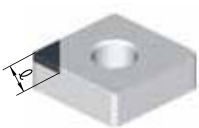
RPGW	ISO code		Dimensions (mm)				PCD											
	Metric	Inch	I.C	T	R	Hole	EP10	EP20	EP13	EP51	EP55	EP750	EP58	EP59	EP29	EP69		
	Standard	RPGW 060200	RPGW 21.5	6.35	2.38	2.8												
		080300	-	8.0	3.18	3.4												
		10T300	-	10	3.18	4.4												
		12T300	42.5	12.7	3.97	4.4												



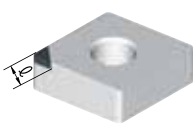
Turning_
PCBN



Insert tip types



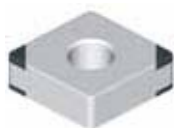
Standard



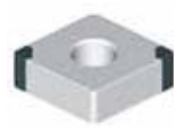
Mini tip



Mini 2tips



Mini 4tips



Vertical tip



Solid

CNGA

NEGATIVE _ hole



CNGA	ISO code		Dimensions (mm)						PCBN														
	Metric	Inch	I.C	T	R	Hole	ℓ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X		
	Standard	CNGA 120402	CNGA 43(0.5)	12.7	4.76	0.2	5.16	4.3															
			120404	431	12.7	4.76	0.4	5.16	4.3														
			120408	432	12.7	4.76	0.8	5.16	4.2														
			120412	433	12.7	4.76	1.2	5.16	4.1														
	MT	CNGA 120402	CNGA 43(0.5)	12.7	4.76	0.2	5.16	2.8															
			120404	431	12.7	4.76	0.4	5.16	2.8														
			120408	432	12.7	4.76	0.8	5.16	2.7														
			120412	433	12.7	4.76	1.2	5.16	3.1														
	2MT	CNGA 120402	CNGA 43(0.5)	12.7	4.76	0.2	5.16	2.8															
			120404	431	12.7	4.76	0.4	5.16	2.8														
			120408	432	12.7	4.76	0.8	5.16	2.7														
			120412	433	12.7	4.76	1.2	5.16	3.1														
4MT	CNGA 120402	CNGA 43(0.5)	12.7	4.76	0.2	5.16	2.8																
		120404	431	12.7	4.76	0.4	5.16	2.8															
		120408	432	12.7	4.76	0.8	5.16	2.7															
		120412	433	12.7	4.76	1.2	5.16	3.1															
4VT solid	CNGA 120402	CNGA 43(0.5)	12.7	4.76	0.2	5.16	2.7																
		120404	431	12.7	4.76	0.4	5.16	2.6															
		120408	432	12.7	4.76	0.8	5.16	2.5															
		120412	433	12.7	4.76	1.2	5.16	2.5															

■ MT : Mini Tip 2MT : Mini 2Tips 4MT : Mini 4Tips 4VT : Vertical 4Tips

Holder : 75p, 79p, 82p, 83p, 108p, 119p

CNGN

NEGATIVE



CNGN	ISO code		Dimensions (mm)						PCBN													
	Metric	Inch	I.C	T	R	Hole	ℓ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X	
Standard	CNGN 120408	CNGN 432	12.7	4.76	0.8		4.2															
		120412	433	12.7	4.76	1.2		4.1														

■ Solid

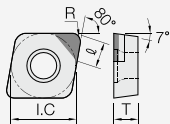
CNGN	ISO code		Dimensions (mm)						PCBN						
	Metric	Inch	I.C	T	R	Hole	ℓ	EB1000	EB50	EB100X	HBN	HBN-T	HBN-W	HBN-N	
Solid	CNGN 120408	CNGN 432	12.7	4.76	0.8										
		120412	433	12.7	4.76	1.2									

CCGW

POSITIVE 7 _ hole



CCGW	ISO code		Dimensions (mm)					PCBN														
	Metric	Inch	I.C	T	R	Hole	φ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X	
Standard	CCGW 060208	CCGW 2(1.5)2	6.35	2.38	0.8	2.8	3.2															
	09T302	3(2.5)0.5	9.525	3.97	0.2	4.4	4.3															
	09T304	3(2.5)1	9.525	3.97	0.4	4.4	4.3															
	09T308	3(2.5)2	9.525	3.97	0.8	4.4	4.2															
	120402	430	12.7	4.76	0.2	5.5	4.3															
	120404	431	12.7	4.76	0.4	5.5	4.3															
	120408	432	12.7	4.76	0.8	5.5	4.2															
	120412	433	12.7	4.76	1.2	5.5	4.1															
MT	CCGW 060202	CCGW 2(1.5)0.5	6.35	2.38	0.2	2.8	2.8															
	060204	2(1.5)1	6.35	2.38	0.4	2.8	2.8															
	060208	2(1.5)2	6.35	2.38	0.8	2.8	2.7															
	09T302	3(2.5)0.5	9.525	3.97	0.2	4.4	2.8															
	09T304	3(2.5)1	9.525	3.97	0.4	4.4	2.8															
	09T308	3(2.5)2	9.525	3.97	0.8	4.4	2.7															
	120402	430	12.7	4.76	0.2	5.5	2.8															
	120404	431	12.7	4.76	0.4	5.5	2.8															
2MT	CCGW 060202	CCGW 2(1.5)0.5	6.35	2.38	0.2	2.8	2.8															
	060204	2(1.5)1	6.35	2.38	0.4	2.8	2.8															
	060208	2(1.5)2	6.35	2.38	0.8	2.8	2.7															
	09T302	3(2.5)0.5	9.525	3.97	0.2	4.4	2.8															
	09T304	3(2.5)1	9.525	3.97	0.4	4.4	2.8															
	09T308	3(2.5)2	9.525	3.97	0.8	4.4	2.7															
	120402	430	12.7	4.76	0.2	5.5	2.8															
	120404	431	12.7	4.76	0.4	5.5	2.8															
120408	432	12.7	4.76	0.8	5.5	2.7																
120412	433	12.7	4.76	1.2	5.5	3.1																



■ MT : Mini Tips 2MT : Mini 2Tips

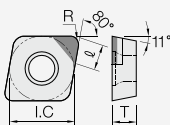
Holder : 88p, 112p

CPGW

POSITIVE 11 _ hole



CPGW	ISO code		Dimensions (mm)					PCBN														
	Metric	Inch	I.C	T	R	Hole	φ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X	
Standard	CPGW 090302	CPGW 320.5	9.525	3.18	0.2	4.4	4.3															
	090304	321	9.525	3.18	0.4	4.4	4.3															
	090308	322	9.525	3.18	0.8	4.4	4.2															
MT	CPGW 080202	CPGW 2.5(1.5)0.5	7.94	2.38	0.2	3.4	2.8															
	080204	2.5(1.5)1	7.94	2.38	0.4	3.4	2.8															
	090302	320.5	9.525	3.18	0.2	4.4	2.8															
2MT	CPGW 080202	CPGW 2.5(1.5)0.5	7.94	2.38	0.2	3.4	2.8															
	080204	2.5(1.5)1	7.94	2.38	0.4	3.4	2.8															
	090302	320.5	9.525	3.18	0.2	4.4	2.8															
2MT	CPGW 080202	CPGW 2.5(1.5)0.5	7.94	2.38	0.2	3.4	2.8															
	080204	2.5(1.5)1	7.94	2.38	0.4	3.4	2.8															
	090302	320.5	9.525	3.18	0.2	4.4	2.8															
2MT	CPGW 080202	CPGW 2.5(1.5)0.5	7.94	2.38	0.2	3.4	2.8															
	080204	2.5(1.5)1	7.94	2.38	0.4	3.4	2.8															
	090302	320.5	9.525	3.18	0.2	4.4	2.8															
2MT	CPGW 080202	CPGW 2.5(1.5)0.5	7.94	2.38	0.2	3.4	2.8															
	080204	2.5(1.5)1	7.94	2.38	0.4	3.4	2.8															
	090302	320.5	9.525	3.18	0.2	4.4	2.8															
2MT	CPGW 080202	CPGW 2.5(1.5)0.5	7.94	2.38	0.2	3.4	2.8															
	080204	2.5(1.5)1	7.94	2.38	0.4	3.4	2.8															
	090302	320.5	9.525	3.18	0.2	4.4	2.8															
2MT	CPGW 080202	CPGW 2.5(1.5)0.5	7.94	2.38	0.2	3.4	2.8															
	080204	2.5(1.5)1	7.94	2.38	0.4	3.4	2.8															
	090302	320.5	9.525	3.18	0.2	4.4	2.8															



■ MT : Mini Tips 2MT : Mini 2Tips

Holder : 112p

DNGA

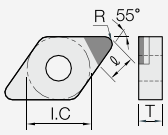
NEGATIVE _ hole



DNGA	ISO code		Dimensions (mm)						PCBN													
	Metric	Inch	I.C	T	R	Hole	ℓ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X	
Standard	DNGA	110404	DNGA	331	9.525	4.76	0.4	3.81	3.9													
		110408		332	9.525	4.76	0.8	3.81	3.5													
		150404		431	12.7	4.76	0.4	5.16	3.9													
		150408		432	12.7	4.76	0.8	5.16	3.5													
		150412		433	12.7	4.76	1.2	5.16	3.1													
		150604		441	12.7	6.35	0.4	5.16	3.9													
		150608		442	12.7	6.35	0.8	5.16	3.5													
		150612		443	12.7	6.35	1.2	5.16	3.1													
MT	DNGA	110404	DNGA	331	9.525	4.76	0.4	3.81	2.4													
		110408		332	9.525	4.76	0.8	3.81	2													
		150404		431	12.7	4.76	0.4	5.16	2.4													
		150408		432	12.7	4.76	0.8	5.16	2													
		150412		433	12.7	4.76	1.2	5.16	2.1													
		150604		441	12.7	6.35	0.4	5.16	2.4													
		150608		442	12.7	6.35	0.8	5.16	2													
		150612		443	12.7	6.35	1.2	5.16	2.1													
2MT	DNGA	110404	DNGA	331	9.525	4.76	0.4	3.81	2.4													
		110408		332	9.525	4.76	0.8	3.81	2													
		150404		431	12.7	4.76	0.4	5.16	2.4													
		150408		432	12.7	4.76	0.8	5.16	2													
		150412		433	12.7	4.76	1.2	5.16	2.1													
		150604		441	12.7	6.35	0.4	5.16	2.4													
		150608		442	12.7	6.35	0.8	5.16	2													
		150612		443	12.7	6.35	1.2	5.16	2.1													
4MT	DNGA	110404	DNGA	331	9.525	4.76	0.4	3.81	2.4													
		110408		332	9.525	4.76	0.8	3.81	2													
		150404		431	12.7	4.76	0.4	5.16	2.4													
		150408		432	12.7	4.76	0.8	5.16	2													
		150412		433	12.7	4.76	1.2	5.16	2.1													
		150604		441	12.7	6.35	0.4	5.16	2.4													
		150608		442	12.7	6.35	0.8	5.16	2													
		150612		443	12.7	6.35	1.2	5.16	2.1													
4VT solid	DNGA	110404	DNGA	331	9.525	4.76	0.4	3.81	2.7													
		110408		332	9.525	4.76	0.8	3.81	2.3													
		150404		431	12.7	4.76	0.4	5.16	2.7													
		150408		432	12.7	4.76	0.8	5.16	2.3													
		150412		433	12.7	4.76	1.2	5.16	2													

■ MT : Mini Tips 2MT : Mini 2Tips 4MT : Mini 4Tips 4VT : Vertical 4Tips

▣ Holder : 75p, 79p, 80p, 83p, 84p, 108p, 109p

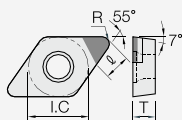


DCGW

POSITIVE 7₋ hole



DCGW	ISO code		Dimensions (mm)						PCBN													
	Metric	Inch	I.C	T	R	Hole	ℓ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X	
Standard	DCGW 11T302	DCGW 3(2.5)0.5	9.525	3.97	0.4	4.4	4															
	11T304	3(2.5)1	9.525	3.97	0.4	4.4	3.9															
	11T308	3(2.5)2	9.525	3.97	0.8	4.4	3.5															
	150404	431	12.7	4.76	0.4	5.16	3.9															
	150408	432	12.7	4.76	0.8	5.16	3.5															
MT	DCGW 11T302	DCGW 3(2.5)0.5	9.525	3.97	0.4	4.4	2.5															
	11T304	3(2.5)1	9.525	3.97	0.4	4.4	2.4															
	11T308	3(2.5)2	9.525	3.97	0.8	4.4	2															
	150404	431	12.7	4.76	0.4	5.16	2.4															
	150408	432	12.7	4.76	0.8	5.16	2															
2MT	DCGW 11T302	DCGW 3(2.5)0.5	9.525	3.97	0.4	4.4	2.5															
	11T304	3(2.5)1	9.525	3.97	0.4	4.4	2.4															
	11T308	3(2.5)2	9.525	3.97	0.8	4.4	2															
	150404	431	12.7	4.76	0.4	5.16	2.4															
	150408	432	12.7	4.76	0.8	5.16	2															



■ MT : Mini Tips 2MT : Mini 2Tips

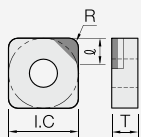
Holder : 89p, 113p, 114p

SNGA

NEGATIVE hole



SNGA	ISO code		Dimensions (mm)						PCBN													
	Metric	Inch	I.C	T	R	Hole	ℓ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X	
Standard	SNGA 090304	SNGA 321	9.525	3.18	0.4	3.81	4.4															
	090308	322	9.525	3.18	0.8	3.81	4.4															
	120404	431	12.7	4.76	0.4	5.16	4.4															
	120408	432	12.7	4.76	0.8	5.16	4.4															
	120412	433	12.7	4.76	1.2	5.16	4.4															
MT	SNGA 090304	SNGA 321	9.525	3.18	0.4	3.81	2.9															
	090308	322	9.525	3.18	0.8	3.81	2.9															
	120404	431	12.7	4.76	0.4	5.16	2.9															
	120408	432	12.7	4.76	0.8	5.16	2.9															
	120412	433	12.7	4.76	1.2	5.16	3.4															
2MT	SNGA 090304	SNGA 321	9.525	3.18	0.4	3.81	2.9															
	090308	322	9.525	3.18	0.8	3.81	2.9															
	120404	431	12.7	4.76	0.4	5.16	2.9															
	120408	432	12.7	4.76	0.8	5.16	2.9															
	120412	433	12.7	4.76	1.2	5.16	3.4															
4MT	SNGA 120404	SNGA 431	12.7	4.76	0.4	5.16	2.9															
	120408	432	12.7	4.76	0.8	5.16	2.9															
	120412	433	12.7	4.76	1.2	5.16	3.4															
8VT solid	SNGA 120404	SNGA 431	12.7	4.76	0.4	5.16	2.2															
	120408	432	12.7	4.76	0.8	5.16	2.2															
	120412	433	12.7	4.76	1.2	5.16	2.2															



■ MT : Mini Tips 2MT : Mini 2Tips 4MT : Mini 4Tips 8VT : Vertical 8Tips

Holder : 76p, 77p, 80p, 81p, 84p, 85p, 109p, 119p

SNGN

NEGATIVE



SNGN	ISO code		Dimensions (mm)						PCBN														
	Metric	Inch	I.C	T	R	Hole	ℓ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X		
	Standard	SNGN 090304	SNGN 321	9.525	3.18	0.4		4.4															
			090308	322	9.525	3.18	0.8		4.4														
			120404	431	12.7	4.76	0.4		4.4														
			120408	432	12.7	4.76	0.8		4.4														
			120412	433	12.7	4.76	1.2		4.4														
			SNGN 090304	SNGN 321	9.525	3.18	0.4		2.9														
	MT		090308	322	9.525	3.18	0.8		2.9														
			120404	431	12.7	4.76	0.4		2.9														
			120408	432	12.7	4.76	0.8		2.9														
			120412	433	12.7	4.76	1.2		3.4														
	2MT		SNGN 090304	SNGN 321	9.525	3.18	0.4		2.9														
			090308	322	9.525	3.18	0.8		2.9														
		120404	431	12.7	4.76	0.4		2.9															
		120408	432	12.7	4.76	0.8		2.9															
4MT		120412	433	12.7	4.76	1.2		3.4															
	8VT solid	SNGN 120404	SNGN 431	12.7	4.76	0.4		2.2															
			120408	432	12.7	4.76	0.8		2.2														
		120412	433	12.7	4.76	1.2		2.2															

■ MT : Mini Tips 2MT : Mini 2Tips 4MT : Mini 4Tips 8VT : Vertical 8Tips

■ Solid

SNGN	ISO code		Dimensions (mm)						PCBN						
	Metric	Inch	I.C	T	R	Hole	ℓ	EB1000	EB50	EB100X	HBN	HBN-T	HBN-W	HBN-N	
	Solid	SNGN 090304	SNGN 321	9.525	3.18	0.4									
			090308	322	9.525	3.18	0.8								
			120404	431	12.7	4.76	0.4								
			120408	432	12.7	4.76	0.8								
			120412	433	12.7	4.76	1.2								

SPGN

POSITIVE 11



SPGN	ISO code		Dimensions (mm)					PCBN															
	Metric	Inch	I.C	T	R	Hole	ℓ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X		
	Standard	SPGN 090304	SPGN 321	9.525	3.18	0.4		4.4															
			090308	322	9.525	3.18	0.8		4.4														
			120404	431	12.7	4.76	0.4		4.4														
			120408	432	12.7	4.76	0.8		4.4														
			120412	433	12.7	4.76	1.2		4.4														
			120412	433	12.7	4.76	1.2		4.4														
	MT	SPGN 090304	SPGN 321	9.525	3.18	0.4		2.9															
			090308	322	9.525	3.18	0.8		2.9														
			120404	431	12.7	4.76	0.4		2.9														
			120408	432	12.7	4.76	0.8		2.9														
			120412	433	12.7	4.76	1.2		3.4														
			120412	433	12.7	4.76	1.2		3.4														
2MT	SPGN 090304	SPGN 321	9.525	3.18	0.4		2.9																
		090308	322	9.525	3.18	0.8		2.9															
		120404	431	12.7	4.76	0.4		2.9															
		120408	432	12.7	4.76	0.8		2.9															
		120412	433	12.7	4.76	1.2		3.4															
		120412	433	12.7	4.76	1.2		3.4															
4MT	SPGN 120404	SPGN 431	12.7	4.76	0.4		2.9																
		120408	432	12.7	4.76	0.8		2.9															
		120412	433	12.7	4.76	1.2		3.4															
Full face	SPGN 090304	SPGN 321	9.525	3.18	0.4																		
		090308	322	9.525	3.18	0.8																	
		120404	431	12.7	4.76	0.4																	
		120408	432	12.7	4.76	0.8																	
		120412	433	12.7	4.76	1.2																	

■ MT : Mini Tips 2MT : Mini 2Tips 4MT : Mini 4Tips

TBGN

POSITIVE 5

■ Carbide backed

TBGN	ISO code		Dimensions (mm)					PCBN														
	Metric	Inch	I.C	T	R	Hole	ℓ	EB28X	EB570	EB160	EB560	EB150	EB550	EB190	EB170	EB73	EB51	EB710	EB210			
	Full face	TBGN 060102	TBGN(1.2)10.5	3.97	1.59	0.2																
			060104	(1.2)11	3.97	1.59	0.4															
			060108	(1.2)12	3.97	1.59	0.8															
			080202	1.5(1.5)0.5	4.76	2.38	0.2															
			080204	1.5(1.5)1	4.76	2.38	0.4															
			080208	1.5(1.5)2	4.76	2.38	0.8															
			080212	1.5(1.5)3	4.76	2.38	1.2															
			080212	1.5(1.5)3	4.76	2.38	1.2															



TNGA

NEGATIVE _ hole



TNGA	ISO code		Dimensions (mm)						PCBN															
	Metric	Inch	I.C	T	R	Hole	ℓ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X			
	Standard	TNGA 110304	TNGA 221	6.35	3.18	0.4	2.4	4																
			160404	331	9.525	4.76	0.4	3.81	4															
			160408	332	9.525	4.76	0.8	3.81	3.7															
			220404	431	12.7	4.76	0.4	5.16	4															
			220408	432	12.7	4.76	0.8	5.16	3.7															
			220408	432	12.7	4.76	0.8	5.16	3.7															
	MT	TNGA 110304	TNGA 221	6.35	3.18	0.4	2.4	2.5																
			160404	331	9.525	4.76	0.8	3.81	2.5															
			160408	332	9.525	4.76	0.4	3.81	2.2															
		3MT	TNGA 110304	TNGA 221	6.35	3.18	0.4	2.4	2.5															
				160404	331	9.525	4.76	0.4	3.81	2.5														
				160408	332	9.525	4.76	0.8	3.81	2.2														
	220404		431	12.7	4.76	0.4	5.16	2.5																
6VT Solid		220408	432	12.7	4.76	0.8	5.16	2.2																
	TNGA 160404	TNGA 331	9.525	4.76	0.4	3.81	2.9																	
		160408	332	9.525	4.76	0.8	3.81	2.6																

■ MT : Mini Tips 3MT : Mini 3Tips 6VT : Vertical 6Tips Holder : 77p, 81p, 85p, 86p, 110p, 111p

TNGN

NEGATIVE



TNGN	ISO code		Dimensions (mm)						PCBN														
	Metric	Inch	I.C	T	R	Hole	ℓ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X		
	Standard	TNGN 160404	TNGN 331	9.525	4.76	0.4	4																
			160408	332	9.525	4.76	0.8	3.7															
			160412	333	9.525	4.76	1.2	3.4															
	MT	TNGN 160404	TNGN 331	9.525	4.76	0.4	2.5																
			160408	332	9.525	4.76	0.8	2.2															
			160412	333	9.525	4.76	1.2	2.4															
	3MT	TNGN 160404	TNGN 331	9.525	4.76	0.4	2.5																
			160408	332	9.525	4.76	0.8	2.2															
			160412	333	9.525	4.76	1.2	2.4															
	6VT Solid	TNGN 160404	TNGN 331	9.525	4.76	0.4	2.9																
			160408	332	9.525	4.76	0.8	2.6															
			160412	333	9.525	4.76	1.2	2.3															

■ MT : Mini Tips 3MT : Mini 3Tips 6VT : Vertical 6Tips ■ Solid

TNGN	ISO code		Dimensions (mm)						PCBN						
	Metric	Inch	I.C	T	R	Hole	ℓ	EB1000	EB50	EB100X	HBN	HBN-T	HBN-W	HBN-N	
	Solid	TNGN 110304	TNGN 221	6.35	3.18	0.4									
			110308	222	6.35	3.18	0.8								
			160408	332	9.525	4.76	0.8								
			160412	333	9.525	4.76	1.2								

TCGW

POSITIVE 7 - hole



TCGW	ISO code		Dimensions (mm)						PCBN															
	Metric	Inch	I.C	T	R	Hole	φ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X			
	Standard	TCGW 16T302	TCGW 3(2.5)0.5	9.525	3.97	0.2	4.4	4.1																
			16T304	3(2.5)1	9.525	3.97	0.4	4.4	4															
			16T308	3(2.5)2	9.525	3.97	0.8	4.4	3.7															
		MT	TCGW 090202	TCGW 2(1.5)0.5	5.56	2.38	0.2	2.5	2.6															
				090204	2(1.5)1	5.56	2.38	0.4	2.5	2.5														
				110202	2(1.5)0.5	6.35	2.38	0.2	2.8	2.6														
			110204	2(1.5)1	6.35	2.38	0.4	2.8	2.5															
			110208	2(1.5)2	6.35	2.38	0.8	2.8	2.2															
			16T302	3(2.5)0.5	9.525	3.97	0.2	4.4	2.6															
	3MT	TCGW 090202	TCGW 2(1.5)0.5	5.56	2.38	0.2	2.5	2.6																
			090204	2(1.5)1	5.56	2.38	0.4	2.5	2.5															
			110202	2(1.5)0.5	6.35	2.38	0.2	2.8	2.6															
		110204	2(1.5)1	6.35	2.38	0.4	2.8	2.5																
		110208	2(1.5)2	6.35	2.38	0.8	2.8	2.2																
		16T302	3(2.5)0.5	9.525	3.97	0.2	4.4	2.6																

■ MT : Mini Tips 3MT : Mini 3Tips

Holder : 92p, 93p, 115p

TPGN

POSITIVE 11



TPGN	ISO code		Dimensions (mm)						PCBN														
	Metric	Inch	I.C	T	R	Hole	φ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X		
	Standard	TPGN 160304	TPGN 321	9.525	3.18	0.4		4															
			160308	322	9.525	3.18	0.8		3.7														
			220404	431	12.7	4.76	0.4		4														
			220408	432	12.7	4.76	0.8		3.7														
			220412	433	12.7	4.76	1.2		3.4														
	MT	TPGN 160304	TPGN 321	9.525	3.18	0.4		2.5															
			160308	322	9.525	3.18	0.8		2.2														
		3MT	TPGN 160304	TPGN 321	9.525	3.18	0.4		2.5														
			160308	322	9.525	3.18	0.8		2.2														

■ MT : Mini Tips 3MT : Mini 3Tips

TPGW

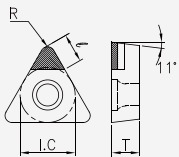
POSITIVE 11 _ hole



TPGW	ISO code		Dimensions (mm)					PCBN														
	Metric	Inch	I.C	T	R	Hole	ℓ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X	
Standard	TPGW 160302	TPGW 32(0.5)	9.525	3.18	0.2	4.4	4.1															
	160304	321	9.525	3.18	0.4	4.4	4															
	160308	322	9.525	3.18	0.8	4.4	3.7															
	160404	331	9.525	4.76	0.4	4.4	4															
	160408	332	9.525	4.76	0.8	4.4	3.7															
MT	TPGW 080202	TPGW 1.5(1.5)0.5	4.76	2.38	0.2	2.3	2.6															
	080204	1.5(1.5)1	4.76	2.38	0.4	2.3	2.5															
	090202	1.5)0.5	5.56	2.38	0.2	2.5	2.6															
	090204	1.5)1	5.56	2.38	0.4	2.5	2.5															
	110202	21(0.5)	6.35	2.38	0.2	2.8	2.6															
	110204	211	6.35	2.38	0.4	2.8	2.5															
	110302	22(0.5)	6.35	3.18	0.2	3.4	2.6															
	110304	221	6.35	3.18	0.4	3.4	2.5															
	110308	222	6.35	3.18	0.8	3.4	2.2															
	160302	32(0.5)	9.525	3.18	0.2	4.4	2.6															
	160304	321	9.525	3.18	0.4	4.4	2.5															
	160308	322	9.525	3.18	0.8	4.4	2.2															
	160404	331	9.525	4.76	0.4	4.4	2.5															
	160408	332	9.525	4.76	0.8	4.4	2.2															
	3MT	TPGW 080202	TPGW 1.5(1.5)0.5	4.76	2.38	0.2	2.3	2.6														
080204		1.5(1.5)1	4.76	2.38	0.4	2.3	2.5															
090202		1.5)0.5	5.56	2.38	0.2	2.5	2.6															
090204		1.5)1	5.56	2.38	0.4	2.5	2.5															
110202		21(0.5)	6.35	2.38	0.2	2.8	2.6															
110204		211	6.35	2.38	0.4	2.8	2.5															
110302		22(0.5)	6.35	3.18	0.2	3.4	2.6															
110304		221	6.35	3.18	0.4	3.4	2.5															
110308		222	6.35	3.18	0.8	3.4	2.2															
160302		32(0.5)	9.525	3.18	0.2	4.4	2.6															
160304		321	9.525	3.18	0.4	4.4	2.5															
160308		322	9.525	3.18	0.8	4.4	2.2															
160404		331	9.525	4.76	0.4	4.4	2.5															
160408		332	9.525	4.76	0.8	4.4	2.2															

■ MT : Mini Tips 3MT : Mini 3Tips

Holder : 116p



Turning

VNGA

NEGATIVE _ hole



VNGA	ISO code		Dimensions (mm)					PCBN															
	Metric	Inch	I.C	T	R	Hole	ℓ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X		
	Standard	VNGA 160402	VNGA 33(0.5)	9.525	4.76	0.2	3.81	5															
		160404	331	9.525	4.76	0.4	3.81	4.5															
		160408	332	9.525	4.76	0.8	3.81	3.7															
	MT	VNGA 160402	VNGA 33(0.5)	9.525	4.76	0.2	3.81	3															
		160404	331	9.525	4.76	0.4	3.81	2.5															
		160408	332	9.525	4.76	0.8	3.81	2.2															
	2MT	VNGA 160402	VNGA 33(0.5)	9.525	4.76	0.2	3.81	3															
		160404	331	9.525	4.76	0.4	3.81	2.5															
		160408	332	9.525	4.76	0.8	3.81	2.2															
	4VT solid	VNGA 160402	VNGA 33(0.5)	9.525	4.76	0.2	3.81	2.6															
		160404	331	9.525	4.76	0.4	3.81	2.2															
		160408	332	9.525	4.76	0.8	3.81	2.3															

■ MT : Mini Tips 2MT : Mini 2Tips 4VT : Vertical 4Tips

Holder : 78p, 87p, 111p

VBGW

POSITIVE 5 _ hole



VBGW	ISO code		Dimensions (mm)					PCBN															
	Metric	Inch	I.C	T	R	Hole	ℓ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X		
	Standard	VBGW 110302	VBGW 22(0.5)	6.35	3.18	0.2	2.8	5															
		110304	221	6.35	3.18	0.4	2.8	4.5															
		160402	33(0.5)	9.525	4.76	0.2	2.8	5															
		160404	331	9.525	4.76	0.4	4.4	4.5															
		160408	332	9.525	4.76	0.8	4.4	3.7															
		160412	333	9.525	4.76	1.2	4.4	3.3															
	MT	VBGW 110302	VBGW 22(0.5)	6.35	3.18	0.2	2.8	3															
		110304	221	6.35	3.18	0.4	2.8	2.5															
		160402	33(0.5)	9.525	4.76	0.2	2.8	3															
		160404	331	9.525	4.76	0.4	4.4	2.5															
		160408	332	9.525	4.76	0.8	4.4	2.2															
		160412	333	9.525	4.76	1.2	4.4	1.8															
	2MT	VBGW 110302	VBGW 22(0.5)	6.35	3.18	0.2	2.8	3															
		110304	221	6.35	3.18	0.4	2.8	2.5															
		160402	33(0.5)	9.525	4.76	0.2	2.8	3															
		160404	331	9.525	4.76	0.4	4.4	2.5															
		160408	332	9.525	4.76	0.8	4.4	2.2															
		160412	333	9.525	4.76	1.2	4.4	1.8															

■ MT : Mini Tips 2MT : Mini 2Tips

Holder : 93p, 94p, 117p

VCGW

POSITIVE 7 _ hole



VCGW	ISO code		Dimensions (mm)					PCBN													
	Metric	Inch	I.C	T	R	Hole	ℓ	EB28X (S)	EB570 (S)	EB160	EB560 (S)	EB150	EB550 (S)	EB190	EB170	EB73	EB54X	EB51	EB710	EB210	EB100X
Standard	VCGW	110302	VCGW	22(0.5)	6.35	3.18	0.2	2.8	5												
		110304		221	6.35	3.18	0.4	2.8	4.5												
		160402		33(0.5)	9.525	4.76	0.2	4.4	5												
		160404		331	9.525	4.76	0.4	4.4	4.5												
		160408		332	9.525	4.76	0.8	4.4	3.7												
		160412		333	9.525	4.76	1.2	4.4	3.3												
MT	VCGW	110302	VCGW	22(0.5)	6.35	3.18	0.2	2.8	3												
		110304		221	6.35	3.18	0.4	2.8	2.5												
		160402		33(0.5)	9.525	4.76	0.2	4.4	3												
		160404		331	9.525	4.76	0.4	4.4	2.5												
		160408		332	9.525	4.76	0.8	4.4	2.2												
		160412		333	9.525	4.76	1.2	4.4	1.8												
2MT	VCGW	110302	VCGW	22(0.5)	6.35	3.18	0.2	2.8	3												
		110304		221	6.35	3.18	0.4	2.8	2.5												
		160402		33(0.5)	9.525	4.76	0.2	4.4	3												
		160404		331	9.525	4.76	0.4	4.4	2.5												
		160408		332	9.525	4.76	0.8	4.4	2.2												
		160412		333	9.525	4.76	1.2	4.4	1.8												

■ MT : Mini Tips 2MT : Mini 2Tips

Holder : 95p, 116p, 117p, 118p

RNGN

NEGATIVE

■ Carbide backed

RNGN	ISO code		Dimensions (mm)				PCBN							
	Metric	Inch	I.C	T	R									
	RNGN	060300	RNGN	220	6.35	3.18								
		090300		320	9.525	3.18								
		090400		330	9.525	4.76								
		120300		420	12.7	3.18								
		120400		430	12.7	4.76								

■ Solid

Shape	ISO code		Dimensions (mm)				PCBN										
	Metric	Inch	I.C	T	R												
	RNGN	060300	RNGN	220	6.35	3.18											
		090300		320	9.525	3.18											
		090400		330	9.525	4.76											
		120300		420	12.7	3.18											
		120400		430	12.7	4.76											

RCGX

POSITIVE 7

■ Carbide backed

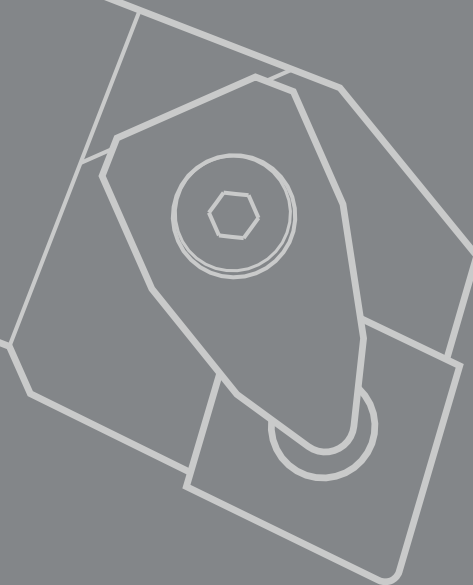
RCGX	ISO code		Dimensions (mm)				PCBN												
	Metric	Inch	I.C	t	T	α	EB51	EB71	EB71X										
	RCGX 060300	RCGX 220	6.35	3.18	3.32	140°													
	090300	320	9.525	3.18	3.32	140°													
	090700	3(-)	9.525	7.7	7.94	120°													
	120400	430	12.7	4.76	4.94	140°													
	120700	4(-)	12.7	7.7	7.94	140°													
	191000	(-)	19.05	9.77	10	120°													

■ Solid

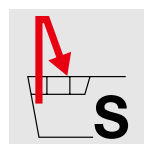
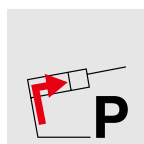
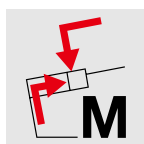
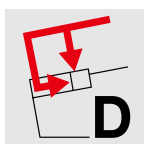
RCGX	ISO code		Dimensions (mm)				PCBN												
	Metric	Inch	I.C	t	T	α	HBN-R	HBN-N											
	RCGX 060300	RCGX 220	6.35	3.18	3.32	140°													
	090300	320	9.525	3.18	3.32	140°													
	090700	3(-)	9.525	7.7	7.94	120°													
	120400	430	12.7	4.76	4.94	140°													
	120700	4(-)	12.7	7.7	7.94	140°													
	191000	(-)	19.05	9.77	10	120°													



Turning_ **Holder**



How to combine the holder

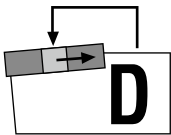


- D** Double clamping
- M** Multi locking
- P** Lever locking
- S** Screw clamping

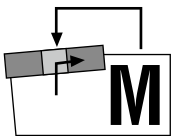
Designation system

D S K D

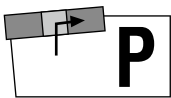
Clamp type Insert shape Tool style Clearance angle



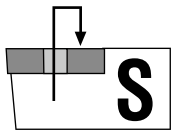
Double clamping



Multi locking



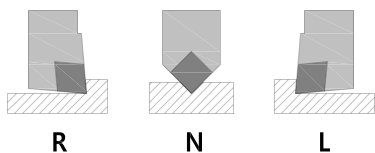
Lever locking



Screw clamping

Symbol	Shape
C	
D	
E	
L	
R	
S	
T	
V	
W	

Symbol	Angle
N	0°
A	3°
B	5°
C	7°
P	11°
D	15°
E	20°
F	25°

R**25****25****12****1****Cutting direction****Tool height****Tool width**

H	H size (mm)
12	12
16	16
20	20
25	25
32	32
40	40
50	50

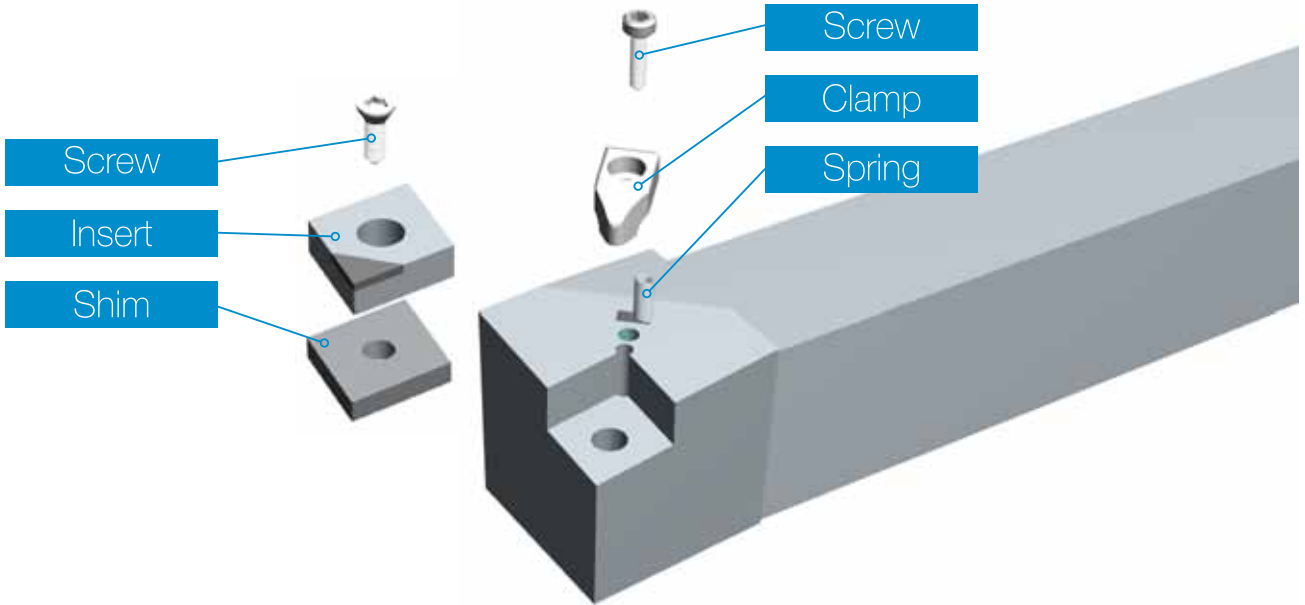
W	W (mm)
12	12
16	16
20	20
25	25
32	32
40	40
50	50

1 Cutting edge length

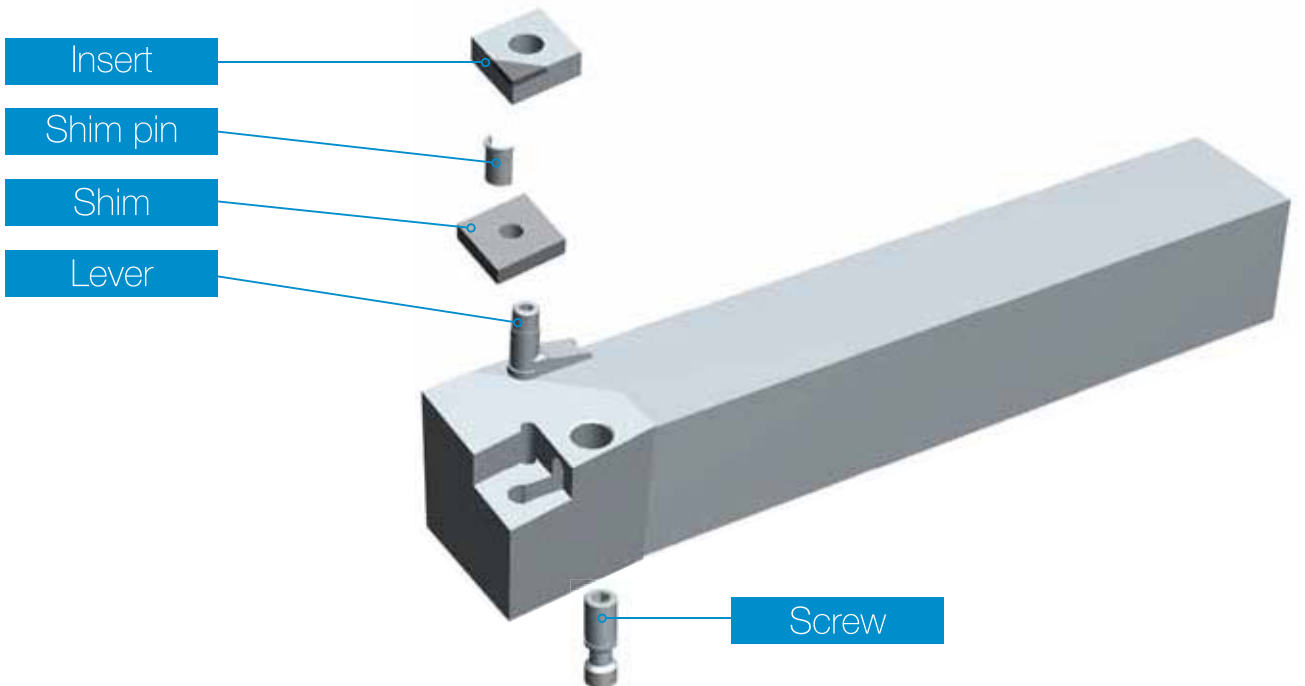
C	D	E	R	S	T	V	W	K	I.C size (mm)
03	04			03	06				3.97
05	06			05	09	09	03		5.56
06	07			06	11	11	04		6.35
08	09			07	13	13	05		7.94
			08						8
09	11		09	09	16	16	06	16	9.525
			10						10
			12						12
12	15	13	12.7	12	22	22	08		12.7
16	19		15	15	27	27	10		15.875
			16						16
19	23		19	19	33	33	13		19.05
			20						20
			25						25
25	31		25	25	44				25.4
			32						32

Tool Holder Clamping Type

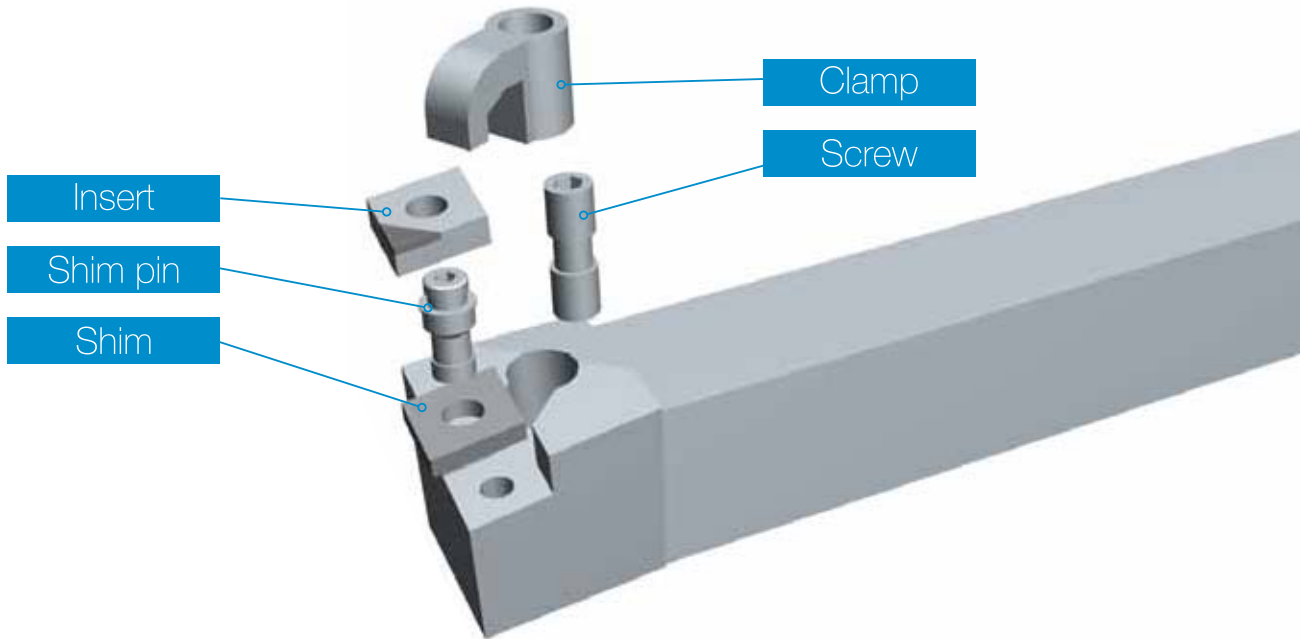
Double clamping



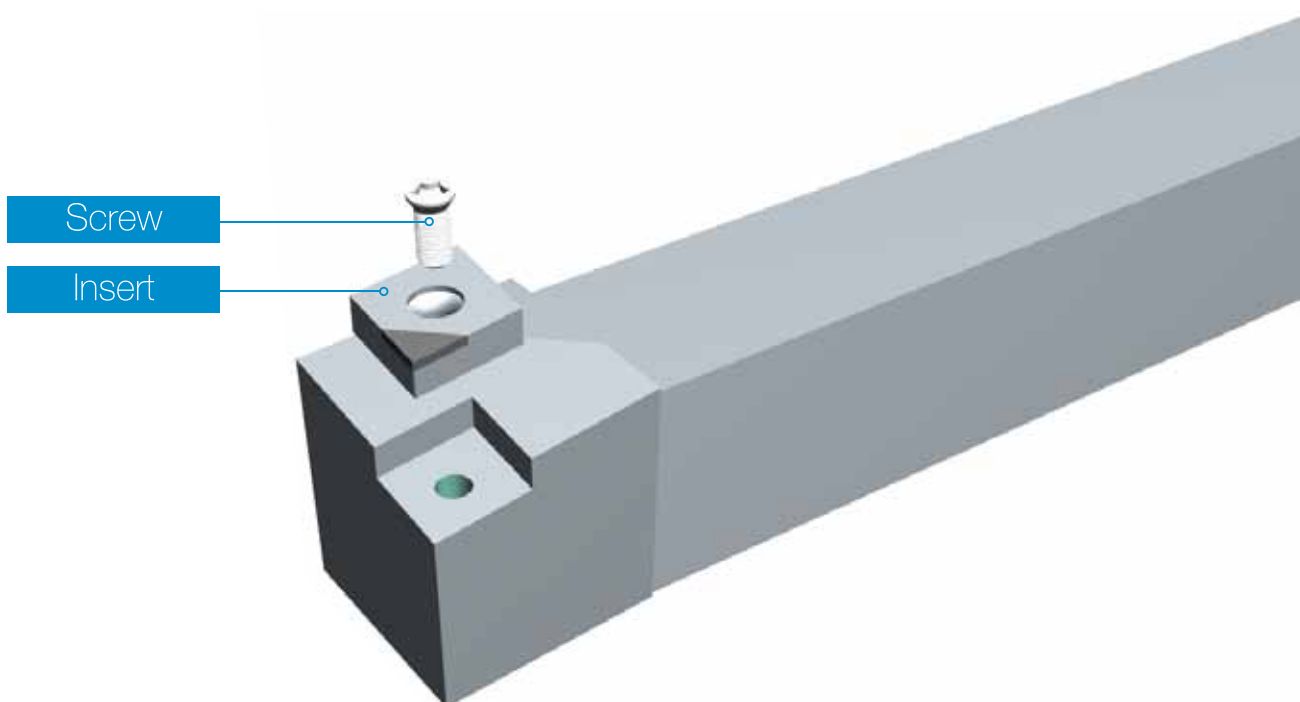
Lever locking



Multi locking



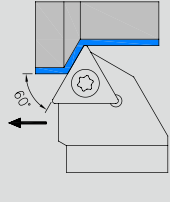
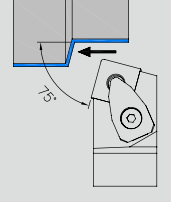
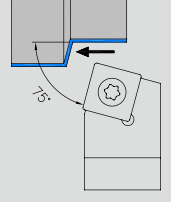
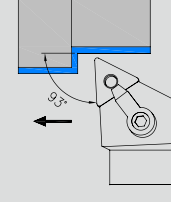
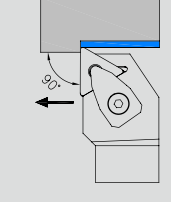
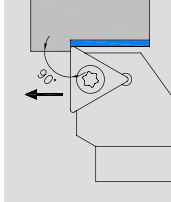
Screw clamping

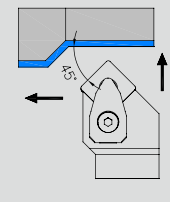
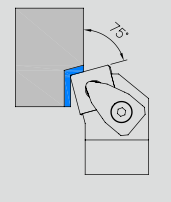
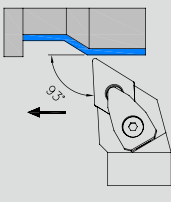
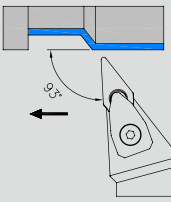
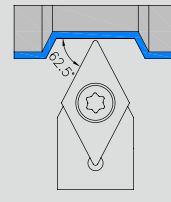
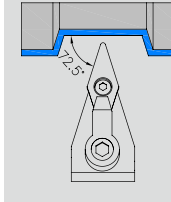


Application Of Holders

Edge/ angle	75° SN□□ type	75° SC□□ type	90° TN□□ type	90° TC□□ type	95° CN□□ type	95° WN□□ type
Turning						
D type			DTFN : 77p		DCLN : 75p	DWLN : 78p
P type			PTFN : 81p		PCLN : 79p	PWLN : 82p
M type	MSKN : 119p		MTFN : 86p		MCCN : 83p	MWLN : 88p
S type		SSKC : 91p		STFC : 92p		

Edge/ angle	90° WC□□ type	107.5° SC□□ type	117.5° VN□□ type	RC□□ type	RC□□ type	45° SN□□ type
Turning						
D type						DSDNN : 76p
P type						PSDNN : 80p
M type		MDQN : 83p	MVQN : 87p			
S type				SRCG : 90p	SRDCN : 90p	

Edge/ angle	60° TC□□ type	75° SN□□ type	75° SC□□ type	93° TN□□ type	90° TN□□ type	90° TC□□ type
Turning						
D type		DSBN : 76p			DTGN : 77p	
P type		PSBN : 80p			PTGN : 82p	
M type		MSRN : 85p		MTJN : 86p		
S type	STTC : 93p		SSBC : 91p			STGC : 93p

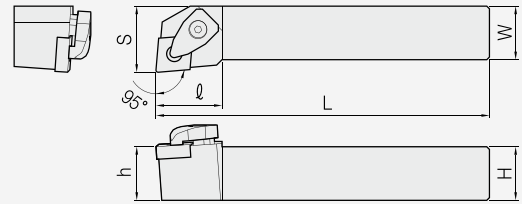
Edge/ angle	45° SN□□ type	75° SN□□ type	93° DN□□ type	93° VN□□ type	62.5° DN□□ type	72.5° VN□□ type
Turning						
D type	DSSN : 77p	DSKN : 76p	DDJN : 75p	DVJN : 78p		DVJN : 78p
P type	PSSN : 81p		PDJN : 79p		PDMN : 80p	
M type	MSSN : 85p	MSKN : 84p	MDJN : 84p	MVJN : 87p	MDNPN : 61p	MVJN : 87p
S type						



DCLN^{R/L}

Double Clamping

+ **CN**□□

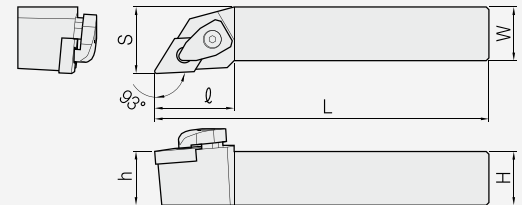


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
		H	W	L	S	h	ℓ						
CN□□1204□□	EH-DCLN R/L 2020-12	20	20	125	25	20	30	DCL4	DCS0518	DSC44	DSCR0410	DSPPR0714	W30P
	2525-12	25	25	150	32	25	30						
	3225-12	32	25	170	32	32	30						
	3232-12	32	32	170	40	32	30						

DDJN^{R/L}

Double Clamping

+ **DN**□□

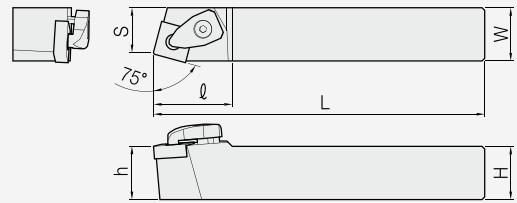


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
		H	W	L	S	h	ℓ						
DN□□1104□□	EH-DDJN R/L 2020-11	20	20	125	25	20	30	DCL3	DCS0415	DSD32	DSCR0307	DSPPR0510	W25P
	2525-11	25	25	150	32	25	30						
	3225-11	32	25	170	32	32	30						
	3232-11	32	32	170	40	32	30						
DN□□1506□□	EH-DDJN R/L 2020-15	20	20	125	25	20	35	DCL4	DCS0518	DSD43	DSCR0410	DSPPR0714	W30P
	2525-15	25	25	150	32	25	35						
	3225-15	32	25	170	32	32	35						
	3232-15	32	32	170	40	32	35						
DN□□1504□□	EH-DDJN R/L 2020-15-3	20	20	125	25	20	35	DCL4	DCS0518	DSD44	DSCR0410	DSPPR0714	W30P
	2525-15-3	25	25	150	32	25	35						
	3232-15-3	32	32	170	40	32	35						

DSBN^{R/L}

Double Clamping

+ **SN** □ □

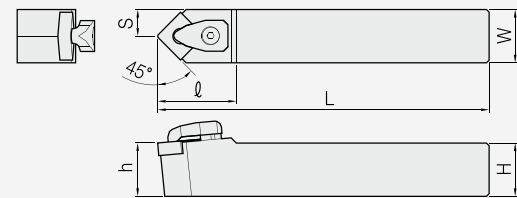


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
		H	W	L	S	h	ℓ						
SN□□0903□□	EH-DSBN R/L 2020-09	20	20	125	17	20	25	DCL3	DCS0415	DSS32	DSCR0307	DSPPR0510	W25P
	2525-09	25	25	150	22	25	25						
SN□□1204□□	EH-DSBN R/L 2020-12	20	20	125	17	20	32	DCL4	DCS0518	DSS44	DSCR0410	DSPPR0714	W30P
	2525-12	25	25	150	22	25	32						
	3225-12	32	25	170	22	32	32						
	3232-12	32	32	170	27	32	32						

DSDNN

Double Clamping

+ **SN** □ □

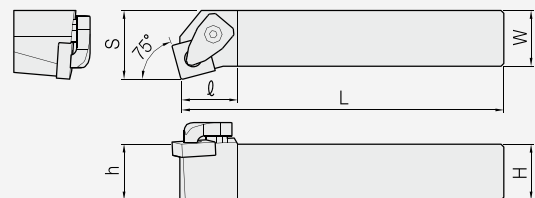


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
		H	W	L	S	h	ℓ						
SN□□0903□□	EH-DSDNN 2020-09	20	20	125	10	20	26.5	DCL3	DCS0415	DSS32	DSCR0307	DSPPR0510	W25P
	EH-DSDNN 2020-12	20	20	125	10	20	33						
SN□□1204□□	2525-12	25	25	150	12.5	25	33	DCL4	DCS0518	DSS44	DSCR0410	DSPPR0714	W30P
	3225-12	32	25	170	12.5	32	33						
	3232-12	32	32	170	16	32	33						

DSKN^{R/L}

Double Clamping

+ **SN** □ □

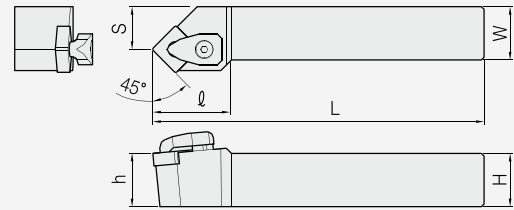


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
		H	W	L	S	h	ℓ						
SN□□0903□□	EH-DSKN R/L 2020-09	20	20	125	25	20	20	DCL3	DCS0415	DSS32	DSCR0307	DSPPR0510	W25P
	EH-DSKN R/L 2020-12	20	20	125	25	20	23						
SN□□1204□□	2525-12	25	25	150	32	25	23	DCL4	DCS0518	DSS44	DSCR0410	DSPPR0714	W30P
	3232-12	32	32	170	40	32	23						

DSSN^{R/L}

Double Clamping

+ **SN**□□

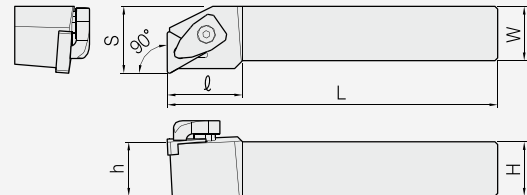


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
		H	W	L	S	h	ℓ						
SN□□0903□□	EH-DSSN R/L 2020-09	20	20	125	25	20	28.5	DCL3	DCS0415	DSS32	DSCR0307	DSPPR0510	W25P
	EH-DSSN R/L 2020-12	20	20	125	25	20	35	DCL4	DCS0518	DSS44	DSCR0410	DSPPR0714	W30P
	2525-12	25	25	150	32	25	35						
SN□□1204□□	3225-12	32	25	170	32	32	35						
	3232-12	32	32	170	40	32	35						

DTFN^{R/L}

Double Clamping

+ **TN**□□

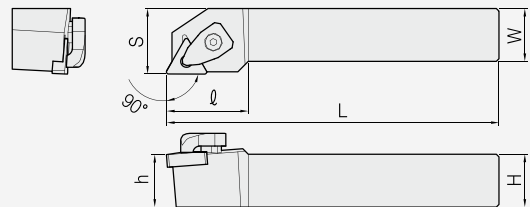


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
		H	W	L	S	h	ℓ						
TN□□1604□□	EH-DTFN R/L 2020-16	20	20	125	25	20	24.5	DCL3	DCS0415	DST32	DSCR0307	DSPPR0510	W25P
	2525-16	25	25	150	32	25	24.5						
	3232-16	32	32	170	40	32	23.5						
TN□□2204□□	EH-DTFN R/L 2525-22	25	25	150	32	25	33	DCL4	DCS0518	DST44	DSCR0410	DSPPR0714	W30P
	3225-22	32	25	170	32	32	33						
	3232-22	32	32	170	40	32	33						

DTGN^{R/L}

Double Clamping

+ **TN**□□

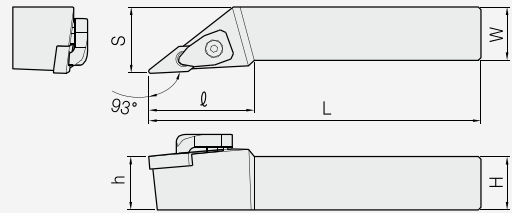


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
		H	W	L	S	h	ℓ						
TN□□1604□□	EH-DTGN R/L 2020-16	20	20	125	25	20	24.5	DCL3	DCS0415	DST32	DSCR0307	DSPPR0510	W25P
	2525-16	25	25	150	32	25	24.5						
	3232-16	32	32	170	40	32	23.5						
TN□□2204□□	EH-DTGN R/L 2525-22	25	25	150	32	25	32.6	DCL4	DCS0518	DST44	DSCR0410	DSPPR0714	W30P
	3225-22	32	25	170	32	32	32.6						
	3232-22	32	32	170	40	32	32.6						

DVJN^{R/L}

Double Clamping

+ VN□□

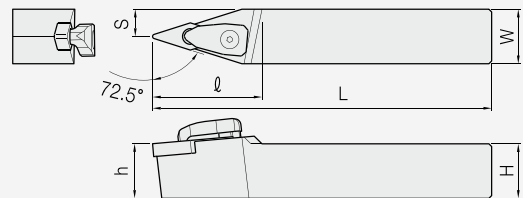


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
		H	W	L	S	h	ℓ						
VN□□1604□□	EH-DVJN R/L 2020-16	20	20	125	25	20	41.5	DCL3	DCS0518	DSV32	DSCR-03508	DSPR0714	W30P
	2525-16	25	25	150	32	25	41.5						
	3232-16	32	32	170	40	32	41.5						

DVVNN

Double Clamping

+ VN□□

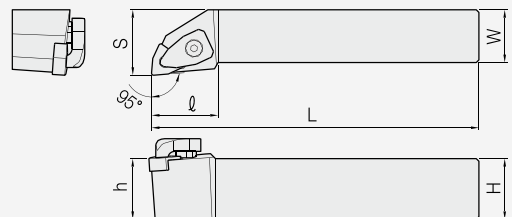


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
		H	W	L	S	h	ℓ						
VN□□1604□□	EH-DVNN 2020-16	20	20	125	10	20	40	DCL3	DCS0518	DSV32	DSCR-03508	DSPR0714	W30P
	2525-16	25	25	150	12.5	25	40						
	3232-16	32	32	170	16	32	40						

DWLN^{R/L}

Double Clamping

+ WN□□

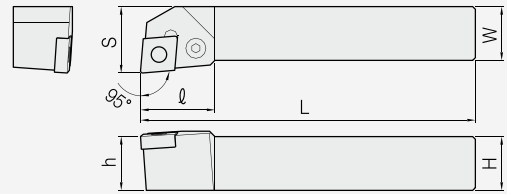


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Screw	Spring	Wrench
		H	W	L	S	h	ℓ						
WN□□0604□□	EH-DWLN R/L 2020-06	20	20	125	25	20	26	DCL3	DCS0415	DSW32	DSCR0307	DSPR0510	W25P
	2525-06	25	25	150	32	25	26						
WN□□0804□□	EH-DWLN R/L 2020-08	20	20	125	25	20	32	DCL4	DCS0518	DSW44	DSCR0410	DSPR0714	W30P
	2525-08	25	25	150	32	25	32						

PCLN^{R/L}

Lever Locking

+ **CN**□□

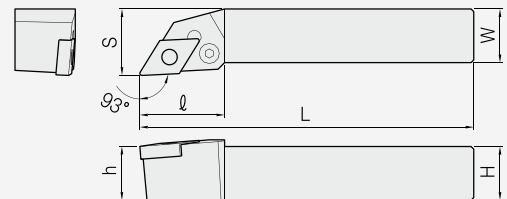


Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Wrench	Shim pin punch
		H	W	L	S	h	φ						
CN□□0903□□	EH-PCLN R/L 1616-09	16	16	100	20	16	20	LV3	LVSCR-0617	LVSC32	LVSP3	W25L	LVSPS3
	2020-09	20	20	125	25	20	22						
	2525-09	25	25	150	32	25	22						
CN□□1204□□	EH-PCLN R/L 1616-12	16	16	100	20	16	28	LV4	LVSCR-0821	LVSC42	LVSP4	W30L	LVSPS4
	2020-12	20	20	125	25	20	28						
	2525-12	25	25	150	32	25	28						
	3225-12	32	25	170	32	32	28						
	3232-12	32	32	170	40	32	28						

PDJN^{R/L}

Lever Locking

+ **DN**□□

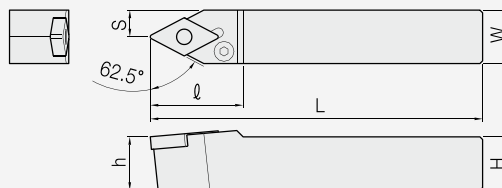


Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Wrench	Shim pin punch
		H	W	L	S	h	φ						
DN□□1104□□	EH-PDJN R/L 1616-11	16	16	100	20	16	25	LV3	LVSCR-0617	LVSD317	LVSP3	W25L	LVSPS3
	2020-11	20	20	125	25	20	25						
	2525-11	25	25	150	32	25	30						
DN□□1506□□	EH-PDJN R/L 2020-15	20	20	125	25	20	35	LV4B	LVSCR-0821	LVSD42	LVSP4	W30L	LVSPS4
	2525-15	25	25	150	32	25	35						
	3225-15	32	25	170	32	32	35						
	3232-15	32	32	170	40	32	35						
DN□□1504□□	EH-PDJN R/L 2020-15-3	20	20	125	25	20	35	LV4	LVSCR-0821	LVSD42	LVSP4	W30L	LVSPS4
	2525-15-3	25	25	150	32	25	35						
	3232-15-3	32	32	170	40	32	35						

PDNN^{R/L}

Lever Locking

+ **DN**□□

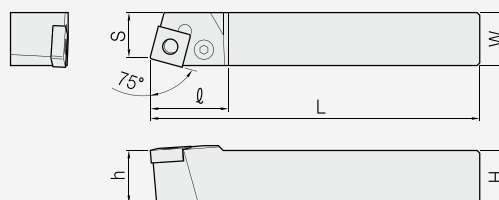


Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Wrench	Shim pin punch
		H	W	L	S	h	ℓ						
DN□□1506□□	EH-PDNN R/L 2020-15	20	20	125	8	20	37	LV4B	LVSCR-0821	LVSD42	LVSP4	W30L	LVSPS4
	2525-15	25	25	150	12.5	25	37						
	3232-15	32	32	150	16	32	37						
	4025-15	40	25	170	12.5	32	37						
DN□□1504□□	EH-PDNN R/L 2525-15-3	25	25	150	12.5	25	37	LV4	LVSCR-0821	LVSD42	LVSP4	W30L	LVSPS4
	4025-15-3	40	25	150	12.5	25	37						

PSBN^{R/L}

Lever Locking

+ **SN**□□

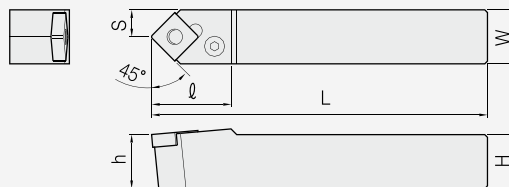


Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Wrench	Shim pin punch
		H	W	L	S	h	ℓ						
SN□□0903□□	EH-PSBN R/L 1616-09	16	16	100	13	16	21	LV3	LVSCR-0617	LVSS32	LVSP3	W25L	LVSPS3
	2020-09	20	20	125	17	20	23						
SN□□1204□□	EH-PSBN R/L 2020-12	20	20	125	17	20	28	LV4	LVSCR-0821	LVSS42	LVSP4	W30L	LVSPS4
	2525-12	25	25	150	22	25	28						
	3225-12	32	32	170	22	32	28						
	3232-12	32	32	170	27	32	28						

PSDNN

Lever Locking

+ **SN**□□

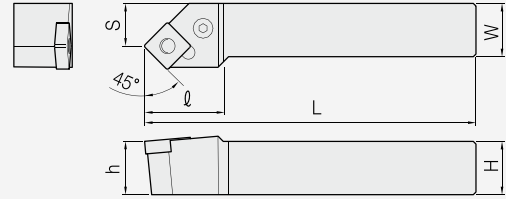


Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Wrench	Shim pin punch
		H	W	L	S	h	ℓ						
SN□□0903□□	EH-PSDNN 1616-09	16	16	100	13	16	21	LV3	LVSCR0617	LVSS32	LVSP3	W25L	LVSPS3
SN□□1204□□	EH-PSDNN 2020-12	20	20	125	10	20	30	LV4	LVSCR-0821	LVSS42	LVSP4	W30L	LVSPS4
	2525-12	25	25	150	12.5	25	30						
	3232-12	32	32	170	16	32	40						

PSSN^{R/L}

Lever Locking

+ **SN**□□

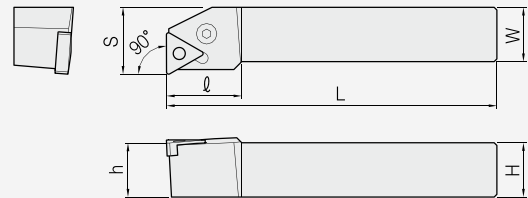


Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Wrench	Shim pin punch
		H	W	L	S	h	ℓ						
SN□□0903□□	EH-PSSN R/L 1616-09	16	18	100	20	16	25	LV3	LVSCR0617	LVSS32	LVSP10	W25L	LVSPS3
	EH-PSSN R/L 2020-12	20	20	125	25	20	30	LV4	LVSCR-0821	LVSS42	LVSP4	W30L	LVSPS4
	2525-12	25	25	150	32	25	36						
3232-12	32	32	170	40	32	40							

PTFN^{R/L}

Lever Locking

+ **TN**□□

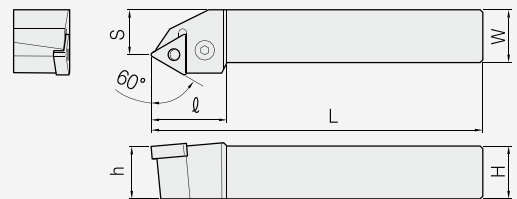


Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Wrench	Shim pin punch
		H	W	L	S	h	ℓ						
TN□□1604□□	EH-PTFN R/L 1616-16	16	16	100	20	16	20	LV3	LVSCR-0617	LVST317	LVSP3	W25L	LVSPS3
	2020-16	20	20	125	25	20	20						
	2525-16	25	25	150	32	25	20						
TN□□2204□□	EH-PTFN R/L 2525-22	25	25	150	32	25	25	LV4	LVSCR-0821	LVST42	LVSP4	W30L	LVSPS4
	3232-22	32	32	170	40	32	25						

PTTN^{R/L}

Lever Locking

+ **TN**□□

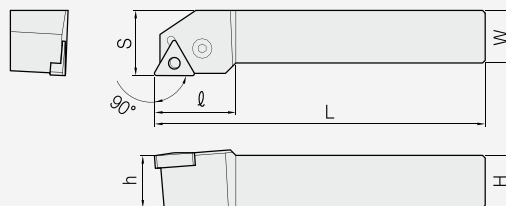


Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Wrench	Shim pin punch
		H	W	L	S	h	ℓ						
TN□□1604□□	EH-PTTN R/L 1616-16	16	16	100	13	16	25	LV3	LVSCR-0617	LVST317	LVSP3	W25L	LVSPS3
	2020-16	20	20	125	17	20	25						
	2525-16	25	25	150	22	25	32						
TN□□2204□□	EH-PTTN R/L 2525-22	25	25	150	22	25	32	LV4	LVSCR-0821	LVST42	LVSP4	W30L	LVSPS4

PTGN^{R/L}

Lever Locking

+ **TN**□□

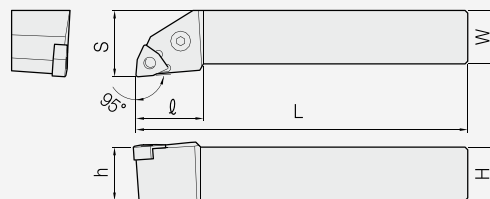


Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Wrench	Shim pin punch
		H	W	L	S	h	l						
TN□□1103□□	EH-PTGN R/L 1212-11	12	12	80	16	12	16	LV2	LVSCR-0509B	-	-	W20L	-
	1616-11	16	16	100	20	16	18						
	2020-11	20	20	125	25	20	19						
	2525-11	25	25	150	32	25	20						
TN□□1604□□	EH-PTGN R/L 1616-16	16	16	100	20	16	20	LV3	LVSCR-0617	LVST317	LVSP3	W25L	LVSPS3
	2020-16	20	20	125	25	20	20						
	2525-16	25	25	150	32	25	20						
	3232-16	32	32	170	40	32	20						
TN□□2204□□	EH-PTGN R/L 2525-22	25	25	150	32	25	28	LV4	LVSCR-0821	LVST42	LVSP4	W30L	LVSPS4
	3232-22	32	32	170	40	32	28						

PWLN^{R/L}

Lever Locking

+ **WN**□□

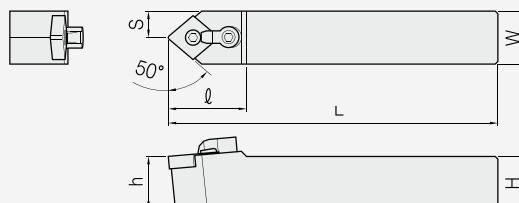


Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Wrench	Shim pin punch
		H	W	L	S	h	l						
WN□□0604□□	EH-PWLN R/L 1616-06	16	16	100	20	16	20	LV3	LVSCR-0617	LVSW-317	LVSP3	W25L	LVSPS3
	2020-06	20	20	125	25	20	20						
	2525-06	25	25	150	32	25	20						
WN□□0804□□	EH-PWLN R/L 2020-08	20	20	125	25	20	26	LV4	LVSCR-0821	LVSW42	LVSP4	W30L	LVSPS4
	2525-08	25	25	150	32	25	26						

MCMNN

Multi Locking

+ **CN**□□

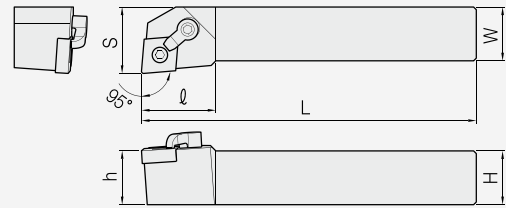


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	l					
CN□□1204□□	EH-MCMNN 2020-12	20	20	125	10	20	32	MCL6N	MCSCR-1/4-25	MSC43	MSP4D	W31.8L W23.8L
	2525-12	25	25	150	12.5	25	32					
	3232-12	32	32	170	16	32	32					

MCLN^{R/L}

Multi Locking

+ **CN**□□

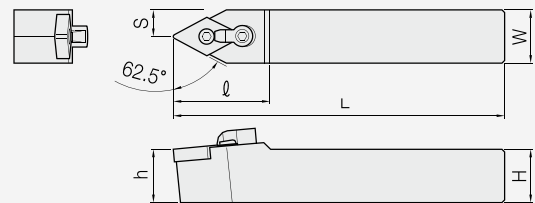


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	l					
CN□□0903□□	EH-MCLN R/L 1616-09	16	16	100	20	16	25	MCL7N	MCSCR-10-32-19	MSC32	MSP3DS	W23.8L W19.8L
	2020-09	20	20	125	25	20	25					
	2525-09	25	25	150	32	25	25					
CN□□1204□□	EH-MCLN R/L 2020-12	20	20	125	25	20	32	MCL6N	MCSCR-1/4-25	MSC43	MSP4D	W31.8L W23.8L
	2525-12	25	25	150	32	25	32					
	3225-12	32	25	170	32	32	32					
	3232-12	32	32	170	40	32	32					

MDNNN

Multi Locking

+ **DN**□□

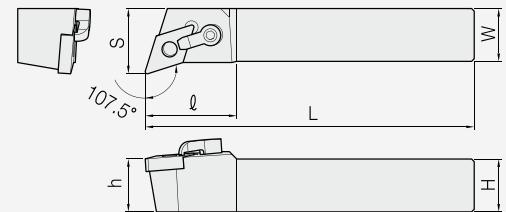


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	l					
DN□□1504□□	EH-MDNNN 2525-15-3	25	25	150	12.5	25	41	MCL8N	MCSCR-5/16-32	MSD43	MSP4D	W39.7L W23.8L
DN□□1506□□	EH-MDNNN 2525-15	25	25	150	12.5	25	41	MCL8N	MCSCR-5/16-32	MSD43	MSP4DL	W39.7L W23.8L

MDQN^{R/L}

Multi Locking

+ **DN**□□

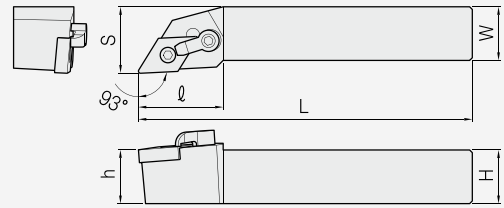


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	l					
DN□□1504□□	EH-MDQN R/L 2525-15-3	25	25	150	32	25	36	MCL6N	MCSCR-1/4-25	MSD43	MSP4D	W31.8L W23.8L
	3232-15-3	32	32	170	40	32	36					
DN□□1506□□	EH-MDQN R/L 2525-15	25	25	150	32	25	36	MCL6N	MCSCR-1/4-25	MSD43	MSP4DL	W31.8L W23.8L
	3232-15	32	32	170	40	32	36					

MDJN^{R/L}

Multi Locking

+ **DN**□□□

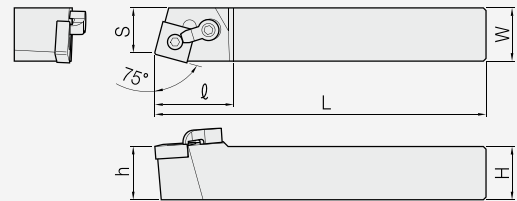


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	ℓ					
DN□□1104□□	EH-MDJN R/L 2020-11	20	20	125	25	20	32	MCL6N	MCSCR-1/4-19	MSD32	MSP3D	W31.8L W19.8L
	2525-11	25	25	150	32	25	32					
DN□□1504□□	EH-MDJN R/L 2020-15-3	20	20	125	25	20	36	MCL6N	MCSCR-1/4-25	MSD43	MSP4D	W31.8L W23.8L
	2525-15-3	25	25	150	32	25	36					
	3232-15-3	32	32	170	40	32	36					
DN□□1506□□	EH-MDJN R/L 2020-15	20	20	125	25	20	36	MCL6N	MCSCR-1/4-25	MSD43	MSP4DL	W31.8L W23.8L
	2525-15	25	25	150	32	25	36					
	3232-15	32	32	170	40	32	36					

MSBN^{R/L}

Multi Locking

+ **SN**□□□

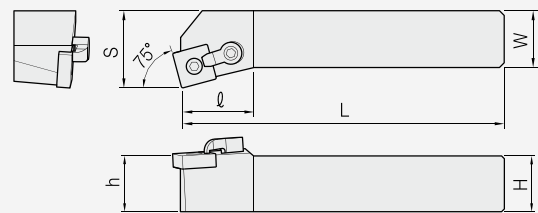


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	ℓ					
SN□□1204□□	EH-MSBN R/L 2020-12	20	20	125	17	20	32	MCL8N1	MCSCR-5/16-32	MSS43	MSP4D	W39.7L W23.8L
	2525-12	25	25	150	22	25	32					

MSKN^{R/L}

Multi Locking

+ **SN**□□□

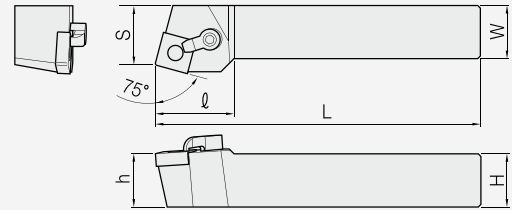


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	ℓ					
SN□□0903□□	EH-MSKN R/L 1616-09	16	16	100	20	16	28	MCL7N	MCSCR-10-32-19	MSS32	MSP3DS	W19.8L W23.8L
	2020-09	20	20	125	22	20	28					
SN□□1204□□	EH-MSKN R/L 2020-12	20	20	125	25	20	32	MCL8N1	MCSCR-5/16-32	MSS43	MSP4D	W39.7L W23.8L
	2525-12	25	25	150	32	25	32					
	3225-12	32	32	170	32	32	32					

M SRN^{R/L}

Multi Locking

+ **SN**□□

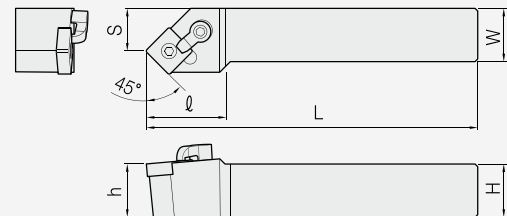


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	ℓ					
SN□□0903□□	EH-MSRN R/L 1616-09	16	16	100	17	16	28	MCL7N	MCSCR-10-32-19	MSS32	MSP3DS	W19.8L W23.8L
	2020-09	20	20	125	22	20	28					
SN□□1204□□	EH-MSRN R/L 2020-12	20	20	125	22	20	32	MCL8N1	MCSCR-5/16-32	MSS43	MSP4D	W39.7L W23.8L
	2525-12	25	25	150	27	25	32					

M SSN^{R/L}

Multi Locking

+ **SN**□□

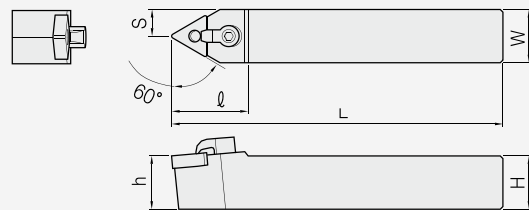


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	ℓ					
SN□□0903□□	EH-MSSN R/L 1616-09	16	16	100	20	16	28	MCL7N	MCSCR-10-32-19	MSS32	MSP3DS	W19.8L W23.8L
	2020-09	20	20	125	25	20	28					
SN□□1204□□	EH-MSSN R/L 2020-12	20	20	125	25	20	32	MCL8N1	MCSCR-5/16-32	MSS43	MSP4D	W39.7L W23.8L
	2525-12	25	25	150	32	25	32					

M TENN

Multi Locking

+ **TN**□□

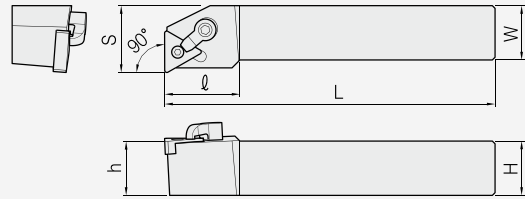


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	ℓ					
TN□□1604□□	EH-MTENN 2020-16	20	20	125	10	20	32	MCL7N	MCSCR-10-32-19	MST32	MSP3D	W23.8L W19.8L
	2525-16	25	25	150	12.5	25	32					
TN□□2204□□	EH-MTENN 2525-22	25	25	150	12.5	25	35	MCL8N1	MCSCR-5/16-32	MST43	MSP4D	W39.7L W23.8L

MTFN^{R/L}

Multi Locking

+ **TN** □ □ □

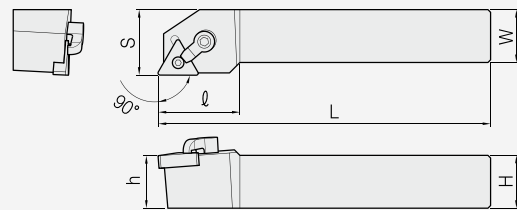


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	ℓ					
TN □ □ 1604 □ □	EH-MTFN R/L 1616-16	16	16	100	20	16	32	MCL7N	MCSCR-10-32-19	MST32	MSP3D	W23.8L W19.8L
	2020-16	20	20	125	25	20	32					
	2525-16	25	25	150	32	25	32					
TN □ □ 2204 □ □	EH-MTFN R/L 2525-22	25	25	150	32	25	32	MCL8N1	MCSCR-5/16-32	MST43	MSP4D	W39.7L W23.8L
	3232-22	32	32	170	40	32	32					
	4040-22	40	40	250	50	40	32					

MTGN^{R/L}

Multi Locking

+ **TN** □ □ □

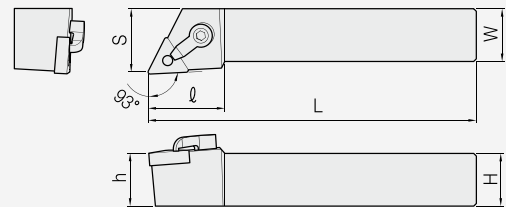


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	ℓ					
TN □ □ 1604 □ □	EH-MTGN R/L 1616-16	16	16	100	20	16	32	MCL7N	MCSCR-10-32-19	MST32	MSP3D	W23.8L W19.8L
	2020-16	20	20	125	25	20	32					
	2525-16	25	25	150	32	25	32					
TN □ □ 2204 □ □	EH-MTGN R/L 2525-22	25	25	150	32	25	32	MCL8N1	MCSCR-5/16-32	MST43	MSP4D	W39.7L W23.8L
	3232-22	32	32	170	40	32	32					

MTJN^{R/L}

Multi Locking

+ **TN** □ □ □

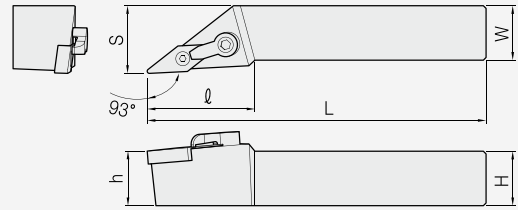


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	ℓ					
TN □ □ 1604 □ □	EH-MTJN R/L 2020-16	20	20	125	25	20	32	MCL7N	MCSCR-10-32-19	MST32	MSP3D	W23.8L W19.8L
	2525-16	25	25	150	32	25	32					
TN □ □ 2204 □ □	EH-MTJN R/L 2525-22	25	25	150	32	25	32	MCL8N1	MCSCR-5/16-32	MST43	MSP4D	W39.7L W23.8L
	3232-22	32	32	170	40	32	32					

MVJN^{R/L}

Multi Locking

+ VN□□

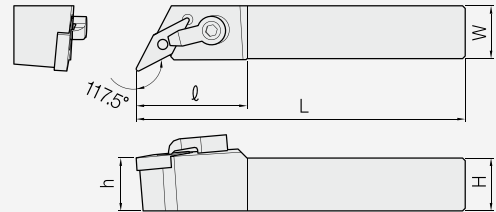


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	l					
VN□□1604□□	EH-MVJN R/L 2020-16	20	20	125	25	20	37	MCL8N1	MCSCR-5/16-32	MSV32	MSP3D	W39.7L W23.8L
	2525-16	25	25	150	32	25	37					
	3232-16	32	32	170	40	32	37					

MVQN^{R/L}

Multi Locking

+ VN□□

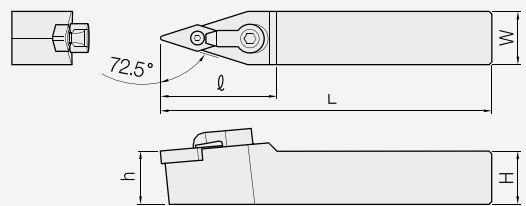


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	l					
VN□□1604□□	EH-MVQN R/L 2020-16	20	20	125	25	20	42	MCL8N2		MSV32	MSP3D	W39.7L W19.8L
	2525-16	25	25	150	32	25	42					
	3232-16	32	32	170	40	32	37					

MVVNN

Multi Locking

+ VN□□

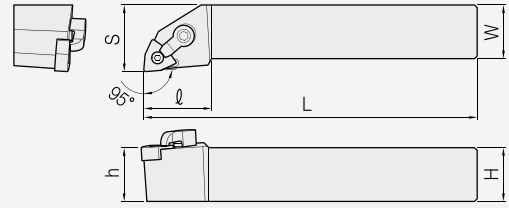


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	l					
VN□□1604□□	EH-MVVNN 2020-16	20	20	125	25	20	42	MCL8N2		MSV32	MSP3D	W39.7L W19.8L
	2525-16	25	25	150	32	25	42					

MWLN^{R/L}

Multi Locking

+ **WN** □ □

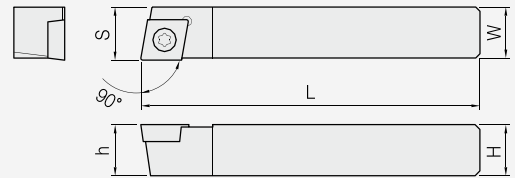


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		H	W	L	S	h	ℓ					
WN □ □ 0604 □ □	EH-MWLN R/L 2020-06	20	20	125	25	20	32	MCL7N	MCSCR-10-32-19	MSW32	MSP3D	W23.8L W19.8L
	2525-06	25	25	150	32	25	32					
	3232-06	32	32	170	40	32	32					
WN □ □ 0804 □ □	EH-MWLN R/L 2020-08	20	20	125	25	20	32	MCL8N	MCSCR-1/4-21	MSW43	MSP4D	HW31.8L HW23.8L
	2525-08	25	25	150	32	25	32					
	3232-08	32	32	170	40	32	32					

SCAC^{R/L}

Screw On

+ **CC** □ □

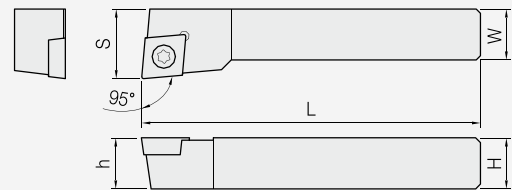


Insert	Item No.	Dimensions (mm)					Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h				
CC □ □ 0602 □ □	EH-SCAC R/L 1010-06	10	10	70	10.5	10	SCR02565	-	-	TW07P
CC □ □ 09T3 □ □	1212-09	12	12	80	12.5	12	SCR03508	-	-	TW15P

SCLC^{R/L}

Screw On

+ **CC** □ □

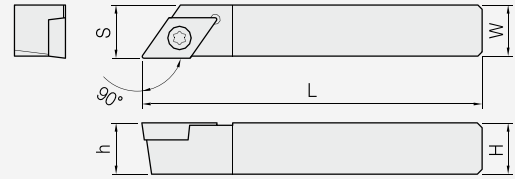


Insert	Item No.	Dimensions (mm)						Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h	ℓ				
CC □ □ 0602 □ □	EH-SCLC R/L 0808-06	08	08	60	10	08	10	SCR02565	-	-	TW07P
	1010-06	10	10	70	16	10	10				
CC □ □ 09T3 □ □	EH-SCLC R/L 1212-09	12	12	80	20	12	16	SCR03508	-	-	TW15P
	1616-09	16	16	100	20	16	16				
	2020-09	20	20	125	25	20	16				
CC □ □ 1204 □ □	EH-SCLC R/L 2020-12	20	20	125	25	20	25	SCR0411F	SSC42	SSCR0610	TW15P W40L
	2525-12	25	25	150	32	25	26				

SDAC^{R/L}

Screw On

+ **DC** □ □ □

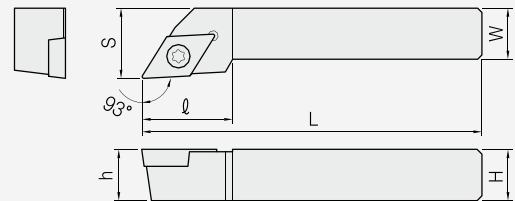


Insert	Item No.	Dimensions (mm)						Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h					
DC□□0702□□	EH-SDAC R/L 1010-07	10	10	70	10.5	10		SCR02565	-	-	TW07P
	EH-SDAC R/L 1212-11	12	12	80	12.5	12		SCR03508	-	-	TW15P
DC□□11T3□□	1616-11	16	16	100	16.5	16		SCR03512	SSD32	SSCR0509	TW15P,W35L

SDJC^{R/L}

Screw On

+ **DC** □ □ □

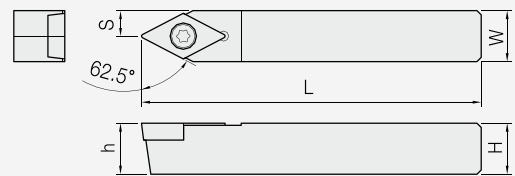


Insert	Item No.	Dimensions (mm)							Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h	ℓ					
DC□□0702□□	EH-SDJC R/L 1010-07	10	10	70	12	10	15		SCR02565	-	-	TW07P
	1212-07	12	12	80	16	12	15					
	1616-07	16	16	100	20	16	18					
	2020-07	20	20	125	25	20	15					
DC□□11T3□□	EH-SDJC R/L 1212-11	12	12	80	16	12	15		SCR03512	SSD32	SSCR0509	TW15P,W35L
	1616-11	16	16	100	20	16	24					
	2020-11	20	20	125	25	20	24					
	2525-11	25	25	150	32	25	29					

SDNCN

Screw On

+ **DC** □ □ □

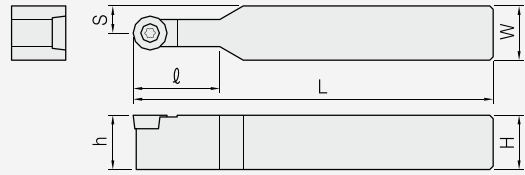


Insert	Item No.	Dimensions (mm)						Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h					
DC□□0702□□	EH-SDNCN 1010-07	10	10	70	5	10		SCR02565	-	-	TW07P
	1212-07	12	12	80	6	12					
DC□□11T3□□	EH-SDNCN 1212-11	12	12	100	6	12		SCR03508	-	-	TW15P
DC□□11T3□□	EH-SDNCN 1616-11	16	16	100	8	16		SCR03512	SSD32	SSCR0509	TW15P W35L
	2020-11	20	20	125	10	20					

SRDCN

Screw On

+ **RCGT**

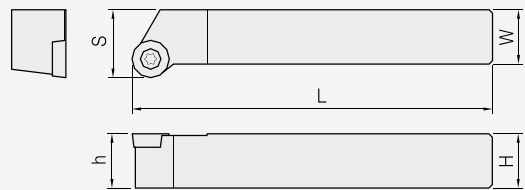


Insert	Item No.	Dimensions (mm)						Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h	ℓ				
RCGT 0602M0	EH-SRDCN 1010-06	10	10	70	5	10	10	SCR02565	-	-	TW07P
	1212-06	12	12	80	6	12	12				
	1616-06	16	16	100	8	16	12				
	2525-06	25	25	150	12.5	25	20				
RCGT 0803M0	EH-SRDCN 1616-08	16	16	100	8	16	16	SCR0307	-	-	TW09P
	2020-08	20	20	125	10	20	20				
	2525-08	25	25	150	12.5	25	20				
RCGT 1003M0	EH-SRDCN 1616-10	16	16	100	8	16	25	SCR03511A	SSR10	SSCR0509	TW15P,W35L
	2020-10	20	20	125	10	20	25				
	2525-10	25	25	150	12.5	25	25				
RCGT 1204M0	EH-SRDCN 2020-12	20	20	125	10	20	28	SCR03512	SSR12	SSCR0509	TW15P,W35L
	2525-12	25	25	150	12.5	25	28				

SRGC^{R/L}

Screw On

+ **RCGT**

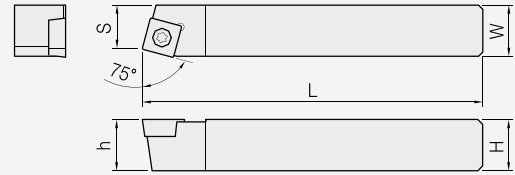


Insert	Item No.	Dimensions (mm)						Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h	ℓ				
RCGT 0602M0	EH-SRGC R/L 1010-06	10	10	70	12	10	-	SCR02565	-	-	TW07P
	1212-06	12	12	80	16	12	-				
	1616-06	16	16	100	20	16	-				
RCGT 0803M0	EH-SRGC R/L 1616-08	16	16	100	20	16	-	SCR0307	-	-	TW09P
	2020-08	20	20	125	25	20	-				
	2525-08	25	25	150	32	25	-				
RCGT 1003M0	EH-SRGC R/L 1616-10	16	16	100	20	16	-	SCR03511A	SSR10	SSCR0509	TW15P,W35L
	2020-10	20	20	125	25	20	-				
	2525-10	25	25	150	32	25	-				
RCGT 1204M0	EH-SRGC R/L 2020-12	20	20	125	25	20	-	SCR03512	SSR12	SSCR0509	TW15P,W35L
	2525-12	25	25	150	32	25	-				

SSBC^{R/L}

Screw On

+ **SC** □ □

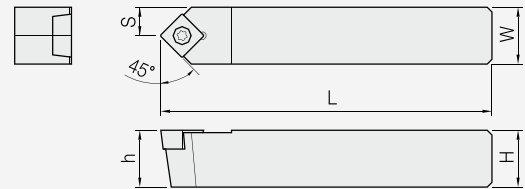


Insert	Item No.	Dimensions (mm)					Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h				
SC □ □ 09T3 □ □	EH-SSBC R/L 1212-09	12	12	80	11	12	SCR03508	-	-	TW15P
		16	16	100	13	16	SCR03512	SSS32	SSCR0509	TW15P,W35L
SC □ □ 1204 □ □	EH-SSBC R/L 2020-12	20	20	125	17	20	SCR0411F	SSS42	SSCR0610	TW15P,W35L

SSDCN

Screw On

+ **SC** □ □

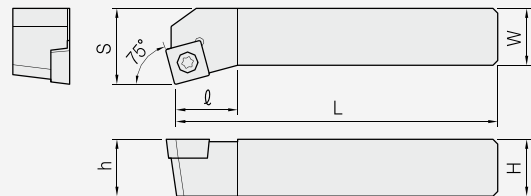


Insert	Item No.	Dimensions (mm)					Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h				
SC □ □ 09T3 □ □	EH-SSDCN 1212-09	12	12	80	6	12	SCR03508	-	-	TW15P
		16	16	100	8	16	SCR03512	SSS32	SSCR0509	TW15P,W35L

SSKC^{R/L}

Screw On

+ **SC** □ □

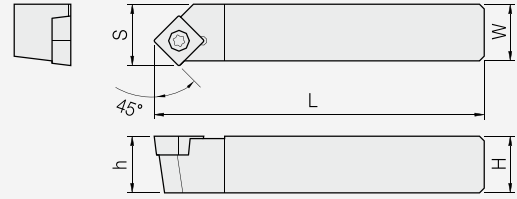


Insert	Item No.	Dimensions (mm)						Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h	l				
SC □ □ 09T3 □ □	EH-SSKC R/L 1616-09	16	16	100	20	16	13	SCR03512	SSS32	SSCR0509	TW15P,W35L

SSSC^{R/L}

Screw On

+ **SC** □ □

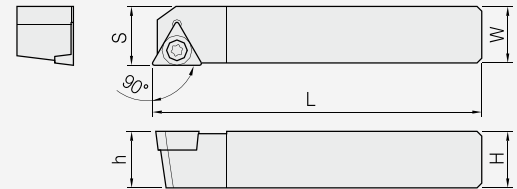


Insert	Item No.	Dimensions (mm)					Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h				
SC□□09T3□□	EH-SSSC R/L 1616-09	16	16	100	17	16	SCR03512	SSS32	SSCR0509	TW15P,W35L
SC□□1204□□	2020-12	20	20	125	21	20	SCR0411F	SSS42	SSCR0610	TW15P,W40L

STAC^{R/L}

Screw On

+ **TC** □ □

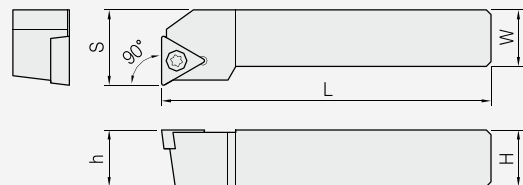


Insert	Item No.	Dimensions (mm)					Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h				
TC□□0902□□	EH-STAC R/L 1010-09	10	10	70	10.5	10	SCR02206	-	-	TW06P
TC□□1102□□	1212-11	12	12	80	12.5	12	SCR02565	-	-	TW07P

STFC^{R/L}

Screw On

+ **TC** □ □

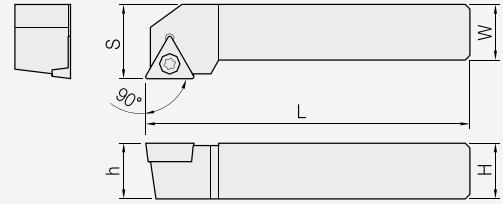


Insert	Item No.	Dimensions (mm)							Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h	ℓ					
TC□□0902□□	EH-STFC R/L 1010-09	10	10	70	12	10	10	SCR02206	-	-	TW06P	
TC□□1102□□	EH-STFC R/L 1212-11	12	12	80	16	12	14	SCR02565	-	-	W07P	
	1616-11	16	16	100	20	16	14					
TC□□16T3□□	EH-STFC R/L 1616-16 2020-16	16	16	100	20	16	19	SCR03512	SST32	SSCR0509	TW15P,W35L	

STGC^{R/L}

Screw On

+ **TC** □□

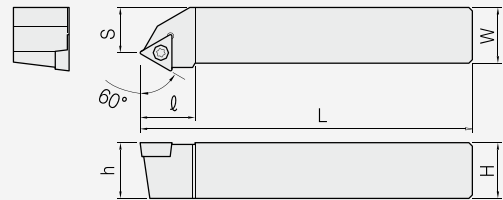


Insert	Item No.	Dimensions (mm)						Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h	φ				
TC□□0902□□	EH-STGC R/L 0808-09	8	8	60	10	8	11	SCR02206	-	-	TW06P
	1010-09	10	10	70	12	10	11				
TC□□1102□□	EH-STGC R/L 1212-11	12	12	80	16	12	14	SCR02565	-	-	TW07P
	1616-11	16	16	100	20	16	16				
TC□□16T3□□	EH-STGC R/L 2020-16	20	20	125	25	20	21	SCR03512	SST32	SSCR0509	TW15P,W35L
	2525-16	25	25	150	32	25	21				

STTC^{R/L}

Screw On

+ **TC** □□

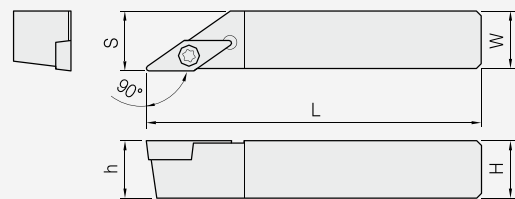


Insert	Item No.	Dimensions (mm)						Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h	φ				
TC□□1102□□	EH-STTC R/L 1010-09	16	16	100	13	16	14	SCR02565	-	-	TW07P
TC□□16T3□□	EH-STTC R/L 1212-11	16	16	100	13	16	19	SCR03512	SST32	SSCR0509	TW15P,W35L
	1616-11	20	20	125	17	20	19				

SVAB^{R/L}

Screw On

+ **VB** □□

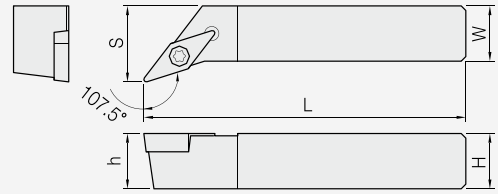


Insert	Item No.	Dimensions (mm)						Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h	φ				
VB□□1604□□	EH-SVAB R/L 1616-16	16	16	100	16.5	16		SCR03512	SSV32	SSCR0509	TW15P,W35L
	2020-16	20	20	125	20.5	20					

SVHB^{R/L}

Screw On

+ **VB** □ □

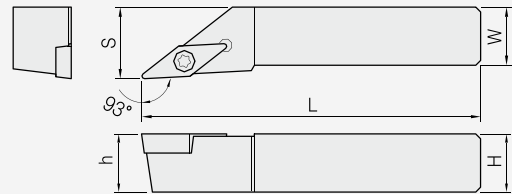


Insert	Item No.	Dimensions (mm)					Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h				
VB □ □ 1604 □ □	EH-SVHB R/L 2525-16	25	25	150	32	25	SCR03512	SSV32	SSCR0509	TW15P,W35L
	3225-16	32	32	170	32	32				

SVJB^{R/L}

Screw On

+ **VB** □ □

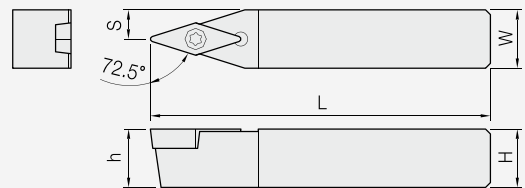


Insert	Item No.	Dimensions (mm)							Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h	ℓ					
VB □ □ 1102 □ □	EH-SVJB R/L 1212-11	12	12	80	16	12	27	SCR02565	-	-	TW07P	
	1616-11	16	16	100	20	16	27					
	2020-11	20	20	125	25	20	27					
VB □ □ 1604 □ □	EH-SVJB R/L 1616-16	16	16	100	20	16	36	SCR03512	SSV32	SSCR0509	TW15P W35L	
	2020-16	20	20	125	25	20	41					
	2525-16	25	25	150	32	25	41					
	3225-16	32	25	170	32	32	55					

SVVBN

Screw On

+ **VB** □ □

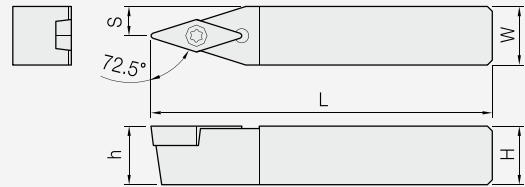


Insert	Item No.	Dimensions (mm)							Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h	ℓ					
VB □ □ 1102 □ □	EH-SVBN 1212-11	12	12	80	6	12		SCR02565	-	-	TW07P	
	1616-11	16	16	100	8	16						
	2020-11	20	20	125	10	20						
VB □ □ 1604 □ □	EH-SVBN 1616-16	16	16	100	8	16		SCR03512	SSV32	SSCR0509	TW15P W35L	
	2020-16	20	20	125	10	20						
	2525-16	25	25	150	12.5	25						
	3225-16	32	25	170	12.5	32						

SVVCN

Screw On

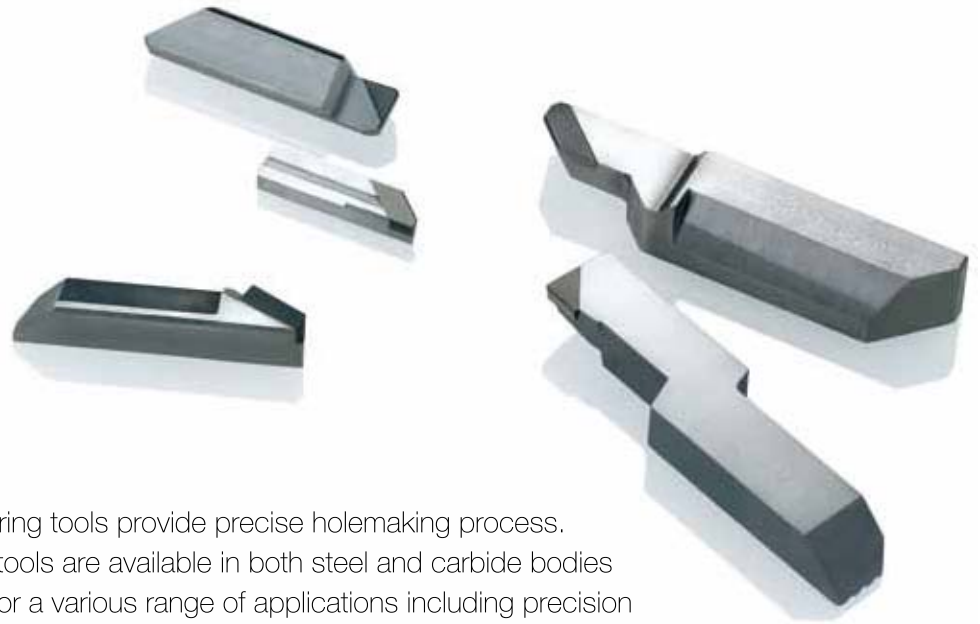
+ VC □ □ □



Insert	Item No.	Dimensions (mm)							Screw	Shim	Shim Screw	Wrench
		H	W	L	S	h						
VC □ □ 1103 □ □	EH-SVVCN 1212-11	12	12	80	6	12	-	SCR02565	-	-	TW07P	
	1616-11	16	16	100	8	16	-					
	2020-11	20	20	125	10	20	-					
VC □ □ 1303 □ □	EH-SVVCN 1212-13	12	12	80	6	12	-	SCR0307	-	-	TW09P	
	1616-13	16	16	100	8	16	-					
	2020-13	20	20	125	10	20	-					
VC □ □ 1604 □ □	EH-SVVCN 1616-16	16	16	100	6	16	-	SCR03512	SSV32	SSCR0509	TW15P,W35L	
	2020-16	20	20	125	8	20	-					
	2525-16	25	25	150	12.5	25	-					



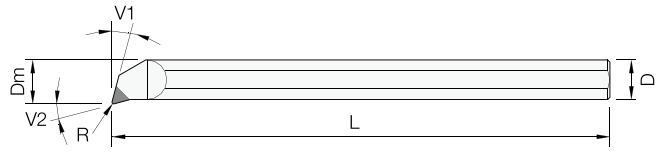
Boring



The EHW A boring tools provide precise holemaking process. These trustful tools are available in both steel and carbide bodies and are ideal for a various range of applications including precision micro boring.

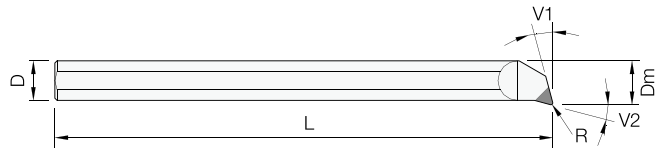


BS type | PCD/PCBN

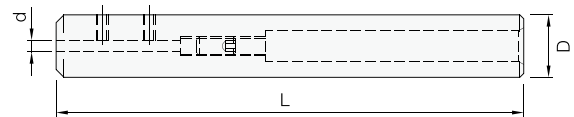


Item No.	Dimensions (mm)						PCD		PCBN	
	R	V1	V2	L	D	Dm	EP20	EP55	EB190	EB51
BSR 25 60 005	0.05	15	15	60	2.5	3				
25 60 01	0.1	15	15	60	2.5	3				
30 60 005	0.05	15	15	60	3	3.5				
30 60 01	0.1	15	15	60	3	3.5				
40 60 01	0.1	15	15	60	4	4.5				
40 60 02	0.2	15	15	60	4	4.5				
50 60 01	0.1	15	15	60	5	5.5				
50 60 02	0.2	15	15	60	5	5.5				
60 80 01	0.1	15	15	80	6	7				
60 80 02	0.2	15	15	80	6	7				

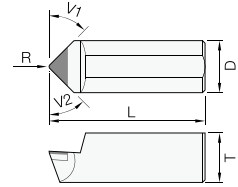
BS type | PCD/PCBN



Item No.	Dimensions (mm)						PCD		PCBN	
	R	V1	V2	L	D	Dm	EP20	EP55	EB190	EB51
BSL 25 60 005	0.05	15	15	60	2.5	3				
25 60 01	0.1	15	15	60	2.5	3				
30 60 005	0.05	15	15	60	3	3.5				
30 60 01	0.1	15	15	60	3	3.5				
40 60 01	0.1	15	15	60	4	4.5				
40 60 02	0.2	15	15	60	4	4.5				
50 60 01	0.1	15	15	60	5	5.5				
50 60 02	0.2	15	15	60	5	5.5				
60 80 01	0.1	15	15	80	6	7				
60 80 02	0.2	15	15	80	6	7				

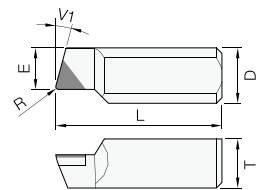


Item No.	Dimensions (mm)			
	d	L	H	D
SLV 16 025	2.5	100	14	16
16 03	3	100	14	16
16 04	4	100	14	16
16 05	5	100	14	16
16 06	6	100	14	16



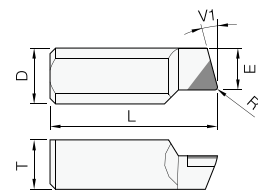
BR type | PCD/PCBN

Item No.	Dimensions (mm)					PCD		PCBN	
	R	V1	V2	L	D	EP20	EP55	EB190	EB51
BRC 40 15 02	0.2	45	45	15	4				
40 15 04	0.4	45	45	15	4				
50 15 02	0.2	45	45	15	5				
50 15 04	0.4	45	45	15	5				
60 20 02	0.2	45	45	20	6				
60 20 04	0.4	45	45	20	6				
80 30 04	0.4	45	45	30	8				
80 30 08	0.8	45	45	30	8				



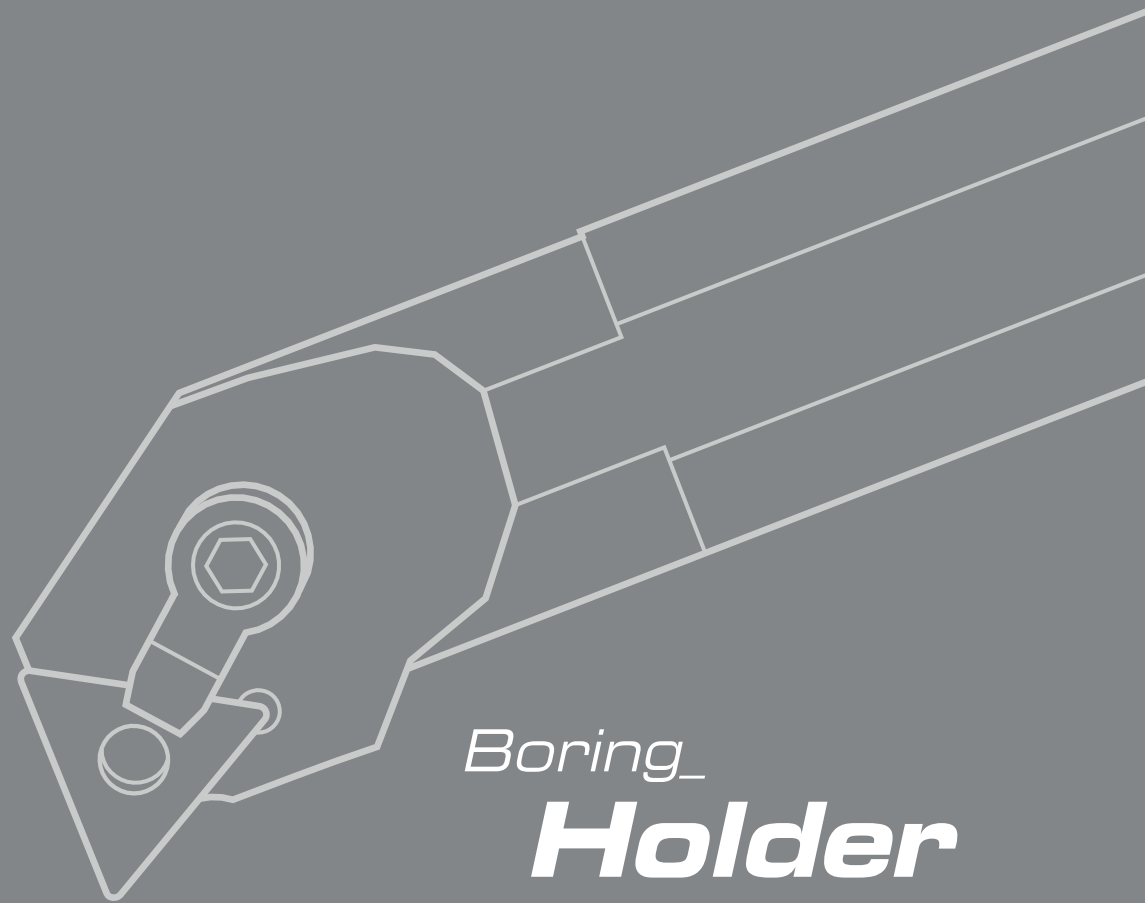
BR type | PCD/PCBN

Item No.	Dimensions (mm)						PCD		PCBN	
	R	V1	E	L	D	T	EP20	EP55	EB190	EB51
BRR 40 15 02	0.2	15	15	15	4	3.5				
40 15 04	0.4	15	15	15	4	3.5				
50 15 02	0.2	15	15	15	5	4.5				
50 15 04	0.4	15	15	15	5	4.5				
60 20 02	0.2	20	20	20	6	5.5				
60 20 04	0.4	20	20	20	6	5.5				
80 30 04	0.4	30	30	30	8	7				
80 30 08	0.8	30	30	30	8	7				



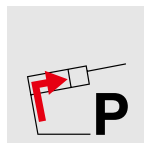
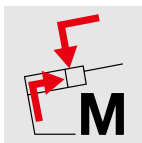
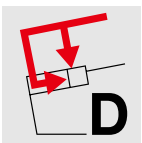
BR type | PCD/PCBN

Item No.	Dimensions (mm)						PCD		PCBN	
	R	V1	E	L	D	T	EP20	EP55	EB190	EB51
BRL 40 15 02	0.2	15	15	15	4	3.5				
40 15 04	0.4	15	15	15	4	3.5				
50 15 02	0.2	15	15	15	5	4.5				
50 15 04	0.4	15	15	15	5	4.5				
60 20 02	0.2	20	20	20	6	5.5				
60 20 04	0.4	20	20	20	6	5.5				
80 30 04	0.4	30	30	30	8	7				
80 30 08	0.8	30	30	30	8	7				



Boring_ **Holder**

How to combine the holder



- D** Double clamping
- M** Multi locking
- P** Lever locking
- S** Screw clamping

E

25

R

M

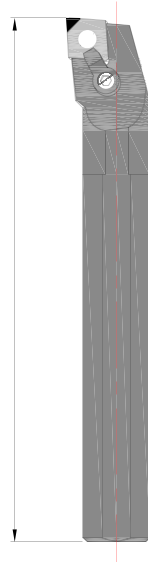
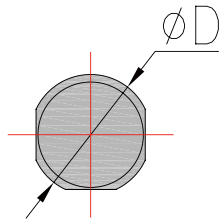
Shank material

Insert diameter

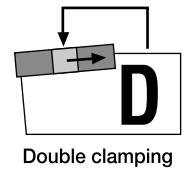
Tool length

Clamp type

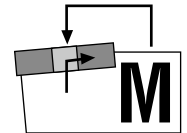
A	STEEL SHANK+OIL HOLE
E	TC SHANK+OIL HOLE
C	TC SHANK
S	STEEL SHANK
X	SPECIAL



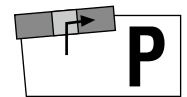
Symbol (L)	Length (mm)
H	100
J	110
K	125
M	150
N	160
Q	180
R	200
S	250
T	300
U	350
V	400
W	450
Y	500



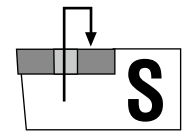
Double clamping



Multi locking



Lever locking



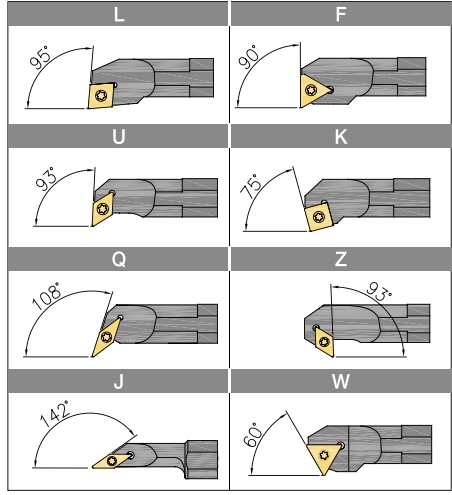
Screw clamping

S K D R - 12

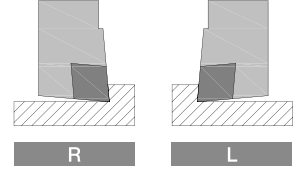
1

Insert shape **Tool style** **Clearance angle** **Cutting direction**

Symbol	Shape
C	
D	
K	
S	
T	
V	
W	



Symbol	Angle
N	0°
B	5°
C	7°
P	11°

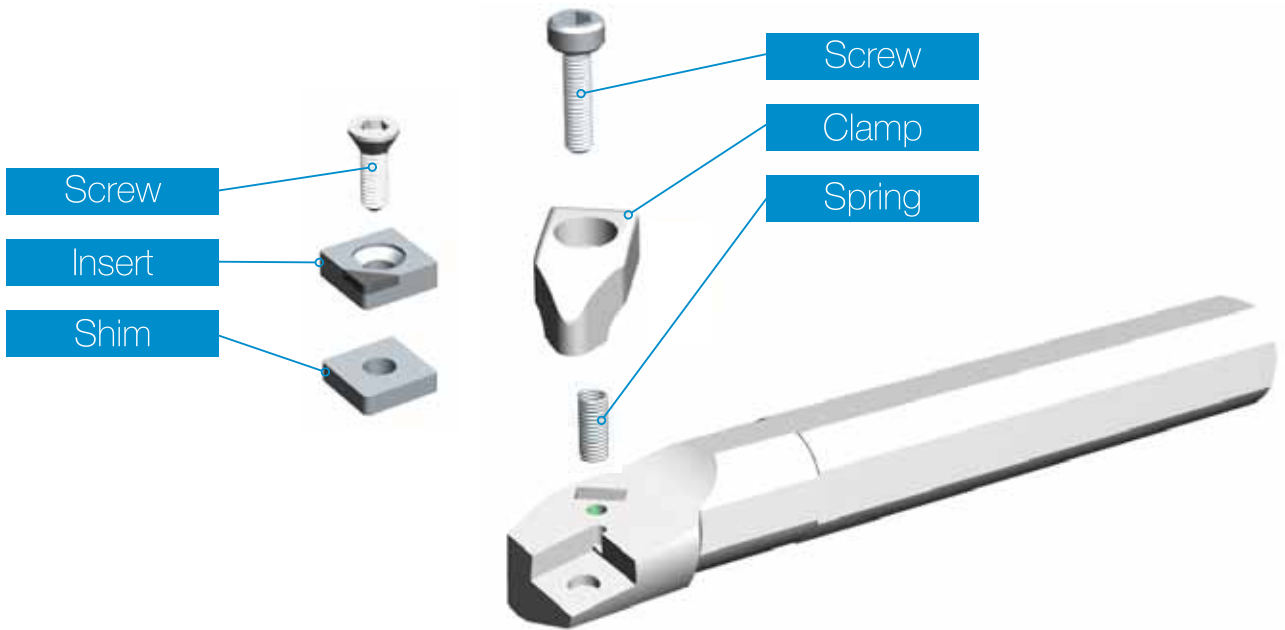


1 Cutting edge length

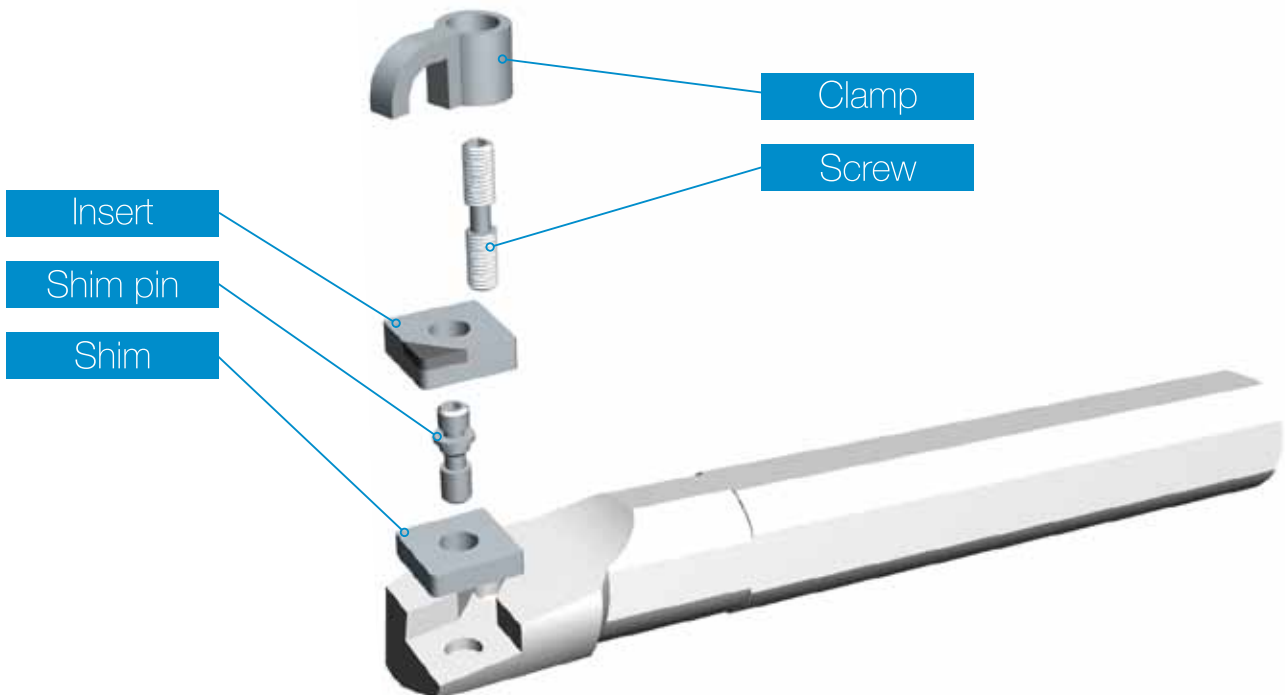
C	D	E	R	S	T	V	W	K	I.C size (mm)
03	04			03	06				3.97
05	06			05	09	09	03		5.56
06	07			06	11	11	04		6.35
08	09			07	13	13	05		7.94
			08						8
09	11		09	09	16	16	06	16	9.525
			10						10
			12						12
12	15	13	12.7	12	22	22	08		12.7
16	19		15	15	27	27	10		15.875
			16						16
19	23		19	19	33	33	13		19.05
			20						20
			25						25
25	31		25	25	44				25.4
			32						32

Tool Holder Clamping Type

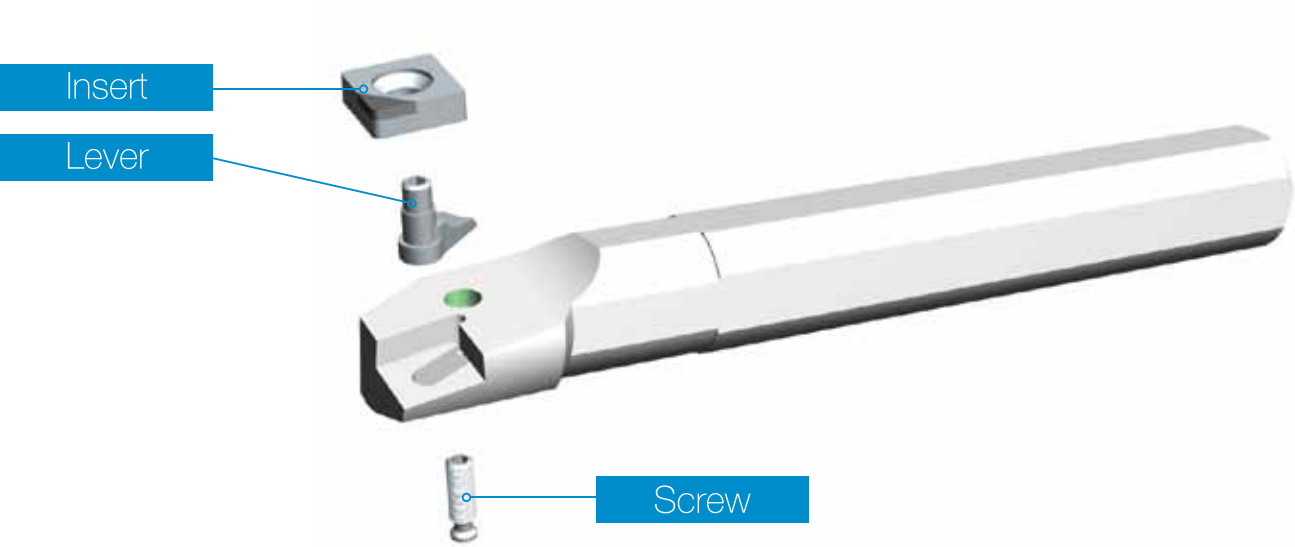
Double clamping



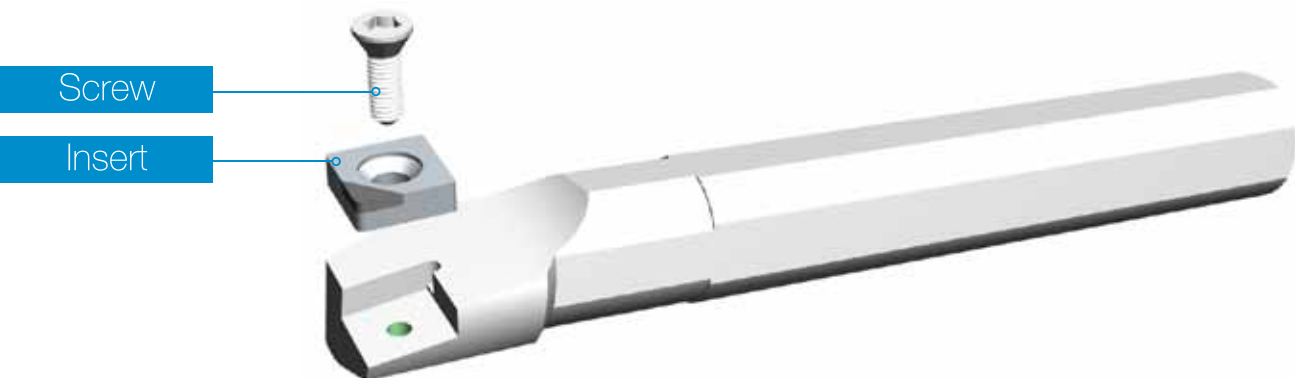
Multi locking



Lever locking



Screw clamping



Application Of Holder

Lever lock system

Cutting shape						
Designation	PCLNR/L	PDSNR/L	PDUNR/L	PSKNR/L	PTFNR/L	PWLNRL/L
Approach angle	95°	62.5°	93°	75°	90°	95°
Page	108	108	109	109	110	110
Copying		•	•			
Facing	•					•
Back truning		•	•			•
Turning	•	•	•	•	•	•

Multi lock system

Cutting shape						
Designation	MTFNR/L	MVUNR/L	MWLNR/L	MCLNR/L	MDUNR/L	MSKNR/L
Approach angle	90°	93°	95°	95°	93°	75°
Page	111	111	111	119	119	119
Copying		•			•	
Facing			•	•		
Back truning		•			•	
Turning	•	•	•	•	•	•

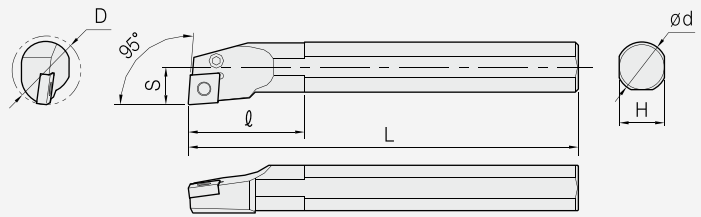
Screw on system

Cutting shape								
Designation	SCLCR/L	SCLPR/L	SDQCR/L	SDUCR/L	SDZCR/L	SSKCR/L	SSKPR/L	STFCL/L
Approach angle	95°	95°	107.5°	93°	3°	75°	75°	90°
Page	112	112	113	113	114	114	115	115
Copying			•	•				
Facing	•	•						
Back truning			•	•	•			
Turning	•	•	•	•	•	•	•	•

Cutting shape								
Designation	STFPR/L	STWPR/L	SVJCR/L	SVQBR/L	SVQCR/L	SVUBR/L	SVUCR/L	SWLCR/L
Approach angle	90°	60°	142°	108°	108°	93°	93°	95°
Page	116	114	116	117	117	117	118	118
Copying			•	•	•	•	•	•
Facing								
Back truning				•	•	•	•	•
Turning	•	•	•	•	•	•	•	•

PCLN^{R/L} Lever Locking

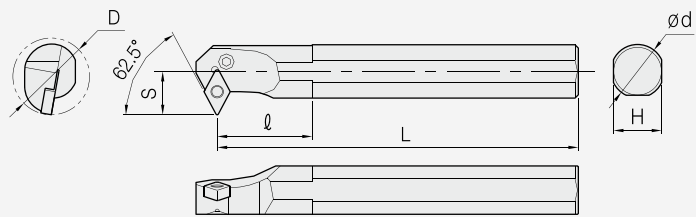
+ CN □ □



Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Shim pin punch	Wrench
		øD	ød	H	L	S	l						
CN □ □ 0903 □ □	EH-S16R-PCLN R/L-09	20	16	15	200	11	28	LV3C	LVSCR0509B	-	-	-	W20L
	EH-S20S-PCLN R/L-09	25	20	18	250	19	32						
	EH-S25R-PCLN R/L-09	32	25	23	200	17	36						
CN □ □ 1204 □ □	EH-S25R-PCLN R/L-12	32	25	23	200	17	40	LV4A	LVSCR0613A	-	-	-	W25L
CN □ □ 1204 □ □	EH-S32S-PCLN R/L-12	40	32	30	250	22	50	LV4	LVSCR0821	LVSC42B	LVSP4	LVSP4	W30L
	EH-S40T-PCLN R/L-12	50	40	37	300	27	55						
	EH-S50U-PCLN R/L-12	63	50	47	350	35	55						

PDSN^{R/L} Lever Locking

+ DN □ □

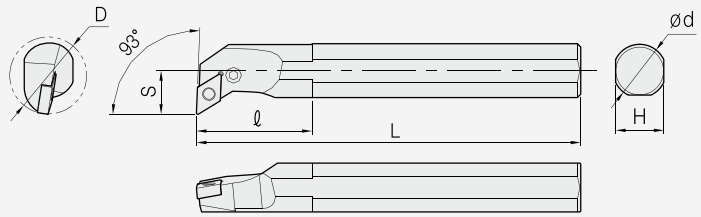


Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Shim pin punch	Wrench
		øD	ød	H	L	S	l						
DN □ □ 1506 □ □	EH-S32S-PDSN R/L-15	40	32	30	250	22	45	LV4B	LVSCR0821	LVSD42	LVSP4	LVSP4	W30L
	EH-S40T-PDSN R/L-15	50	40	37	300	27	43						
DN □ □ 1504 □ □	EH-S32S-PDSN R/L-15-3	40	32	30	450	22	45	LV4	LVSCR0821	LVSD42	LVSP4	LVSP4	W30L
	EH-S40T-PDSN R/L-15-3	50	40	37	300	27	43						
DN □ □ 1506 □ □	EH-A32S-PDSN R/L-15	40	32	31	250	22	45	LV4B	LVSCR0821	LVSD42	LVSP4	LVSP4	W30L
DN □ □ 1504 □ □	EH-A32S-PDSN R/L-15-3	40	32	31	250	22	45	LV4	LVSCR0821	LVSD42	LVSP4	LVSP4	W30L

PDUN^{R/L}

Lever Locking

+ DN □□ □□

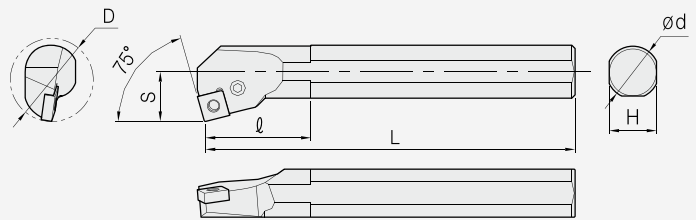


Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Shim pin punch	Wrench
		øD	ød	H	L	S	l						
DN □□ 1104 □□	EH-S20S-PDUN R/L-11	25	20	18	250	13	30	LV3D	LVSCR0512B	-	-	-	W20L
	EH-S25R-PDUN R/L-11	32	25	23	200	17	35	LV3	LVSCR0617	LVSD317	LVSP3	LVSP3	W25L
	EH-S32S-PDUN R/L-11	40	32	30	250	22	40						
DN □□ 1506 □□	EH-S32S-PDUN R/L-15	40	32	30	250	22	50	LV4B	LVSCR0821	LVSD42	LVSP4	LVSP4	W30L
	EH-S40T-PDUN R/L-15	50	40	37	300	27	50						
	EH-S50U-PDUN R/L-15	63	50	47	350	35	63						
DN □□ 1504 □□	EH-S32S-PDUN R/L-15-3	40	32	30	250	22	50	LV4	LVSCR0821	LVSD42	LVSP4	LVSP4	W30L
	EH-S40T-PDUN R/L-15-3	50	40	37	300	27	50						
DN □□ 1506 □□	EH-A32S-PDUN R/L-15	40	32	31	250	22	50	LV4B	LVSCR0821	LVSD42	LVSP4	LVSP4	W30L
DN □□ 1504 □□	EH-A32S-PDUN R/L-15-3	40	32	31	250	22	50	LV4	LVSCR0821	LVSD42	LVSP4	LVSP4	W30L

PSKN^{R/L}

Lever Locking

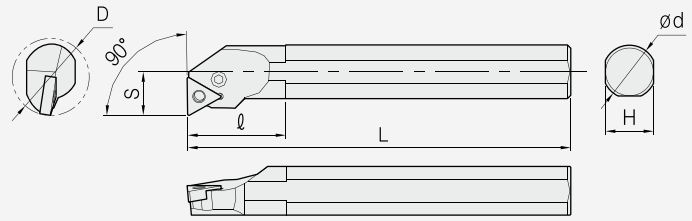
+ SN □□ □□



Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Shim pin punch	Wrench
		øD	ød	H	L	S	l						
SN □□ 1204 □□	EH-S25R-PSKN R/L-12	32	25	23	200	17	42	LV4A	LVSCR0613A	-	-	-	W25L
	EH-S32S-PSKN R/L-12	40	32	30	250	22	45	LV4	LVSCR0821	LVSS42B	LVSP4	LVSP4	W30L
	EH-S40T-PSKN R/L-12	50	40	37	300	27	50						
SN □□ 1204 □□	EH-A25R-PSKN R/L-12	32	25	23	200	17	42	LV4A	LVSCR0613A	-	LVSP4	-	W25L
SN □□ 1204 □□	EH-A32S-PSKN R/L-12	40	32	30	250	22	50	LV4	LVSCR0821	LVSS42B	LVSP4	LVSP4	W30L

PTFN^{R/L} Lever Locking

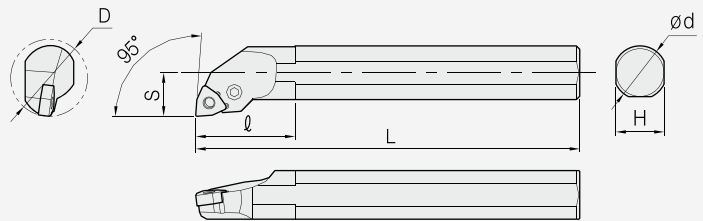
+ TN □ □



Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Shim pin punch	Wrench
		øD	ød	H	L	S	l						
TN □ □ 103 □ □	EH-S16R-PTFN R/L-11	20	16	15	200	11	28	LV2	LVSCR0509B	-	-	-	W25L
	EH-S20S-PTFN R/L-11	25	20	18	250	13	33						
	EH-S25R-PTFN R/L-11	32	25	23	200	17	36						
TN □ □ 1604 □ □	EH-S25R-PTFN R/L-16	32	25	23	200	17	42	LV3B	LVSCR0512B	-	-	-	W20L
	EH-S32S-PTFN R/L-16	44	32	30	250	22	50						
	EH-S40T-PTFN R/L-16	54	40	37	300	27	55						
	EH-A25R-PTFN R/L-16	32	25	24	200	17	40						
	EH-A32S-PTFN R/L-16	40	32	31	250	22	50						

PWLN^{R/L} Lever Locking

+ WN □ □

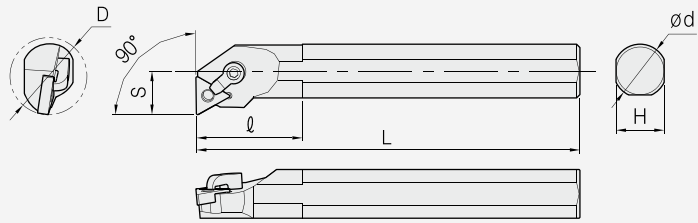


Insert	Item No.	Dimensions (mm)						Lever	Screw	Shim	Shim Pin	Shim pin punch	Wrench
		øD	ød	H	L	S	l						
WN □ □ 0604 □ □	EH-S20S-PWLN R/L-06	25	20	18	250	13	40	LV3B	LVSCR0512B	-	-	-	W20L
	EH-S25R-PWLN R/L-06	32	25	23	200	17	40						
	EH-S32S-PWLN R/L-06	44	32	30	250	22	45						
WN □ □ 0804 □ □	EH-S25R-PWLN R/L-08	32	25	23	200	17	45	LV4A	LVSCR0613A	-	-	-	W25L
	EH-S32S-PWLN R/L-08	44	32	30	250	22	50						

MTFN^{R/L}

Multi Locking

+ **TN**□□

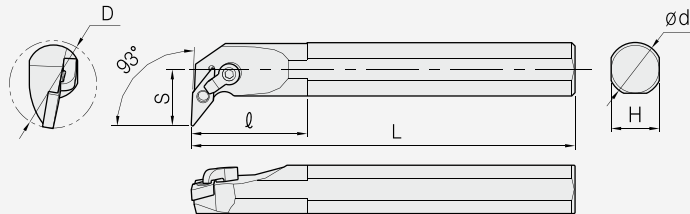


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		ØD	ød	H	L	S	l					
TN□□1604□□	EH-S25R-MTFN R/L-16	32	25	23	200	17	36	MCL7N1	MCSCR10-32-19	-	MSP3D3	W23.8L
	EH-S32S-MTFN R/L-16	40	32	30	250	22	50			MST32D	MSP3D	W19.8L
	EH-S40T-MTFN R/L-16	50	40	37	300	27	60			-	MSP3D3	W23.8L
	EH-A25R-MTFN R/L-16	32	25	23	200	17	40			MST32D	MSP3D	W19.8L
	EH-A32S-MTFN R/L-16	40	32	30	250	22	50			-	MSP3D3	W23.8L

MVUN^{R/L}

Multi Locking

+ **VN**□□

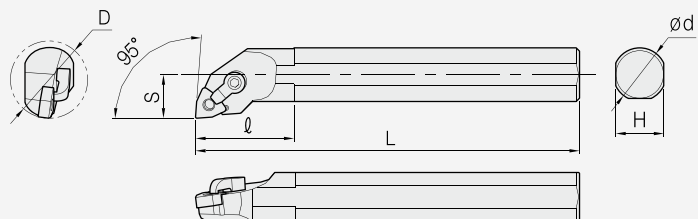


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		ØD	ød	H	L	S	l					
VN□□1604□□	EH-S32S-MVUN R/L-16	40	32	30	250	22	50	MCL8N2	MCSCR5/16-28	MSV32	MSP3D	W39.7L W19.8L
	EH-S40T-MVUN R/L-16	50	40	37	300	27	60					
	EH-A32S-MVUN R/L-16	40	32	30	250	22	50					
	EH-A40T-MVUN R/L-16	50	40	37	300	27	60					

MWLN^{R/L}

Multi Locking

+ **WN**□□

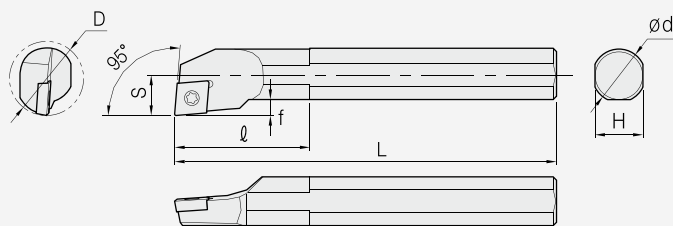


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		ØD	ød	H	L	S	l					
WN□□0604□□	EH-S25R-MWLN R/L-06	32	25	23	200	17	36	MCL7N	MCSCR10/32-19	-	MSP3D3	W23.8L W19.8L
	EH-S32S-MWLN R/L-06	40	32	30	250	22	50			MSW32	MSP3D	
	EH-S40T-MWLN R/L-06	50	40	37	300	27	60			-	MSP4DS	
WN□□0804□□	EH-S25R-MWLN R/L-08	32	25	23	200	17	36	MCL6N	MCSCR1/4-21	-	MSP4D	W31.8L W23.8L
	EH-S32S-MWLN R/L-08	40	32	30	250	22	50			MSW43	MSP4D	
	EH-S40T-MWLN R/L-08	50	40	37	300	27	60			-	MSP4D	

SCLC^{R/L}

Screw On

+ **CC** □ □

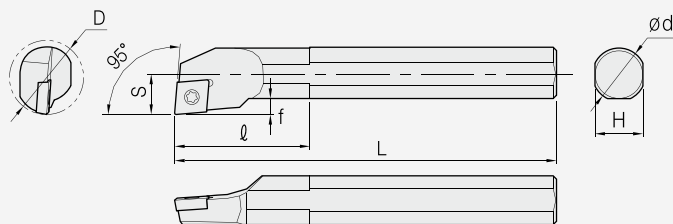


Insert	Item No.	Dimensions (mm)						Screw	Shim	Shim Screw	Wrench
		∅D	∅d	H	L	S	ℓ				
CC □ □ 0602 □ □	EH-S08K SCLC R/L 06	10	8	7	125	5	14	SCR02555			
	EH-S10K SCLC R/L 06	12	10	9	125	6	14	SCR02565	-	-	TW07P
	EH-S10M SCLC R/L 06	12	10	9	150	6	14				
	EH-S12M SCLC R/L 06	16	12	11	150	9	25				
	EH-S16R SCLC R/L 06	20	16	15	200	11	32				
CC □ □ 09T3 □ □	EH-S12M SCLC R/L 09	16	12	11	150	9	25	SCR03508	-	-	TW15P
	EH-S16R SCLC R/L 09	20	16	15	200	11	32.5				
	EH-S20S SCLC R/L 09	25	20	18	250	13	38	SCR03510	-	-	TW15P
	EH-S25R SCLC R/L 09	32	25	23	200	17	45				
CC □ □ 1204 □ □	EH-S25R SCLC R/L 12	32	25	23	200	17	45	SCR0411F	-	-	TW15P
	EH-S32S SCLC R/L 12	40	32	30	250	22	50		SSC42	SSCR0610	W40L
	EH-S40T SCLC R/L 12	50	40	37	300	27	60				TW15P
CC □ □ 0602 □ □	EH-A08F SCLC R/L 06	10	8	7.5	80	5	14	SCR02555			
	EH-A10H SCLC R/L 06	12	10	9.5	100	6	14	SCR02565	-	-	TW07P
	EH-A12K SCLC R/L 06	16	12	11	125	9	25				
CC □ □ 09T3 □ □	EH-A12K SCLC R/L 09	16	12	11	125	9	25	SCR03508	-	-	TW15P
	EH-A16M SCLC R/L 09	20	16	15	150	11	32.5				
	EH-A20Q SCLC R/L 09	25	20	19	180	13	-	SCR03510	-	-	TW15P
	EH-A25R SCLC R/L 09	32	25	24	200	17	45				
CC □ □ 1204 □ □	EH-A25R SCLC R/L 12	32	25	24	200	17	45	SCR0411F	-	-	TW15P
	EH-A32S SCLC R/L 12	40	32	31	250	32	50		SSC42	SSCR0610	W40L, TW15P

SCLP^{R/L}

Screw On

+ **CP** □ □

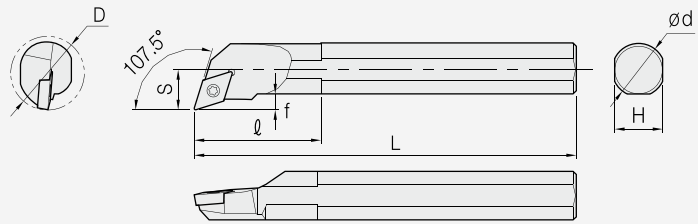


Insert	Item No.	Dimensions (mm)						Screw	Wrench
		∅D	∅d	H	L	S	ℓ		
CP □ □ 0802 □ □	EH-S10M SCLP R/L 08	12	10	9	150	6	-	SCR0305	TW09P
	EH-S12M SCLP R/L 08	16	12	11	150	8	15	SCR0307	
CP □ □ 0903 □ □	EH-S16N SCLP R/L 09	20	16	15	160	10	15	SCR0408	TW15P
	EH-S16R SCLP R/L 09	20	16	15	200	11	35		
	EH-S20N SCLP R/L 09	25	20	18	160	12.5	20		
CP □ □ 0802 □ □	EH-S20S SCLP R/L 09	25	20	15	250	12.5	20	SCR0305	TW09P
	EH-A10H SCLP R/L 08	12	10	9.5	100	9	-		
CP □ □ 0903 □ □	EH-A12K SCLP R/L 08	16	12	11	125	8	20	SCR0408	TW15P
	EH-A16M SCLP R/L 09	20	16	15	150	10	25		
	EH-A20Q SCLP R/L 09	25	20	19	180	12.5	28		

SDQC^{R/L}

Screw On

+ DC □□

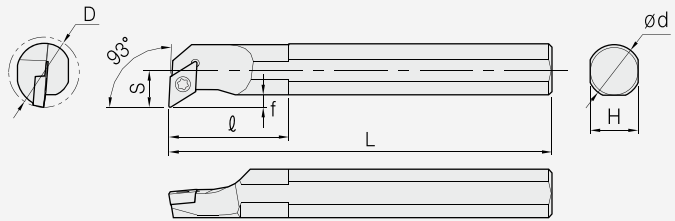


Insert	Item No.	Dimensions (mm)							Screw	Wrench
		øD	ød	H	L	S	l	f		
DC □□ 0702 □□	EH-S10M-SDQCR R/L-07	13	10	9	150	7	20	2.5	SCR02555	TW07P
	EH-S12M-SDQCR R/L-07	16	12	11	150	9	22	3.5	SCR02565	
	EH-S16R-SDQCR R/L-07	20	16	15	200	11	27	4	SCR03508	
DC □□ 11T3 □□	EH-S16R-SDQCR R/L-11	20	16	15	200	11	32	4	SCR03508	TW15P
	EH-S20S-SDQCR R/L-11	25	20	18	250	13	32	4.5	SCR03510	
	EH-S25R-SDQCR R/L-11	32	25	23	200	17	32	7	SCR03510	
DC □□ 0702 □□	EH-A10H-SDQCR R/L-07	13	10	9.5	100	7	20	2	SCR02555	TW07P
	EH-A12K-SDQCR R/L-07	16	12	11	125	9	22	3	SCR02565	
DC □□ 11T3 □□	EH-A16M-SDQCR R/L-11	20	16	15	150	11	27	3	SCR03508	TW15P
	EH-A20Q-SDQCR R/L-11	25	20	19	180	13	32	3	SCR03510	
	EH-A25R-SDQCR R/L-11	32	25	24	200	17	32	4	SCR03510	

SDUC^{R/L}

Screw On

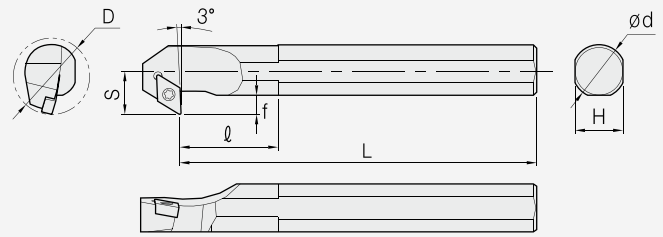
+ DC □□



Insert	Item No.	Dimensions (mm)							Screw	Wrench
		øD	ød	H	L	S	l	f		
DC □□ 0702 □□	EH-S10M-SDUCR R/L-07	13	10	9	150	7	0	2.5	SCR02555	TW07P
	EH-S12M-SDUCR R/L-07	16	12	11	150	9	22	3.5	SCR02565	
	EH-S16R-SDUCR R/L-07	20	16	15	200	11	27	4	SCR03508	
DC □□ 11T3 □□	EH-S16R-SDUCR R/L-11	20	16	15	200	11	27	4	SCR03508	TW15P
	EH-S20S-SDUCR R/L-11	25	20	18	250	13	35	4.3	SCR03510	
	EH-S25R-SDUCR R/L-11	32	25	23	200	17	46	6.8	SCR03510	
DC □□ 0702 □□	EH-S32S-SDUCR R/L-11	40	32	30	250	22	50	8.4	SCR03510	TW15P
	EH-A10H-SDUCR R/L-07	13	10	9.5	100	7	0	2	SCR02555	
	EH-A12K-SDUCR R/L-07	16	12	11	125	9	22	3	SCR02565	
DC □□ 11T3 □□	EH-A16M-SDUCR R/L-07	20	16	15	150	11	27	3	SCR03508	TW07P
	EH-A20Q-SDUCR R/L-11	25	20	19	180	13	35	3	SCR03510	
	EH-A25R-SDUCR R/L-11	32	25	24	200	17	46	4.5	SCR03510	

SDZC^{R/L} Screw On

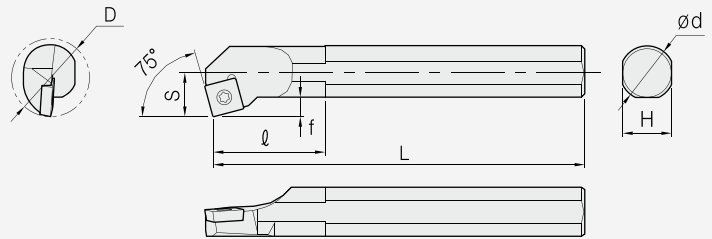
+ DC □□



Insert	Item No.	Dimensions (mm)							Screw	Shim	Shim Screw	Wrench
		ØD	Ød	H	L	S	l	f				
DC□□0702□□	EH-S16R SDZC R/L 07	20	16	15	200	11	29	4	SCR02565	-	-	TW07P
	EH-S20S SDZC R/L 07	25	20	18	250	13	36.5	4.5	SCR03510	-	-	TW15P
DC□□11T3□□	EH-S25R SDZC R/L 11	32	25	23	200	17	30	6.9	SCR03512	SSD32	SSCR0509	TW15P,W35L
	EH-S32S SDZC R/L 11	40	32	30	250	22	39	8.4	SCR03510	-	-	TW15P
	EH-S40T SDZC R/L 11	50	40	37	300	27	47	9.4	SCR03512	SSD32	SSCR0509	TW15P,W35L
	EH-A25R SDZC R/L 11	32	25	24	200	17	30	4.5	SCR03512	SSD32	SSCR0509	TW15P,W35L

SSKC^{R/L} Screw On

+ SC □□

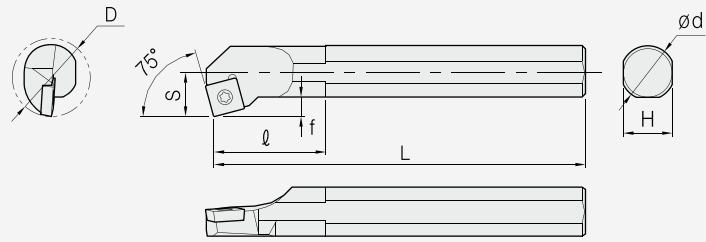


Insert	Item No.	Dimensions (mm)							Screw	Shim	Shim Screw	Wrench
		ØD	Ød	H	L	S	l	f				
SC□□09T3□□	EH-S12M SSKC R/L 09	16	20	11	150	9	26	SCR03507	-	-	TW15P	
	EH-S16R SSKC R/L 09	20	16	15	200	11	40	SCR03508	-	-	TW15P	
	EH-S20S SSKC R/L 09	25	20	18	250	13	46	SCR0411F	SSC42	SSCR0610	TW15P,W40L	
SC□□1204□□	EH-S25R SSKC R/L 12	32	25	23	200	17	36	SCR03507	-	-	TW15P	
	EH-S32S SSKC R/L 12	40	32	30	250	22	43	SCR03508	-	-	TW15P	
SC□□09T3□□	EH-A12K SSKC R/L 09	16	12	11	125	9	26	SCR03507	-	-	TW15P	
	EH-A16M SSKC R/L 09	20	16	15	150	11	32	SCR03508	-	-	TW15P	
	EH-A20Q SSKC R/L 09	25	20	19	180	13	34	SCR0411F	SSC42	SSCR0610	TW15P,W40L	
SC□□1204□□	EH-A25R SSKC R/L 12	32	25	24	200	17	36	SCR0411F	SSC42	SSCR0610	TW15P,W40L	
	EH-A32S SSKC R/L 12	40	32	31	250	22	43	SCR0411F	SSC42	SSCR0610	TW15P,W40L	

SSKP^{R/L}

Screw On

+ SP □□

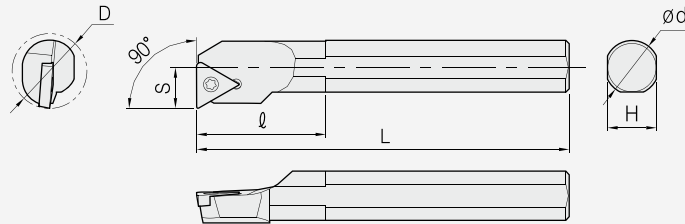


Insert	Item No.	Dimensions (mm)						Screw	Wrench
		ØD	Ød	H	L	S	l		
SP□□0903□□	EH-S12M SSKP R/L 09	16	12	11	150	8	18	SCR0307	TW09P
	EH-S16N SSKP R/L 09	20	16	15	160	10	30		
	EH-S16R SSKP R/L 09	20	16	15	200	10	32		
	EH-S20N SSKP R/L 09	25	20	18	160	12.5	32		
	EH-S20S SSKP R/L 09	25	20	18	250	12.5	35		
SP□□0903□□	EH-A12K SSKP R/L 09	16	12	11	125	8	21	SCR03508	TW09P
	EH-A16M SSKP R/L 09	20	16	15	150	10	30	SCR0307	
	EH-A20Q SSKP R/L 09	25	20	19	180	12.5	32	SCR0307	

STFC^{R/L}

Screw On

+ TC □□

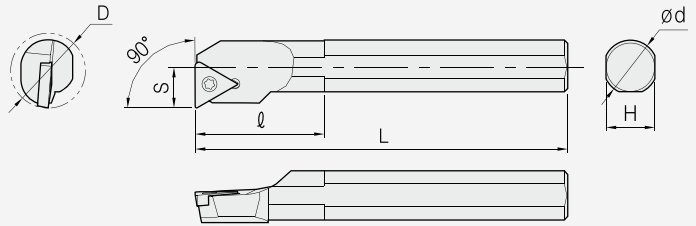


Insert	Item No.	Dimensions (mm)						Screw	Shim	Shim Screw	Wrench
		ØD	Ød	H	L	S	l				
TC□□0902□□	EH-S10M STFC R/L 09	13	10	9	150	7	23	SCR02206	-	-	TW06P
	EH-S12M STFC R/L 09	16	12	11	150	9	28				
TC□□1102□□	EH-S12M STFC R/L 11	16	12	11	150	9	30	SCR02565	-	-	TW07P
	EH-S16R STFC R/L 11	20	16	15	200	11	35				
	EH-S20S STFC R/L 11	25	20	18	250	13	36				
TC□□16T3□□	EH-S20S STFC R/L 16	25	20	18	250	13	36	SCR03510	-	-	TW15P
	EH-S25R STFC R/L 16	32	25	23	200	17	49				
TC□□16T3□□	EH-S32S STFC R/L 16	40	32	30	250	22	50	SCR03512	SST32	SSCR0509	TW15P,W35L
	EH-S40T STFC R/L 16	50	40	37	300	27	60				
	EH-A10M STFC R/L 09	13	10	9.5	100	7	23				
TC□□0902□□	EH-A12K STFC R/L 09	16	12	11	125	9	23	SCR02206	-	-	TW06P
	EH-A12K STFC R/L 11	16	12	11	125	9	30				
	EH-A16M STFC R/L 11	20	16	15	150	11	30				
TC□□1102□□	EH-A20Q STFC R/L 11	25	20	19	180	13	36	SCR02565	-	-	TW07P
	EH-A25R STFC R/L 16	32	25	24	200	17	49				
TC□□16T3□□	EH-A25R STFC R/L 16	32	25	24	200	17	49	SCR03510	-	-	TW15P
	EH-A32S STFC R/L 16	40	32	31	250	22	50				

STFP^{R/L}

Screw On

+ **TP** □ □

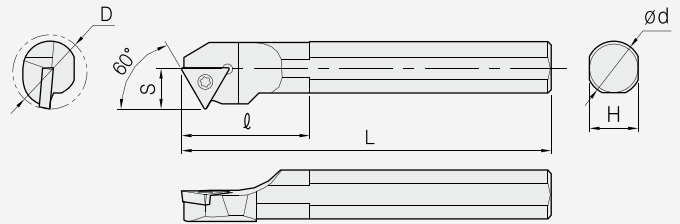


Insert	Item No.	Dimensions (mm)						Screw	Wrench
		ØD	ød	H	L	S	ℓ		
TP□□1103□□	EH-S10M STFP R/L 11	12	10	9	150	6	-	SCR030508	TW09P
	EH-S12M STFP R/L 11	16	12	11	150	8	10	SCR0307	TW09P
	EH-S16N STFP R/L 11	20	16	15	160	10	12		
	EH-S16R STFP R/L 11	20	16	15	200	10	12		
TP□□1604□□	EH-S20N STFP R/L 16	25	20	18	160	12.5	32	SCR0408	TW15P
	EH-S20S STFP R/L 16	25	20	18	250	12.5	14		
TP□□1103□□	EH-A10H STFP R/L 11	12	10	9.5	100	6	-	SCR030508	TW09P
	EH-A12K STFP R/L 11	16	12	11	125	8	10	SCR0307	TW09P
	EH-A16M STFP R/L 11	20	16	15	150	10	23		
TP□□1604□□	EH-A20Q STFP R/L 16	25	20	19	180	12.5	41	SCR0408	TW15P

STWP^{R/L}

Screw On

+ **TP** □ □

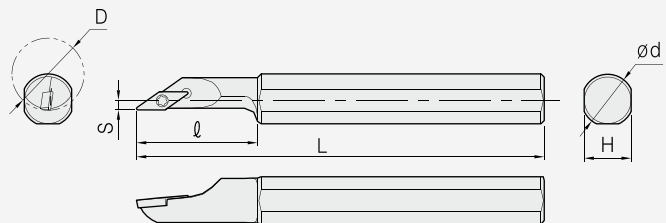


Insert	Item No.	Dimensions (mm)						Screw	Wrench
		ØD	ød	H	L	S	ℓ		
TPGH1102□□	EH-S10M STWP R/L 11	12	10	9	150	6	23	SCR030508	TW09P
TPGH1103□□	EH-S12M STWP R/L 11	16	12	11	150	8	30	SCR0306	TW09P
	EH-S16R STWP R/L 11	20	16	15	180	10	35		
TPGH1103□□	EH-S20R STWP R/L 11	25	20	19	200	12.5	40		

SVJC^{R/L}

Screw On

+ **VC** □ □

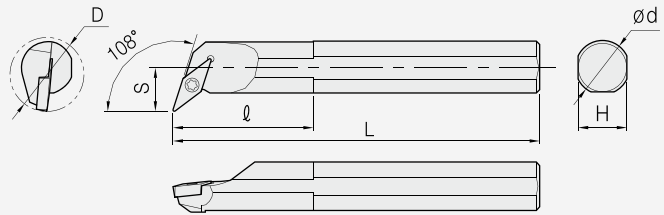


Insert	Item No.	Dimensions (mm)						Screw	Wrench
		ØD	ød	H	L	S	ℓ		
VCMT0802□□	EH-S12M SVJC R/L 08	16	12	11	150	2	26	SCR0204	TW06P
	EH-S16Q SVJC R/L 08	20	16	15	180	2	36		

SVQB^{R/L}

Screw On

+ **VB** □ □

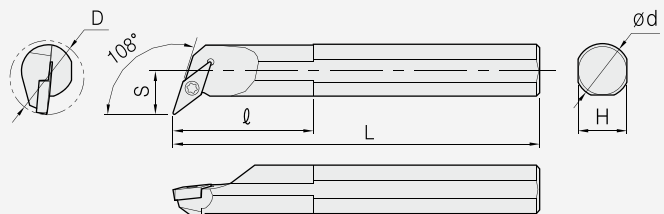


Insert	Item No.	Dimensions (mm)						Screw	Shim	Shim Screw	Wrench
		ØD	Ød	H	L	S	l				
VB □ □ 1604 □ □	EH-S32S SVQB R/L 16	40	32	30	250	22	56	SCR03512	SSV32	SSCR0509	TW15P,W35L
	EH-S40T SVQB R/L 16	50	40	37	300	27	64				
	EH-A32S SVQB R/L 16	40	32	31	250	22	56				

SVQC^{R/L}

Screw On

+ **VC** □ □

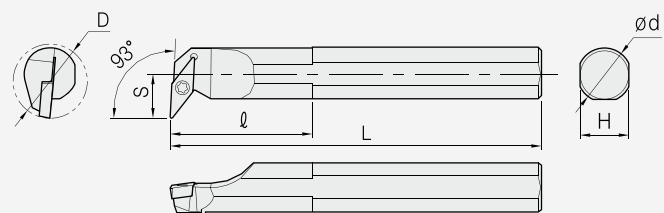


Insert	Item No.	Dimensions (mm)						Screw	Shim	Shim Screw	Wrench
		ØD	Ød	H	L	S	l				
VC □ □ 1103 □ □	EH-S16R SVQC R/L 11	20	16	15	200	11	35	SCR02565	-	-	TW07P
	EH-S20S SVQC R/L 11	25	20	18	250	13	38				
	EH-S25R SVQC R/L 11	32	25	23	200	17	42				
VC □ □ 1303 □ □	EH-S20S SVQC R/L 13	25	20	18	250	13	42	SCR0307	-	-	TW07P
	EH-S25R SVQC R/L 13	32	25	23	200	17	45				
VC □ □ 1604 □ □	EH-S25R SVQC R/L 16	32	25	23	200	17	50	SCR03510	-	-	TW15P
	EH-S32S SVQC R/L 16	40	32	30	250	22	56				
	EH-S40T SVQC R/L 16	50	40	37	300	27	64				

SVUB^{R/L}

Screw On

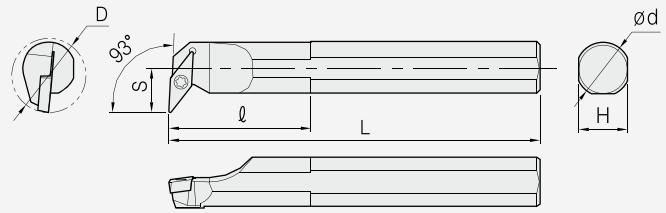
+ **VB** □ □



Insert	Item No.	Dimensions (mm)						Screw	Shim	Shim Screw	Wrench
		ØD	Ød	H	L	S	l				
VB □ □ 1604 □ □	EH-S32S SVUB R/L 16	40	32	30	250	22	56	SCR03510	SSV32	SSCR0509	TW15P,W35L
	EH-S40T SVUB R/L 16	50	40	37	300	27	64				
	EH-A32S SVUB R/L 16	40	32	31	250	22	56				

SVUC^{R/L} Screw On

+ VC □ □

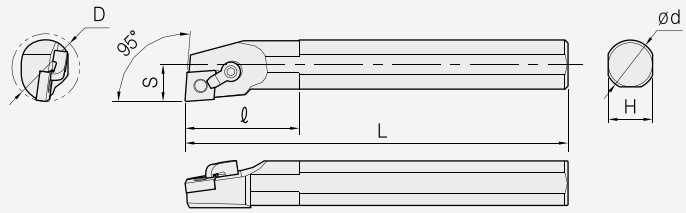


Insert	Item No.	Dimensions (mm)						Screw	Shim	Shim Screw	Wrench
		ØD	ød	H	L	S	l				
VC □ □ 1103 □ □	EH-S16R SVUC R/L 11	22	16	15	200	13	30	SCR02565	-	-	TW07P
	EH-S20S SVUC R/L 11	25	20	18	250	14	33				
	EH-S25T SVUC R/L 11	32	25	23	300	17	38				
VC □ □ 1303 □ □	EH-S20S SVUC R/L 13	28	20	18	250	16	35	SCR0307	-	-	TW09P
	EH-S25R SVUC R/L 13	32	25	23	200	17	40				
VC □ □ 1604 □ □	EH-S25R SVUC R/L 16	32	25	23	200	19	50	SCR03510	-	-	TW15P
	EH-S32S SVUC R/L 16	40	32	30	250	22	56	SCR03512	SSV32	SSCR0509	TW15P W35L
	EH-S40T SVUC R/L 16	50	40	37	300	27	64				

MCLN^{R/L}

Multi Locking

+ **CN**□□

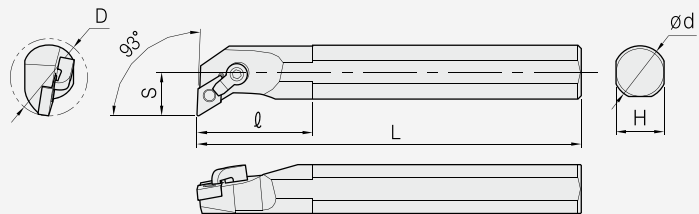


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		ØD	ød	H	L	S	l					
CN□□0903□□	EH-S20S-MCLN R/L-09	25	20	18	250	13	30	MCL7N	MCSCR10-32-19	-	MSP3D3	W19.8L W23.8L
	EH-S25R-MCLN R/L-09	32	25	23	200	17	36					
CN□□1204□□	EH-S25R-MCLN R/L-12	32	25	23	200	17	36	MCL6N	MCSCR1/4-21	MSC43	MSP4D	W31.8L W23.8L
	EH-S32S-MCLN R/L-12	40	32	30	250	22	50					
CN□□1204□□	EH-S40T-MCLN R/L-12	50	40	37	300	27	60	MCL6N	MCSCR1/4-21	-	MSP4DS	W31.8L W23.8L
	EH-A25R-MCLN R/L-12	32	25	23	200	17	40					
	EH-A32S-MCLN R/L-12	40	32	30	250	22	50			MSC43	MSP4D	

MDUN^{R/L}

Multi Locking

+ **DN**□□

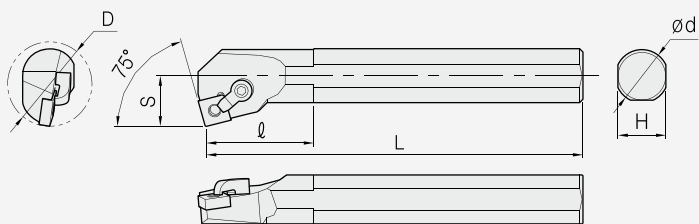


Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		ØD	ød	H	L	S	l					
DN□□1504□□	EH-S32S-MDUN R/L-15-3	40	32	30	250	22	50	MCL6N	MCSCR1/4-21	MSD43	MSP4D	W31.8L W23.8L
	EH-S40T-MDUN R/L-15-3	50	40	37	300	27	60					
	EH-A32S-MDUN R/L-15-3	40	32	30	250	22	50					

MSKN^{R/L}

Multi Locking

+ **SN**□□



Insert	Item No.	Dimensions (mm)						Clamp	Clamp Screw	Shim	Shim Pin	Wrench
		ØD	ød	H	L	S	l					
SN□□1204□□	EH-S25R-MSKN R/L-12	32	25	23	200	17	36	MCL8N1	MCSCR5/16-28	-	MSP4DS	W39.7L W23.8L
	EH-S32S-MSKN R/L-12	40	32	30	250	22	50					
	EH-S40T-MSKN R/L-12	50	40	37	300	27	60					
SN□□1204□□	EH-A25R-MSKN R/L-12	32	25	23	200	17	40	MCL8N1	MCSCR5/16-28	-	MSP4DS	W39.7L W23.8L
	EH-A32S-MSKN R/L-12	40	32	30	250	22	50					
	EH-A40T-MSKN R/L-12	50	40	37	300	27	60					



Grooving Parting