SUMITOMO

CARBIDE - CBN - DIAMOND

Global Support, Global Solutions.

SEC-Cartridge Units/SEC-Micro Units

Rev. 12

Overview of SEC-Units

SEC-Cartridge Units

SEC-Micro Units

IGETALLOY ABS System

Standard of Tapers

For the details and stock status of indexable inserts applicable to cartridges, refer to the latest General Catalogue.

The stock indications for the products in this catalogue are as follows.
● mark: Standard stocked item
▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability)
Blank: Made-to-order item

Introduction to Cartridges

1. Easy-to-order combination tools

The SEC-Unit series enables significantly reduced machining time.

The SEC-Unit series provides easy-to-order, indexable tool holders that can be easily designed and manufactured as a combination tool, by using one or multiple pieces in a single quill, to machine complex work shapes in a single pass.
Improved productivity and reduced labour in internal boring of various work materials can be achieved with the combination of a wide variety of insert grades and chipbreakers.

2. SEC-Unit series

Sumitomo's SEC-Unit series includes the following three types.

1. With adjustment graduations and adjustment mechanism up to ±ø5µm.

- SEC-Micro Units **MU type**

2. Without adjustment graduations but with adjustment mechanism up to ±ø20 to 30µm.

- SEC-Cartridge Units **BU type**
- SEC-Cartridge Units **MINIT P24 type**
- SEC-Cartridge Units **SP type** Expansion
- SEC-Cartridge Units **SX type** New
- SEC-Cartridge Units **SC type** New
- SEC-Cartridge Units **CP type** Expansion
- SEC-Cartridge Units **CE type** Expansion
- SEC-Cartridge Units **PN type**

3. Compact cartridges without adjustment graduations or adjustment mechanism.

- SEC-Cartridge Units **MINIT N38 type**

3. Rationalising cutting

Tooling with the SEC-Unit series helps rationalize cutting.

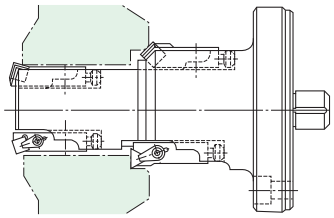
1. Easy tool design
   Once the layout of the Unit is determined according to the shape of the workpiece, the tool design is almost complete. Indexable tool system easily supports multi-edged tool and combination tool configurations.
2. Easy quill design and manufacture
   Quills can be easily produced by simply designing and machining the Unit seat position, chip evacuation pocket and screw thread for Unit mounting.
3. High-accuracy internal turning possible
   Units have a fine adjustment mechanism attached, so they can be used as high-accuracy tools with quills manufactured at normal accuracy. In addition, by making simple dimensional adjustments for each index of the insert, even higher precision machining is possible.
4. Easy tool management
   All you need is one quill along with a replacement Unit and inserts: even if the insert or Unit should break, just replace the damaged parts and the quill will be unaffected.
5. Stable performance and economy
   Inserts and Unit types manufactured under Sumitomo quality control stabilize tool performance and help decrease running costs.

Introduction to Cartridges

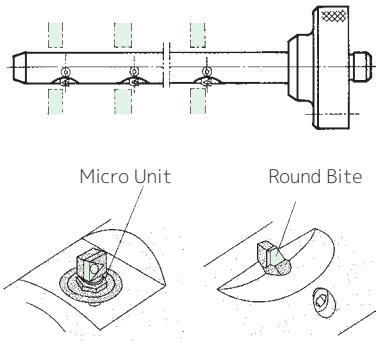
4. Tooling examples

Some examples of actual tool layouts using various SEC-Cartridge Units and SEC-Micro Units are shown below.

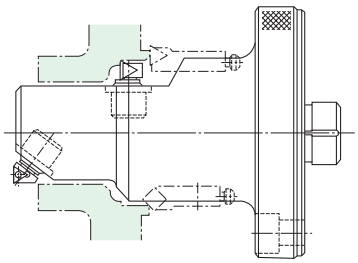
● Cartridge Unit
(Stop holes/through holes/chamfering)



● Line Boring Bar



● Cartridge Unit + Micro Unit

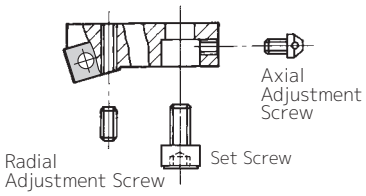


5. Structure of SEC-Units

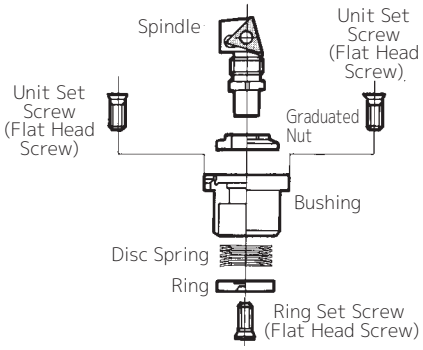
Typical SEC-Unit series construction and insert clamping structures are shown below.

● Structure of SEC-Units

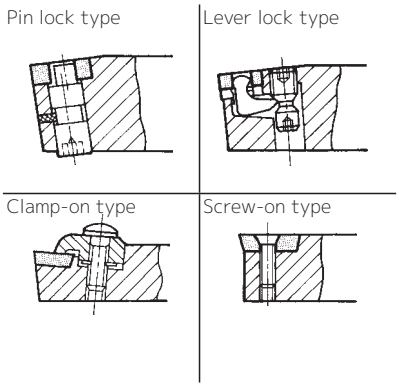
For SEC-Cartridge Unit BU type



For SEC-Micro Unit MUP type



● Indexable insert clamp structure



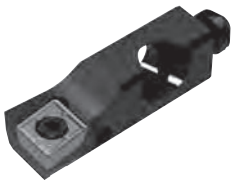
6. Precautions for use

These are the main precautions for use of quills.

1. Chip control
   Be sure to use a suitable chipbreaker (ex.: 3D chipbreaker) and a wide enough chip pocket.
2. Chatter countermeasures
   When L/D ≈ 2 to 3, a steel quill may also be used, but at higher values, a cemented carbide quill is recommended.
   (L: tool overhang amount, D: machining diameter)
3. Machining precision
   Presetting outside the machine is normal, but especially for high precision machining, dimensional compensation should be performed after trial cutting.
4. Balance measures
   Dynamic balancing is especially necessary for high-precision and high-speed rotating tools.

Outline of SEC-Cartridge Units

SEC-Cartridge Unit series

Classification	Cat. No.	Appearance	Min. Bore Dia. (mm)	Applications			No. of series		Features	Page
				Internal Turning	Facing	Chamfering	Tool Shape	Number of Items		
Standard type	BU type		ø24	●	●	●	11 models	64	Long-selling SEC-Cartridge Unit with an excellent track record	12 ~
MINIT type	P24 type		ø24	●	●	●	7 models	14	Compact type Unit with a positive cutting edge for excellent sharpness and chip evacuation.	22 ~
	N38 type		ø38	●	●	●	14 models	28	Compact type Unit with built-in adjustment mechanism ideal for multi-tooling	26 ~
ISO type	Expansion SP type		ø30	●	●	●	15 models	74	Unit for machining of low-rigidity parts using screw-on positive type inserts for excellent sharpness and chip evacuation	34 ~
	New SX type		ø30	●	●	●	2 models	4	Unit for machining of low-rigidity parts, using the insert for SumiDrill WDX series	43 ~
	New SC type		ø56	●	●	●	4 models	8	Unit for machining of low-rigidity parts using screw-on positive type inserts with 7° relief angle	44 ~
	Expansion CP type		ø30	●	●	●	15 models	96	Unit for machining of low-rigidity parts using positive type inserts for excellent sharpness and machining accuracy	46 ~
	Expansion CE type		ø30	●	●	●	15 models	90	Unit for machining non-ferrous metals, that has a high rake angle for excellent sharpness	64 ~
	PN type		ø38	●	●	●	7 models	50	ISO type Unit with a negative cutting edge for excellent compatibility and economy.	82 ~

Outline of SEC-Cartridge Units

Identification Code

Standard type (for BU type)

BU	22	4		R
(1)	(2)	(3)	(4)	(5)

(1) Unit Cat. No. ····· Indicates BU type (Boring Unit)

(2) Holder Style ····· See Table 2

(3) Holder Height ·····

Symbol	2	3	4	5	6
Holder Height (mm)	10.5	11.5	13.5	18.0	21.0

(4) Application ····· Blank: Internal Boring, E: External Turning

(5) Feed Direction ····· R: Right-hand, L: Left-hand

For MINIT type (P24 type, N38 type)

M	T	G	N	3	R
(1)	(2)	(3)	(4)	(5)	(6)

(1) Unit Cat. No. ····· Indicates MINIT type

(2) Insert Shape ····· See Table 1

(3) Holder Style ····· See Table 2

(4) Insert Relief Angle ··· See Table 3

(5) Insert Size ·····

Symbol		22	04	3	4
Dimensions (mm)	Inscribed Circle	6.35	7.938	9.525	12.70
	Thickness	3.18	3.18	4.76	4.76

(6) Feed Direction ····· R: Right-hand, L: Left-hand

For ISO type (SP type, SX type, SC type, CP type, CE type, PN type)

P	T	G	N	R	16	CA
(1)	(2)	(3)	(4)	(5)	(6)	(7)

(1) Clamp Mechanism ··· S: Screw-on, P: Pin Lock, C: Clamp-on

(2) Insert Shape ····· See Table 1

(3) Holder Style ····· See Table 2

(4) Insert Relief Angle ··· See Table 3

(5) Feed Direction ····· R: Right-hand, L: Left-hand

(6) Centre Height ·····

Symbol	8	10	12	16	20
Centre Height Dimensions (mm)	10	10	12	16	20

(7) Unit Cat. No. ····· Indicates ISO standard A type cartridge

Table 1: Insert Shape

Symbol	Insert Shape
T	 Triangular type
S	 Square type
C	 80° Diamond Apex Angle
D	 55° Diamond Apex Angle
X	 Special

Table 2: Holder Style

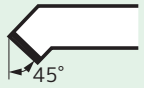
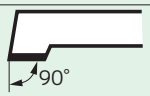
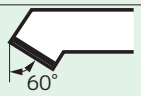
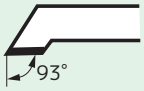
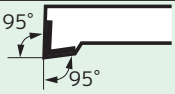
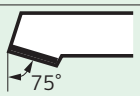
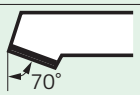
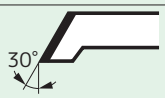
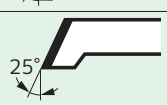
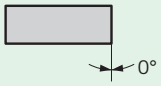
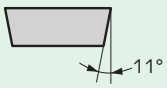
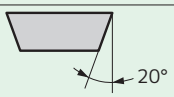
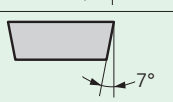
Symbol		Shape (Bold line indicates main cutting edge)	Symbol		Shape (Bold line indicates main cutting edge)
MINIT type ISO type	BU type		MINIT type ISO type	BU type	
F	25		S	14	
G	–		T	13	
J	22		U	29	
K	15		W	–	
L	–		Y	18	
R	11		–	19	
X	–				
A	–				
B	–				

Table 3: Insert Relief Angle

Symbol	Insert Relief Angle
N	
P	
E	
C	

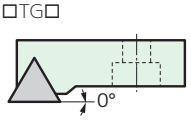
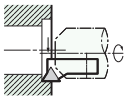
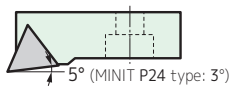
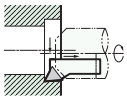
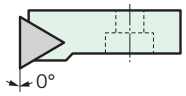
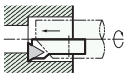
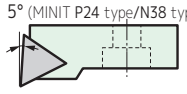
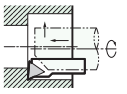
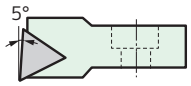
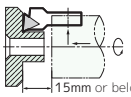
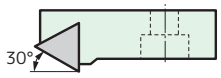
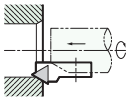
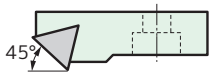
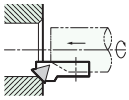
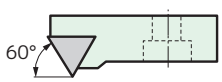
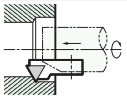
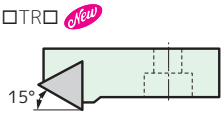
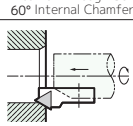
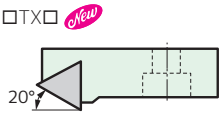
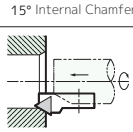
Outline of SEC-Cartridge Units

Features of Each Model

Functions \ Cat. No.	BU type	MINIT P24 type	MINIT N38 type	Expansion SP type / New SX type / New SC type	CP type	CE type	PN type
Clamp Mechanism	Pin Lock	Screw-on	Pin Lock	Screw-on	Clamp-on	Clamp-on	Pin Lock
Adjustment Mechanism	Yes	Axial: No Radial: Yes	No (Uses shims)	Yes	Yes	Yes	Yes
Rake Angle	Negative	Positive	Negative	Positive	Positive	Positive	Negative
Applicable Insert Relief Angle	0°	11°	0°	11°(SP,SX) 7° (SC)	11°	20°	0°
Cutting Edge Position	Above Centre	Above Centre / On Centre	Above Centre	On Centre	On Centre	On Centre	On Centre
Min. Bore Dia. (mm)	ø24	ø24	ø38	ø30	ø30	ø30	ø38

Holder Cat. Nos. by Model/Tooling (For Triangular Inserts)

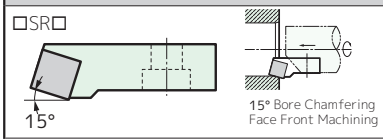
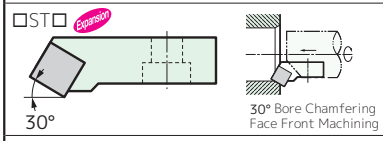
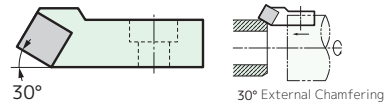
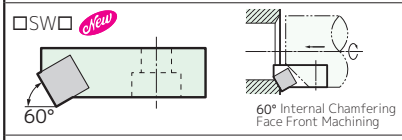
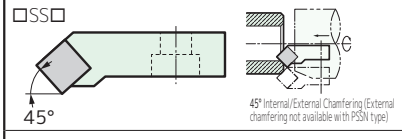
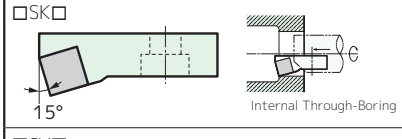
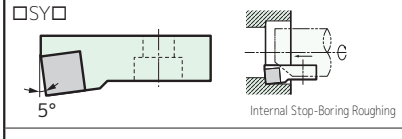
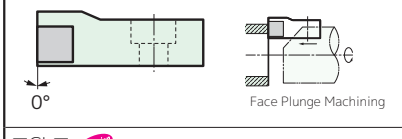
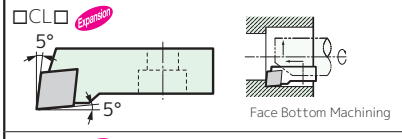
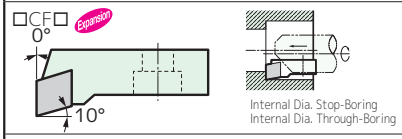
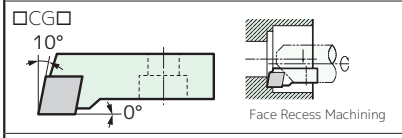
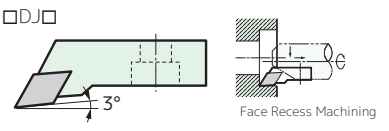
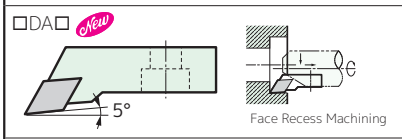
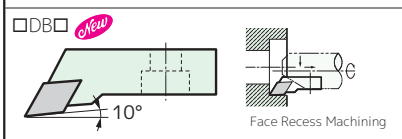
Figure below shows right-handed (R) tool. ( ) indicates minimum bore diameter (mm)

Shape/Tooling	BU type	MINIT P24 type	MINIT N38 type	Expansion SP type / New SX type / New SC type	CP type	CE type	PN type
□TG□   Face Recess Machining	–	–	MTGN3 R/L(38)	STGP R/L 10CA(38) STGP R/L 12CA(50) STGP R/L 16CA(60)	CTGP R/L 10CA(38) CTGP R/L 12CA(50) CTGP R/L 16CA(60)	CTGE R/L 10CA(38) CTGE R/L 12CA(50)	PTGN R/L 10CA(38) PTGN R/L 12CA(50) PTGN R/L 16CA(60) PTGN R/L 20CA(70)
□TJ□   Face Recess Machining	BU224 R/L(48) BU225 R/L(60)	MTJP22R/L(24)	MTJN3 R/L(38)	STJP R/L 10CA(38) STJP R/L 12CA(50) STJP R/L 16CA(55)	CTJP R/L 10CA(38) CTJP R/L 12CA(50) CTJP R/L 16CA(55)	CTJE R/L 10CA(38) CTJE R/L 12CA(50)	–
□TF□   Internal Dia. Stop-Boring Internal Dia. Through-Boring	BU252 R/L(24) BU253 R/L(30) BU254 R/L(38) BU255 R/L(48) BU256 R/L(55)	MTFP22R/L(24)	MTFN3 R/L(38)	STFP R/L 8CA(30) STFP R/L 10CA(38) STFP R/L 12CA(50) STFP R/L 16CA(55)	CTFP R/L 8CA(30) CTFP R/L 10CA(38) CTFP R/L 12CA(50) CTFP R/L 16CA(55) CTFP R/L 20CA(70)	CTFE R/L 8CA(30) CTFE R/L 10CA(38) CTFE R/L 12CA(50) CTFE R/L 16CA(55) CTFE R/L 20CA(70)	PTFN R/L 10CA(38) PTFN R/L 12CA(50) PTFN R/L 16CA(55) PTFN R/L 20CA(70)
□TU□ 5° (MINIT P24 type/N38 type: 3°)   Internal Stop-Boring Internal Through-Boring	BU293 R/L(30) BU294 R/L(38) BU295 R/L(48)	MTUP22R/L(24)	MTUN3 R/L(38)	STUP R/L 10CA(38) STUP R/L 12CA(50) STUP R/L 16CA(55)	CTUP R/L 10CA(38) CTUP R/L 12CA(50) CTUP R/L 16CA(55)	CTUE R/L 10CA(38) CTUE R/L 12CA(50)	–
  External Turning Facing	BU295 E L/R(48)	–	–	–	–	–	–
□TT□   30° Internal Chamfering	–	–	–	STTP R/L 8CA(30) STTP R/L 10CA(38) STTP R/L 12CA(50) STTP R/L 16CA(60)	CTTP R/L 8CA(30) CTTP R/L 10CA(38) CTTP R/L 12CA(50) CTTP R/L 16CA(60)	CTTE R/L 8CA(30) CTTE R/L 10CA(38) CTTE R/L 12CA(50) CTTE R/L 16CA(60)	PTTN R/L 10CA(38) PTTN R/L 12CA(50) PTTN R/L 16CA(60)
□TS□   45° Internal Chamfering	–	–	–	STSP R/L 10CA(38) STSP R/L 12CA(50) STSP R/L 16CA(55)	CTSP R/L 10CA(38) CTSP R/L 12CA(50) CTSP R/L 16CA(55)	CTSE R/L 8CA(30) CTSE R/L 10CA(38) CTSE R/L 12CA(50) CTSE R/L 16CA(55)	–
□TW□   Internal Through-Boring 60° Internal Chamfering	–	MTWP22R/L(24)	MTWN3 R/L(38)	STWP R/L 8CA(30) STWP R/L 10CA(38) STWP R/L 12CA(50) STWP R/L 16CA(55)	CTWP R/L 8CA(30) CTWP R/L 10CA(38) CTWP R/L 12CA(50) CTWP R/L 16CA(55)	CTWE R/L 8CA(30) CTWE R/L 10CA(38) CTWE R/L 12CA(50) CTWE R/L 16CA(55)	–
□TR□ New   15° Internal Chamfering	–	–	–	STRP R/L 8CA(30) STRP R/L 10CA(38)	CTRP R/L 8CA(30) CTRP R/L 10CA(38)	CTRE R/L 8CA(30) CTRE R/L 10CA(38)	–
□TX□ New   20° Internal Chamfering	–	–	–	CTXP R/L 8CA(30) CTXP R/L 10CA(38)	CTXP R/L 8CA(30) CTXP R/L 10CA(38)	CTXE R/L 8CA(30) CTXE R/L 10CA(38)	–

Red text: New product

Outline of SEC-Cartridge Units

Holder Cat. Nos. by Model/Tooling (For Square Inserts, 55°/80° Diamond Inserts)

Shape/Tooling	BU type	MINIT P24 type	MINIT N38 type	Expansion SP type / New SX type / New SC type	CP type	CE type	PN type
□SR□ 	BU113 R/L(30) BU114 R/L(38) BU115 R/L(48)	–	MSRN4 R/L(38)	SSRP R/L 10CA(38)	CSRP R/L 10CA(38) CSRP R/L 12CA(50) CSRP R/L 16CA(55)	CSRE R/L 10CA(38) CSRE R/L 12CA(50)	–
□ST□ Expansion 	BU133 R/L(30) BU134 R/L(38) BU135 R/L(48)	MSTP 04 R/L(24)	MSTN4 R/L(38)	SSTP R/L 10CA(38)	CSTP R/L 8CA(30) CSTP R/L 10CA(38)	CSTE R/L 8CA(30) CSTE R/L 10CA(38)	–
	BU134E L/R(38) BU135E L/R(40)	–	–	–	–	–	–
□SW□ New 	–	–	–	SSWP R/L 10CA(38)	CSWP R/L 8CA(30) CSWP R/L 10CA(38)	CSWE R/L 8CA(30) CSWE R/L 10CA(38)	–
□SS□ 	BU142 R/L(24) BU143 R/L(30) BU144 R/L(38) BU145 R/L(48)	MSSP 04 R/L(24)	MSSN4 R/L(38)	SSSP R/L 8CA(30) SSSP R/L 10CA(38)	CSSP R/L 8CA(30) CSSP R/L 10CA(38) CSSP R/L 12CA(50) CSSP R/L 16CA(55)	CSSE R/L 8CA(30) CSSE R/L 10CA(38) CSSE R/L 12CA(50) CSSE R/L 16CA(55)	PSSN R/L 10CA(38) PSSN R/L 12CA(50) PSSN R/L 16CA(55)
□SK□ 	BU152 R/L(24) BU153 R/L(30) BU154 R/L(38) BU155 R/L(48)	–	MSKN4 R/L(38)	SSKP R/L 8CA(30) SSKP R/L 10CA(38)	CSKP R/L 8CA(30) CSKP R/L 10CA(38) CSKP R/L 12CA(50) SKP R/L 16CA(55)	CSKE R/L 8CA(30) CSKE R/L 10CA(38) CSKE R/L 12CA(50) CSKE R/L 16CA(55)	PSKN R/L 10CA(38) PSKN R/L 12CA(50) PSKN R/L 16CA(55) PSKN R/L 20CA(70)
□SY□ 	BU183 R/L(30) BU184 R/L(38) BU185 R/L(48)	MSYP 04 R/L(24)	MSYN4 R/L(38)	SSYP R/L 8CA(30) SSYP R/L 10CA(38)	CSYP R/L 8CA(30) CSYP R/L 10CA(38) CSYP R/L 12CA(50) CSYP R/L 16CA(55)	CSYE R/L 8CA(30) CSYE R/L 10CA(38) CSYE R/L 12CA(50) CSYE R/L 16CA(55)	PSYN R/L 10CA(38) PSYN R/L 12CA(50) PSYN R/L 16CA(55) PSYN R/L 20CA(70)
	BU194 L/R(30) BU195 L/R(38)	–	–	–	–	–	–
□CL□ Expansion 	–	–	MCLN4 R/L(38)	SXLP R 8CA(30) SXLP R 10CA(38) SCLC R/L 10CA(56)	–	–	PCLN R/L 12CA(50) PCLN R/L 16CA(55) PCLN R/L 20CA(70)
□CF□ Expansion 	–	–	MCFN4 R/L(38)	SXFP R 8CA(30) SXFP R 10CA(38) SCFC R/L 10CA(56)	–	–	–
□CG□ 	–	–	MCGN4 R/L(38)	–	–	–	–
□DJ□ 	–	–	MDJN4 R/L(38)	–	–	–	–
□DA□ New 	–	–	–	SDACR/L10CA(56)	–	–	–
□DB□ New 	–	–	–	SDBCR/L10CA(56)	–	–	–

Red text: New product/expanded item

Outline of SEC-Micro Units

SEC-Micro Unit series

Model	Cat. No.	Appearance	Min. Bore Dia. (mm)	Applications		No. of series		Features	Page
				Internal Through-Boring	Internal Stop-Boring	Tool Shape	Number of Items		
MU	MUP		ø25	●	●	4 models	32	Unit with a positive cutting edge suited for internal finishing of low-rigidity workpieces, meeting demands for a beautiful finished surface	92
	MUN		ø36	●	●	4 models	40	Unit with a negative cutting edge suited for workpieces and tools with rigidity, where chip control and economy are important	94

Identification Code

● For MU type

MU (1) P (2) 2 (3) – A (4) 15 (5) – □ (6)

(1) Unit Cat. No. ····· Indicates MU type
(2) Insert Relief Angle ····· P: 11°, N: 0°
(3) Unit Size ····· See Table 1
(4) Mounting Angle ····· See Table 2
(5) Cutting Edge Angle ····· See Table 3
(6) Feed Direction ····· Blank: Right-hand (Forward Rotation), LH: Left-hand (Reverse Rotation)

(Note) For external cutting, use a left-handed (LH) SEC-Micro Unit.

Table 1: Unit Size (Numbers in table show Min. Bore Dia. in mm)

Symbol	MUP	MUN
1	25	–
2	36	36
3	47	47
3L	–	54
4	73	73
4L	–	78

Table 2: Mounting Angle

Symbol	Mounting Angle
A	53°08′ (Angular)
V	90° (Vertical)

Table 3: Cutting Edge Angle

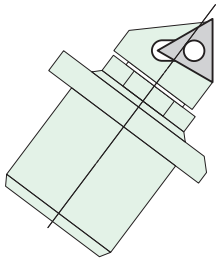
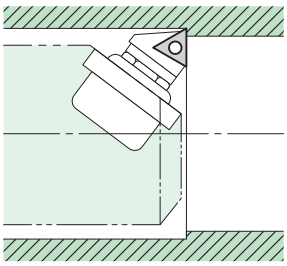
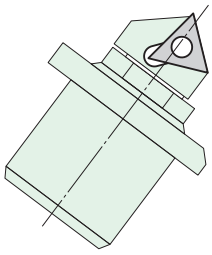
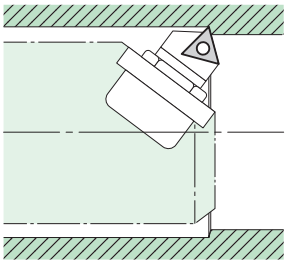
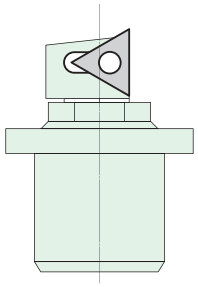
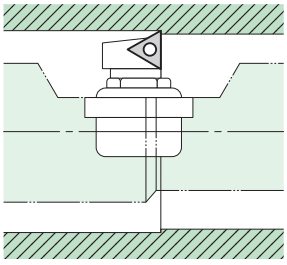
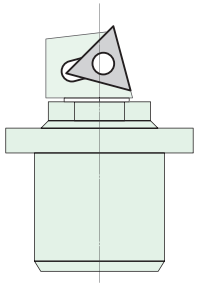
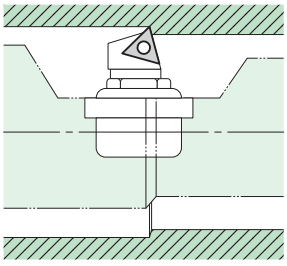
Symbol	Cutting Edge Angle
0	0°
15	15°

Outline of SEC-Micro Units

Features of Each Model

Functions \ Cat. No.	MU	
	MUP type	MUN type
Min. Bore Dia. (mm)	ø25	ø36
Adjustment Range (mm)	0.8 to 3.5	1.1 to 3.5
Rake Angle	Positive	Negative
Clamp Mechanism	Screw-on	Lever Lock
Flexible Body	Disc spring enables uniform elastic force and complete backlash prevention	
Adjustment Operability	One-touch operation by rotating the graduated nut	

Holder Cat. Nos. by Model/Tooling ( ) shows Min. Bore Dia. (mm)

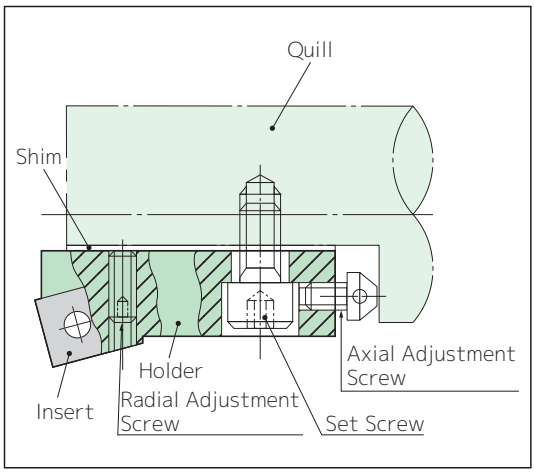
Configuration	Tooling	MUP type	MUN type
		MUP1-A0(25) MUP2-A0(36) MUP3-A0(47) MUP4-A0(73)	MUN2 -A0 (36) MUN3 -A0 (47) MUN3L-A0 (54) MUN4 -A0 (73) MUN4L-A0 (78)
		MUP1-A15(25) MUP2-A15(36) MUP3-A15(47) MUP4-A15(73)	MUN2 -A15(36) MUN3 -A15(47) MUN3L-A15(54) MUN4 -A15(73) MUN4L-A15(78)
		MUP1-V0(25) MUP2-V0(36) MUP3-V0(47) MUP4-V0(73)	MUN2 -V0 (36) MUN3 -V0 (47) MUN3L-V0 (54) MUN4 -V0 (73) MUN4L-V0 (78)
		MUP1-V15(25) MUP2-V15(36) MUP3-V15(47) MUP4-V15(73)	MUN2 -V15(36) MUN3 -V15(47) MUN3L-V15(54) MUN4 -V15(73) MUN4L-V15(78)

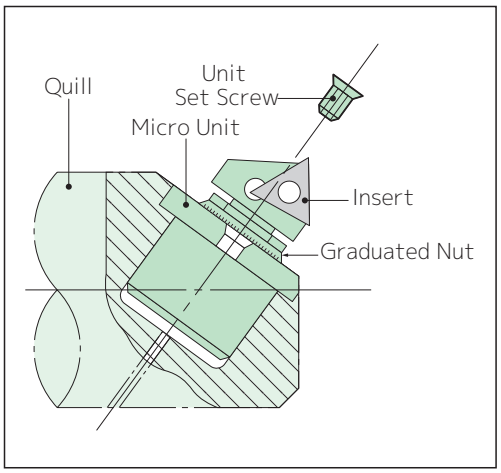
If a left-hand unit is required, include “LH” after the catalogue number. (Example: MUP1-A0-LH, MUP1-V0-LH)

Guidance for Use

Unit Mounting and Adjustment

SEC-Cartridge Units	Procedure	SEC-Micro Units
• Insert a shim 1.0mm thick into the groove of the quill and temporarily tighten the holder with the set screw.	Unit mounting	• Insert the Micro Unit into the quill mounting hole and fully fasten it to the quill with the Unit set screw.
• Adjust with the axial adjustment screw. Turn the screw with the axial adjustment wrench.	Axial adjustment (axial cutting edge position adjustment)	–
• Measure the cutting edge external diameter. When the external diameter is smaller than the target value, use the 1.0mm shim as is; when it is larger, switch to a 0.8mm thick shim.	External diameter measurement	• Measure the cutting edge external diameter.
• With the set screw tightened, tighten the radial adjustment screw and make fine adjustments to the cutting edge external diameter. (Adjustment amount: radius within about 0.2mm)	Radial adjustment (cutting edge external diameter adjustment)	• Make fine adjustments to the external diameter of the cutting edge by turning the graduated nut with a wrench by the required adjustment amount.
• Check the tightness of the insert. • Fully tighten the set screw. Thereafter, check that there are no gaps in the following parts. (Between the axial adjustment screw and the wall of the mounting groove. Between the bottom of the holder and the seat of the mounting groove.)	Final checks	• Check the tightness of the insert.

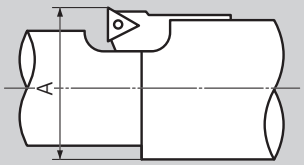




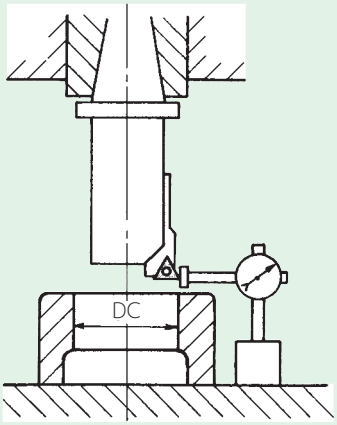
Guidance for Use

External Diameter Measurement

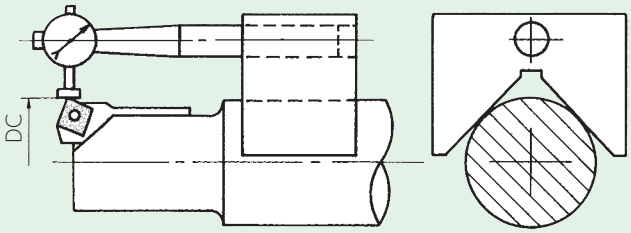
Direct measurement



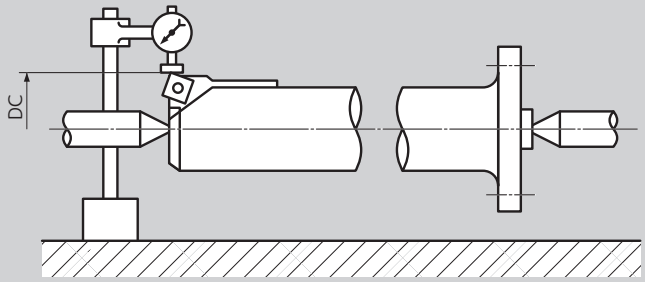
Perform trial cutting, measure the machining diameter (DC), and correct the external diameter.



Using a saddle block with indicator



Using one or both centres and a dedicated jig



Guideline Cutting Conditions

1. Guidelines for cutting speed selection (at feed rate 0.05 to 0.30mm/rev)

Tool Grades		Cutting Speed vc (m/min) Min. - **Optimum** - Max.				
		P Carbon Steel	M Stainless Steel	K Cast Iron	K Ductile Cast Iron	N Aluminum Alloy
Coated Carbide	AC8025P	100-**200**-250		80-**100**-120	80-**100**-120	
Cermet	T1500A	100-**200**-250				
Coated Carbide	AC6030M	80-**100**-150	100-**120**-150			
	AC4015K			100-**200**-400	100-**150**-250	
SUMIBORON	BN7000			200-**400**-800		
Coated SUMIBORON	BNC500				150-**200**-300	
Carbide	H1					150-**200**-400
SUMIDIA	DA1000					150-**250**-800

2. Guidelines for feed rate and depth of cut selection

Each Unit is listed separately; refer to the corresponding pages.

Precautions for Cutting

- Use a machine with sufficient rigidity. In particular, avoid equipment with spindle malfunctions in the thrust direction.
- If chatter occurs, review the shank rigidity and grade, as well as adjusting the cutting conditions (feed rate in particular).
- Regarding chip control, use an insert with a suitable chipbreaker.

BU type

Holder

Fig.1

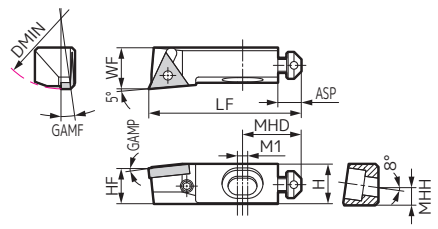


Figure shows right-handed (R) tool.

BU220

T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	H	WF	LF	HF	GAMP	GAMF	MHD	ASP	M1	MHH	Fig.	Applicable Insert Group No.
BU224R/L	●		48	13.5	14	52	12	-6°	8°	20	8	3.5	5.98	1	*3
BU225R/L	●		60	18	19	60	16	-6°	8°	22	8	3.5	8.46	1	*4

Fig.1

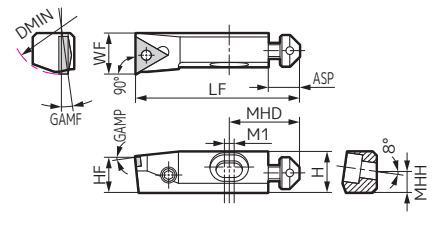


Figure shows right-handed (R) tool.

BU250

T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	H	WF	LF	HF	GAMP	GAMF	MHD	ASP	M1	MHH	Fig.	Applicable Insert Group No.
BU252R/L	●	●	24	10.5	10.5	42	9	-6°	10°	18	8	2.5	5.37	1	*1
BU253R/L	●		30	11.5	12	46	10	-6°	8°	19	8	2.5	5.65	1	*2
BU254R/L	●		38	13.5	14	52	12	-6°	8°	20	8	3.5	5.98	1	*3
BU255R/L	●	●	48	18	19	60	16	-6°	8°	22	8	3.5	8.46	1	*4
BU256R/L	●		55	21	23	68	18	-6°	8°	22	8	3.5	8.46	1	*5

Refer to the table below for *1 to *5.

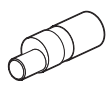
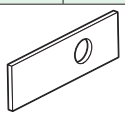
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**TN□□0902**	5.56	2.38
*2	**TN□□11T2**	6.35	2.78
*3	**TN□□1303**	7.94	3.18
*4	**TN□□1604**	9.525	4.76
*5	**TN□□2204**	12.70	4.76

(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (BU220 type / BU250 type)

Unit Cat. No.		Eccentric Pin	Radial Adjustment Screw	Axial Adjustment Screw	Shim Thickness 0.8mm	Shim Thickness 1.0mm	Cap Screw	Axial Adjustment Wrench	Eccentric Pin Wrench	Radial Adjustment Wrench	Cap Screw Wrench
Cat. No.	Size ○										
BU22○ BU25○	2	CPU072	BT0408	AJM4F	S082	S102	BX0412	1.8×45	(LH020)	(LH020)	(LH030)
	3	CPU083		AJM5F	S083	S103	BX0515				(LH040)
	4	CPU103			S084	S104	BX0615				(LH050)
	5	CPU305	BT0612		S085	S105	BX0820		(LH030)	(LH030)	(LH060)
	6	CPU405			S086	S106					

*Wrenches in ( ) are sold separately.

Holder

Fig.1

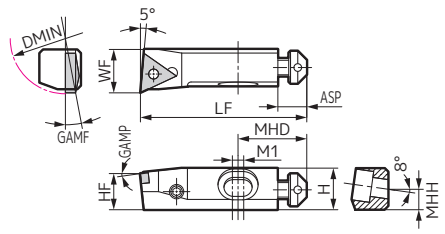


Figure shows right-handed (R) tool.

BU290

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	H	WF	LF	HF	GAMP	GAMF	MHD	ASP	M1	MHH	Fig.	Applicable Insert Group No.
BU293R/L	●		38	11.5	12	46	10	-6°	8°	19	8	2.5	5.65	1	*2
BU294R/L	●		38	13.5	14	52	12	-6°	8°	20	8	3.5	5.98	1	*3
BU295R/L	●	●	48	18	19	60	16	-6°	8°	22	8	3.5	8.46	1	*4

Fig.1

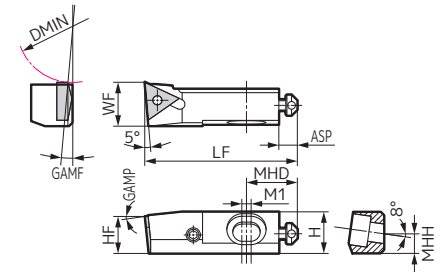


Figure shows left-handed (L) tool.

BU290E

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	H	WF	LF	HF	GAMP	GAMF	MHD	ASP	M1	MHH	Fig.	Applicable Insert Group No.
BU295EL/R		●	48	18	19	66	16	-6°	5°	22	8	3.5	8.46	1	*4

Refer to the table below for *2 to *4.

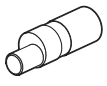
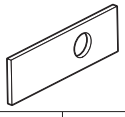
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*2	**TN□□11T2**	6.35	2.78
*3	**TN□□1303**	7.94	3.18
*4	**TN□□1604**	9.525	4.76

(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (BU290 type / BU290E type)

Unit Cat. No.		Eccentric Pin	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Cap Screw	Axial Adjustment Wrench	Eccentric Pin Wrench	Radial Adjustment Wrench	Cap Screw Wrench
					Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size ○										
BU29○ **BU29○E**	3	CPU083	BT0408	AJM5F	S083	S103	BX0515	1.8×45	(LH020)	(LH020)	(LH040)
	4	CPU103			S084	S104	BX0615				(LH050)
	5	CPU305	BT0612		S085	S105	BX0820		(LH030)	(LH030)	(LH060)

*Wrenches in ( ) are sold separately.

BU type

Holder

Fig.1

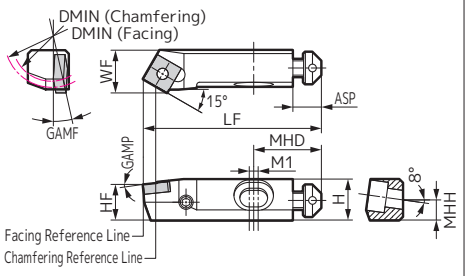


Figure shows right-handed (R) tool.

BU110

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	H	WF	LF	HF	GAMP	GAMF	MHD	ASP	M1	MHH	Fig.	Applicable Insert Group No.
BU113R/L	●		30	11.5	12	50	10	-6°	8°	19	8	2.5	5.65	1	*2
BU114R/L	●		38	13.5	14	56	12	-6°	8°	20	8	3.5	5.98	1	*3
BU115R/L	●		48	18	19	66	16	-6°	8°	22	8	3.5	8.46	1	*4

Fig.1

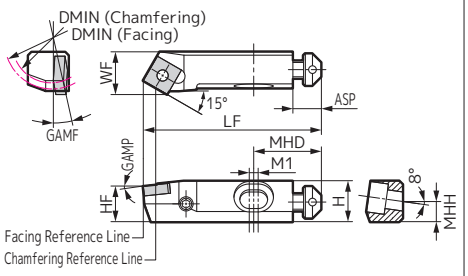


Figure shows right-handed (R) tool.

BU130

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	H	WF	LF	HF	GAMP	GAMF	MHD	ASP	M1	MHH	Fig.	Applicable Insert Group No.
BU133R/L	●		30	11.5	12	50	10	-6°	8°	19	8	2.5	5.65	1	*2
BU134R/L	●	●	38	13.5	14	56	12	-6°	8°	20	8	3.5	5.98	1	*3
BU135R/L	●	●	48	18	19	66	16	-6°	8°	22	8	3.5	8.46	1	*4

Refer to the table below for *2 to *4.

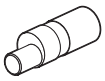
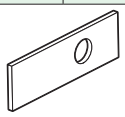
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*2	**SN□□07T2**	7.94	2.78
*3	**SN□□0903**	9.525	3.18
*4	**SN□□1204**	12.70	4.76

(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (BU110 type / BU130 type)

Unit Cat. No.		Eccentric Pin	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Cap Screw	Axial Adjustment Wrench	Eccentric Pin Wrench	Radial Adjustment Wrench	Cap Screw Wrench
					Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size ○										
BU11○	3	CPU103	BT0408	AJM5F	S083	S103	BX0515	1.8×45	(LH020)	(LH020)	(LH040)
BU13○	4	CPU304			S084	S104	BX0615		(LH030)		(LH050)
	5	CPU405	BT0612		S085	S105	BX0820			(LH030)	(LH060)

*Wrenches in ( ) are sold separately.

Holder

Fig.1

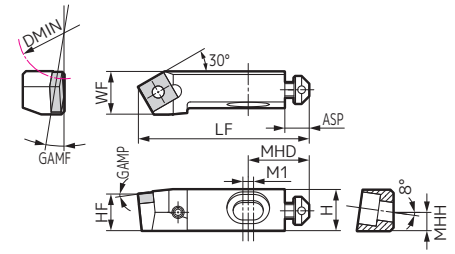


Figure shows left-handed (L) tool.

BU130E

90°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	H	WF	LF	HF	GAMP	GAMF	MHD	ASP	M1	MHH	Fig.	Applicable Insert Group No.
BU134E L/R		●	30	13.5	14	56	12	-6°	5°	20	8	3.5	5.98	1	*3
BU135E L/R		●	38	18	19	66	16	-6°	5°	22	8	3.5	8.46	1	*4

Fig.1

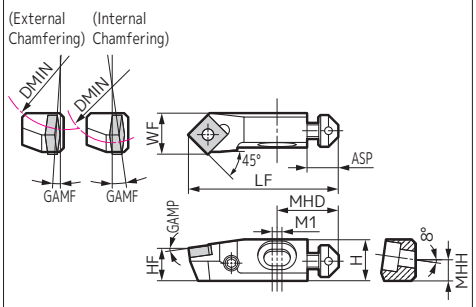


Figure shows right-handed (R) tool.

BU140

90°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN Internal Chamfering	DMIN External Chamfering	H	WF	LF	HF	GAMP	GAMF	MHD	ASP	M1	MHH	Fig.	Applicable Insert Group No.
BU142R/L	●	●	24	–	10.5	10.5	44	8.3	-8°	8°	18	8	2.5	5.37	1	*1
BU143R/L	●		30	24	11.5	12	49	9.2	-8°	5°	19	8	2.5	5.65	1	*2
BU144R/L	●	●	38	30	13.5	14	56	11.1	-8°	5°	20	8	3.5	5.98	1	*3
BU145R/L	●	●	48	38	18	19	65	14.7	-8°	5°	22	8	3.5	8.46	1	*4

Refer to the table below for *1 to *4.

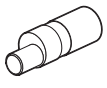
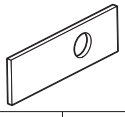
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**SN□□S702**	7.14	2.38
*2	**SN□□07T2**	7.94	2.78
*3	**SN□□0903**	9.525	3.18
*4	**SN□□1204**	12.70	4.76

(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (BU130E type / BU140 type)

Unit Cat. No.		Eccentric Pin	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Cap Screw	Axial Adjustment Wrench	Eccentric Pin Wrench	Radial Adjustment Wrench	Cap Screw Wrench
					Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size ○										
BU13○E **BU14○**	2	CPU092	BT0408	AJM4F	S082	S102	BX0412	1.8×45	(LH020)	(LH020)	(LH030)
	3	CPU103		AJM5F	S083	S103	BX0515				(LH040)
	4	CPU304			S084	S104	BX0615		(LH030)		(LH050)
	5	CPU405	BT0612		S085	S105	BX0820			(LH030)	(LH060)

*Wrenches in ( ) are sold separately.

BU type

Holder

Fig.1

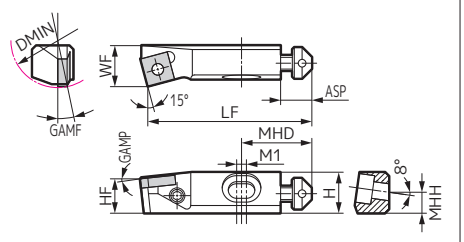


Figure shows right-handed (R) tool.

BU150

90°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	H	WF	LF	HF	GAMP	GAMF	MHD	ASP	M1	MHH	Fig.	Applicable Insert Group No.
BU152R/L	●	●	24	10.5	10.5	42	9	-6°	10°	18	8	2.5	5.37	1	*1
BU153R/L	●	●	30	11.5	12	46	10	-6°	8°	19	8	2.5	5.65	1	*2
BU154R/L	●	●	38	13.5	14	52	12	-6°	8°	20	8	3.5	5.98	1	*3
BU155R/L	●	●	48	18	19	60	16	-6°	8°	22	8	3.5	8.46	1	*4

Fig.1

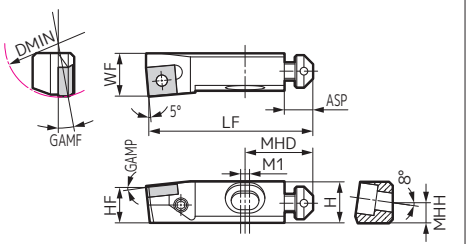


Figure shows right-handed (R) tool.

BU180

90°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	H	WF	LF	HF	GAMP	GAMF	MHD	ASP	M1	MHH	Fig.	Applicable Insert Group No.
BU183R/L	●		30	11.5	12	46	10	-6°	8°	19	8	2.5	5.65	1	*2
BU184R/L	●		38	13.5	14	52	12	-6°	8°	20	8	3.5	5.98	1	*3
BU185R/L	●		48	18	19	60	16	-6°	8°	22	8	3.5	8.46	1	*4

Refer to the table below for *1 to *4.

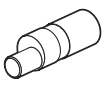
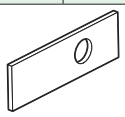
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**SN□□S702**	7.14	2.38
*2	**SN□□07T2**	7.94	2.78
*3	**SN□□0903**	9.525	3.18
*4	**SN□□1204**	12.70	4.76

(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (BU150 type / BU180 type)

Unit Cat. No.		Eccentric Pin	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Cap Screw	Axial Adjustment Wrench	Eccentric Pin Wrench	Radial Adjustment Wrench	Cap Screw Wrench
					Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size ○										
BU15○ **BU18○**	2	CPU092	BT0408	AJM4F	S082	S102	BX0412	1.8×45	(LH020)	(LH020)	(LH030)
	3	CPU103		AJM5F	S083	S103	BX0515				(LH040)
	4	CPU304			S084	S104	BX0615		(LH030)		(LH050)
	5	CPU405	BT0612		S085	S105	BX0820			(LH030)	(LH060)

*Wrenches in ( ) are sold separately.

BU type

Holder

Fig.1

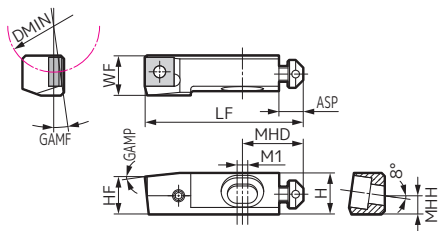


Figure shows left-handed (L) tool.

BU190 S 90°

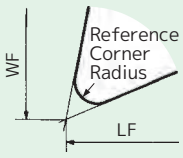
Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	H	WF	LF	HF	GAMP	GAMF	MHD	ASP	M1	MHH	Fig.	Applicable Insert Group No.
BU194L/R		●	30	13.5	13	52	12	-6°	5°	20	8	3.5	5.98	1	*3
BU195L/R		●	38	18	17.5	60	16	-6°	5°	22	8	3.5	8.46	1	*4

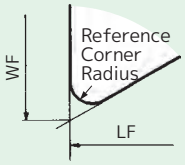
Refer to the table below for *3 and *4.

Close-up of cutting edge (typical example)

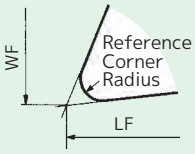
BU220



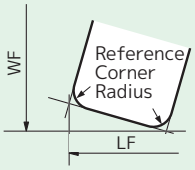
BU250



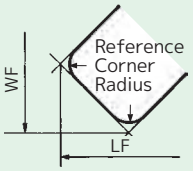
BU290



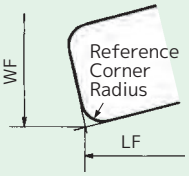
BU110
BU130



BU140



BU150
BU180



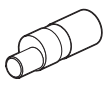
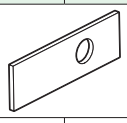
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*3	**SN□□0903**	9.525	3.18
*4	**SN□□1204**	12.70	4.76

(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (BU190 type)

Unit Cat. No.		Eccentric Pin	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Cap Screw	Axial Adjustment Wrench	Eccentric Pin Wrench	Radial Adjustment Wrench	Cap Screw Wrench
					Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size ○										
BU19○	4	CPU304	BT0408	AJM5F	S084	S104	BX0615	1.8×45	(LH030)	(LH020)	(LH050)
	5	CPU405	BT0612		S085	S105	BX0820			(LH030)	(LH060)

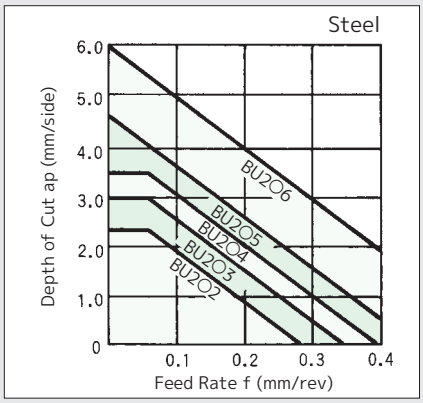
*Wrenches in ( ) are sold separately.

BU type

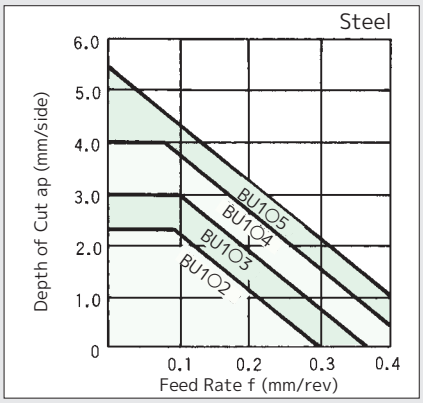
Cutting Conditions

The graphs on the right show the range of appropriate cutting conditions. For cast iron, the cutting conditions can be selected relatively freely, but as a guide, the conditions for steel should be applied.

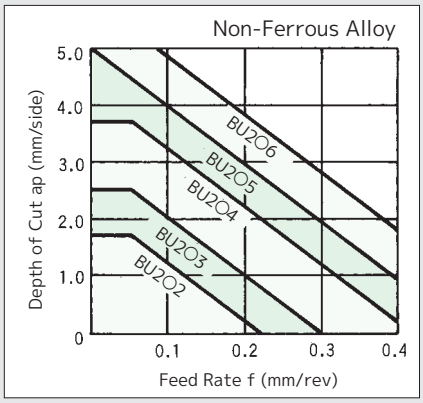
Triangular Insert



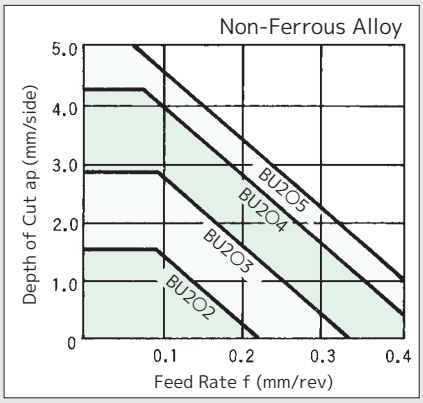
Square Insert



Triangular Insert

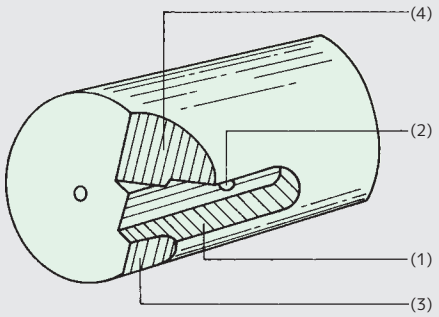


Square Insert



Mounting Part Design

In order to mount the SEC-Cartridge Unit BU type, the quill requires the following parts.



(1) Square groove or 2-face seat (2-face seat is recommended for BUOO2)
(2) Mounting screw hole
(3) Cutout for eccentric pin operation
(4) Chip pocket/cutout for insert removal

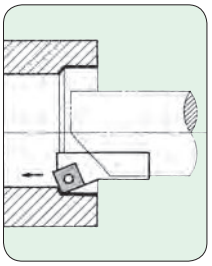
- After deciding on the Cat. No. of the Cartridge Unit to be used, determine the dimensions (1) (2) (3) according to the dimension tables and design formulas provided on the following pages.
- Make sure (4) is big enough and that only the insert is exposed outside the groove. (If not done properly, mounting/removal of the insert alone will be impossible after installing the Cartridge Unit.)
- (1) requires wall surfaces for the radial and axial adjustment screw ends to reach. (If not done properly, dimensional adjustment will not be possible.)
- Leaving a centre hole on the front end of the quill is useful for the Cartridge Unit installation adjustments.

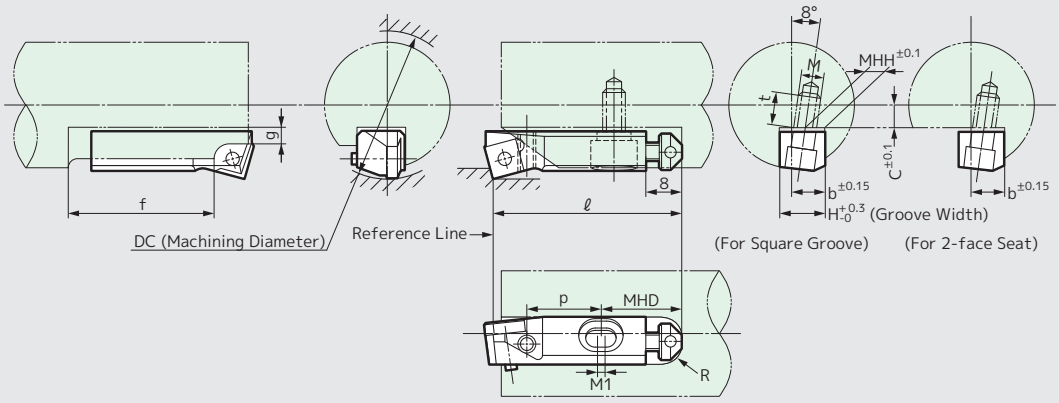
BU type

Mounting Part Dimensions and Calculation Formulas

Dimensions (mm)

Internal Boring





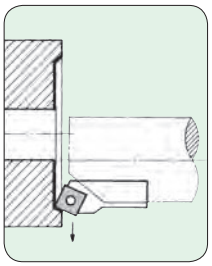
(Note)
- The reference line position varies with Cartridge Unit models. Refer to the Cartridge Unit dimensional figure.
- In formulas b and c, DC refers to machining diameter and RE to insert corner radius. Use figures in mm for both.
- C dimensions are set with shim thickness 0.9mm, the intermediate value of 0.8mm and 1.0mm.
- C dimensions for BU 220/250/290/290E/150/180 types are calculated to be 0.1mm smaller at the diameter.

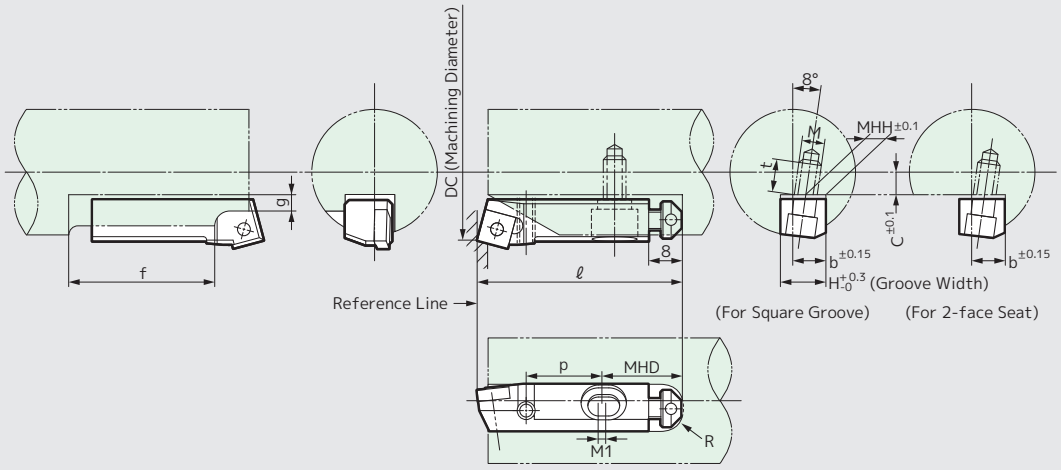
Cat. No.	b	C	H	ℓ	R	f	g	MHD	MHH	t	M	p	M1
BU224R/L	12.00−0.0696DC	0.4951DC + 0.15RE−14.95	13.5	52	4	40	3	20	5.84	13	M6×1.00	19	3.5
BU225R/L	16.00−0.0696DC	0.4951DC + 0.15RE−19.90	18	60	6	45	6	22	8.32	15	M8×1.25	22	3.5
BU252R/L	9.00−0.0868DC	0.4924DC + 0.73RE−11.45	10.5	42	3	34	2	18	5.23	10	M4×0.70	15.5	3.5
BU253R/L	10.00−0.0696DC	0.4951DC + 0.73RE−12.95	11.5	46	3	36	3	19	5.51	13	M5×0.80	18	3.5
BU254R/L	12.00−0.0696DC	0.4951DC + 0.73RE−14.95	13.5	52	4	40	3	20	5.84	13	M6×1.00	22	3.5
BU255R/L	16.00−0.0696DC	0.4951DC + 0.73RE−19.90	18	60	6	46	6	22	8.32	15	M8×1.25	25	3.5
BU256R/L	18.00−0.0696DC	0.4951DC + 0.73RE−23.90	21	68	6	53	6	22	8.32	15	M8×1.25	30	3.5
BU293R/L	10.00−0.0696DC	0.4951DC + 0.64RE−12.95	11.5	46	3	36	3	19	5.51	13	M5×0.80	17	2.5
BU294R/L	12.00−0.0696DC	0.4951DC + 0.64RE−14.95	13.5	52	4	40	3	20	5.84	13	M6×1.00	21	3.5
BU295R/L	16.00−0.0696DC	0.4951DC + 0.64RE−19.90	18	60	6	46	6	22	8.32	15	M8×1.25	23	3.5
BU295EL/R	16.00+0.0436DC	0.4981DC−0.64RE + 2.20	18	66	6	48	0	22	8.32	15	M8×1.25	23	3.5
BU152R/L	9.00−0.0868DC	0.4924DC + 0.23RE−11.45	10.5	42	3	34	2	18	5.23	10	M4×0.70	16.5	2.5
BU153R/L	10.00−0.0696DC	0.4951DC + 0.23RE−12.95	11.5	46	3	36	3	19	5.51	13	M5×0.80	19	2.5
BU154R/L	12.00−0.0696DC	0.4951DC + 0.23RE−14.95	13.5	52	4	40	3	20	5.84	13	M6×1.00	22	3.5
BU155R/L	16.00−0.0696DC	0.4951DC + 0.23RE−19.90	18	60	6	46	6	22	8.32	15	M8×1.25	26	3.5
BU183R/L	10.00−0.0696DC	0.4951DC + 0.08RE−12.95	11.5	46	3	36	3	19	5.51	13	M5×0.80	18	2.5
BU184R/L	12.00−0.0696DC	0.4951DC + 0.08RE−14.95	13.5	52	4	40	3	20	5.84	13	M6×1.00	21	3.5
BU185R/L	16.00−0.0696DC	0.4951DC + 0.08RE−19.90	18	60	6	46	6	22	8.32	15	M8×1.25	23	3.5

BU type

Dimensions (mm)

Facing





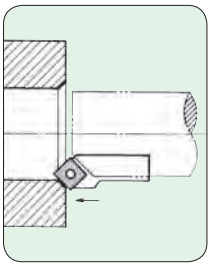
(Note) ● The reference line position varies with Cartridge Unit models.
Refer to the Cartridge Unit dimensional figure.
● In formulas b and c, use the machining diameter for DC. Use figures in mm for both.
● C dimensions are set with shim thickness 0.9mm, the intermediate value of 0.8mm and 1.0mm.

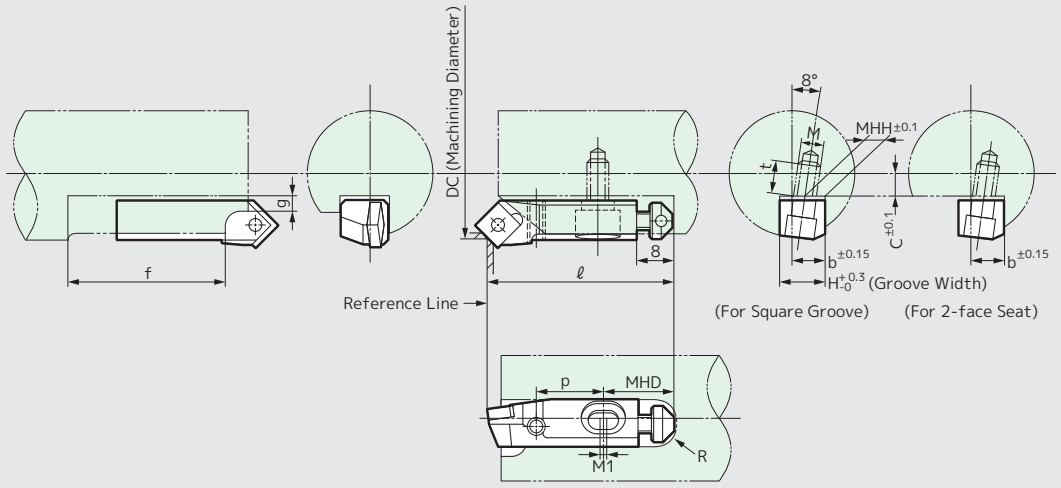
Cat. No.	b	C	H	ℓ	R	f	g	MHD	MHH	t	M	p	M1
BU113R/L	10.00−0.0696DC	0.4951DC−10.85	11.5	50	3	38	3	19	5.51	13	M5×0.80	19	2.5
BU114R/L	12.00−0.0696DC	0.4951DC-12.45	13.5	56	4	42	3	20	5.84	13	M6×1.00	23	3.5
BU115R/L	16.00−0.0696DC	0.4951DC-16.55	18	66	6	48	6	22	8.32	15	M8×1.25	27	3.5
BU133R/L	10.00−0.0696DC	0.4951DC− 8.95	11.5	50	3	38	3	19	5.51	13	M5×0.80	19	2.5
BU134R/L	12.00−0.0696DC	0.4951DC-10.15	13.5	56	4	42	3	20	5.84	13	M6×1.00	23	3.5
BU135R/L	16.00−0.0696DC	0.4951DC-13.50	18	66	6	48	6	22	8.32	15	M8×1.25	27	3.5
BU194L/R	12.00−0.0436DC	0.4981DC− 6.25	13.5	52	4	40	0	20	5.84	13	M6×1.00	21	3.5
BU195L/R	16.00−0.0436DC	0.4981DC− 7.85	18	60	6	46	0	22	8.32	15	M8×1.25	23	3.5

BU type

Dimensions (mm)

Chamfering





(Note) ● The reference line position varies with Cartridge Unit models.
Refer to the Cartridge Unit dimensional figure.
● In formulas b and c, use the machining diameter for DC. Use figures in mm for both.
● C dimensions are set with shim thickness 0.9mm, the intermediate value of 0.8mm and 1.0mm.

Cat. No.	b	C	H	ℓ	R	f	g	MHD	MHH	t	M	p	M1
BU113 R/L	10.40–0.0696DC	0.4951DC-11.90	11.5	46	3	38	3	19	5.51	13	M5×0.80	19	2.5
BU114 R/L	12.50–0.0696DC	0.4951DC-13.65	13.5	52	4	42	3	20	5.84	13	M6×1.00	23	3.5
BU115 R/L	16.65–0.0696DC	0.4951DC-18.20	18	60	6	48	6	22	8.32	15	M8×1.25	27	3.5
BU133 R/L	10.35–0.0696DC	0.4951DC-10.90	11.5	46	3	38	3	19	5.51	13	M5×0.80	19	2.5
BU134 R/L	12.45–0.0696DC	0.4951DC-12.50	13.5	52	4	42	3	20	5.84	13	M6×1.00	23	3.5
BU135 R/L	16.55–0.0696DC	0.4951DC-16.65	18	60	6	48	6	22	8.32	15	M8×1.25	27	3.5
***BU134EL/R**	12.45 + 0.0436DC	0.4981DC– 3.55	13.5	52	4	42	0	20	5.84	13	M6×1.00	23	3.5
***BU135EL/R**	16.55 + 0.0436DC	0.4981DC– 4.70	18	60	6	48	0	22	8.32	15	M8×1.25	27	3.5
***BU143 R/L**	9.60 + 0.0436DC	0.4981DC– 4.45	11.5	46	3	36	3	19	5.51	13	M5×0.80	18	2.5
***BU144 R/L**	11.55 + 0.0436DC	0.4981DC– 4.75	13.5	52	4	40	3	20	5.84	13	M6×1.00	22	3.5
***BU145 R/L**	15.40 + 0.0436DC	0.4981DC– 6.30	18	60	6	46	6	22	8.32	15	M8×1.25	25	3.5
BU142 R/L	8.65–0.0696DC	0.4951DC– 8.85	10.5	42	3	34	2	18	5.23	10	M4×0.70	15	2.5
BU143 R/L	9.60–0.0436DC	0.4981DC-10.10	11.5	46	3	36	3	19	5.51	13	M5×0.80	18	2.5
BU144 R/L	11.55–0.0436DC	0.4981DC-11.50	13.5	52	4	40	3	20	5.84	13	M6×1.00	22	3.5
BU145 R/L	15.40–0.0436DC	0.4981DC-15.35	18	60	6	46	6	22	8.32	15	M8×1.25	25	3.5

The * mark indicates external chamfering.

MINIT P24 type

Holder

Fig.1

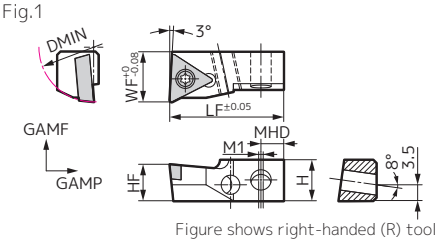


Figure shows right-handed (R) tool.

MTUP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	LF	WF	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MTUP22 R/L	●	●	24	–	9	25	11	8	+5°	+5°	5	1	1	TP□□1103

Fig.1

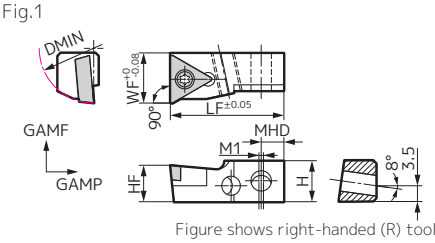


Figure shows right-handed (R) tool.

MTFP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	LF	WF	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MTFP22 R/L	●	●	24	–	9	25	11	8	+5°	+5°	5	1	1	TP□□1103

Fig.1

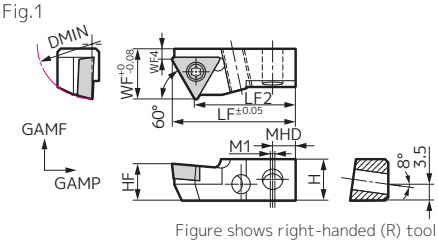


Figure shows right-handed (R) tool.

MTWP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	LF	LF2	WF	WF4	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MTWP22 R/L	●	●	24	–	9	27	22.03	11	2.39	8	+5°	0°	5	1	1	TP□□1103

Fig.1

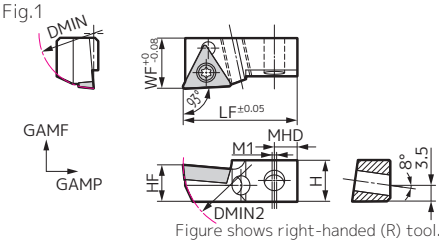


Figure shows right-handed (R) tool.

MTJP

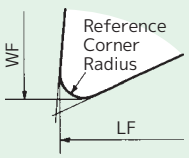
Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	LF	WF	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MTJP22 R/L	●	●	24	30	9	25	11	8	+5°	+5°	5	1	1	TP□□1103

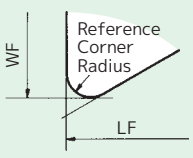
*DMIN2 indicates the minimum bore diameter for radial mounting.

Close-up of Cutting Edge

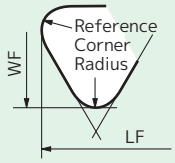
MTUP



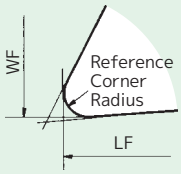
MTFP



MTWP



MTJP

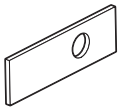


Insert Inscribed Circle (mm)	6.35
Reference Corner Radius (mm)	0.4

Applicable Insert Representative Cat. No.

Refer to the applicable insert column for the above holders.
(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (MTUP type / MTFP type / MTWP type / MTJP type)

Unit Cat. No.	Flat Screw	Radial Adjustment Screw	Shim Thickness 0.8mm	Shim Thickness 1.0mm	Bolt	Flat Head Screw Wrench	Radial Adjustment Wrench	Bolt Wrench
								
MTUP 22R/L **MTFP 22R/L** **MTWP 22R/L** **MTJP 22R/L**	BFTX0307N (BFTX0306N)	BT0507K	SMP080	SMP100	BH0415	(TRX10)	(LH025)	(LH025)

*Wrenches in ( ) are sold separately.
Applicable flat head screws for the MTJP type are BFTX0306N.

MINIT P24 type

Holder

Fig.1

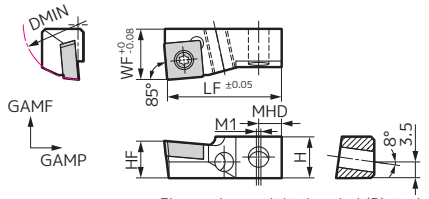


Figure shows right-handed (R) tool.

MSYP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	LF	WF	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MSYP04 R/L	●	●	24	–	9	25	11	8	+5°	+5°	5	1	1	SP□□0703

Fig.1

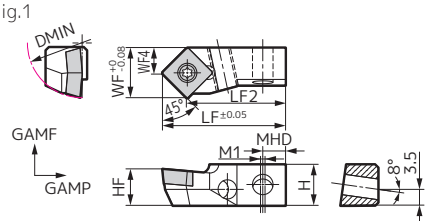


Figure shows right-handed (R) tool.

MSSP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	LF	LF2	WF	WF4	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MSSP04 R/L	●	●	24	–	9	27	21.73	11	5.73	8	+5°	0°	5	1	1	SP□□0703

Fig.1

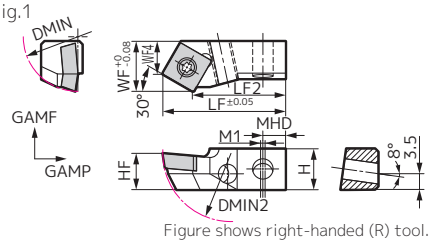


Figure shows right-handed (R) tool.

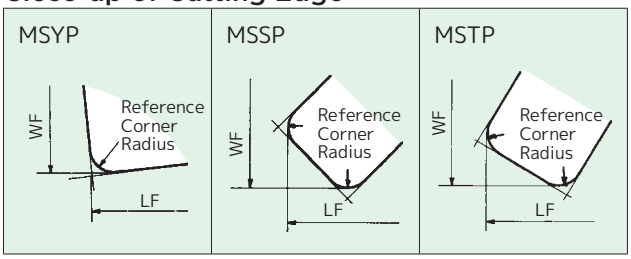
MSTP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	LF	LF2	WF	WF4	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MSTP04 R/L	●	●	24	30	9	27	20.54	11	7.27	8	+5°	0°	5	1	1	SP□□0703

*DMIN2 indicates the minimum bore diameter for radial mounting.

Close-up of Cutting Edge



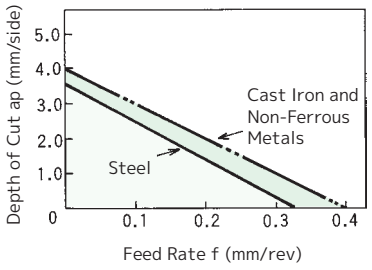
Insert Inscribed Circle (mm)	7.94
Reference Corner Radius (mm)	0.4

Applicable Insert Representative Cat. No.

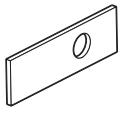
Refer to the applicable insert column for the above holders.
(Note) Refer to P.100 for chipbreaker feed direction selection.

Cutting Conditions

- **Steel/Non-Ferrous Metals**
  Chip control is the most important issue, so selecting the right chipbreaker is essential. Use the graph on the right as a guideline for cutting conditions.
- **Cast Iron**
  Chip control is not a problem. Cutting conditions can be selected relatively freely, but use the graph on the right as a guide when determining cutting conditions.



Parts (MSYP type / MSSP type / MSTP type)

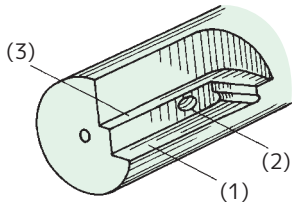
Unit Cat. No.	Flat Screw	Radial Adjustment Screw	Shim Thickness 0.8mm	Shim Thickness 1.0mm	Bolt	Flat Head Screw Wrench	Radial Adjustment Wrench	Cap Screw Wrench
								
MSYP 04R/L **MSSP 04R/L** **MSTP 04R/L**	BFTX0307N	BT0507K	SMP080	SMP100	BH0415	(TRX10)	(LH025)	(LH025)

*Wrenches in ( ) are sold separately.

MINIT P24 type

Mounting Part Design

In order to mount the SEC-Cartridge Unit MINIT P24 type, the quill requires the following parts.



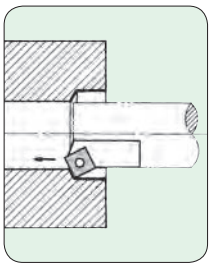
(1) Square groove or 2-face seat
(2) Mounting screw hole
(3) Chip pocket/cutout for insert removal

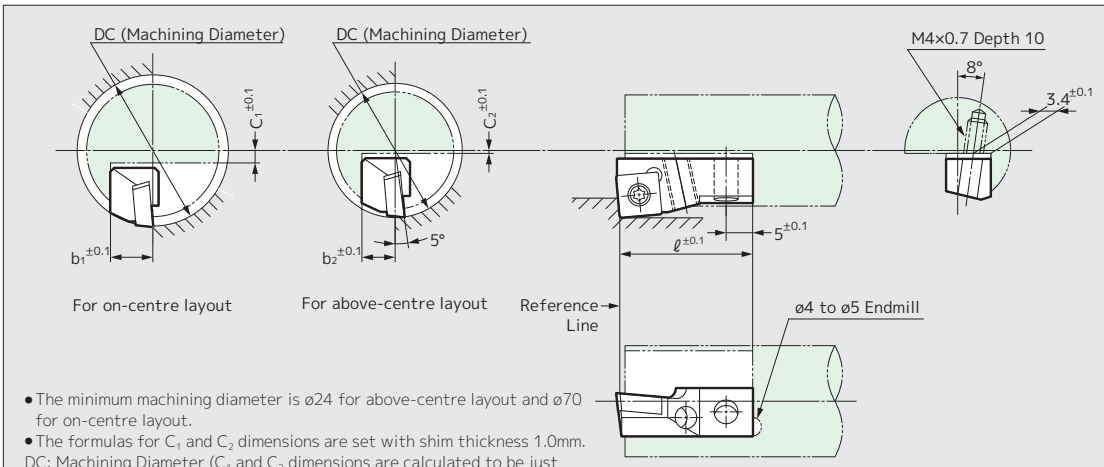
- After deciding on the Cartridge Unit for use, determine the part dimensions based on the design formulas provided.

Mounting Part Dimensions and Calculation Formulas

Dimensions (mm)

Internal Boring





- The minimum machining diameter is ø24 for above-centre layout and ø70 for on-centre layout.
- The formulas for C_1 and C_2 dimensions are set with shim thickness 1.0mm.

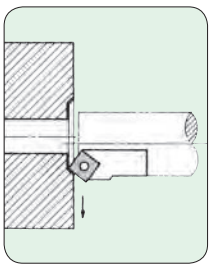
DC: Machining Diameter (C_1 and C_2 dimensions are calculated to be just 0.1mm smaller than the target diameter. Use the target diameter for the substitute DC value.)

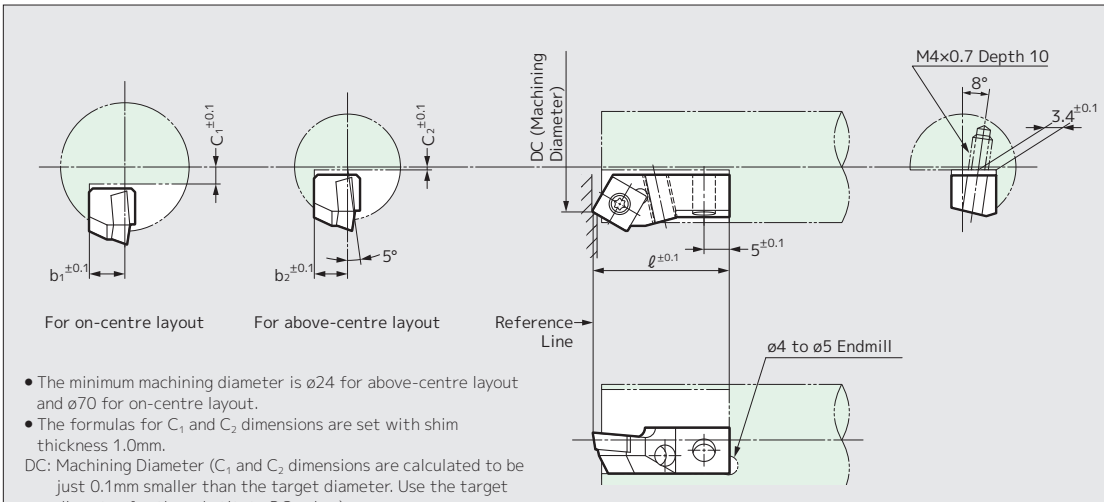
Cat. No.	ℓ	b_1	C_1	b_2	C_2
MTUP 22 R/L	25 + X_1	8.0	$\frac{DC}{2}$ – 12.01 – Y_1	8.0 – 0.044DC	0.498DC – 12.01 – Y_1
MTFP 22 R/L	25 + X_1	8.0	$\frac{DC}{2}$ – 12.01 – Y_1	8.0 – 0.044DC	0.498DC – 12.01 – Y_1
MTWP22 R/L	22.03 + X_1	7.6	$\frac{DC}{2}$ – 12.01 – Y_1	8.0 – 0.044DC	0.498DC – 12.01 – Y_1
MSYP 04 R/L	25 + X_1	8.0	$\frac{DC}{2}$ – 12.01 – Y_1	8.0 – 0.044DC	0.498DC – 12.01 – Y_1
MSSP 04 R/L	21.73 + X_2	7.54	$\frac{DC}{2}$ – 12.01 – Y_2	8.0 – 0.044DC	0.498DC – 12.01 – Y_2
MSTP 04 R/L	20.54 + X_2	7.4	$\frac{DC}{2}$ – 12.01 – Y_2	7.7 – 0.044DC	0.498DC – 12.01 – Y_2

(Note) For the $X_1/X_2/Y_1/Y_2$ values, refer to "Corrected Cutting Edge Position Values by Insert Corner Radius" (P.25).

Dimensions (mm)

Facing





- The minimum machining diameter is ø24 for above-centre layout and ø70 for on-centre layout.
- The formulas for C_1 and C_2 dimensions are set with shim thickness 1.0mm.

DC: Machining Diameter (C_1 and C_2 dimensions are calculated to be just 0.1mm smaller than the target diameter. Use the target diameter for the substitute DC value.)

Cat. No.	ℓ	b_1	C_1	b_2	C_2
MTJP 22 R/L	25 + X_1	8.0	$\frac{DC}{2}$ – 12.01 – Y_1	8.0 – 0.044DC	0.498DC – 12.01 – Y_1
MSTP 04 R/L	27 + X_1	8.0	$\frac{DC}{2}$ – 8.28 – Y_1	8.0 – 0.044DC	0.498DC – 8.28 – Y_1

(Note) For the X_1/Y_1 values, refer to "Corrected Cutting Edge Position Values by Insert Corner Radius" (P.25).

MINIT P24 type

Corrected Cutting Edge Position Values by Insert Corner Radius

Dimensions (mm)

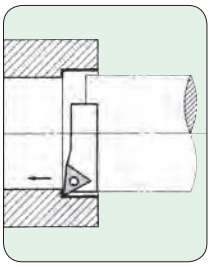
Cat. No.	Corner Radius	X_1	Y_1	X_2	Y_2
MTUP 22 R/L	0.2	0.03	0.13	–	–
	0.4	0	0	–	–
	0.8	-0.06	-0.25	–	–
MTFP 22 R/L	0.2	0	0.15	–	–
	0.4	0	0	–	–
	0.8	0	-0.29	–	–
MTWP22 R/L	0.2	-0.12	0.2	–	–
	0.4	0	0	–	–
	0.8	0.23	-0.4	–	–
MTJP 22 R/L	0.2	0.13	0.03	–	–
	0.4	0	0	–	–
	0.8	-0.25	-0.06	–	–

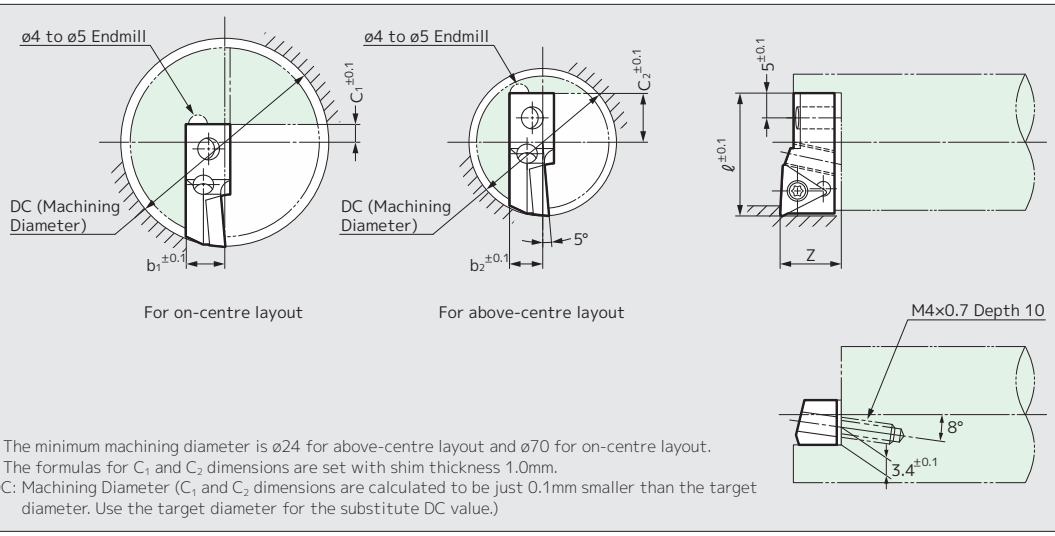
Cat. No.	Corner Radius	X_1	Y_1	X_2	Y_2
MSYP 04 R/L	0.2	-0.005	0.015	–	–
	0.4	0	0	–	–
	0.8	0.01	-0.03	–	–
MSSP 04 R/L	0.2	0.09	-0.09	-0.09	0.09
	0.4	0	0	0	0
	0.8	-0.17	0.17	0.17	-0.17
MSTP 04 R/L	0.2	0.04	-0.026	-0.08	0.04
	0.4	0	0	0	0
	0.8	-0.09	0.052	-0.16	-0.09

Mounting Part Dimensions and Calculation Formulas

Dimensions (mm)

Internal Boring (Radial Mounting)





- The minimum machining diameter is ø24 for above-centre layout and ø70 for on-centre layout.
- The formulas for C_1 and C_2 dimensions are set with shim thickness 1.0mm.

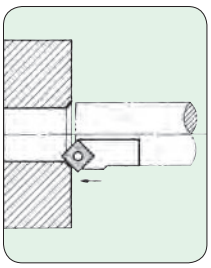
DC: Machining Diameter (C_1 and C_2 dimensions are calculated to be just 0.1mm smaller than the target diameter. Use the target diameter for the substitute DC value.)

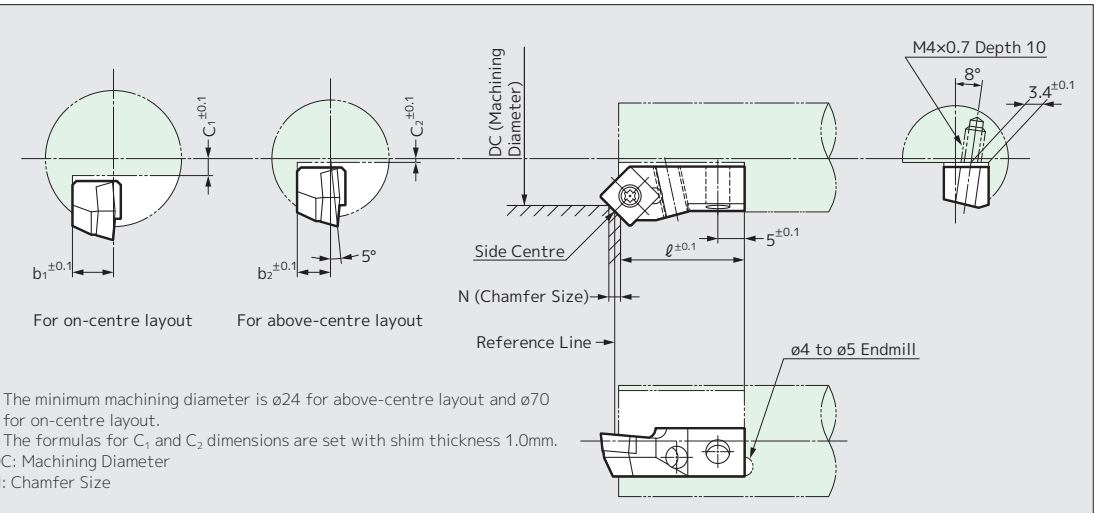
Cat. No.	ℓ	Z	b_1	C_1	b_2	C_2
MTJP 22 L/R	25 + X_1	12	8.0	For ℓ > 0.5DC, – ($\frac{DC}{2}$ – ℓ)	8.0 – 0.044DC	For ℓ > 0.5DC, – (0.498DC – ℓ)
MSTP 04 L/R	27 + X_1	8.27	8.0	For ℓ < 0.5DC, + ($\frac{DC}{2}$ – ℓ)	8.0 – 0.044DC	For ℓ > 0.5DC, + (0.498DC – ℓ)

(Note) For the X_1 value, refer to "Corrected Cutting Edge Position Values by Insert Corner Radius" (table above).

Dimensions (mm)

Chamfering





- The minimum machining diameter is ø24 for above-centre layout and ø70 for on-centre layout.
- The formulas for C_1 and C_2 dimensions are set with shim thickness 1.0mm.

DC: Machining Diameter
N: Chamfer Size

Cat. No.	ℓ	b_1	C_1	b_2	C_2
MTWP22 R/L	24.54 – 0.5N	7.8	$\frac{DC}{2}$ – 7.64 + 0.87N	7.8 – 0.044DC	0.498DC – 7.64 + 0.87N
MSSP 04 R/L	24.36 – 0.5N	7.8	$\frac{DC}{2}$ – 9.36 + 0.5 N	7.8 – 0.044DC	0.498DC – 9.36 + 0.5 N
MSTP 04 R/L	23.71 – 0.5N	7.7	$\frac{DC}{2}$ – 10.16 + 0.29N	7.7 – 0.044DC	0.498DC – 10.16 + 0.29N

MINIT N38 type

Holder

Fig.1

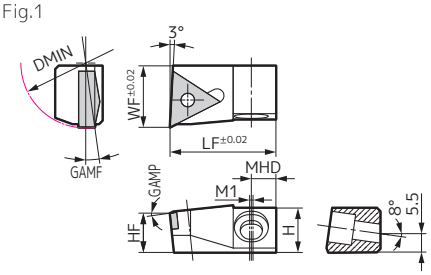


Figure shows right-handed (R) tool.

MTUN

T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	WF	LF	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MTUN3 R/L	●	●	38	–	13	18	31	11.5	-6°	8°	7.2	1.0	1	TN□□1604

Fig.1

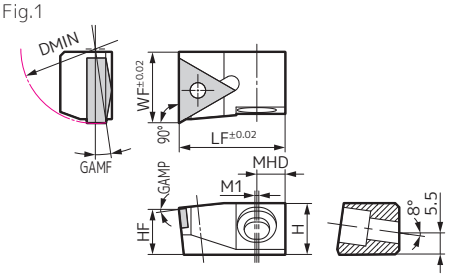


Figure shows right-handed (R) tool.

MTFN

T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	WF	LF	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MTFN3 R/L	●	●	38	–	13	18	27	11.5	-6°	8°	7.2	1.0	1	TN□□1604

Fig.1

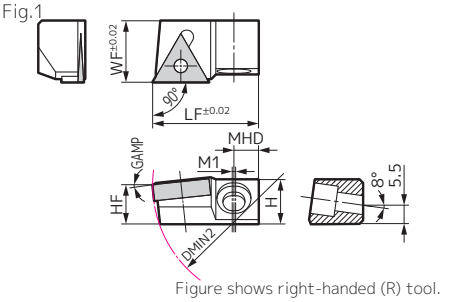


Figure shows right-handed (R) tool.

MTGN

T 60°

Dimensions (mm)

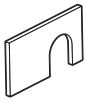
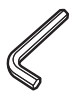
Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	WF	LF	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MTGN3 R/L	●	●	–	100	13	18	31	11.5	-6°	–	7.2	1.0	1	TN□□1604

*DMIN2 indicates the minimum bore diameter for radial mounting.

Applicable Insert Representative Cat. No.

Refer to the applicable insert column for the above holders.
(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (MTUN type / MTFN type / MTGN type)

Unit Cat. No.	Eccentric Pin	Shim	Cap Screw	Eccentric Pin Wrench	Cap Screw Wrench
					
MTUN3R/L MTFN3R/L MTGN3R/L	CPU305S	SM090	BX0515	(LH030)	(LH040)
		SM095			
		SM100			
		SM105			
		SM110			

*Wrenches in ( ) are sold separately.

MINIT N38 type

Holder

Fig.1

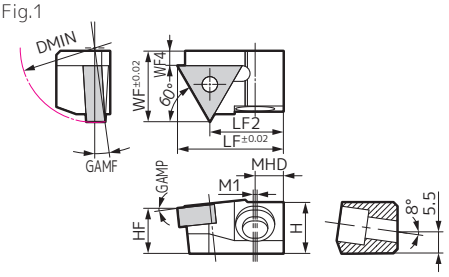


Figure shows right-handed (R) tool.

MTWN T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MTWN3 R/L	●		38	–	13	18	3.73	27	18.78	11.5	-6°	8°	7.2	1.0	1	TN□□1604

Fig.1

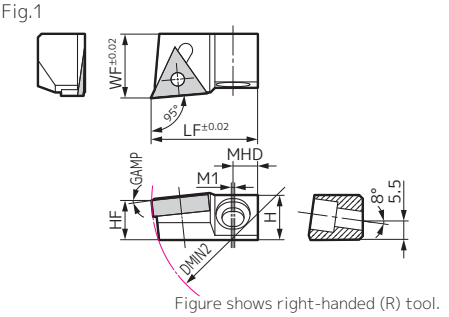


Figure shows right-handed (R) tool.

MTJN T 60°

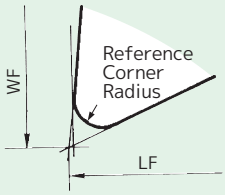
Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	WF	LF	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MTJN3 R/L	●		–	100	13	18	31	11.5	-6°	–	7.2	1.0	1	TN□□1604

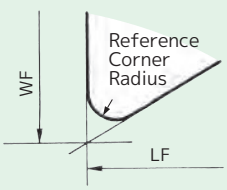
*DMIN2 indicates the minimum bore diameter for radial mounting.

Close-up of Cutting Edge

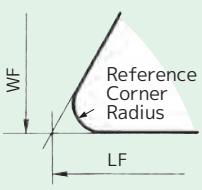
MTUN



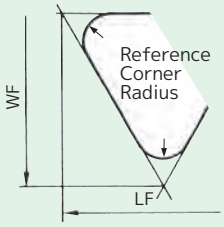
MTFN



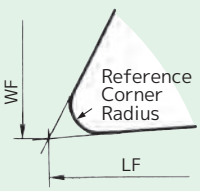
MTGN



MTWN



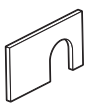
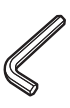
MTJN



Applicable Insert Representative Cat. No.

Refer to the applicable insert column for the above holders.
(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (MTWN type / MTJN type)

Unit Cat. No.	Eccentric Pin	Shim	Cap Screw	Eccentric Pin Wrench	Cap Screw Wrench
					
MTWN3R/L MTJN 3R/L	CPU305S	SM090	BX0515	(LH030)	(LH040)
		SM095			
		SM100			
		SM105			
		SM110			

*Wrenches in ( ) are sold separately.

MINIT N38 type

Holder

Fig.1

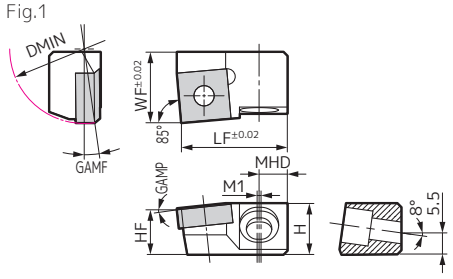


Figure shows right-handed (R) tool.

MSYN

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	WF	LF	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MSYN4 R/L	●	●	38	–	13	18	27	11.5	-6°	8°	7.2	1.0	1	SN□□1204

Fig.1

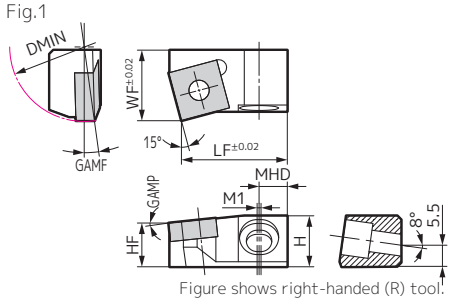


Figure shows right-handed (R) tool.

MSKN

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	WF	LF	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MSKN4 R/L	●	●	38	–	13	18	27	11.5	-6°	8°	7.2	1.0	1	SN□□1204

Fig.1

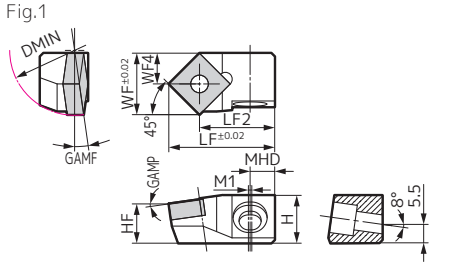


Figure shows right-handed (R) tool.

MSSN

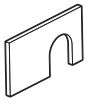
Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MSSN4 R/L	●	●	38	–	14	18	9.06	31	22.06	11.5	-8°	8°	7.2	1.0	1	SN□□1204

Applicable Insert Representative Cat. No.

Refer to the applicable insert column for the above holders.
(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (MSYN type / MSKN type / MSSN type)

Unit Cat. No.	Eccentric Pin	Shim	Cap Screw	Eccentric Pin Wrench	Cap Screw Wrench
					
MSYN4R/L **MSKN4R/L** **MSSN4R/L**	CPU405S	SM090	BX0515	(LH030)	(LH040)
		SM095			
		SM100			
		SM105			
		SM110			

*Wrenches in ( ) are sold separately.

MINIT N38 type

Holder

Fig.1

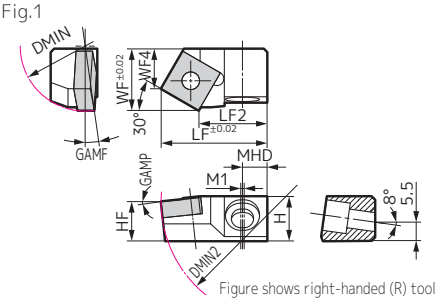


Figure shows right-handed (R) tool.

MSTN

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MSTN4 R/L	●	●	38	100	13	18	11.65	31	20.05	11.5	-6°	8°	7.2	1.0	1	SN□□1204

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1

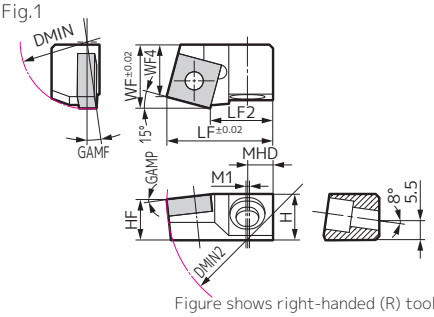


Figure shows right-handed (R) tool.

MSRN

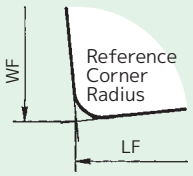
Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MSRN4 R/L	●	●	38	100	13	18	14.71	30	17.80	11.5	-6°	8°	7.2	1.0	1	SN□□1204

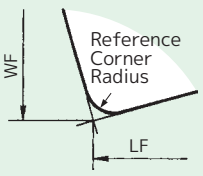
*DMIN2 indicates the minimum bore diameter for radial mounting.

Close-up of Cutting Edge

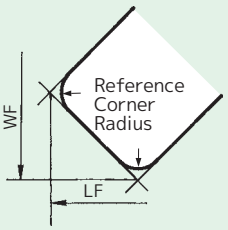
MSYN



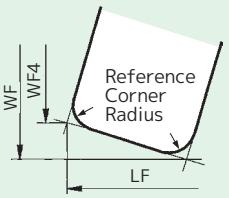
MSKN



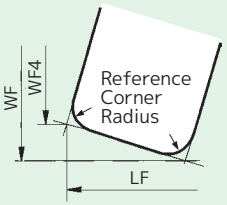
MSSN



MSTN



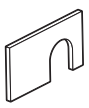
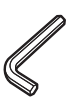
MSRN



Applicable Insert Representative Cat. No.

Refer to the applicable insert column for the above holders.
(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (MSTN type / MSRN type)

Unit Cat. No.	Eccentric Pin	Shim	Cap Screw	Eccentric Pin Wrench	Cap Screw Wrench
					
MSTN4R/L MSRN4R/L	CPU405S	SM090	BX0515	(LH030)	(LH040)
		SM095			
		SM100			
		SM105			
		SM110			

*Wrenches in ( ) are sold separately.

MINIT N38 type

Holder

Fig.1

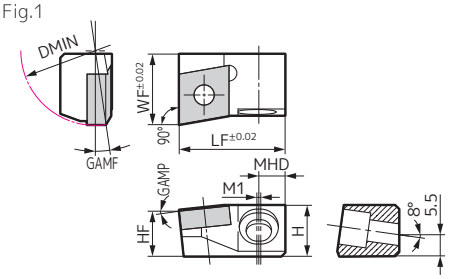


Figure shows right-handed (R) tool.

MCFN

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	WF	LF	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MCFN4 R/L	●	●	38	–	13	18	27	11.5	-6°	8°	7.2	1.0	1	CN□□1204

Fig.1

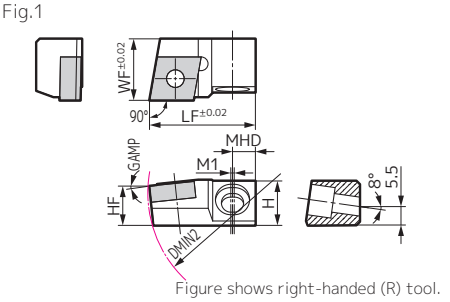


Figure shows right-handed (R) tool.

MCGN

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	WF	LF	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MCGN4 R/L	●	●	–	100	13	18	31	11.5	-6°	–	7.2	1.0	1	CN□□1204

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1

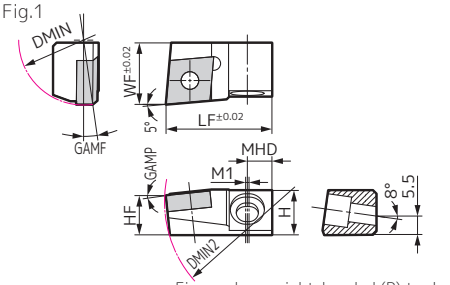


Figure shows right-handed (R) tool.

MCLN

Dimensions (mm)

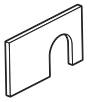
Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	WF	LF	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MCLN4 R/L	●	●	38	100	13	18	31	11.5	-6°	8°	7.2	1.0	1	CN□□1204

*DMIN2 indicates the minimum bore diameter for radial mounting.

Applicable Insert Representative Cat. No.

Refer to the applicable insert column for the above holders.
(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (MCFN type / MCGN type / MCLN type)

Unit Cat. No.	Eccentric Pin	Shim	Cap Screw	Eccentric Pin Wrench	Cap Screw Wrench
					
MCFN4R/L **MCGN4R/L** **MCLN4R/L**	CPU405S	SM090	BX0515	(LH030)	(LH040)
		SM095			
		SM100			
		SM105			
		SM110			

*Wrenches in ( ) are sold separately.

MINIT N38 type

Holder

Fig.1

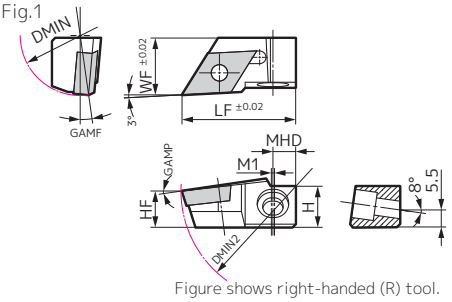


Figure shows right-handed (R) tool.

MDJN D 55°

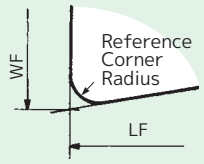
Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	WF	LF	HF	GAMP	GAMF	MHD	M1	Fig.	Applicable Insert
MDJN4 R/L	●	●	38	100	13	18	36	11.5	-6°30′	8°	7.2	1.0	1	DN□□1504

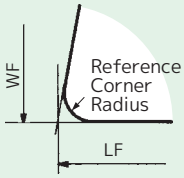
*DMIN2 indicates the minimum bore diameter for radial mounting.

Close-up of Cutting Edge

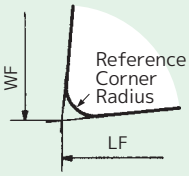
MCFN



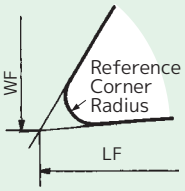
MCGN



MCLN



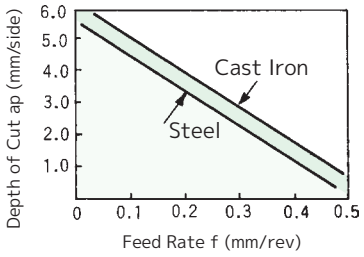
MDJN



Cutting Conditions

•Steel
Chip control is the most important issue, so selecting the right chipbreaker is essential. In general, use the graph on the right as a guideline when deciding on cutting conditions.

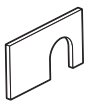
•Cast Iron
Chip control is not a problem. Cutting conditions can be selected relatively freely, but use the graph on the right as a guide when determining cutting conditions.



Applicable Insert Representative Cat. No.

Refer to the applicable insert column for the above holders.
(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (MDJN type)

Unit Cat. No.	Eccentric Pin	Shim	Cap Screw	Eccentric Pin Wrench	Cap Screw Wrench
					
MDJN4R/L	CPU405S	SM090	BX0515	(LH030)	(LH040)
		SM095			
		SM100			
		SM105			
		SM110			

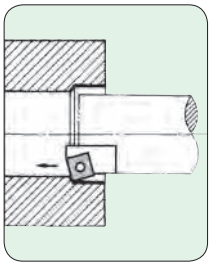
*Wrenches in ( ) are sold separately.

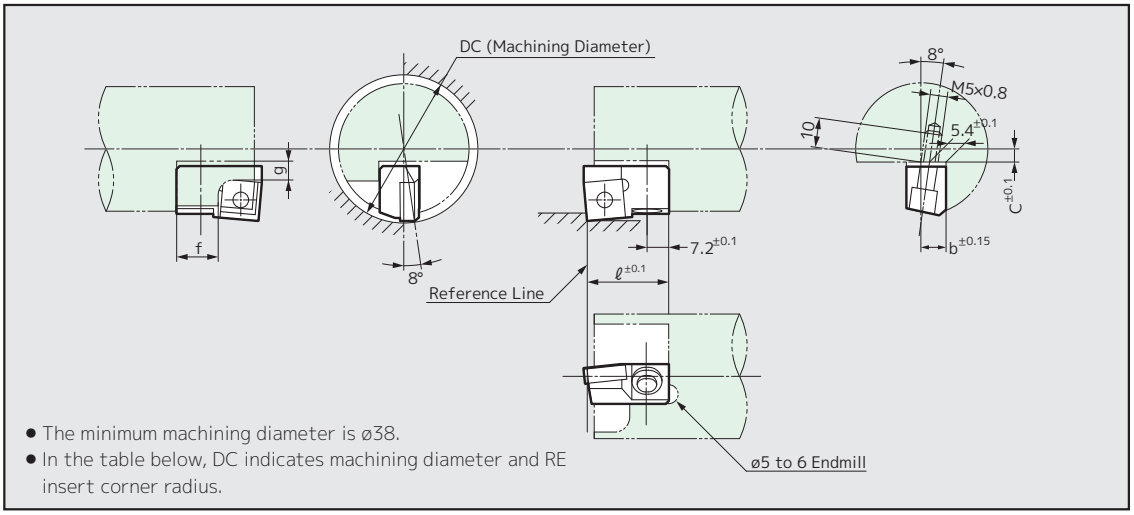
MINIT N38 type

Mounting Part Dimensions and Calculation Formulas

Dimensions (mm)

Internal Turning



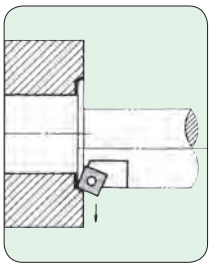


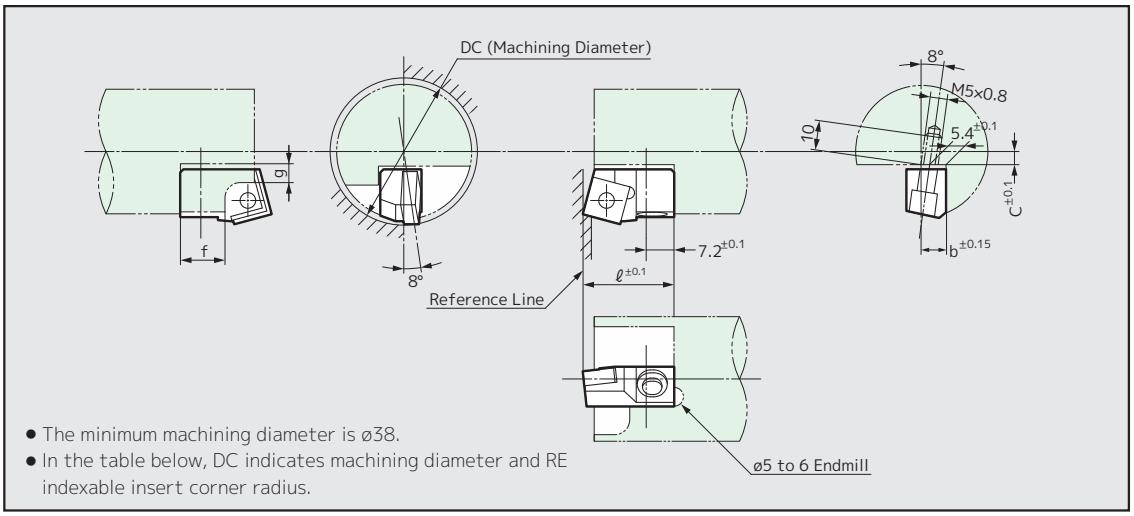
- The minimum machining diameter is ø38.
- In the table below, DC indicates machining diameter and RE insert corner radius.

Cat. No.	ℓ	b	C	g	f
MTUN 3 R/L	31.00 – 0.09RE	11.50 – 0.0696DC	0.4951DC + 0.68RE – 19.00	5	15
MTFN 3 R/L	27.00		0.4951DC + 0.73RE – 19.00		
MTWN3 R/L	18.78 – RE	12.37 – 0.0696DC	0.4951DC + RE – 19.00	4	11
MSYN 4 R/L	27.00 + 0.01RE	11.50 – 0.0696DC	0.4951DC + 0.08RE – 19.00	6	13
MSKN 4 R/L	27.00 + 0.06RE		0.4951DC + 0.22RE – 19.00	5	15
MSSN 4 R/L	22.06 – 0.41RE	12.75 – 0.0696DC	0.4951DC + 0.41RE – 19.00	4	14
MSTN 4 R/L	20.05 – 0.63RE	12.66 – 0.0696DC	0.4951DC + 0.37RE – 19.00	5	17
MSRN 4 R/L	17.80 – 0.84RE	12.79 – 0.0696DC	0.4951DC + 0.22RE – 19.00		15
MCFN 4 R/L	27.00	11.50 – 0.0696DC	0.4951DC + 0.19RE – 19.00		
MCLN 4 R/L	31.00 – 0.10RE		0.4951DC + 0.1RE – 19.00	6	16

Dimensions (mm)

Facing





- The minimum machining diameter is ø38.
- In the table below, DC indicates machining diameter and RE indexable insert corner radius.

Cat. No.	ℓ	b	C	g	f
MTGN 3 R/L	31.00 – 0.73RE	11.50 – 0.0696DC	0.4951DC-19.00	9	15
MTJN 3 R/L	31.00 – 0.64RE		0.4951DC + 0.15RE – 19.00		
MSTN 4 R/L	31.00 – 0.37RE		0.4951DC + 0.21RE – 12.68	5	17
MSRN 4 R/L	30.00 – 0.22RE		0.4951DC + 0.06RE – 15.71		
MCGN 4 R/L	31.00 – 0.19RE		0.4951DC-19.00	6	15
MCLN 4 R/L	31.00 – 0.10RE		0.4951DC + 0.1RE – 19.00		
MDJN 4 R/L	36.00 – 0.87RE				16

Mounting Adjustment

Because the SEC-Cartridge Unit MINIT N38 type does not have a built-in fine adjustment mechanism, make dimensional adjustments as follows:

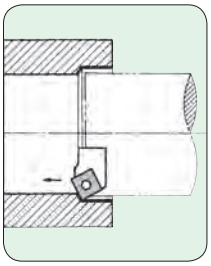
1. For roughing, when the machining tolerance is about ±0.2mm, place a reference shim of 1.00mm between the Unit and the quill seat surface.
2. When the dimensional tolerance is comparatively tight or the quill has machining errors, measure the cutting edge position with a 1.00mm reference shim and either replace it with the included shims (0.90, 0.95, 1.05, 1.10) or use shim tape to ensure the specified dimension.

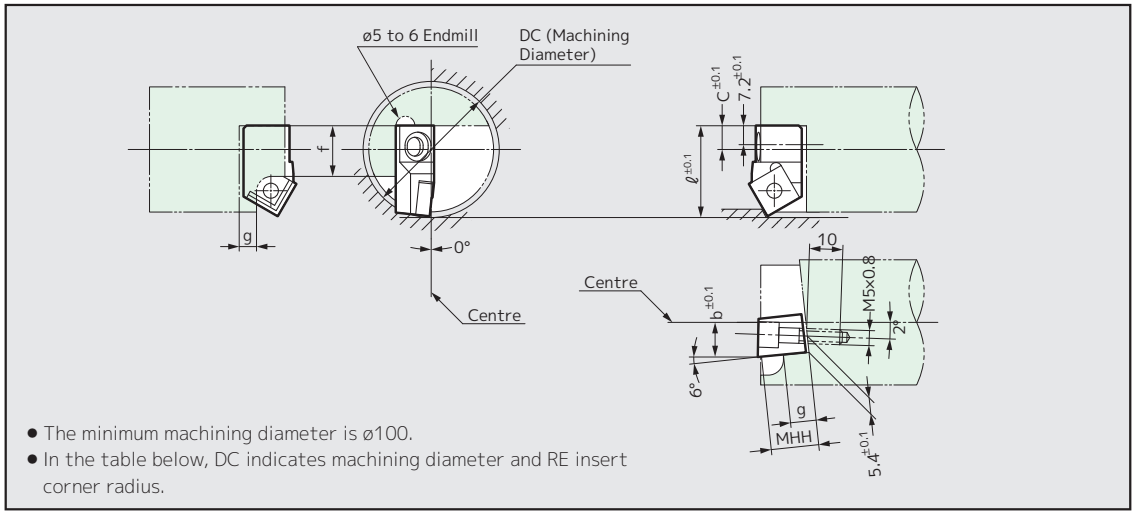
MINIT N38 type

Mounting Part Dimensions and Calculation Formulas

Dimensions (mm)

Internal Boring (Radial Mounting)



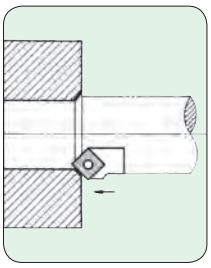


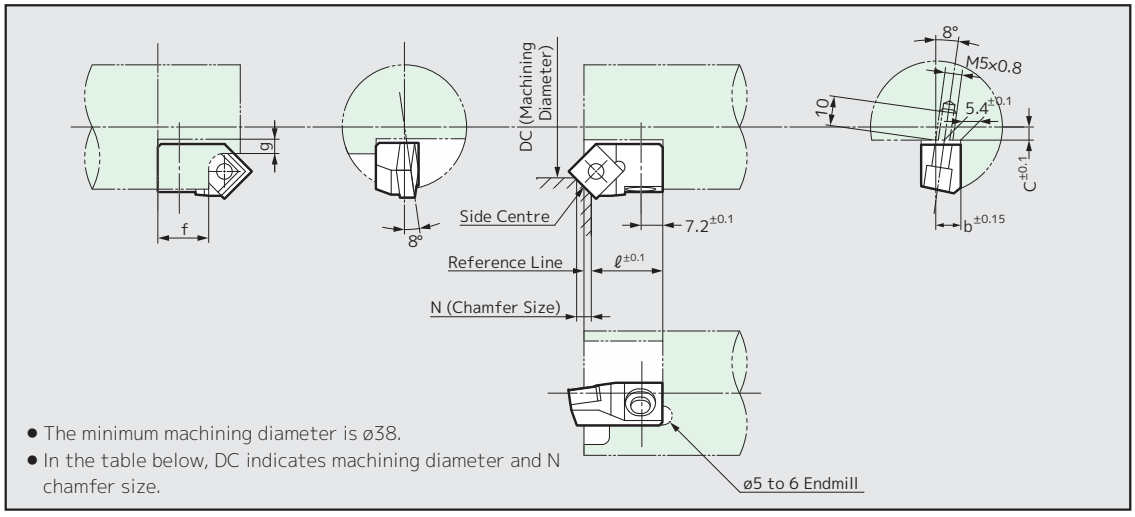
- The minimum machining diameter is ø100.
- In the table below, DC indicates machining diameter and RE insert corner radius.

Cat. No.	ℓ	b	C	MHH	g	f
MTGN 3 L/R	31.00 – 0.73RE	11.50	– for ℓ > 0.5DC (0.5DC– ℓ) + for ℓ < 0.5DC (0.5DC– ℓ)	19.00	9	15
MTJN 3 L/R	31.00 – 0.64RE			19.00 – 0.15RE		
MSTN 4 L/R	31.00 – 0.37RE			12.68 – 0.21RE	5	17
MSRN 4 L/R	30.00 – 0.22RE			15.71 – 0.06RE		
MCGN 4 L/R	31.00 – 0.19RE			19.00	6	15
MCLN 4 L/R	31.00 – 0.10RE			19.00 – 0.10RE		
MDJN 4 L/R	36.00 – 0.87RE					16

Dimensions (mm)

Chamfering



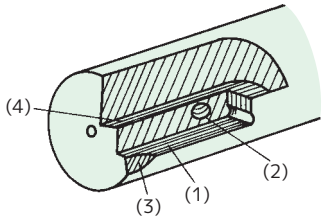


- The minimum machining diameter is ø38.
- In the table below, DC indicates machining diameter and N chamfer size.

Cat. No.	ℓ	b	C	g	f
MTWN 3 R/L	22.9 – 0.5N	11.9 – 0.0696DC	0.4951DC + 0.9N – 11.9	4	11
MSSN 4 R/L	26.5 – 0.5N	12.1 – 0.0696DC	0.4951DC + 0.5N-14.5		14
MSTN 4 R/L	25.5 – 0.5N		0.4951DC + 0.3N-15.8	5	15
MSRN 4 R/L	23.8 – 0.5N		0.4951DC + 0.1N-17.3		17

Mounting Part Design

In order to mount the SEC-Cartridge Unit MINIT N38 type, the quill requires the following parts.



(1) Square groove or 2-face seat
(2) Mounting screw hole
(3) Cutout for eccentric pin operation
(4) Chip pocket/for insert removal

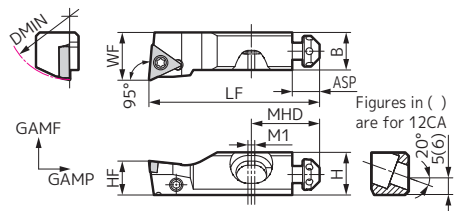
● After deciding on the Cartridge Unit for use, determine the part dimensions based on the design formulas provided.

(1) Adding an R0.5 to 1.0mm rounding to the corners is an effective way of ensuring sufficient quill strength.

(2) The cutout for eccentric pin operation can also be a ø7 or so hole at the eccentric pin position, which is effective for increasing quill strength.

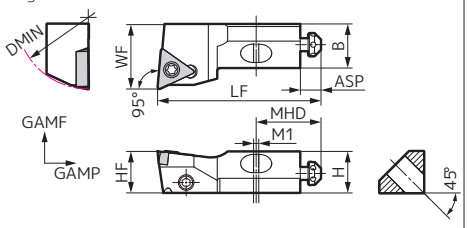
Holder

Fig.1



(Figure shows right-handed (R) tool)

Fig.2



(Figure shows right-handed (R) tool)

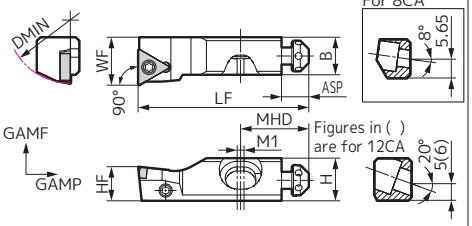
STUP

T 60°

Dimensions (mm)

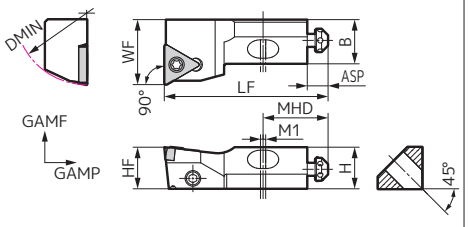
Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
STUP R/L 10CA	●	●	38	–	12.5	11	14	–	50	–	10	+6°	0°	20	8	2	1	*2
STUP R/L 12CA	●	●	50	–	15.5	16	20	–	55	–	12	+6°	0°	20	8	2	1	*3
STUP R/L 16CA	●	●	55	–	16	17	25	–	63	–	16	+6°	0°	25	8	2	2	*3

Fig.1



(Figure shows right-handed (R) tool)

Fig.2



(Figure shows right-handed (R) tool)

STFP

T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
STFP R/L 8CA	●	●	30	–	11.5	9.86	11.6	–	46	–	10	+5°	0°	19	8	2	1	*1
STFP R/L 10CA	●	●	38	–	12.5	11	14	–	50	–	10	+6°	0°	20	8	2	1	*2
STFP R/L 12CA	●	●	50	–	15.5	16	20	–	55	–	12	+6°	0°	20	8	2	1	*3
STFP R/L 16CA	●	●	55	–	16	17	25	–	63	–	16	+6°	0°	25	8	2	2	*3

Refer to the table below for *1 to *3.

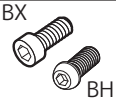
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**TP□□0902**	5.56	2.38
*2	**TP□□1103**	6.35	3.18
*3	**TP□□1604**	9.525	4.76

(Note) Refer to P.100 for chipbreaker feed direction selection.

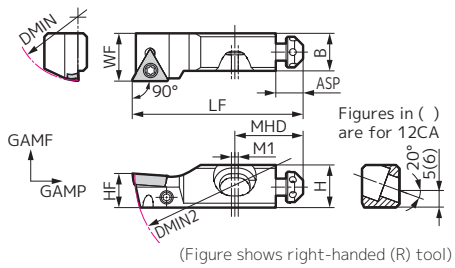
Parts (STUP type / STFP type / STGP type / STTP type)

Unit Cat. No.		Flat Screw	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Axial Adjustment Wrench	Cap Screw/Bolt	Flat Head Screw Wrench	Radial Adjustment Wrench	Cap Screw/ Bolt Wrench
					Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size										
STUP STFP STGP STTP	8CA	BFTX02506N	BT0406	AJM5F	S083	S103	1.8×45	BX0515	(TRX08)	(LH020)	(LH040)
	10CA	BFTX0307N	BT0408		S0810	S1010		BX0615	(TRX10)		(LH050)
	12CA	BFTX0409N	BT0412		S0812	S1012		BX0625	(TRX15)		
	16CA		BT0612		S0816B	S1016B		BH0825		(LH030)	

*Wrenches in ( ) are sold separately.

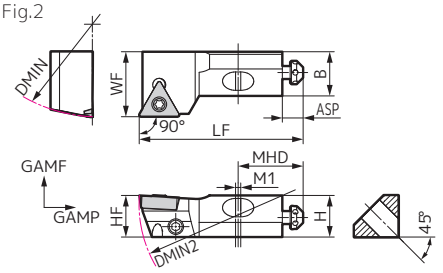
Holder

Fig.1



(Figure shows right-handed (R) tool)

Fig.2



(Figure shows right-handed (R) tool)

STGP

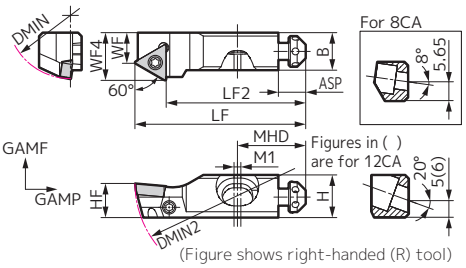
T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
STGP R/L 10CA	●	●	38	60	12.5	11	14	–	50	–	10	+4°	0°	20	8	2	1	*2
STGP R/L 12CA	●	●	50	75	15.5	16	20	–	55	–	12	+4°	0°	20	8	2	1	*3
STGP R/L 16CA	●	●	60	75	16	17	25	–	63	–	16	+3°	0°	25	8	2	2	*3

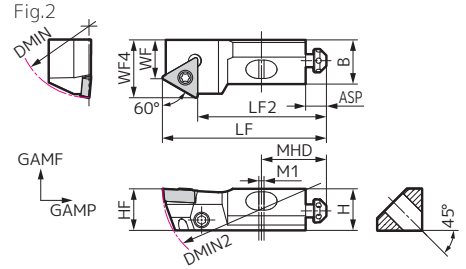
*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1



(Figure shows right-handed (R) tool)

Fig.2



(Figure shows right-handed (R) tool)

STTP

T 60°

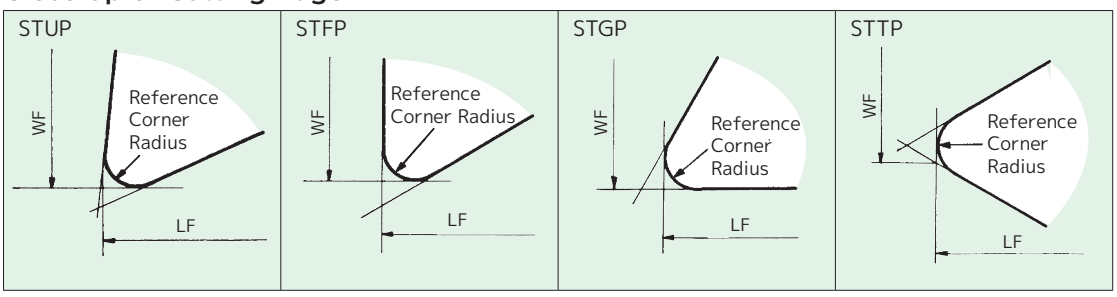
Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
STTP R/L 8CA	●	●	30	50	11.5	10.21	9	13.28	46	38.59	10	+5°	0°	19	8	2	1	*1
STTP R/L 10CA	●	●	38	60	12.5	11	9	13.96	50	41.41	10	+5°	0°	20	8	2	1	*2
STTP R/L 12CA	●	●	50	75	15.5	16	13	20.18	55	42.56	12	+5°	0°	20	8	2	1	*3
STTP R/L 16CA	●	●	60	75	16	17	15	22.19	63	50.54	16	+3°	0°	25	8	2	2	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

Refer to the "Applicable Insert Representative Cat. Nos." table (P.34) for *1 to *3.

Close-up of Cutting Edge

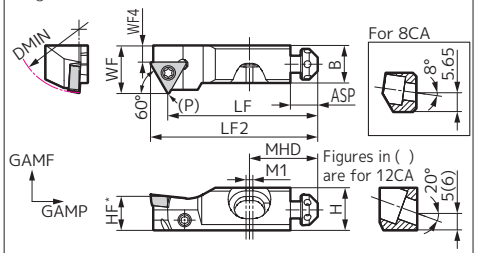


Insert Inscribed Circle (mm)	5.56	6.35	9.525
Reference Corner Radius (mm)	0.4	0.4	0.8

SP type

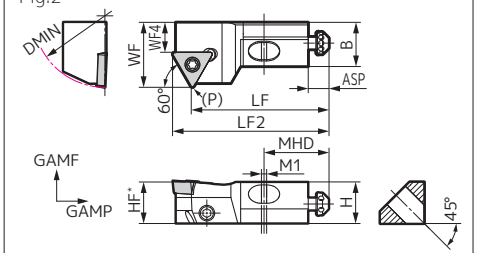
Holder

Fig.1



*: HF shows the (P) point height (Figure shows right-handed (R) tool)

Fig.2



*: HF shows the (P) point height (Figure shows right-handed (R) tool)

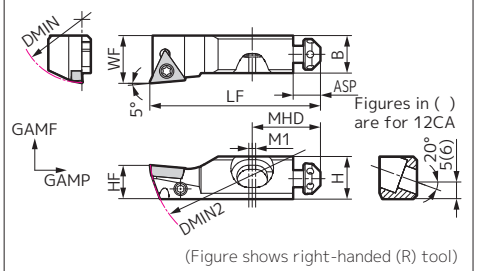
STWP

T 60°

Dimensions (mm)

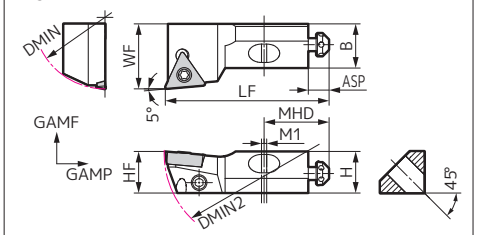
Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
STWP R/L 8CA	●	●	30	–	11.5	9.86	11.6	4.17	42	46.29	10	+5°	0°	19	8	2	1	*1
STWP R/L 10CA	●	●	38	–	12.5	11	14	5.39	44	48.97	10	+6°	0°	20	8	2	1	*2
STWP R/L 12CA	●	●	50	–	15.5	16	20	7.54	47	54.19	12	+6°	0°	20	8	2	1	*3
STWP R/L 16CA	●	●	55	–	16	17	25	12.53	53	60.20	16	+4°	0°	25	8	2	2	*3

Fig.1



(Figure shows right-handed (R) tool)

Fig.2



(Figure shows right-handed (R) tool)

STJP

T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
STJP R/L 10CA	●	●	38	60	12.5	11	14	–	50	–	10	+5°	0°	20	8	2	1	*2
STJP R/L 12CA	●	●	50	75	15.5	16	20	–	55	–	12	+5°	0°	20	8	2	1	*3
STJP R/L 16CA	●	●	55	75	16	17	25	–	63	–	16	+5°	0°	25	8	2	2	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

Refer to the table below for *1 to *3.

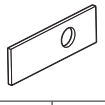
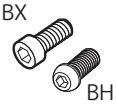
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**TP□□0902**	5.56	2.38
*2	**TP□□1103**	6.35	3.18
*3	**TP□□1604**	9.525	4.76

(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (STWP type / STJP type / STSP type)

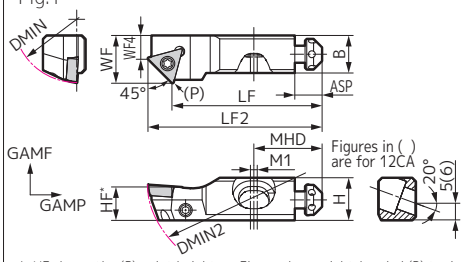
Unit Cat. No.		Flat Screw	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Axial Adjustment Wrench	Cap Screw/Bolt	Flat Head Screw Wrench	Radial Adjustment Wrench	Cap Screw/ Bolt Wrench
					Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size										
STWP STJP STSP	8CA	BFTX02506N	BT0406	AJM5F	S083	S103	1.8×45	BX0515	(TRX08)	(LH020)	(LH040)
	10CA	BFTX0307N	BT0408		S0810	S1010		BX0615	(TRX10)		(LH050)
	12CA	BFTX0409N	BT0412		S0812	S1012		BX0625	(TRX15)		
	16CA		BT0612		S0816B	S1016B		BH0825		(LH030)	

*Wrenches in ( ) are sold separately.

SP type

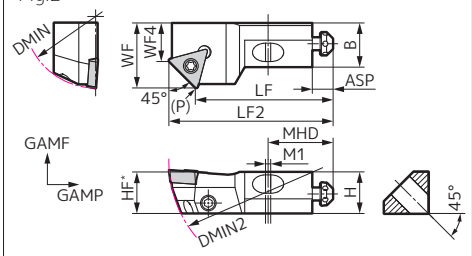
Holder

Fig.1



*: HF shows the (P) point height Figure shows right-handed (R) tool.

Fig.2



*: HF shows the (P) point height Figure shows right-handed (R) tool.

STSP T 60°

Dimensions (mm)

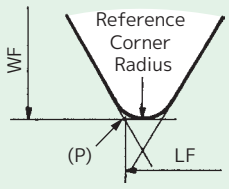
Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
STSP R/L 10CA	●	●	38	60	12.5	11	14	6.98	44	51.02	10	+4°	0°	20	8	2	1	*2
STSP R/L 12CA	●	●	50	75	15.5	16	20	9.84	47	57.16	12	+5°	0°	20	8	2	1	*3
STSP R/L 16CA	●	●	55	75	16	17	25	14.84	53	63.16	16	+4°	0°	25	8	2	2	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

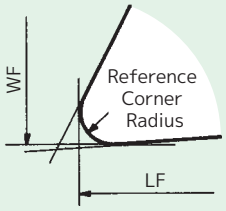
Refer to the "Applicable Insert Representative Cat. Nos." table (P.36) for *2 and *3.

Close-up of Cutting Edge

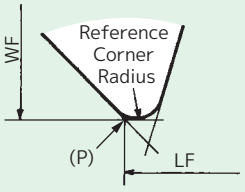
STWP



STJP



STSP



Insert Inscribed Circle (mm)	5.56	6.35	9.525
Reference Corner Radius (mm)	0.4	0.4	0.8

SP type

Holder

Fig.1

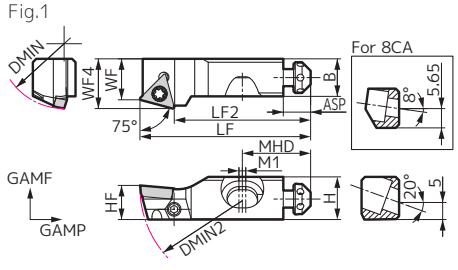


Figure shows right-handed (R) tool.

STRP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
STRP R/L 8CA	●	●	30	50	11.5	9.84	9	11.22	46	37.72	10	+5°	0°	19	8	2	1	*1
STRP R/L 10CA	●	●	38	60	12.5	11	12	14.57	50	40.4	10	+5°	0°	20	8	2	1	*2

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1

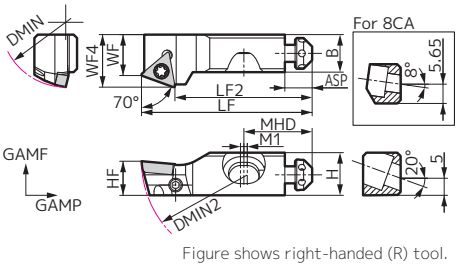


Figure shows right-handed (R) tool.

STXP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
STXP R/L 8CA	●	●	30	50	11.5	10	9	11.93	46	37.95	10	+5°	0°	19	8	2	1	*1
STXP R/L 10CA	●	●	38	60	12.5	11	12	15.4	50	40.67	10	+5°	0°	20	8	2	1	*2

*DMIN2 indicates the minimum bore diameter for radial mounting.

Refer to the table below for *1 and *2.

Applicable Insert Representative Cat. Nos.

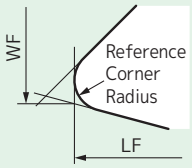
Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**TP□□0902**	5.56	2.38
*2	**TP□□1103**	6.35	3.18

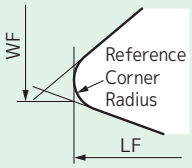
(Note) Refer to P.100 for chipbreaker feed direction selection.

Close-up of Cutting Edge

STRP



STXP



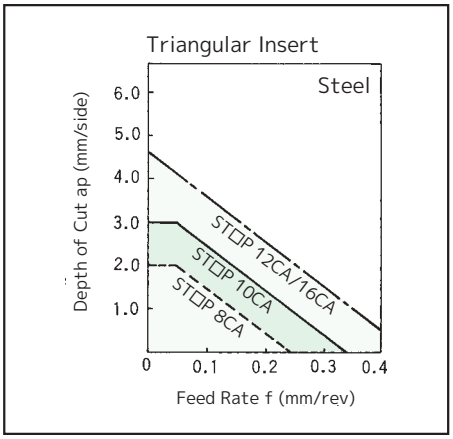
Insert Inscribed Circle (mm)	5.56	6.35
Reference Corner Radius (mm)	0.4	0.4

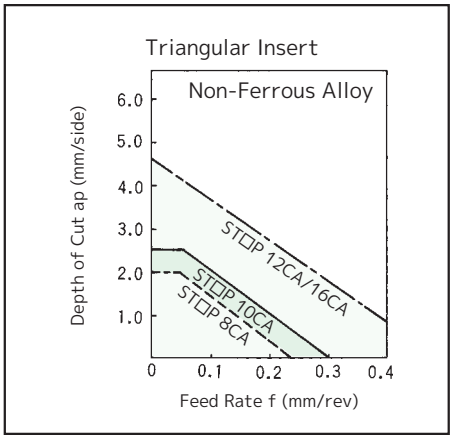
Parts (STRP type / STXP type)

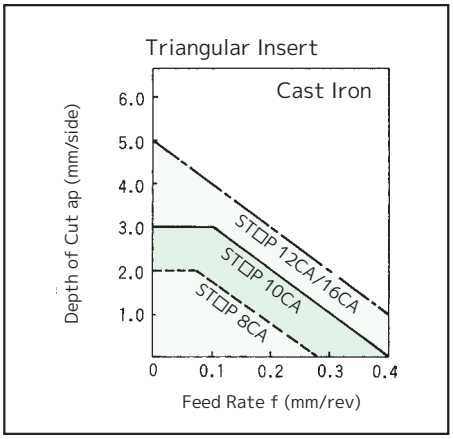
Unit Cat. No.		Flat Screw	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Axial Adjustment Wrench	Cap Screw	Flat Head Screw Wrench	Radial Adjustment Wrench	Cap Screw Wrench
					Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size										
STRP	8CA	BFTX02506N	BT0406	AJM5F	S083	S103	1.8×45	BX0515	(TRX08)	(LH020)	(LH040)
STXP	10CA	BFTX0307N	BT0408		S0810	S1010		BX0615	(TRX10)		(LH050)

*Wrenches in ( ) are sold separately.

Cutting Conditions







Holder

Fig.1

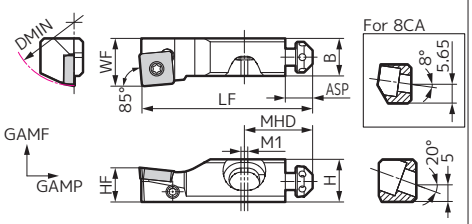


Figure shows right-handed (R) tool.

SSYP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
SSYP R/L 8CA	●	●	30	–	11.5	9.94	12	–	46	–	10	+5°	0°	19	8	2	1	*1
SSYP R/L 10CA	●	●	38	–	12.5	11	14	–	50	–	10	+6°	0°	20	8	2	1	*2

Fig.1

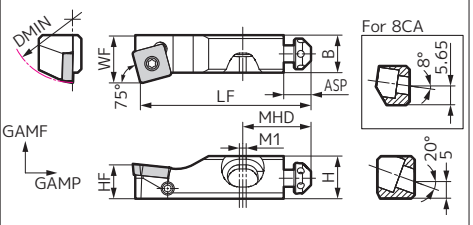


Figure shows right-handed (R) tool.

SSKP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
SSKP R/L 8CA	●	●	30	–	11.5	9.94	12	–	46	–	10	+5°	0°	19	8	2	1	*1
SSKP R/L 10CA	●	●	38	–	12.5	11	14	–	50	–	10	+6°	0°	20	8	2	1	*2

Refer to the table below for *1 and *2.

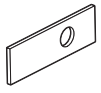
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**SP□□0702**	7.94	2.38
*2	**SP□□0903**	9.525	3.18

(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (SSYP type / SSKP type / SSSP type / SSRP type)

Unit Cat. No.		Flat Screw	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Axial Adjustment Wrench	Cap Screw	Flat Head Screw Wrench	Radial Adjustment Wrench	Cap Screw Wrench
					Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size										
SSYP SSKP SSSP SSRP	8CA	BFTX0307N	BT0406	AJM5F	S083	S103	1.8×45	BX0515	(TRX10)	(LH020)	(LH040)
	10CA		BT0408		S0810	S1010		BX0615			(LH050)

*Wrenches in ( ) are sold separately.

Holder

Fig.1

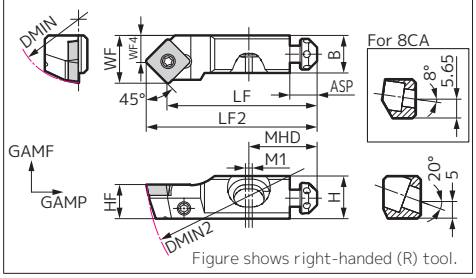


Figure shows right-handed (R) tool.

SSSP 90°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
SSSP R/L 8CA	●	●	30	50	11.5	9.94	12	7.05	40	44.95	10	0°	0°	19	8	2	1	*1
SSSP R/L 10CA	●	●	38	60	12.5	11	14	7.93	44	50.07	10	0°	0°	20	8	2	1	*2

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1

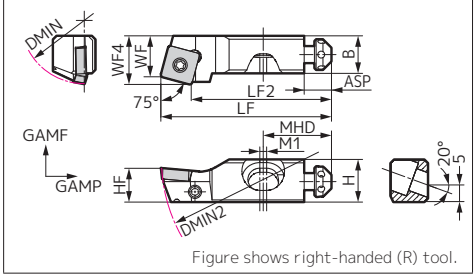


Figure shows right-handed (R) tool.

SSRP 90°

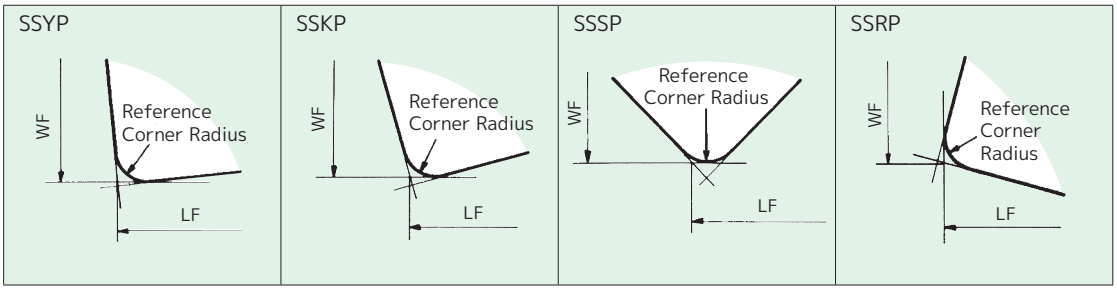
Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
SSRP R/L 10CA	●	●	38	60	12.5	11	12	14.25	50	41.68	10	+5°	0°	20	8	2	1	*2

*DMIN2 indicates the minimum bore diameter for radial mounting.

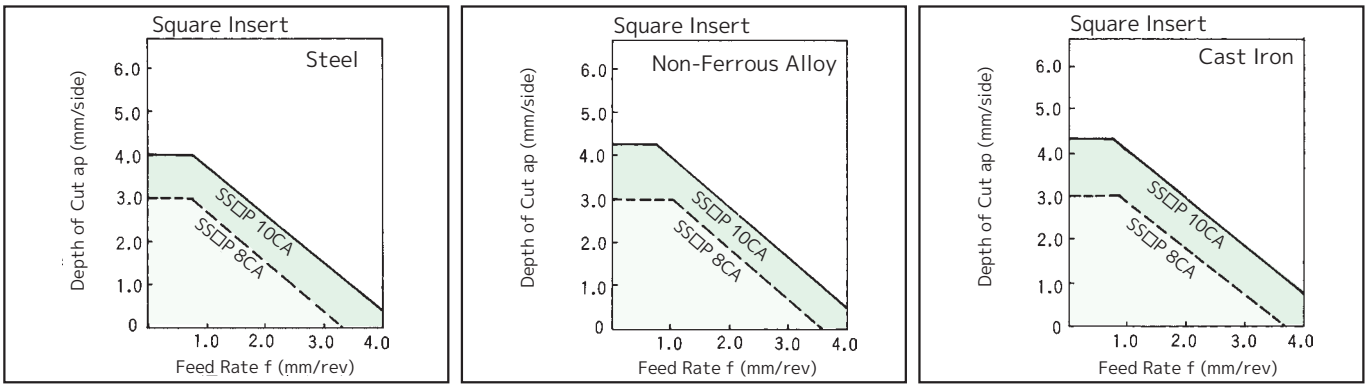
Refer to the "Applicable Insert Representative Cat. Nos." table (P.40) for *1 and *2.

Close-up of Cutting Edge



Insert Inscribed Circle (mm)	7.94	9.525
Reference Corner Radius (mm)	0.8	0.8

Cutting Conditions



SP type

Holder

Fig.1

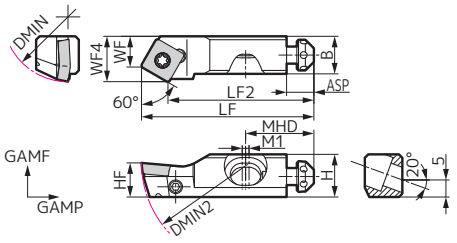


Figure shows right-handed (R) tool.

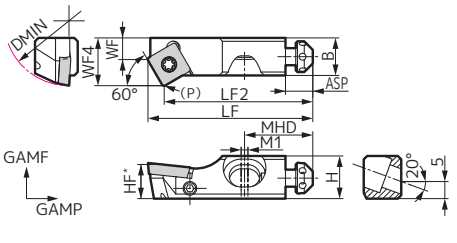
SSTP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
SSTP R/L 10CA	●	●	38	60	12.5	11	9	13.29	50.5	43.07	10	+5°	0°	20	8	2	1	*1

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1



*: HF shows the (P) point height Figure shows right-handed (R) tool.

SSWP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
SSWP R/L 10CA	●	●	38	–	12.5	11	6.56	14	48.29	44	10	+6°	0°	20	8	2	1	*1

Refer to the table below for *1.

Applicable Insert Representative Cat. Nos.

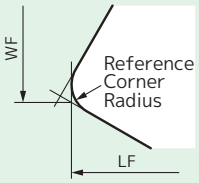
Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**SP□□0903**	9.525	3.18

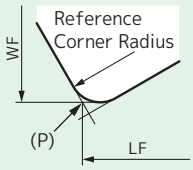
(Note) Refer to P.100 for chipbreaker feed direction selection.

Close-up of Cutting Edge

SSTP



SSWP



Insert Inscribed Circle (mm)	9.525
Reference Corner Radius (mm)	0.8

Parts (SSTP type / SSWP type)

Unit Cat. No.		Flat Screw	Radial Adjustment Screw	Axial Adjustment Screw	Shim Thickness 0.8mm	Shim Thickness 1.0mm	Axial Adjustment Wrench	Cap Screw	Flat Head Screw Wrench	Radial Adjustment Wrench	Cap Screw Wrench
Cat. No.	Size										
SSTP SSWP	10CA	BFTX0307N	BT0408	AJM5F	S0810	S1010	1.8×45	BX0615	(TRX10)	(LH020)	(LH050)

*Wrenches in ( ) are sold separately.

Holder

Fig.1

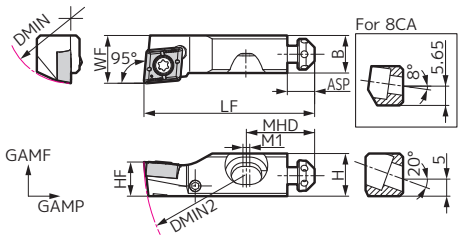


Figure shows right-handed (R) tool.

SXLP

WDXT 80° New

Dimensions (mm)

Cat. No.	Stock R	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
SXLP R 8CA	●	30	116	11.5	10.26	12	–	46	–	10	+5°	0°	19	8	2	1	*1
SXLP R 10CA	●	38	100	12.5	11	14	–	50	–	10	+5°	0°	20	8	2	1	*2

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1

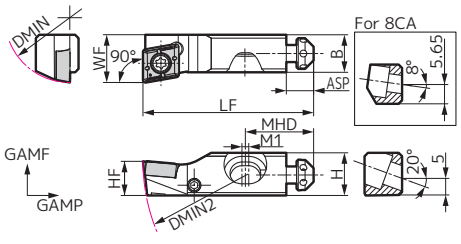


Figure shows right-handed (R) tool.

SXFP

WDXT 80° New

Dimensions (mm)

Cat. No.	Stock R	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
SXFP R 8CA	●	30	116	11.5	10.26	12	–	46	–	10	+5°	0°	19	8	2	1	*1
SXFP R 10CA	●	38	108	12.5	11	14	–	50	–	10	+5°	0°	20	8	2	1	*2

*DMIN2 indicates the minimum bore diameter for radial mounting.

Refer to the table below for *1 and *2.

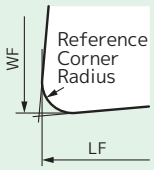
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

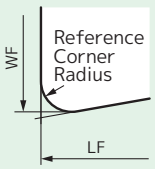
Symbol	Representative Cat. No.	Side Length	Thickness
*1	**WDXT073506**	7.5× 8.25	3.5
*2	**WDXT094008**	9.6×10.56	4.0

Close-up of Cutting Edge

SXLP



SXFP



Insert	7.5×8.25	9.6×10.56
Reference Corner Radius (mm)	0.6	0.8

Parts (SXLP type / SSFP type)

Unit Cat. No.		Flat Screw	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Axial Adjustment Wrench	Cap Screw	Flat Head Screw Wrench	Radial Adjustment Wrench	Cap Screw Wrench
					Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size										
SXLP	8CA	BFTX02506N	BT0406	AJM5F	S083	S103	1.8×45	BX0515	(TRX08)	(LH020)	(LH040)
SXFP	10CA	BFTX03584	BT0408		S0810	S1010		BX0615	(TRX15)		(LH050)

*Wrenches in ( ) are sold separately.

Holder

Fig.1

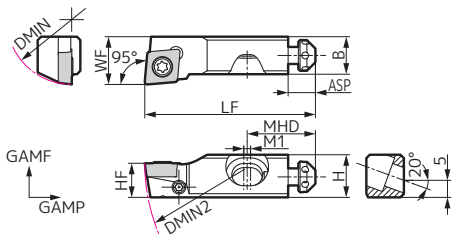


Figure shows right-handed (R) tool.

SCLC

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
SCLC R/L 10CA	●	●	56	107	12.5	11	14	–	50	–	10	0°	0°	20	8	2	1	*1

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1

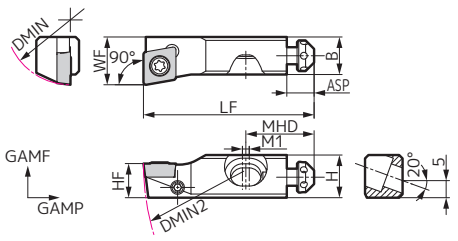


Figure shows right-handed (R) tool.

SCFC

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
SCFC R/L 10CA	●	●	56	145	12.5	11	14	–	50	–	10	0°	0°	20	8	2	1	*1

*DMIN2 indicates the minimum bore diameter for radial mounting.

Refer to the table below for *1.

Applicable Insert Representative Cat. Nos.

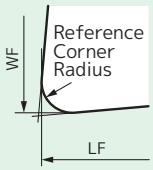
Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**CC□□09T3**	9.525	3.97

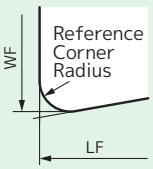
(Note) Refer to P.100 for chipbreaker feed direction selection.

Close-up of Cutting Edge

SCLC



SCFC



Insert Inscribed Circle (mm)	9.525
Reference Corner Radius (mm)	0.8

Parts (SCLC type / SCFC type)

Unit Cat. No.		Flat Screw	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Axial Adjustment Wrench	Cap Screw	Flat Head Screw Wrench	Radial Adjustment Wrench	Cap Screw Wrench
					Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size										
SCLC SCFC	10CA	BFTX0409N	BT0408	AJM5F	S0810	S1010	1.8×45	BX0615	(TRX15)	(LH020)	(LH050)

*Wrenches in ( ) are sold separately.

Holder

Fig.1

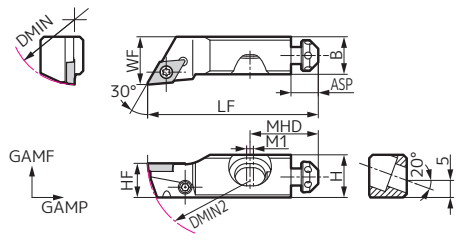


Figure shows right-handed (R) tool.

SDAC

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
SDAC R/L 10CA	●	●	56	44	12.5	11	14	–	50	–	10	0°	0°	20	8	2	1	*1

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1

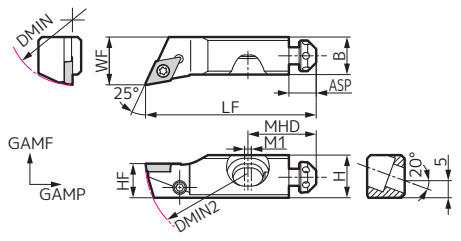


Figure shows right-handed (R) tool.

SDBC

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
SDBC R/L 10CA	●	●	56	49	12.5	11	14	–	50	–	10	0°	0°	20	8	2	1	*1

*DMIN2 indicates the minimum bore diameter for radial mounting.

Refer to the table below for *1.

Applicable Insert Representative Cat. Nos.

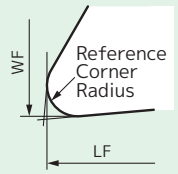
Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**DC□□0702**	6.35	2.38

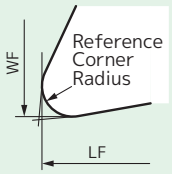
(Note) Refer to P.100 for chipbreaker feed direction selection.

Close-up of Cutting Edge

SDAC



SDBC



Insert Inscribed Circle (mm)	6.35
Reference Corner Radius (mm)	0.4

Parts (SDAC type / SDBC type)

Unit Cat. No.		Flat Screw	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Axial Adjustment Wrench	Cap Screw	Flat Head Screw Wrench	Radial Adjustment Wrench	Cap Screw Wrench
					Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size										
SDAC SDBC	10CA	BFTX02506N	BT0408	AJM5F	S0810	S1010	1.8×45	BX0615	(TRX08)	(LH020)	(LH050)

*Wrenches in ( ) are sold separately.

Holder

Fig.1

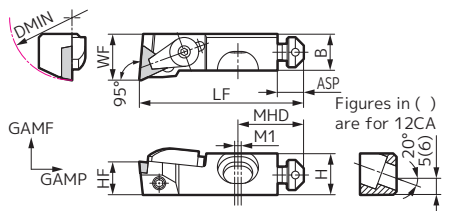


Figure shows right-handed (R) tool.

Fig.2

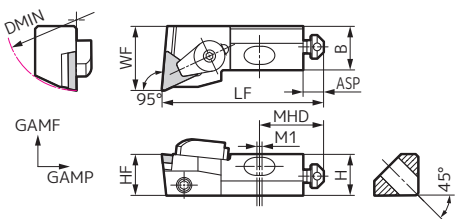


Figure shows right-handed (R) tool.

CTUP

T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTUP R/L 10CA	●	●	38	–	12.5	11	14	–	50	–	10	+6°	0°	20	8	2	1	*2
CTUP R/L 12CA	●		50	–	15.5	16	20	–	55	–	12	+6°	0°	20	8	2	1	*3
CTUP R/L 16CA	●		55	–	16	17	25	–	63	–	16	+6°	0°	25	8	2	2	*3

Fig.1

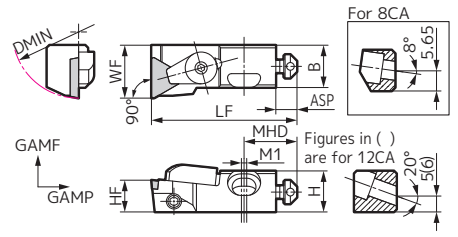


Figure shows right-handed (R) tool.

Fig.2

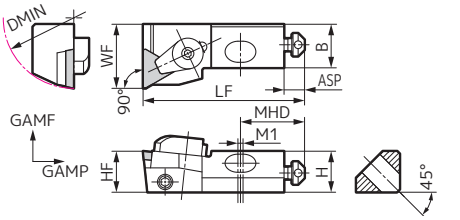


Figure shows right-handed (R) tool.

CTFP

T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTFP R/L 8CA	●	●	30	–	11.5	9.86	11.6	–	46	–	10	+5°	0°	19	8	2	1	*1
CTFP R/L 10CA	●	●	38	–	12.5	11	14	–	50	–	10	+6°	0°	20	8	2	1	*2
CTFP R/L 12CA	●	●	50	–	15.5	16	20	–	55	–	12	+6°	0°	20	8	2	1	*3
CTFP R/L 16CA	●	●	55	–	16	17	25	–	63	–	16	+6°	0°	25	8	2	2	*3
CTFP R/L 20CA	●	●	70	–	20	19	25	–	70	–	20	+3°	0°	30	10	2	2	*4

Refer to the table below for *1 to *4.

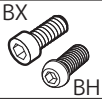
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**TP□□0902**	5.56	2.38
*2	**TP□□1103**	6.35	3.18
*3	**TP□□1603**	9.525	3.18
*4	**TP□□2204**	12.70	4.76

(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (CTUP type / CTFP type / CTGP type / CTJP type)

Unit Cat. No.		Clamp Plate	Radial Adjustment Screw	Axial Adjustment Screw	Shim	Shim Retainer	Shim		Axial Adjustment Wrench	Cap Screw/ Bolt	Clamp Plate Wrench	Radial Adjustment Wrench	Cap Screw/ Bolt Wrench
							Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size												
CTUP CTFP CTGP CTJP	8CA	BCM04R	BT0408	AJM5F	–	–	S083	S103	1.8×45	BX0515	(LH020)	(LH020)	(LH040)
	10CA	BCM05R					S0810	S1010		BX0615	(LH025)		
	12CA	BCM06R	BT0612 BT0412-2				S0812	S1012		BX0625	(LH030)	(LH030) (LH020-2)	(LH050)
	16CA				STPD322	SPP308	S0816B	S1016B		BH0825			
	20CA			AJM6	STPD422		S0820B	S1020B		BH0832			

*1 Wrenches in ( ) are sold separately.
*2 Among the 12CA sized Cartridge Units, CTJP type radial adjustment screw is BT0412 and wrench is LH020.

Holder

Fig.1

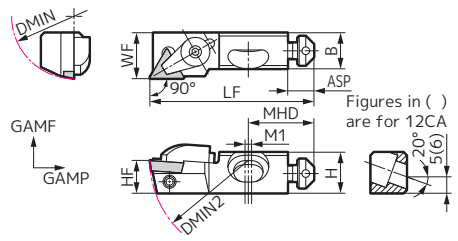


Figure shows right-handed (R) tool.

Fig.2

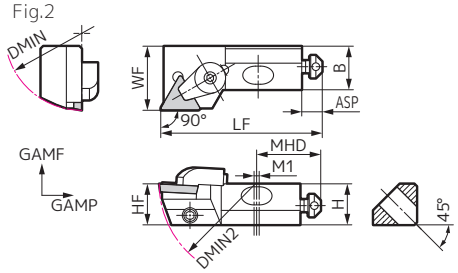


Figure shows right-handed (R) tool.

CTGP

T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTGP R/L 10CA	●	●	38	60	12.5	11	14	–	50	–	10	+4°	0°	20	8	2	1	*2
CTGP R/L 12CA	●	●	50	75	15.5	16	20	–	55	–	12	+4°	0°	20	8	2	1	*3
CTGP R/L 16CA	●	●	60	75	16	17	25	–	63	–	16	+3°	0°	25	8	2	2	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1

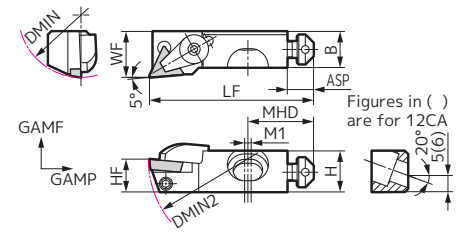


Figure shows right-handed (R) tool.

Fig.2

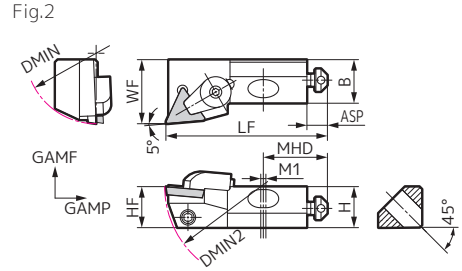


Figure shows right-handed (R) tool.

CTJP

T 60°

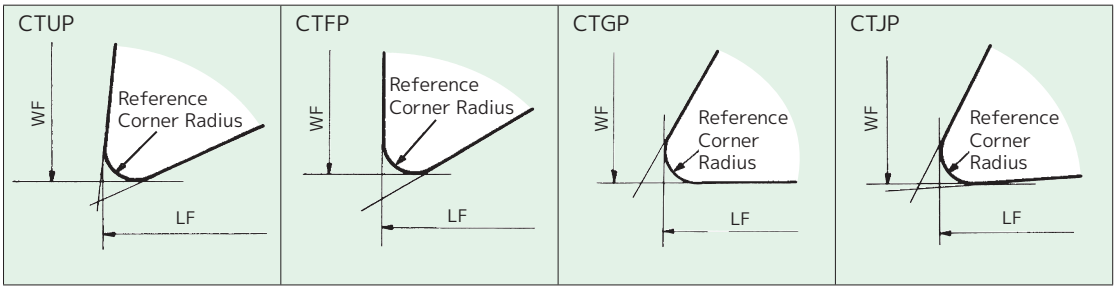
Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTJP R/L 10CA	●		38	60	12.5	11	14	–	50	–	10	+5°	0°	20	8	2	1	*2
CTJP R/L 12CA	●		50	75	15.5	16	20	–	55	–	12	+5°	0°	20	8	2	1	*3
CTJP R/L 16CA			55	75	16	17	25	–	63	–	16	+5°	0°	25	8	2	2	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

Refer to the "Applicable Insert Representative Cat. Nos." table (P.46) for *1 to *3.

Close-up of Cutting Edge

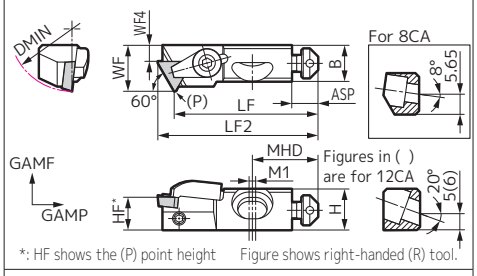


Insert Inscribed Circle (mm)	5.56	6.35	9.525	12.70
Reference Corner Radius (mm)	0.4	0.4	0.8	0.8

CP type

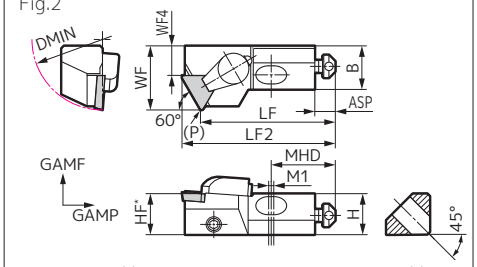
Holder

Fig.1



*: HF shows the (P) point height Figure shows right-handed (R) tool.

Fig.2



*: HF shows the (P) point height Figure shows right-handed (R) tool.

CTWP

T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTWP R/L 8CA	●		30	–	11.5	9.84	11.6	4.17	42	46.29	10	+5°	0°	19	8	2	1	*1
CTWP R/L 10CA	●	●	38	–	12.5	11	14	5.39	44	48.97	10	+6°	0°	20	8	2	1	*2
CTWP R/L 12CA	●	●	50	–	15.5	16	20	7.54	47	54.19	12	+6°	0°	20	8	2	1	*3
CTWP R/L 16CA	●		55	–	16	17	25	12.53	53	60.20	16	+4°	0°	25	8	2	2	*3

Fig.1

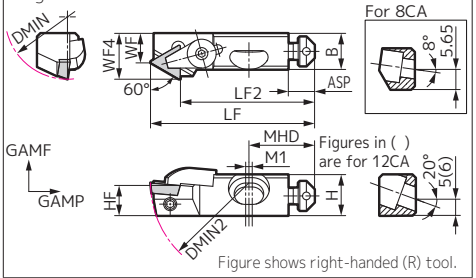


Figure shows right-handed (R) tool.

Fig.2

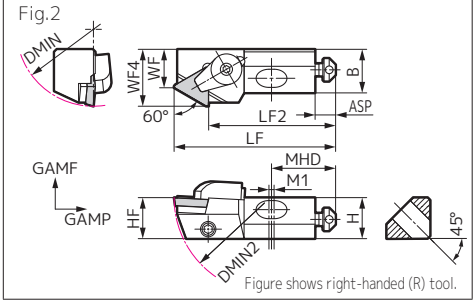


Figure shows right-handed (R) tool.

CTTP

T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTTP R/L 8CA	●		30	50	11.5	10	9	13.28	46	38.59	10	+5°	0°	19	8	2	1	*1
CTTP R/L 10CA	●	●	38	60	12.5	11	9	13.96	50	41.41	10	+5°	0°	20	8	2	1	*2
CTTP R/L 12CA	●	●	50	75	15.5	16	13	20.18	55	42.56	12	+5°	0°	20	8	2	1	*3
CTTP R/L 16CA	●	●	60	75	16	17	15	22.19	63	50.54	16	+3°	0°	25	8	2	2	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

Refer to the table below for *1 to *3.

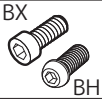
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**TP□□0902**	5.56	2.38
*2	**TP□□1103**	6.35	3.18
*3	**TP□□1603**	9.525	3.18

(Note) Refer to P.100 for chipbreaker feed direction selection.

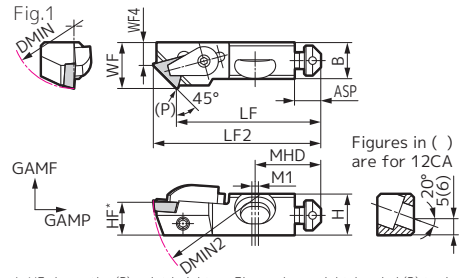
Parts (CTWP type / CTTP type / CTSP type)

Unit Cat. No.		Clamp Plate	Radial Adjustment Screw	Axial Adjustment Screw	Shim	Shim Retainer	Shim		Axial Adjustment Wrench	Cap Screw/ Bolt	Clamp Plate Wrench	Radial Adjustment Wrench	Cap Screw/ Bolt Wrench
							Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size													
CTWP CTTP CTSP	8CA	BCM04R	BT0406	AJM5F	–	–	S083	S103	1.8×45	BX0515	(LH020)	(LH020)	(LH040)
	10CA	BCM05R	BT0408				S0810	S1010		BX0615	(LH025)		(LH050)
	12CA	BCM06R	BT0610				S0812	S1012		BX0625	(LH030)	(LH030)	
	16CA		BT0612		STPD322	SPP308	S0816B	S1016B		BH0825			

*Wrenches in ( ) are sold separately.

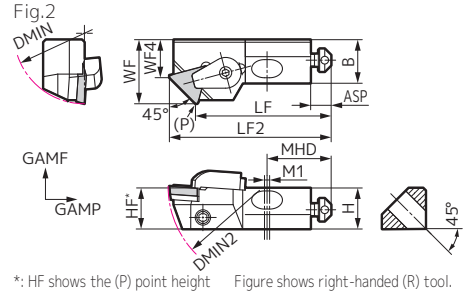
Holder

Fig.1



*: HF shows the (P) point height Figure shows right-handed (R) tool.

Fig.2



*: HF shows the (P) point height Figure shows right-handed (R) tool.

CTSP T 60°

Dimensions (mm)

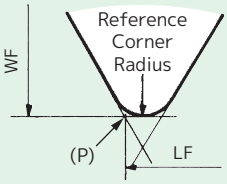
Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTSP R/L 10CA	●		38	60	12.5	11	14	6.98	44	51.02	10	+4°	0°	20	8	2	1	*2
CTSP R/L 12CA	●		50	75	15.5	16	20	9.84	47	57.16	12	+5°	0°	20	8	2	1	*3
CTSP R/L 16CA	●		55	75	16	17	25	14.84	53	63.16	16	+4°	0°	25	8	2	2	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

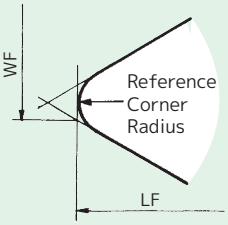
Refer to the "Applicable Insert Representative Cat. Nos." table (P.48) for *2 and *3.

Close-up of Cutting Edge

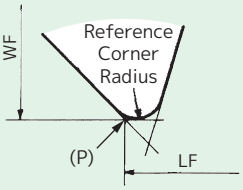
CTWP



CTTP



CTSP



Insert Inscribed Circle (mm)	5.56	6.35	9.525
Reference Corner Radius (mm)	0.4	0.4	0.8

Holder

Fig.1

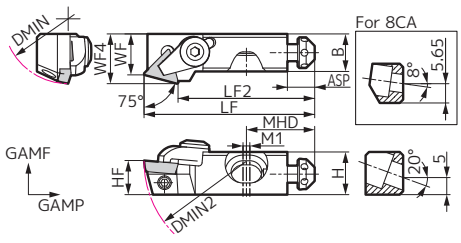


Figure shows right-handed (R) tool.

CTRP

T 60° New

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTRP R/L 8CA	●	●	30	50	11.5	9.88	9	11.22	46	37.72	10	+5°	0°	19	8	2	1	*1
CTRP R/L 10CA	●	●	38	60	12.5	11	12	14.57	50	40.40	10	+5°	0°	20	8	2	1	*2

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1

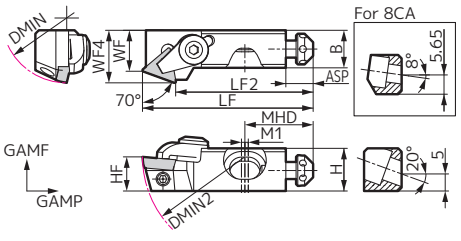


Figure shows right-handed (R) tool.

CTXP

T 60° New

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTXP R/L 8CA	●	●	30	50	11.5	10	9	11.93	46	37.95	10	+5°	0°	19	8	2	1	*1
CTXP R/L 10CA	●	●	38	60	12.5	11	12	15.4	50	40.67	10	+5°	0°	20	8	2	1	*2

*DMIN2 indicates the minimum bore diameter for radial mounting.

Refer to the table below for *1 and *2.

Applicable Insert Representative Cat. Nos.

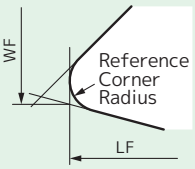
Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**TP□□0902**	5.56	2.38
*2	**TP□□1103**	6.35	3.18

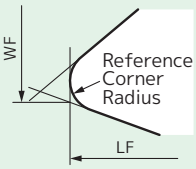
(Note) Refer to P.100 for chipbreaker feed direction selection.

Close-up of Cutting Edge

CTRP

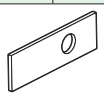


CTXP



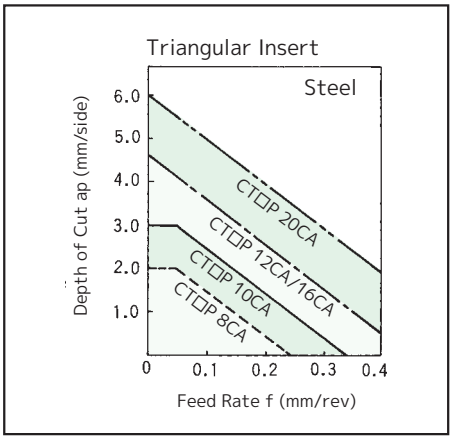
Size	5.56	6.35
Reference Corner Radius (mm)	0.4	0.4

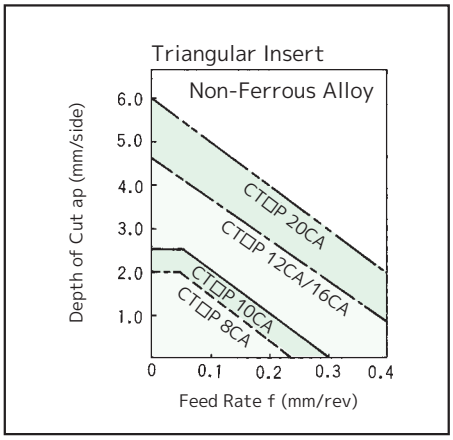
Parts (CTRP type / CTXP type)

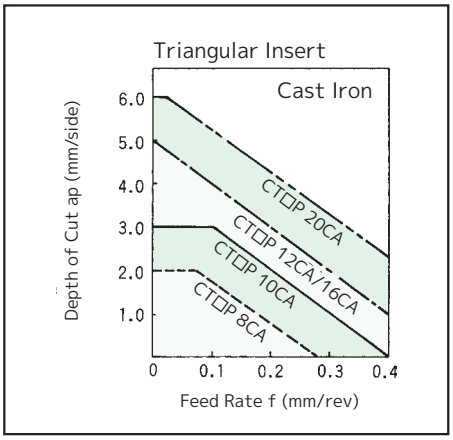
Unit Cat. No.		Clamp Plate	Radial Adjustment Screw	Axial Adjustment Screw	Shim	Shim Retainer	Shim		Axial Adjustment Wrench	Cap Screw	Clamp Plate Wrench	Radial Adjustment Wrench	Cap Screw Wrench
							Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size												
CTRP	8CA	BCM04R	BT0406	AJM5F	–	–	S083	S103	1.8×45	BX0515	(LH020)	(LH020)	(LH040)
CTXP	10CA	BCM05R	BT0408				S0810	S1010		BX0615	(LH025)		(LH050)

*Wrenches in ( ) are sold separately.

Cutting Conditions







Holder

Fig.1

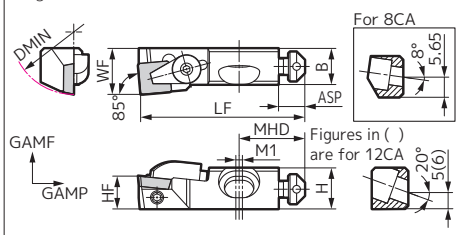


Figure shows right-handed (R) tool.

Fig.2

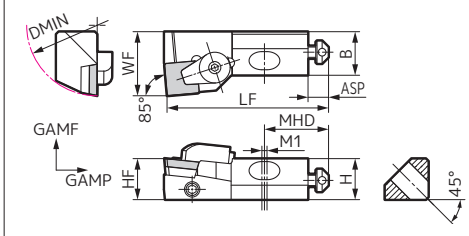


Figure shows right-handed (R) tool.

CSYP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CSYP R/L 8CA	●		30	–	11.5	9.86	12	–	46	–	10	+5°	0°	19	8	2	1	*1
CSYP R/L 10CA	●	●	38	–	12.5	11	14	–	50	–	10	+6°	0°	20	8	2	1	*2
CSYP R/L 12CA	●		50	–	15.5	16	20	–	55	–	12	+6°	0°	20	8	2	1	*3
CSYP R/L 16CA	●		55	–	16	17	25	–	63	–	16	+6°	0°	25	8	2	2	*3

Fig.1

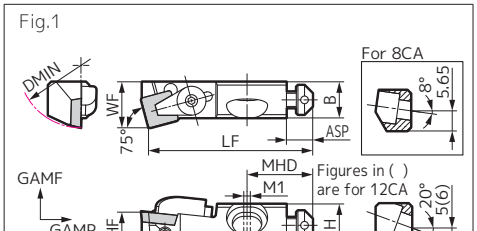


Figure shows right-handed (R) tool.

Fig.2

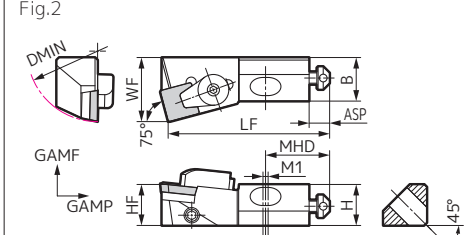


Figure shows right-handed (R) tool.

CSKP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CSKP R/L 8CA	●	●	30	–	11.5	9.9	12	–	46	–	10	+5°	0°	19	8	2	1	*1
CSKP R/L 10CA	●	●	38	–	12.5	11	14	–	50	–	10	+6°	0°	20	8	2	1	*2
CSKP R/L 12CA	●		50	–	15.5	16	20	–	55	–	12	+6°	0°	20	8	2	1	*3
CSKP R/L 16CA	●		55	–	16	17	25	–	63	–	16	+6°	0°	25	8	2	2	*3

Refer to the table below for *1 to *3.

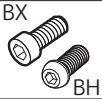
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**SP□□0702**	7.94	2.38
*2	**SP□□0903**	9.525	3.18
*3	**SP□□1203**	12.70	3.18

(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (CSYP type / CSKP type / CSSP type / CSRP type)

Unit Cat. No.		Clamp Plate	Radial Adjustment Screw	Axial Adjustment Screw	Shim	Shim Retainer	Shim		Axial Adjustment Wrench	Cap Screw/ Bolt	Clamp Plate Wrench	Radial Adjustment Wrench	Cap Screw/ Bolt Wrench
							Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size												
CSYP **CSKP** **CSSP** **CSRP**	8CA	BCM04R	BT0408	AJM5F	–	–	S083	S103	1.8×45	BX0515	(LH020)	(LH020)	(LH040)
	10CA	BCM05R					S0810	S1010		BX0615	(LH025)		(LH050)
	12CA	BCM06R	BT0612 (BT0610)				S0812	S1012		BX0625	(LH030)	(LH030)	
	16CA				SSPD422	SPP308	S0816B	S1016B		BH0825			

*Wrenches in ( ) are sold separately.
Among the 12CA sized Cartridge Units, CSRP type radial adjustment screw is BT0610.

Holder

Fig.1

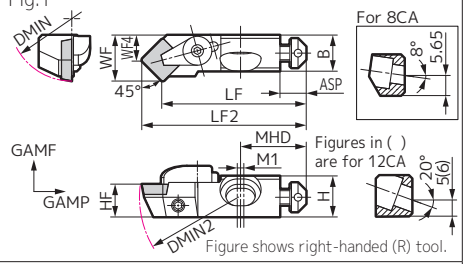


Figure shows right-handed (R) tool.

Fig.2

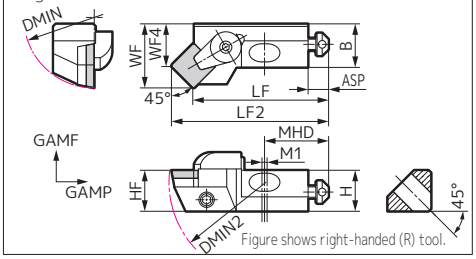


Figure shows right-handed (R) tool.

CSSP

S 90°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CSSP R/L 8CA	●	●	30	50	11.5	9.96	12	7.05	40	44.95	10	0°	0°	19	8	2	1	*1
CSSP R/L 10CA	●	●	38	60	12.5	11	14	7.93	44	50.07	10	0°	0°	20	8	2	1	*2
CSSP R/L 12CA	●	●	50	75	15.5	16	20	11.68	47	55.32	12	0°	0°	20	8	2	1	*3
CSSP R/L 16CA	●	●	55	75	16	17	25	16.68	53	61.32	16	0°	0°	25	8	2	2	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1

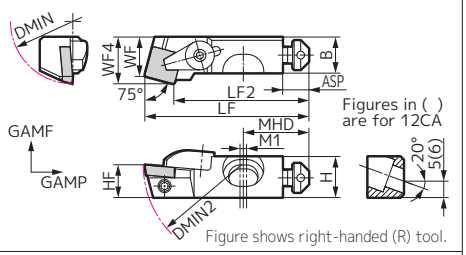


Figure shows right-handed (R) tool.

Fig.2

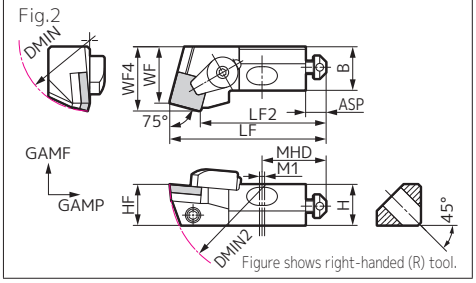


Figure shows right-handed (R) tool.

CSRP

S 90°

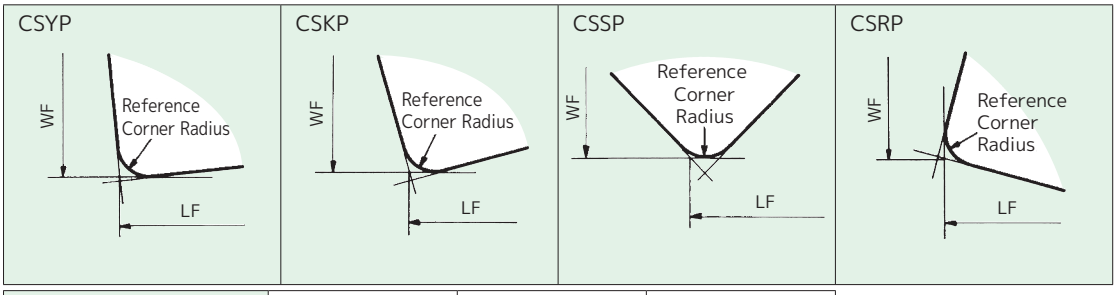
Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CSRP R/L 10CA	●		38	60	12.5	11	12	14.23	50	41.68	10	+5°	0°	20	8	2	1	*2
CSRP R/L 12CA	●		50	75	15.5	16	16	19.05	55	43.62	12	+5°	0°	20	8	2	1	*3
CSRP R/L 16CA	●		55	75	16	17	22	25.05	63	51.62	16	+5°	0°	25	8	2	2	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

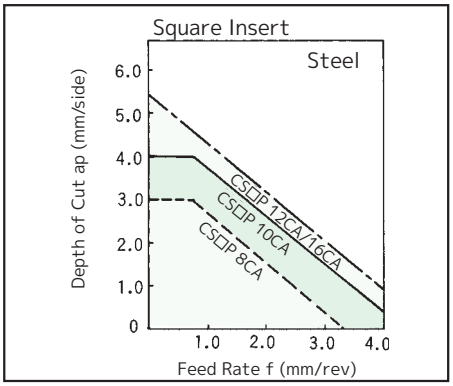
Refer to the "Applicable Insert Representative Cat. Nos." table (P.52) for *1 to *3.

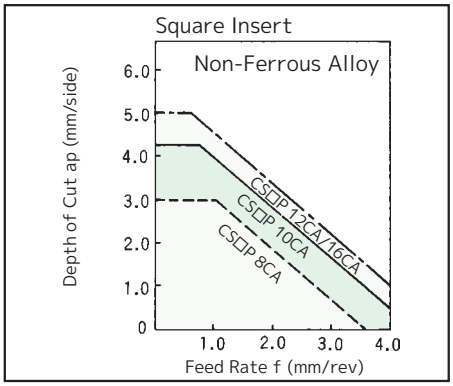
Close-up of Cutting Edge

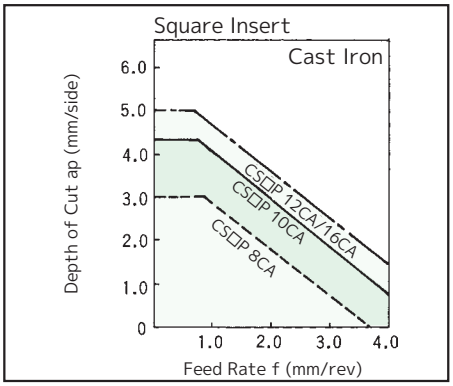


Insert Inscribed Circle (mm)	7.94	9.525	12.70
Reference Corner Radius (mm)	0.8	0.8	0.8

Cutting Conditions







Holder

Fig.1

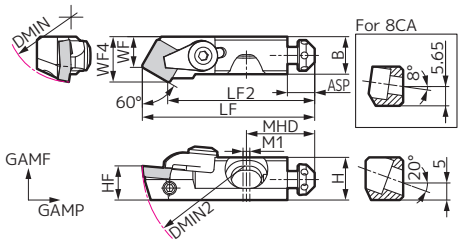


Figure shows right-handed (R) tool.

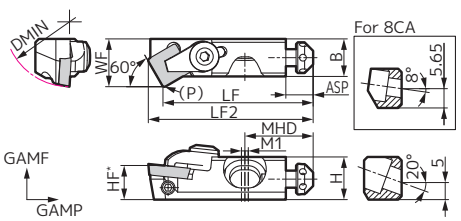
CSTP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CSTP R/L 8CA	●	●	30	50	11.5	10.11	9	12.5	46	39.94	10	+5°	0°	19	8	2	1	*1
CSTP R/L 10CA	●	●	38	60	12.5	11	9	13.29	50.5	43.07	10	+5°	0°	20	8	2	1	*2

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1



*: HF shows the (P) point height

Figure shows right-handed (R) tool.

CSWP

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CSWP R/L 8CA	●	●	30	–	11.5	9.89	11.6	5.53	42	45.5	10	+5°	0°	19	8	2	1	*1
CSWP R/L 10CA	●	●	38	–	12.5	11	14	6.56	44	48.29	10	+6°	0°	20	8	2	1	*2

Refer to the table below for *1 and *2.

Applicable Insert Representative Cat. Nos.

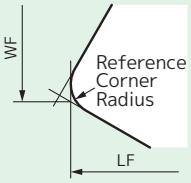
Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**SP□□0702**	7.94	2.38
*2	**SP□□0903**	9.525	3.18

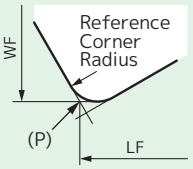
(Note) Refer to P.100 for chipbreaker feed direction selection.

Close-up of Cutting Edge

CSTP



CSWP



Insert Inscribed Circle (mm)	7.94	9.525
Reference Corner Radius (mm)	0.8	0.8

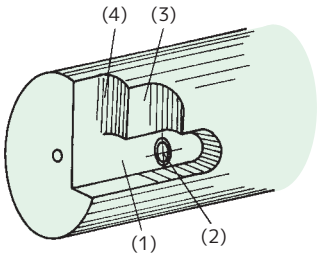
Parts (CSTP type / CSWP type)

Unit Cat. No.		Clamp Plate	Radial Adjustment Screw	Axial Adjustment Screw	Shim	Shim Retainer	Shim		Axial Adjustment Wrench	Cap Screw	Clamp Plate Wrench	Radial Adjustment Wrench	Cap Screw Wrench
							Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size												
CSTP	8CA	BCM04R	BT0406 BT0408	AJM5F	–	–	S083	S103	1.8×45	BX0515	(LH020)	(LH020)	(LH040)
CSWP	10CA	BCM05R					S0810	S1010		BX0615	(LH025)		(LH050)

*Wrenches in ( ) are sold separately.

Mounting Part Design

● In order to mount the SEC-Cartridge Unit SP / SC / SX / CP types, the quill requires the following parts.



(1) Square groove or 2-face seat
(2) Mounting bolt hole
(3) Cutout for mounting bolt operation
(4) Chip pocket/cutout for insert mounting/removal

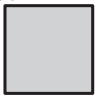
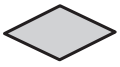
● After deciding on the Cat. No. of the Cartridge Unit to be used, select dimensions (1) to (4) according to the dimension tables and design formulas on the following pages.
● Make sure (4), the chip pocket/cutout for insert mounting/removal, is big enough to allow easy manipulation of the insert and clamp plate.
● (1), the square groove or 2-face seat, requires wall surfaces for the radial and axial adjustment screw ends to reach.
(If not done properly, dimensional adjustments will not be possible.)

Mounting Part Dimensions

● Determine the mounting part dimensions based on the design formulas and figures in the table below.
● Explanation of the letters used in the table.

DC: Machining Diameter (C dimension is calculated to be just 0.1mm smaller than the target diameter. Use the target diameter for the substitute DC value.)
t: Shim Thickness (The calculation formula in the table is derived using 1.0mm.)
X_1, X_2, Y_1, Y_2: Corrected values based on insert corner radius (as the cutting edge position of the Cartridge Unit is measured with a reference insert corner radius, a corrected value is required when using an insert with a different corner radius from the reference corner radius (see table on the right)).
N: Chamfer Size

Relationship Between Reference Corner Radius and Insert Size Dimensions (mm)

Insert Shape	Insert Inscribed Circle	Reference Corner Radius
Triangular type 	ø 5.56 ø 6.35 ø 9.525 ø 12.70	0.4 0.4 0.8 0.8
Square type 	ø 7.94 ø 9.525 ø 12.70	0.8 0.8 0.8
80° Diamond Apex Angle 	ø 6.35	0.4
55° Diamond Apex Angle 	ø 9.525	0.8
80° Apex Angle Parallelogram 	7.5 × 8.25 9.6 × 10.56	0.6 0.8

SP type / SC type / SX type / CP type

Corrected Cutting Edge Position Values by Insert Corner Radius

Dimensions (mm)

Cat. No.		Corner Radius	X_1	X_2	Y_1	Y_2
STUP CTUP	10CA	0.2	0.03	–	0.13	–
		0.4	0	–	0	–
		0.8	-0.06	–	-0.25	–
	12CA	0.4	0.06	–	0.25	–
		0.8	0	–	0	–
		1.2	-0.06	–	-0.25	–
	16CA	0.4	0.06	–	0.25	–
		0.8	0	–	0	–
		1.2	-0.06	–	-0.25	–
STFP CTFP	8CA	0.2	0	–	0.15	–
		0.4	0	–	0	–
		0.8	0	–	-0.29	–
	10CA	0.2	0	–	0.15	–
		0.4	0	–	0	–
		0.8	0	–	-0.29	–
	12CA	0.4	0	–	0.29	–
		0.8	0	–	0	–
		1.2	0	–	-0.29	–
	16CA	0.4	0	–	0.29	–
		0.8	0	–	0	–
		1.2	0	–	-0.29	–
	20CA	0.4	0	–	0.29	–
		0.8	0	–	0	–
		1.2	0	–	-0.29	–
STGP CTGP	10CA	0.2	0.15	–	0	–
		0.4	0	–	0	–
		0.8	-0.29	–	0	–
	12CA	0.4	0.29	–	0	–
		0.8	0	–	0	–
		1.2	-0.29	–	0	–
	16CA	0.4	0.29	–	0	–
		0.8	0	–	0	–
		1.2	-0.29	–	0	–
STTP CTTP	8CA	0.2	0.2	-0.25	-0.12	0.15
		0.4	0	0	0	0
		0.8	-0.4	0.51	0.23	-0.29
	10CA	0.2	0.2	-0.25	-0.12	0.15
		0.4	0	0	0	0
		0.8	-0.4	0.51	0.23	-0.29
	12CA	0.4	0.4	-0.51	-0.23	0.29
		0.8	0	0	0	0
		1.2	-0.4	0.51	0.23	-0.29
	16CA	0.4	0.4	-0.51	-0.23	0.29
		0.8	0	0	0	0
		1.2	-0.4	0.51	0.23	-0.29
STWP CTWP	8CA	0.2	-0.12	–	0.2	–
		0.4	0	–	0	–
		0.8	0.23	–	-0.4	–
	10CA	0.2	-0.12	–	0.2	–
		0.4	0	–	0	–
		0.8	0.23	–	-0.4	–
	12CA	0.4	-0.23	–	0.4	–
		0.8	0	–	0	–
		1.2	0.23	–	-0.4	–
	16CA	0.4	-0.23	–	0.4	–
		0.8	0	–	0	–
		1.2	0.23	–	-0.4	–
STJP CTJP	10CA	0.2	0.13	–	0.03	–
		0.4	0	–	0	–
		0.8	-0.25	–	-0.06	–

Cat. No.		Corner Radius	X_1	X_2	Y_1	Y_2
STJP CTJP	12CA	0.4	0.25	–	0.06	–
		0.8	0	–	0	–
		1.2	-0.25	–	-0.06	–
	16CA	0.4	0.25	–	0.06	–
		0.8	0	–	0	–
		1.2	-0.25	–	-0.06	–
STSP CTSP	10CA	0.2	-0.19	0.15	0.19	-0.15
		0.4	0	0	0	0
		0.8	0.37	-0.29	-0.37	0.29
	12CA	0.4	-0.37	0.29	0.37	-0.29
		0.8	0	0	0	0
		1.2	0.37	-0.29	-0.37	0.29
	16CA	0.4	-0.37	0.29	0.37	-0.29
		0.8	0	0	0	0
		1.2	0.37	-0.29	-0.37	0.29
SSYP CSYP	8CA	0.4	-0.01	–	0.03	–
		0.8	0	–	0	–
		1.2	0.01	–	-0.03	–
	10CA	0.4	-0.01	–	0.03	–
		0.8	0	–	0	–
		1.2	0.01	–	-0.03	–
	12CA	0.4	-0.01	–	0.03	–
		0.8	0	–	0	–
		1.2	0.01	–	-0.03	–
	16CA	0.4	-0.01	–	0.03	–
		0.8	0	–	0	–
		1.2	0.01	–	-0.03	–
SSKP CSKP	8CA	0.4	-0.02	–	0.09	–
		0.8	0	–	0	–
		1.2	0.02	–	-0.09	–
	10CA	0.4	-0.02	–	0.09	–
		0.8	0	–	0	–
		1.2	0.02	–	-0.09	–
	12CA	0.4	-0.02	–	0.09	–
		0.8	0	–	0	–
		1.2	0.02	–	-0.09	–
	16CA	0.4	-0.02	–	0.09	–
		0.8	0	–	0	–
		1.2	0.02	–	-0.09	–
SSSP CSSP	8CA	0.4	-0.17	0.17	0.17	-0.17
		0.8	0	0	0	0
		1.2	0.17	-0.17	-0.17	0.17
	10CA	0.4	-0.17	0.17	0.17	-0.17
		0.8	0	0	0	0
		1.2	0.17	-0.17	-0.17	0.17
	12CA	0.4	-0.17	0.17	0.17	-0.17
		0.8	0	0	0	0
		1.2	0.17	-0.17	-0.17	0.17
	16CA	0.4	-0.17	0.17	0.17	-0.17
		0.8	0	0	0	0
		1.2	0.17	-0.17	-0.17	0.17
SSRP CSRP	10CA	0.4	0.09	–	-0.12	–
		0.8	0	–	0	–
		1.2	-0.09	–	0.12	–
	12CA	0.4	0.09	–	-0.12	–
		0.8	0	–	0	–
		1.2	-0.09	–	0.12	–
	16CA	0.4	0.09	–	-0.12	–
		0.8	0	–	0	–
		1.2	-0.09	–	0.12	–

Corrected Cutting Edge Position Values by Insert Corner Radius

Dimensions (mm)

Cat. No.		Corner Radius	X_1	X_2	Y_1	Y_2
STRP CTRP	8CA	0.2	0.19	–	-0.05	–
		0.4	0	–	0	–
		0.8	-0.37	–	0.1	–
	10CA	0.2	0.19	–	-0.05	–
		0.4	0	–	0	–
		0.8	-0.37	–	0.1	–
STXP CTXP	8CA	0.2	0.19	–	-0.07	–
		0.4	0	–	0	–
		0.8	-0.39	–	0.14	–
	10CA	0.2	0.19	–	-0.07	–
		0.4	0	–	0	–
		0.8	-0.39	–	0.14	–
SSTP CSTP	8CA	0.4	0.15	-0.25	-0.08	0.15
		0.8	0	0	0	0
	10CA	0.4	0.15	-0.25	-0.08	0.15
		0.8	0	0	0	0
SSWP CSWP	8CA	0.4	-0.08	–	0.15	–
		0.8	0	–	0	–
	10CA	0.4	-0.08	–	0.15	–
		0.8	0	–	0	–
SDAC	10CA	0.1	0.25	–	0.05	–
		0.2	0.17	–	0.03	–
		0.4	0	0	0	0
		0.8	-0.33	–	-0.07	–
SDBC	10CA	0.1	0.22	–	0.1	–
		0.2	0.14	–	0.06	–
		0.4	0	0	0	0
		0.8	-0.29	–	-0.13	–
SCLC	10CA	0.1	0.07	–	0.07	–
		0.2	0.06	–	0.06	–
		0.4	0.04	–	0.04	–
		0.8	0	0	0	0
SCFC	10CA	0.1	0	–	0.13	–
		0.2	0	–	0.12	–
		0.4	0	–	0.08	–
		0.8	0	0	0	0

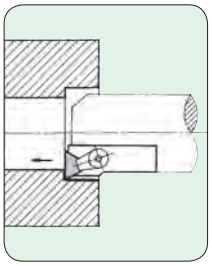
Cat. No.		Corner Radius	X_1	X_2	Y_1	Y_2
CTRP	8CA	0.2	0.19	–	-0.05	–
		0.4	0	–	0	–
		0.8	-0.37	–	0.1	–
	10CA	0.2	0.19	–	-0.05	–
		0.4	0	–	0	–
		0.8	-0.37	–	0.1	–
CTXP	8CA	0.2	0.19	–	-0.07	–
		0.4	0	–	0	–
		0.8	-0.39	–	0.14	–
	10CA	0.2	0.19	–	-0.07	–
		0.4	0	–	0	–
		0.8	-0.39	–	0.14	–
CSTP	8CA	0.4	0.15	-0.25	-0.08	0.15
		0.8	0	0	0	0
	10CA	0.4	0.15	-0.25	-0.08	0.15
		0.8	0	0	0	0
CSWP	8CA	0.4	-0.08	–	0.15	–
		0.8	0	–	0	–
	10CA	0.4	-0.08	–	0.15	–
		0.8	0	–	0	–

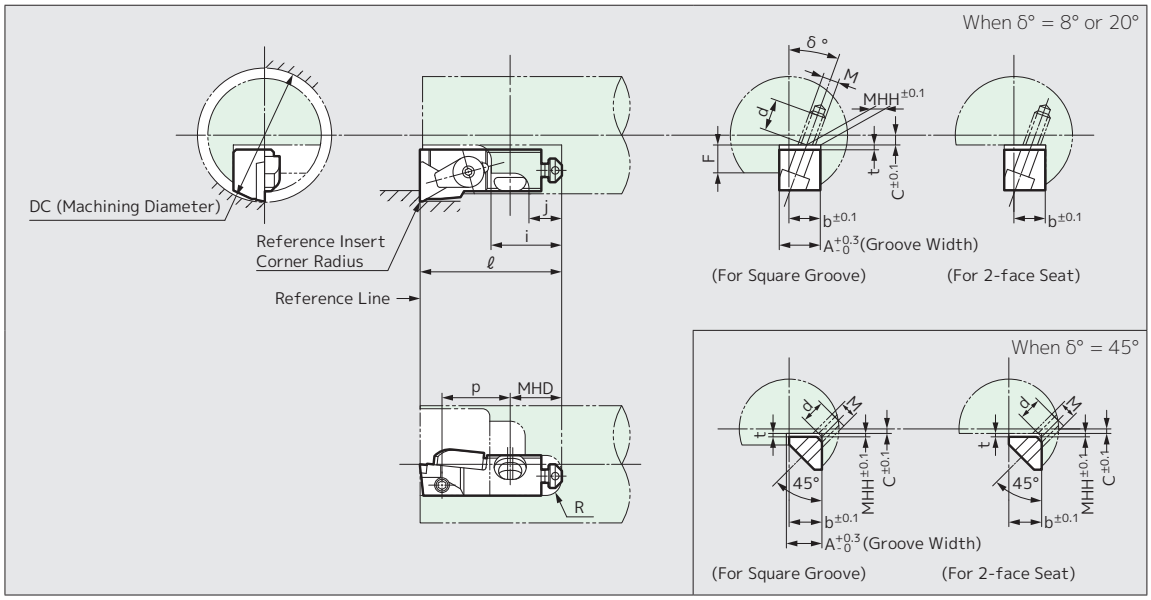
SP type / SC type / SX type / CP type

Mounting Part Dimensions and Calculation Formulas

Dimensions (mm)

Internal Turning





Cat. No.			C	A	b	ℓ	F	i	j	R	d	MHH	MHD	p	M	δ°
	SP type	CP type														
STUP CTUP	10CA	10CA	DC/2−15.01−Y_1	12.7	10.00	50 + X_1	5.0	26	13	3.5	12	4.64	20	24	M6×1.0	20°
	12CA	12CA	DC/2−21.01−Y_1	15.7	12.00	55 + X_1	10.5				16	5.64		26		
	16CA	16CA	DC/2−26.01−Y_1	16.2	16.00	63 + X_1	5.5	31	17	5.0	12	1.00	25	29.4	M8×1.25	45°
STFP CTFP	8CA	8CA	DC/2−12.61−Y_1	11.7	10.00	46 + X_1	5.0	23	13	3.5	12	5.51	19	23	M5×0.8	8°
	10CA	10CA	DC/2−15.01−Y_1	12.7		50 + X_1		26				4.64	20	24	M6×1.0	20°
	12CA	12CA	DC/2−21.01−Y_1	15.7	12.00	55 + X_1	10.5			5.0	16	5.64		26.5		
	16CA	16CA	DC/2−26.01−Y_1	16.2	16.00	63 + X_1	5.5	31	17		12	1.00	25	29.4	M8×1.25	45°
	–	20CA		20.2	20.00	70 + X_1	7.5	36	22	7.0	20	1.00	30	30.5		
STTP CTTP	8CA	8CA	DC/2−14.29−Y_2	11.7	10.00	38.59 + X_2	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	10CA	DC/2−14.97−Y_2	12.7		41.41 + X_2		26				4.64	20	24	M6×1.0	20°
	12CA	12CA	DC/2−21.19−Y_2	15.7	12.00	42.56 + X_2	10.5			5.0	16	5.64		26		
	16CA	16CA	DC/2−23.20−Y_2	16.2	16.00	50.54 + X_2	5.5	31	17		12	1.00	25	24.7	M8×1.25	45°
STWP CTWP	8CA	8CA	DC/2−12.61−Y_1	11.7	10.00	42 + X_1	5.0	23	13	3.5	12	5.51	19	22	M5×0.8	8°
	10CA	10CA	DC/2−15.01−Y_1	12.7		44 + X_1		26				4.64	20	22.5	M6×1.0	20°
	12CA	12CA	DC/2−21.01−Y_1	15.7	12.00	47 + X_1	10.5			5.0	16	5.64		26		
	16CA	16CA	DC/2−26.01−Y_1	16.2	16.00	53 + X_1	5.5	31	17		12	1.00	25	22.8	M8×1.25	45°
STSP CTSP	10CA	10CA	DC/2−15.01−Y_1	12.7	10.00	44 + X_1	5.0	26	13	3.5	12	4.64	20	22	M6×1.0	20°
	12CA	12CA	DC/2−21.01−Y_1	15.7	12.00	47 + X_1	10.5			5.0	16	5.64		25		
	16CA	16CA	DC/2−26.01−Y_1	16.2	16.00	53 + X_1	5.5	31	17		12	1.00	25	25.1	M8×1.25	45°
SSYP CSYP	8CA	8CA	DC/2−13.01−Y_1	11.7	10.00	46 + X_1	5.0	23	13	3.5	12	5.51	19	23	M5×0.8	8°
	10CA	10CA	DC/2−15.01−Y_1	12.7		50 + X_1		26				4.64	20	25	M6×1.0	20°
	–	12CA	DC/2−21.01−Y_1	15.7	12.00	55 + X_1	10.5			5.0	16	5.64		28.5		
	–	16CA	DC/2−26.01−Y_1	16.2	16.00	63 + X_1	5.5	31	17		12	1.00	25	28.2	M8×1.25	45°
SSKP CSKP	8CA	8CA	DC/2−13.01−Y_1	11.7	10.00	46 + X_1	5.0	23	13	3.5	12	5.51	19	23	M5×0.8	8°
	10CA	10CA	DC/2−15.01−Y_1	12.7		50 + X_1		26				4.64	20	25	M6×1.0	20°
	–	12CA	DC/2−21.01−Y_1	15.7	12.00	55 + X_1	10.5			5.0	16	5.64		28.5		
	–	16CA	DC/2−26.01−Y_1	16.2	16.00	63 + X_1	5.5	31	17		12	1.00	25	28.8	M8×1.25	45°
SSSP CSSP	8CA	8CA	DC/2−13.01−Y_1	11.7	10.00	40 + X_1	5.0	23	13	3.5	12	5.51	19	17	M5×0.8	8°
	10CA	10CA	DC/2−15.01−Y_1	12.7		44 + X_1		26				4.64	20	19	M6×1.0	20°
	–	12CA	DC/2−21.01−Y_1	15.7	12.00	47 + X_1	10.5			5.0	16	5.64		23		
	–	16CA	DC/2−26.01−Y_1	16.2	16.00	53 + X_1	5.5	31	17		12	1.00	25	22.6	M8×1.25	45°

SP type / SC type / SX type / CP type

Cat. No.		C	A	b	ℓ	F	i	j	R	d	MHH	MHD	p	M	δ°
SSTP	8CA	DC/2−13.51−Y_2	11.7	10	39.94 + X_2	5	23	13	3.5	12	5.51	19	18.5	M5 × 0.8	8°
	10CA	DC/2−14.30−Y_2	12.7		43.07 + X_2		26				4.64	20	20.5	M6 × 1.0	20°
CSTP	8CA	DC/2−13.51−Y_2	11.7	10	39.94 + X_2	5	23	13	3.5	12	5.51	19	18.5	M5 × 0.8	8°
	10CA	DC/2−14.30−Y_2	12.7		43.07 + X_2		26				4.64	20	22.5	M6 × 1.0	20°
SSWP	8CA	DC/2−12.61−Y_1	11.7	10	42 + X_1	5	23	13	3.5	12	5.51	19	21	M5 × 0.8	8°
	10CA	DC/2−15.01−Y_1	12.7		44 + X_1		26				4.64	20	16	M6 × 1.0	20°
CSWP	8CA	DC/2−12.61−Y_1	11.7	10	42 + X_1	5	23	13	3.5	12	5.51	19	21	M5 × 0.8	8°
	10CA	DC/2−15.01−Y_1	12.7		44 + X_1		26				4.64	20	22.5	M6 × 1.0	20°
SXFP	8CA	DC/2−13.01−Y_1	11.7	10	46 + X_1	5	23	13	3.5	12	5.51	19	17	M5 × 0.8	8°
SXLP	10CA	DC/2−15.01−Y_1	12.7		50 + X_1		26				4.64	20	15	M6 × 1.0	20°
SDAC	10CA	DC/2−15.01−Y_1	12.7	10	50 + X_1	5	26	13	3.5	12	4.64	20	19	M6 × 1.0	20°
SDBC	10CA	DC/2−15.01−Y_1	12.7	10	50 + X_1	5	26	13	3.5	12	4.64	20	20	M6 × 1.0	20°
SCLC	10CA	DC/2−15.01−Y_1	12.7	10	50 + X_1	5	26	13	3.5	12	4.64	20	20	M6 × 1.0	20°
SCFC	10CA	DC/2−15.01−Y_1	12.7	10	50 + X_1	5	26	13	3.5	12	4.64	20	20	M6 × 1.0	20°

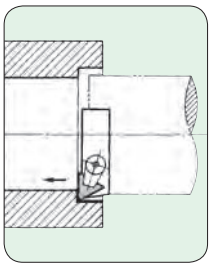
● The symbols used in the table are as below.

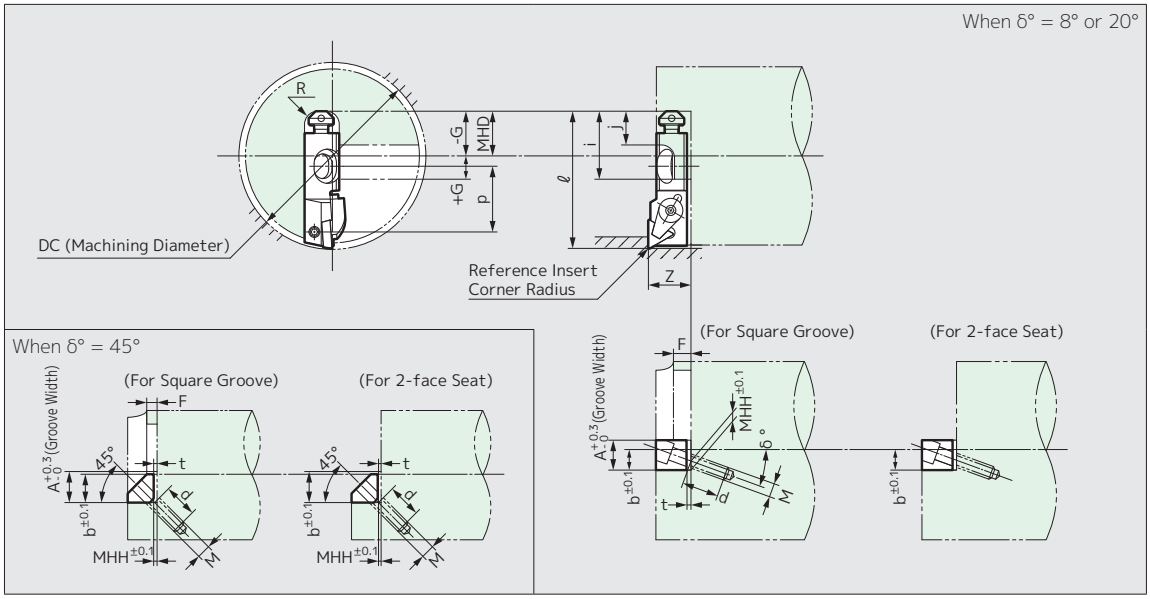
DC: Machining Diameter (C dimension is calculated to be just 0.1mm smaller than the target diameter. Use the target diameter for the substitute DC value.)
t: Shim Thickness (The calculation formula in the table is derived using 1.0mm.)
X_1, X_2, Y_1, Y_2: Corrected values based on insert corner radius (as the cutting edge position of the Cartridge Unit is measured with a reference insert corner radius, a corrected value is required when using an insert with a different corner radius from the reference corner radius (see P.55)).
N: Chamfer Size

SP type / SC type / SX type / CP type

Dimensions (mm)

Internal Boring (Radial Mounting)

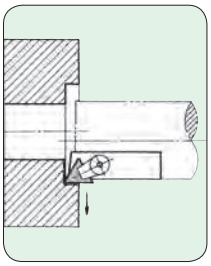




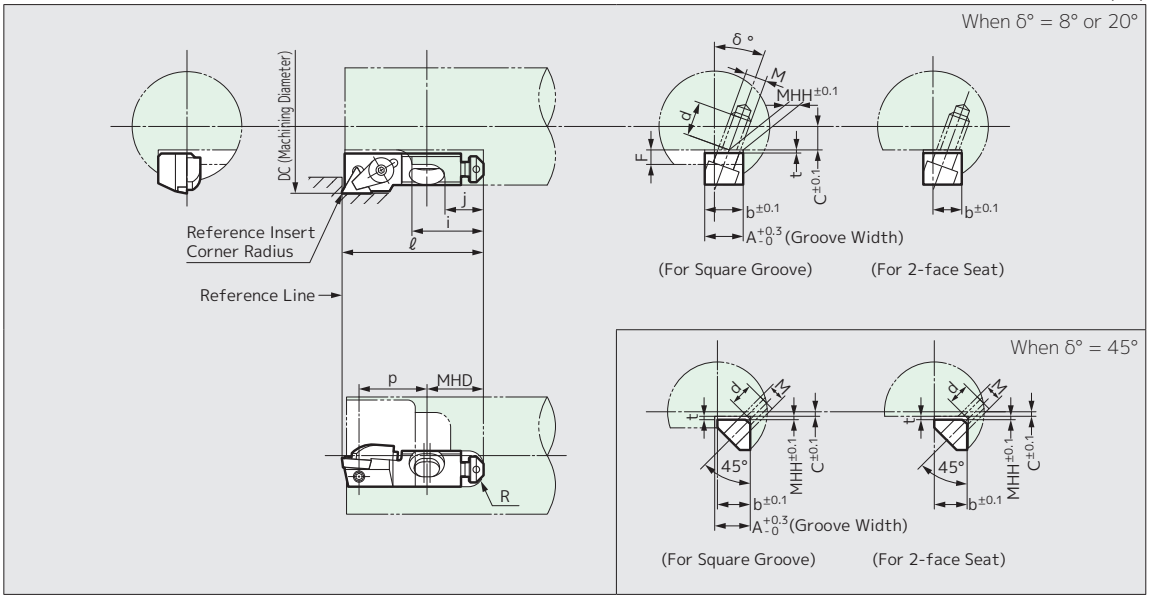
Cat. No. SP type	Cat. No. CP type	A	b	ℓ	G	F	Z	i	j	r	d	MHH	MHD	p	M	δ°
STGP CTGP	10CA	10CA	12.7	10.00	50 + X_1	DC/2−50.05−X_1	5.0	15.0	26	13	3.5	12	4.64	20	24	M6×1.0	20°
	12CA	12CA	15.7	12.00	55 + X_1	DC/2-55.05−X_1	10.5	21.0			5.0	16	5.64		26		
	16CA	16CA	16.2	16.00	63 + X_1	DC/2-63.05−X_1	5.5	26.0	31	17		12	1.00	25	26	M8×1.25	45°
STTP CTTP	8CA	8CA	11.7	10.00	46 + X_1	DC/2-46.05−X_1	5.0	10.0 + Y_1	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	10CA	12.7		50 + X_1	DC/2−50.05−X_1			26				4.64	20	24	M6×1.0	20°
	12CA	12CA	15.7	12.00	55 + X_1	DC/2-55.05−X_1	10.5	14.0 + Y_1			5.0	16	5.64		26		
	16CA	16CA	16.2	16.00	63 + X_1	DC/2-63.05−X_1	5.5	16.0 + Y_1	31	17		12	1.00	25	24.7	M8×1.25	45°
STJP CTJP	10CA	10CA	12.7	10.00	50 + X_1	DC/2−50.05−X_1	5.0	15.0 + Y_1	26	13	3.5	12	4.64	20	25	M6×1.0	20°
	12CA	12CA	15.7	12.00	55 + X_1	DC/2-55.05−X_1	10.5	21.0 + Y_1			5.0	16	5.64		28		
	16CA	16CA	16.2	16.00	63 + X_1	DC/2-63.05−X_1	5.5	26.0 + Y_1	31	17		12	1.00	25	29.4	M8×1.25	45°
STSP CTSP	10CA	10CA	12.7	10.00	51.02 + X_2	DC/2-51.07−X_2	5.0	7.98 + Y_2	26	13	3.5	12	4.64	20	22	M6×1.0	20°
	12CA	12CA	15.7	12.00	57.16 + X_2	DC/2-57.21−X_2	10.5	10.84 + Y_2			5.0	16	5.64		25		
	16CA	16CA	16.2	16.00	63.16 + X_2	DC/2-63.21−X_2	5.5	15.84 + Y_2	31	17		12	1.00	25	25.1	M8×1.25	45°
SSSP CSSP	8CA	8CA	11.7	10.00	44.95 + X_2	DC/2-45.00−X_2	5.0	8.05 + Y_2	23	13	3.5	12	5.51	19	17	M5×0.8	8°
	10CA	10CA	12.7		50.07 + X_2	DC/2-50.12−X_2		8.93 + Y_2	26				4.64	20	19	M6×1.0	20°
	–	12CA	15.7	12.00	55.32 + X_2	DC/2-55.37−X_2	10.5	12.68 + Y_2			5.0	16	5.64		23		
	–	16CA	16.2	16.00	61.32 + X_2	DC/2-61.37−X_2	5.5	17.68 + Y_2	31	17		12	1.00	25	22.6	M8×1.25	45°
SSRP CSRP	10CA	10CA	12.7	10.00	50 + X_1	DC/2−50.05−X_1	5.0	13.0	26	13	3.5	12	4.64	20	24	M6×1.0	20°
	–	12CA	15.7	12.00	55 + X_1	DC/2-55.05−X_1	10.5	17.0			5.0	16	5.64		26		
	–	16CA	16.2	16.00	63 + X_1	DC/2-63.05−X_1	5.5	23.0	31	17		12	1.00	25	26.9	M8×1.25	45°
STRP CTRP	8CA	8CA	11.7	10.00	46 + X_1	DC/2-46.05−X_1	5.0	10.0 + Y_1	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	10CA	12.7		50 + X_1	DC/2−50.05−X_1		13.0 + Y_1	26				4.64	20	23.5	M6×1.0	20°
STXP CTXP	8CA	8CA	11.7	10.00	46 + X_1	DC/2-46.05−X_1	5.0	10.0 + Y_1	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	10CA	12.7		50 + X_1	DC/2−50.05−X_1		13.0 + Y_1	26				4.64	20	23.5	M6×1.0	20°
SSTP CSTP	–	8CA	11.7	10.00	46 + X_1	DC/2-46.05−X_1	5.0	10.0 + Y_1	23	13	3.5	12	5.51	19	18.5	M5×0.8	8°
	10CA	10CA	12.7		50.5 + X_1	DC/2-50.55−X_1			26				4.64	20	22.5	M6×1.0	20°
SXLP	8CA	–	11.7	10.00	46 + X_1	DC/2-46.05−X_1	5.0	13.0 + Y_1	23	13	3.5	12	5.51	19	17	M5×0.8	8°
	10CA	–	12.7		50 + X_1	DC/2−50.05−X_1		15.0 + Y_1	26				4.64	20	15	M6×1.0	20°
SCLC	10CA	–	12.7	10.00	50 + X_1	DC/2−50.05−X_1	5.0	15.0 + Y_1	26	13	3.5	12	4.64	20	20	M6×1.0	20°

SP type / SC type / SX type / CP type

Facing



Dimensions (mm)



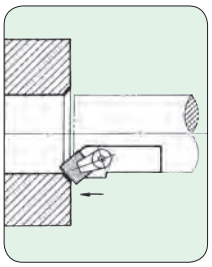
Cat. No.			C	A	b	ℓ	F	i	j	R	d	MHH	MHD	p	M	δ°
	SP type	CP type														
STGP CTGP	10CA	10CA	DC/2−15.01−Y_1	12.7	10.00	50 + X_1	5.0	26	13	3.5	12	4.64	20	24	M6×1.0	20°
	12CA	12CA	DC/2−21.01−Y_1	15.7	12.00	55 + X_1	10.5				16	5.64		26		
	16CA	16CA	DC/2−26.01−Y_1	16.2	16.00	63 + X_1	5.5	31	17	5.0	12	1.00	25	26	M8×1.25	45°
STTP CTTP	8CA	8CA	DC/2−10.01−Y_1	11.7	10.00	46 + X_1	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	10CA	DC/2−10.01−Y_1	12.7		50 + X_1		26				4.64	20	24	M6×1.0	20°
	12CA	12CA	DC/2−14.01−Y_1	15.7	12.00	55 + X_1	10.5			5.0	16	5.64		26		
	16CA	16CA	DC/2−16.01−Y_1	16.2	16.00	63 + X_1	5.5	31	17		12	1.00	25	24.7	M8×1.25	45°
STJP CTJP	10CA	10CA	DC/2−15.01−Y_1	12.7	10.00	50 + X_1	5.0	26	13	3.5	12	4.64	20	25	M6×1.0	20°
	12CA	12CA	DC/2−21.01−Y_1	15.7	12.00	55 + X_1	10.5			5.0	16	5.64		28		
	16CA	16CA	DC/2−26.01−Y_1	16.2	16.00	63 + X_1	5.5	31	17		12	1.00	25	29.4	M8×1.25	45°
STRP CTRP	8CA	8CA	DC/2−10.01−Y_1	11.7	10.00	46 + X_1	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	10CA	DC/2−13.01−Y_1	12.7		50 + X_1		26				4.64	20	24	M6×1.0	20°
STXP CTXP	8CA	8CA	DC/2−10.01−Y_1	11.7	10.00	46 + X_1	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	10CA	DC/2−13.01−Y_1	12.7		50 + X_1		26				4.64	20	24	M6×1.0	20°
SSRP CSRP	10CA	10CA	DC/2−13.01−Y_1	12.7	10.00	50 + X_1	5.0	26	13	3.5	12	4.64	20	24	M6×1.0	20°
	–	12CA	DC/2−17.01−Y_1	15.7	12.00	55 + X_1	10.5			5.0	16	5.64		26		
	–	16CA	DC/2−22.01−Y_1	16.2	16.00	63 + X_1	5.5	13	17		12	1.00	25	26.9	M8×1.25	45°
SSTP CSTP	–	8CA	DC/2−10.01−Y_1	11.7	10.00	46 + X_1	5.0	23	13	3.5	12	5.51	19	18.5	M5×0.8	8°
	10CA	10CA	DC/2−10.01−Y_1	12.7		50.5 + X_1		26				4.64	20	22.5	M6×1.0	20°

● The symbols used in the table are as below.

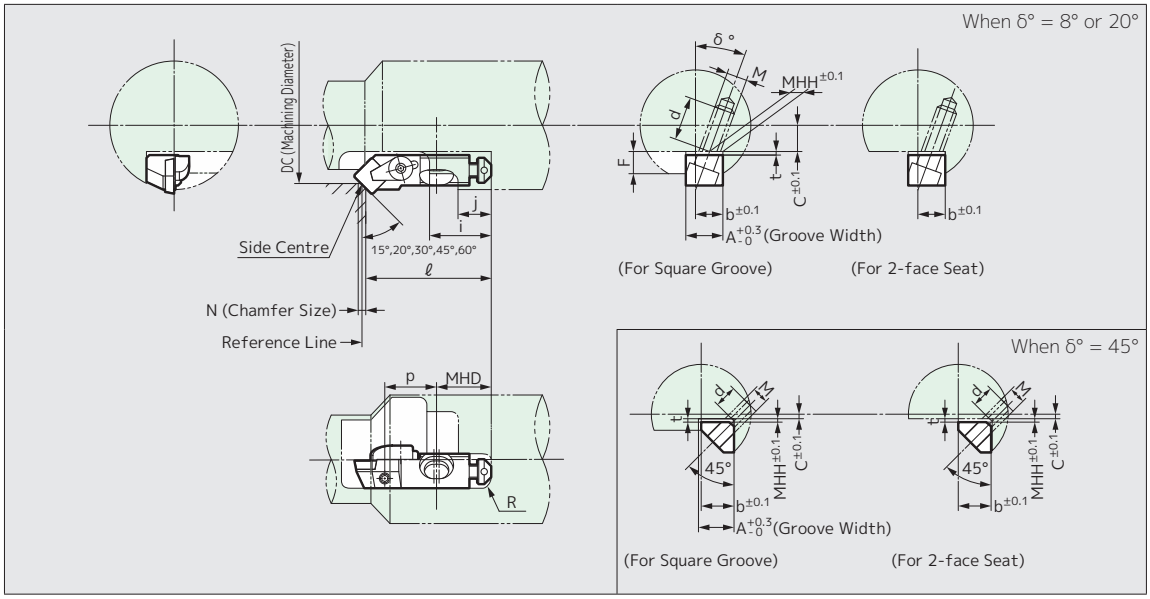
DC: Machining Diameter (C dimension is calculated to be just 0.1mm smaller than the target diameter. Use the target diameter for the substitute DC value.)
t: Shim Thickness (The calculation formula in the table is derived using 1.0mm.)
X_1, X_2, Y_1, Y_2: Corrected values based on insert corner radius (as the cutting edge position of the Cartridge Unit is measured with a reference insert corner radius, a corrected value is required when using an insert with a different corner radius from the reference corner radius (see P.55)).
N: Chamfer Size

SP type / SC type / SX type / CP type

Chamfering



Dimensions (mm)



Cat. No.			C	A	b	ℓ	F	i	j	R	d	MHH	MHD	p	M	δ°
	SP type	CP type														
STTP CTTP	8CA	8CA	DC/2−12.19 + 0.29N	11.7	10.00	42.23−0.5N	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	10CA	DC/2−12.52 + 0.29N	12.7	10.00	45.64−0.5N		26				4.64	20	24	M6×1.0	20°
	12CA	12CA	DC/2−17.67 + 0.29N	15.7	12.00	48.65−0.5N	10.5			5.0	16	5.64		26		
	16CA	16CA	DC/2−19.67 + 0.29N	16.2	16.00	56.65−0.5N	5.5	31	17		12	1.00	25	24.7	M8×1.25	45°
STWP CTWP	8CA	8CA	DC/2− 8.84 + 0.87N	11.7	10.00	44.52−0.5N	5.0	23	13	3.5	12	5.51	19	22	M5×0.8	8°
	10CA	10CA	DC/2−10.45 + 0.87N	12.7	10.00	46.4 −0.5N		26				4.64	20	22.5	M6×1.0	20°
	12CA	12CA	DC/2−14.25 + 0.87N	15.7	12.00	50.4 −0.5N	10.5			5.0	16	5.64		26		
	16CA	16CA	DC/2−18.25 + 0.87N	16.2	16.00	56.4 −0.5N	5.5	31	17		12	1.00	25	22.8	M8×1.25	45°
STSP CTSP	10CA	10CA	DC/2−11.49 + 0.5 N	12.7	10.00	47.49−0.5N	5.0	26	13	3.5	12	4.64	20	22	M6×1.0	20°
	12CA	12CA	DC/2−15.92 + 0.5 N	15.7	12.00	52.01−0.5N	10.5			5.0	16	5.64		25		
	16CA	16CA	DC/2−20.92 + 0.5 N	16.2	16.00	58.01−0.5N	5.5	31	17		12	1.00	25	25.1	M8×1.25	45°
STRP CTRP	8CA	8CA	DC/2−11.15 + 0.13N	11.7	10.00	41.74−0.5N	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	10CA	DC/2−14.33 + 0.13N	12.7		45.08−0.5N		26				4.64	20	24	M6×1.0	20°
STXP CTXP	8CA	8CA	DC/2−11.51 + 0.18N	11.7	10.00	41.88−0.5N	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	10CA	DC/2−14.74 + 0.18N	12.7		45.24−0.5N		26				4.64	20	24	M6×1.0	20°
SSSP CSSP	8CA	8CA	DC/2−10.54 + 0.5 N	11.7	10.00	42.47−0.5N	5.0	23	13	3.5	12	5.51	19	17	M5×0.8	8°
	10CA	10CA	DC/2−11.96 + 0.5 N	12.7	10.00	47.04−0.5N		26				4.64	20	19	M6×1.0	20°
	–	12CA	DC/2−16.84 + 0.5 N	15.7	12.00	51.16−0.5N	10.5			5.0	16	5.64		23		
	–	16CA	DC/2−21.84 + 0.5 N	16.2	16.00	57.16−0.5N	5.5	31	17		12	1.00	25	22.6	M8×1.25	45°
SSRP CSRP	10CA	10CA	DC/2−14.04 + 0.13N	12.7	10.00	45.58−0.5N	5.0	26	13	3.5	12	4.64	20	24	M6×1.0	20°
	–	12CA	DC/2−18.45 + 0.13N	15.7	12.00	49.05−0.5N	10.5			5.0	16	5.64		26		
	–	16CA	DC/2−24.44 + 0.13N	16.2	16.00	57.04−0.5N	5.5	31	17		12	1.00	25	26.9	M8×1.25	45°
SSTP CSTP	–	8CA	DC/2−11.82 + 0.29N	11.7	10.00	42.86−0.5N	5.0	23	13	3.5	12	5.51	19	18.5	M5×0.8	8°
	10CA	10CA	DC/2−12.22 + 0.29N	12.7		46.68−0.5N		26				4.64	20	22.5	M6×1.0	20°
SSWP CSWP	–	8CA	DC/2− 9.47 + 0.87N	11.7	10.00	43.81−0.5N	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	10CA	DC/2−11.18 + 0.87N	12.7		46.21−0.5N		26				4.64	20	22.5	M6×1.0	20°

MEMO

CE type

Holder

Fig.1

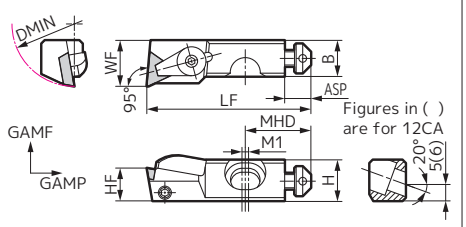


Figure shows right-handed (R) tool.

CTUE

T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTUE R/L 10CA	●		38	–	12.5	11	14	–	50	–	10	+10°	+10°	20	8	2	1	*2
CTUE R/L 12CA	●		50	–	15.5	16	20	–	55	–	12	+10°	+10°	20	8	2	1	*3

Fig.1

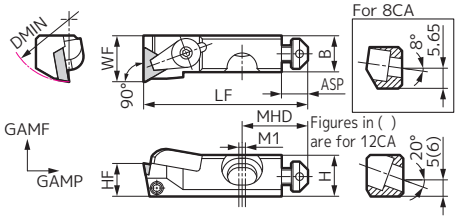


Figure shows right-handed (R) tool.

Fig.2

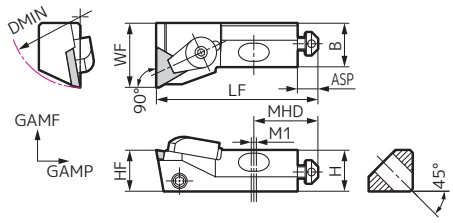


Figure shows right-handed (R) tool.

CTFE

T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTFE R/L 8CA	●	●	30	–	11.5	9.86	11.6	–	46	–	10	+10°	+10°	19	8	2	1	*1
CTFE R/L 10CA	●	●	38	–	12.5	11	14	–	50	–	10	+10°	+10°	20	8	2	1	*2
CTFE R/L 12CA	●	●	50	–	15.5	16	20	–	55	–	12	+10°	+10°	20	8	2	1	*3
CTFE R/L 16CA	●	●	55	–	16	17	25	–	63	–	16	+10°	+10°	25	8	2	2	*3
CTFE R/L 20CA	●		70	–	20	19	25	–	70	–	20	+10°	+10°	30	10	2	2	*4

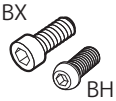
Refer to the table below for *1 to *4.

Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**TEGN1102**	6.35	2.38
*2	**TEGN1103**	6.35	3.18
*3	**TEGN1603**	9.525	3.18
*4	**TEGN2204**	12.70	4.76

Parts (CTUE type / CTFE type / CTGE type / CTTE type)

Unit Cat. No.		Clamp Plate	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Axial Adjustment Wrench	Cap Screw/ Bolt	Clamp Plate Wrench	Radial Adjustment Wrench	Cap Screw/ Bolt Wrench
					Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size										
CTUE CTFE CTGE CTTE	8CA	BCM04R	BT0408 (BT0406)	AJM5F	S083	S103	1.8×45	BX0515	(LH020)	(LH020)	(LH040)
	10CA	BCM05R			S0810	S1010		BX0615	(LH025)		(LH050)
	12CA	BCM06R	BT0412 (BT0410)		S0812	S1012		BX0625	(LH030)		
	16CA		BT0612		S0816B	S1016B		BH0825		(LH030)	
	20CA		BT0620	AJM6	S0820B	S1020B		BH0832			

*Wrenches in ( ) are sold separately.
Among the 8CA sized Cartridge Units, CTTE type radial adjustment screw is BT0406.
Among the 12CA sized Cartridge Units, CTTE type radial adjustment screw is BT0410.

Holder

Fig.1

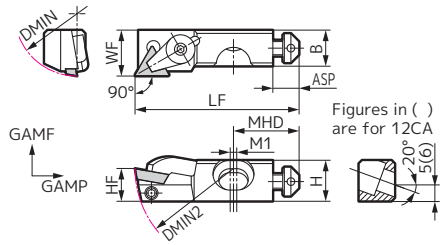


Figure shows right-handed (R) tool.

CTGE

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTGE R/L 10CA			38	60	12.5	11	14	–	50	–	10	+10°	+10°	20	8	2	1	*2
CTGE R/L 12CA			50	75	15.5	16	20	–	55	–	12	+10°	+10°	20	8	2	1	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1

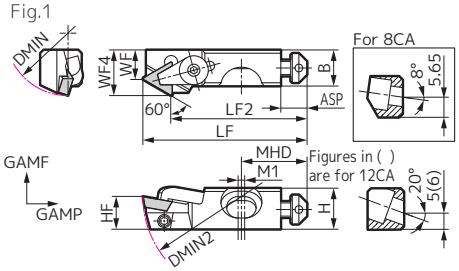


Figure shows right-handed (R) tool.

Fig.2

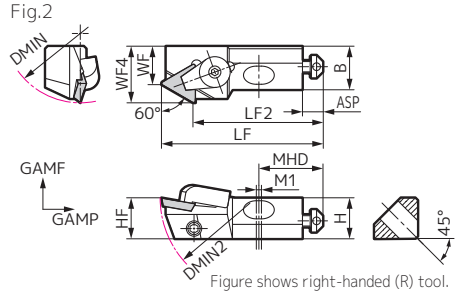


Figure shows right-handed (R) tool.

CTTE

Dimensions (mm)

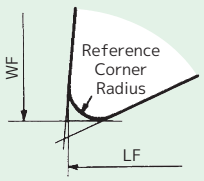
Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTTE R/L 8CA	●		30	54	11.5	10.06	7	11.97	46	37.39	10	+10°	+10°	19	8	2	1	*1
CTTE R/L 10CA	●		38	60	12.5	11	9	13.97	50	41.39	10	+10°	+10°	20	8	2	1	*2
CTTE R/L 12CA	●		50	70	15.5	16	13	20.19	55	42.54	12	+10°	+10°	20	8	2	1	*3
CTTE R/L 16CA	●		60	75	16	17	15	22.19	63	50.54	16	+10°	+10°	25	8	2	2	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

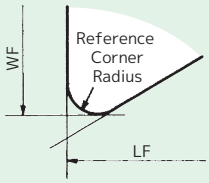
Refer to the "Applicable Insert Representative Cat. Nos." table (P.64) for *1 to *3.

Close-up of Cutting Edge

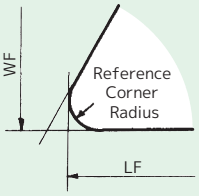
CTUE



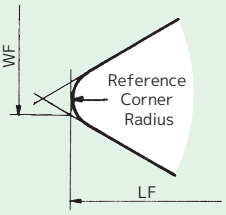
CTFE



CTGE



CTTE

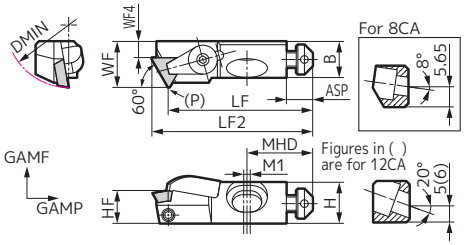


Insert Inscribed Circle (mm)	6.35	9.525	12.70
Reference Corner Radius (mm)	0.4	0.8	0.8

CE type

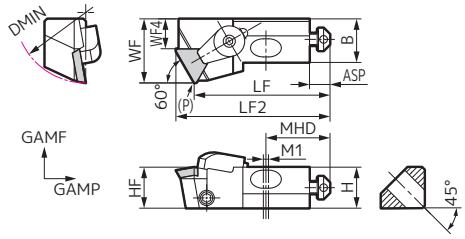
Holder

Fig.1



*: HF shows the (P) point height Figure shows right-handed (R) tool.

Fig.2



*: HF shows the (P) point height Figure shows right-handed (R) tool.

CTWE T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTWE R/L 8CA	●		30	–	11.5	9.82	11.6	2.99	42	46.97	10	+10°	+10°	19	8	2	1	*1
CTWE R/L 10CA	●		38	–	12.5	11	14	5.39	44	48.97	10	+10°	+10°	20	8	2	1	*2
CTWE R/L 12CA	●		50	–	15.5	16	20	7.54	47	54.19	12	+10°	+10°	20	8	2	1	*3
CTWE R/L 16CA			55	–	16	17	25	12.54	53	60.19	16	+10°	+10°	25	8	2	2	*3

Fig.1

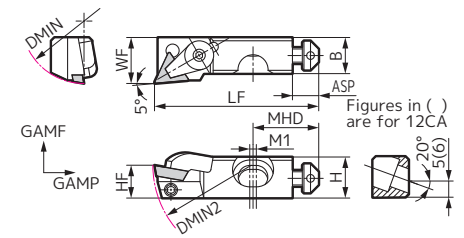


Figure shows right-handed (R) tool.

CTJE T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTJE R/L 10CA	●		40	60	12.5	11	14	–	50	–	10	+10°	+10°	20	8	2	1	*2
CTJE R/L 12CA	●		50	75	15.5	16	20	–	55	–	12	+10°	+10°	20	8	2	1	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

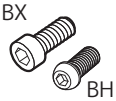
Refer to the table below for *1 to *3.

Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**TEGN1102**	6.35	2.38
*2	**TEGN1103**	6.35	3.18
*3	**TEGN1603**	9.525	3.18

Parts (CTWE type / CTJE type / CTSE type)

Unit Cat. No.		Clamp Plate	Radial Adjustment Screw	Axial Adjustment Screw	Shim Thickness 0.8mm	Shim Thickness 1.0mm	Axial Adjustment Wrench	Cap Screw/ Bolt	Clamp Plate Wrench	Radial Adjustment Wrench	Cap Screw/ Bolt Wrench
Cat. No.	Size										
CTWE CTJE CTSE	8CA	BCM04R	BT0406	AJM5F	S083	S103	1.8×45	BX0515	(LH020)	(LH020)	(LH040)
	10CA	BCM05R	BT0408		S0810	S1010		BX0615	(LH025)		(LH050)
	12CA	BCM06R	BT0412 (BT0408)		S0812	S1012		BX0625	(LH030)		
	16CA		BT0612		S0816B	S1016B		BH0825		(LH030)	

*Wrenches in ( ) are sold separately.
Among the 12CA sized Cartridge Units, CTSE type radial adjustment screw is BT0408.

Holder

Fig.1

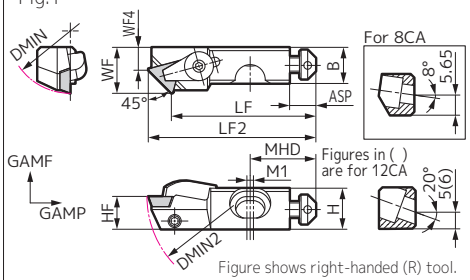


Figure shows right-handed (R) tool.

Fig.2

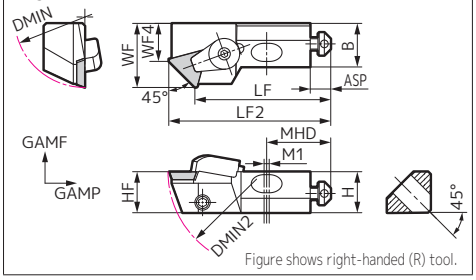


Figure shows right-handed (R) tool.

CTSE T 60°

Dimensions (mm)

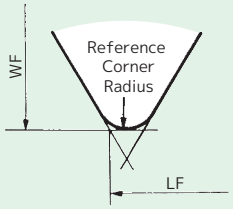
Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTSE R/L 8CA	●		30	50	11.5	10.8	12	4.96	40	47.04	10	+10°	+10°	19	8	2	1	*1
CTSE R/L 10CA	●		38	60	12.5	11	14	6.96	44	51.04	10	+10°	+10°	20	8	2	1	*2
CTSE R/L 12CA	●		50	75	15.5	16	20	9.82	47	57.18	12	+10°	+10°	20	8	2	1	*3
CTSE R/L 16CA	●		55	75	16	17	25	14.82	53	63.18	16	+10°	+10°	25	8	2	2	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

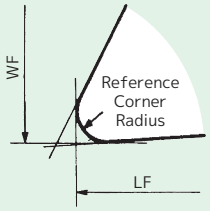
Refer to the "Applicable Insert Representative Cat. Nos." table (P.66) for *1 to *3.

Close-up of Cutting Edge

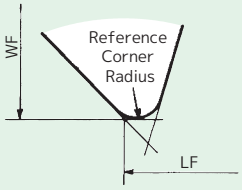
CTWE



CTJE



CTSE



Insert Inscribed Circle (mm)	6.35	9.525	12.70
Reference Corner Radius (mm)	0.4	0.8	0.8

CE type

Holder

Fig.1

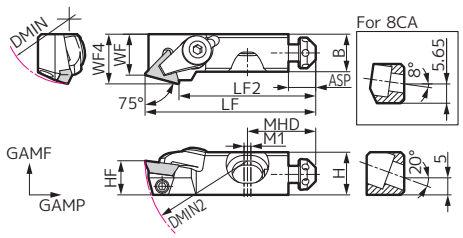


Figure shows right-handed (R) tool.

CTRE T 60° New

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTRE R/L 8CA	●	●	30	50	11.5	10.01	9	11.56	46	36.43	10	+10°	+10°	19	8	2	1	*1
CTRE R/L 10CA	●	●	38	60	12.5	11	12	14.56	50	40.43	10	+10°	+10°	20	8	2	1	*2

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1

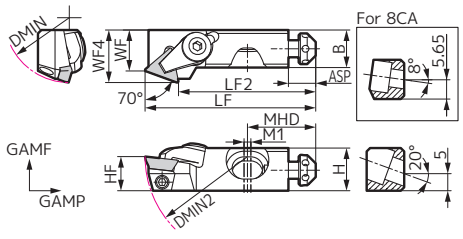


Figure shows right-handed (R) tool.

CTXE T 60° New

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CTXE R/L 8CA	●	●	30	50	11.5	10.20	9	12.39	46	36.68	10	+10°	+10°	19	8	2	1	*1
CTXE R/L 10CA	●	●	38	60	12.5	11	12	15.39	50	40.68	10	+10°	+10°	20	8	2	1	*2

*DMIN2 indicates the minimum bore diameter for radial mounting.

Refer to the table below for *1 and *2.

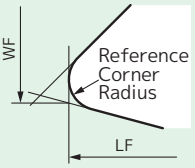
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

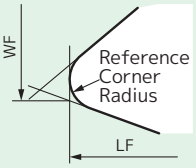
Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**TEGN1102**	6.35	2.38
*2	**TEGN1103**	6.35	3.18

Close-up of Cutting Edge

CTRE



CTXE



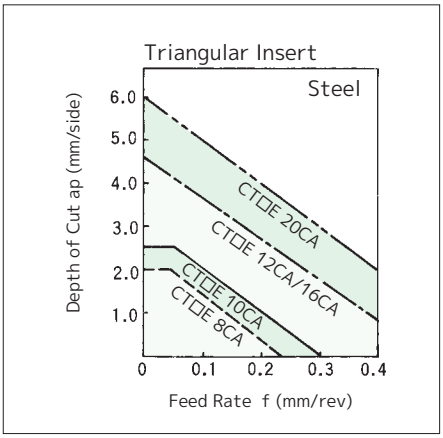
Insert Inscribed Circle (mm)	6.35
Reference Corner Radius (mm)	0.4

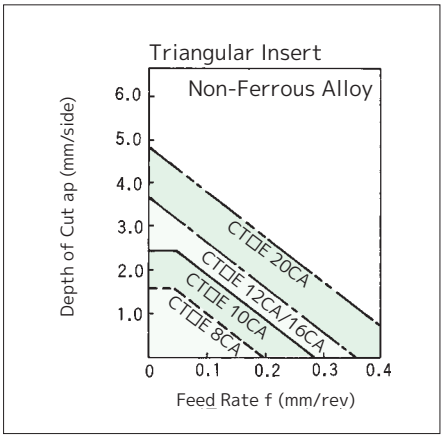
Parts (CTRE type / CTXE type)

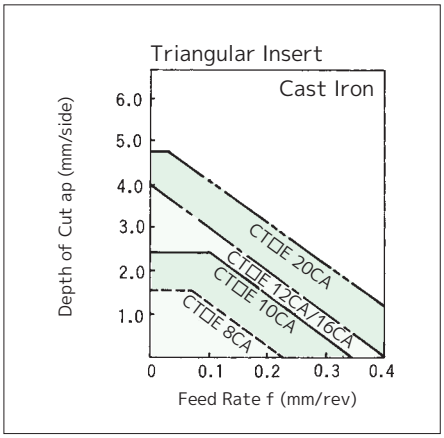
Unit Cat. No.		Clamp Plate	Radial Adjustment Screw	Axial Adjustment Screw	Shim	Shim Retainer	Shim		Axial Adjustment Wrench	Cap Screw	Clamp Plate Wrench	Radial Adjustment Wrench	Cap Screw Wrench
							Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size												
CTRE	8CA	BCM04R	BT0406	AJM5F	–	–	S083	S103	1.8×45	BX0515	(LH020)	(LH020)	(LH040)
CTXE	10CA	BCM05R	BT0408				S0810	S1010		BX0615	(LH025)		(LH050)

*Wrenches in ( ) are sold separately.

Cutting Conditions







CE type

Holder

Fig.1

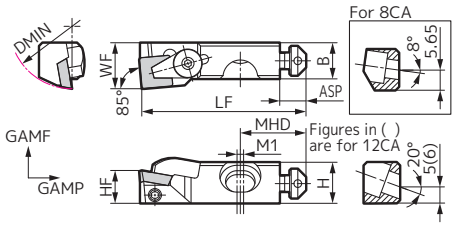


Figure shows right-handed (R) tool.

Fig.2

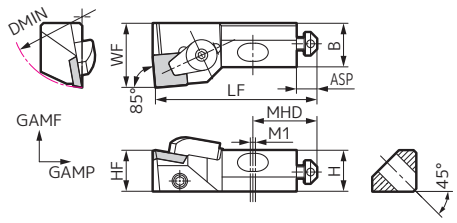


Figure shows right-handed (R) tool.

CSYE

S 90°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CSYE R/L 8CA	●		30	–	11.5	9.96	12	–	46	–	10	+10°	+10°	19	8	2	1	*1
CSYE R/L 10CA	●	●	38	–	12.5	11	14	–	50	–	10	+10°	+10°	20	8	2	1	*2
CSYE R/L 12CA	●	●	50	–	15.5	16	20	–	55	–	12	+10°	+10°	20	8	2	1	*3
CSYE R/L 16CA			55	–	16	17	25	–	63	–	16	+10°	+10°	25	8	2	2	*3

Fig.1

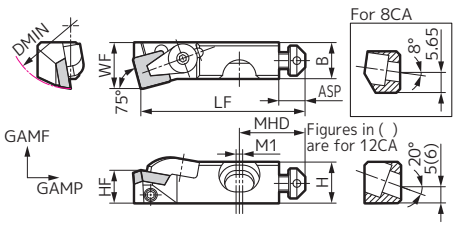


Figure shows right-handed (R) tool.

Fig.2

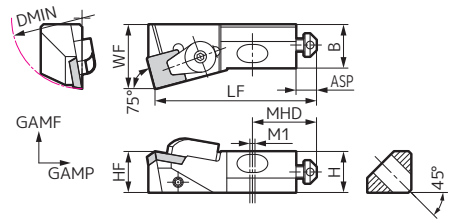


Figure shows right-handed (R) tool.

CSKE

S 90°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CSKE R/L 8CA	●	●	30	–	11.5	9.96	12	–	46	–	10	+10°	+10°	19	8	2	1	*1
CSKE R/L 10CA	●	●	38	–	12.5	11	14	–	50	–	10	+10°	+10°	20	8	2	1	*2
CSKE R/L 12CA	●		50	–	15.5	16	20	–	55	–	12	+10°	+10°	20	8	2	1	*3
CSKE R/L 16CA	●		55	–	16	17	25	–	63	–	16	+10°	+10°	25	8	2	2	*3

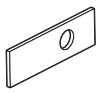
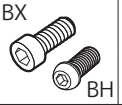
Refer to the table below for *1 to *3.

Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**SEGN0702**	7.94	2.38
*2	**SEGN0903**	9.525	3.18
*3	**SEGN1203**	12.70	3.18

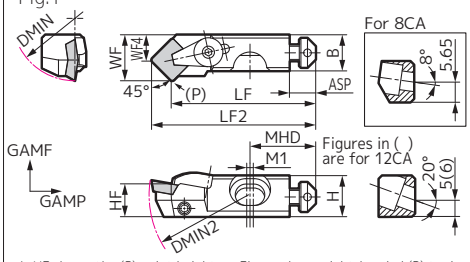
Parts (CSYE type / CSKE type / CSSE type / CSRE type)

Unit Cat. No.		Clamp Plate	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Axial Adjustment Wrench	Cap Screw/ Bolt	Clamp Plate Wrench	Radial Adjustment Wrench	Cap Screw/ Bolt Wrench
					Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size										
CSYE CSKE CSSE CSRE	8CA	BCM04R	BT0408	AJM5F	S083	S103	1.8×45	BX0515	(LH020)	(LH020)	(LH040)
	10CA	BCM05R			S0810	S1010		BX0615	(LH025)		(LH050)
	12CA	BCM06R	BT0412 (BT0408)		S0812	S1012		BX0625	(LH030)		
	16CA		BT0612		S0816B	S1016B		BH0825		(LH030)	

*Wrenches in ( ) are sold separately.
Among the 12CA sized Cartridge Units, CSRE type radial adjustment screw is BT0408.

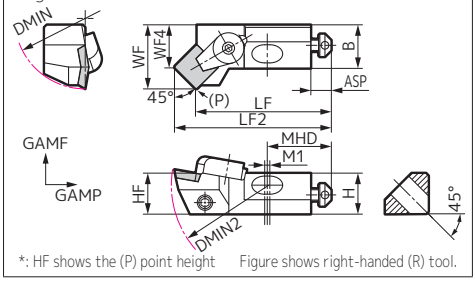
Holder

Fig.1



*: HF shows the (P) point height Figure shows right-handed (R) tool.

Fig.2



*: HF shows the (P) point height Figure shows right-handed (R) tool.

CSSE

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CSSE R/L 8CA	●		30	50	11.5	9.96	12	7.09	40	44.91	10	+10°	0°	19	8	2	1	*1
CSSE R/L 10CA	●	●	38	60	12.5	11	14	7.97	44	50.03	10	+10°	0°	20	8	2	1	*2
CSSE R/L 12CA			50	75	15.5	16	20	11.75	47	55.25	12	+10°	0°	20	8	2	1	*3
CSSE R/L 16CA	●	●	55	75	16	17	25	16.75	53	61.25	16	+10°	0°	25	8	2	2	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1

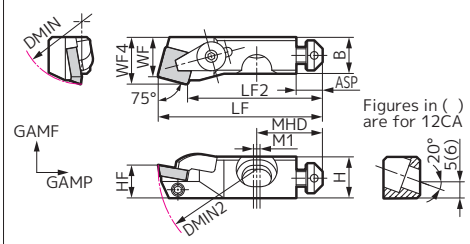


Figure shows right-handed (R) tool.

CSRE

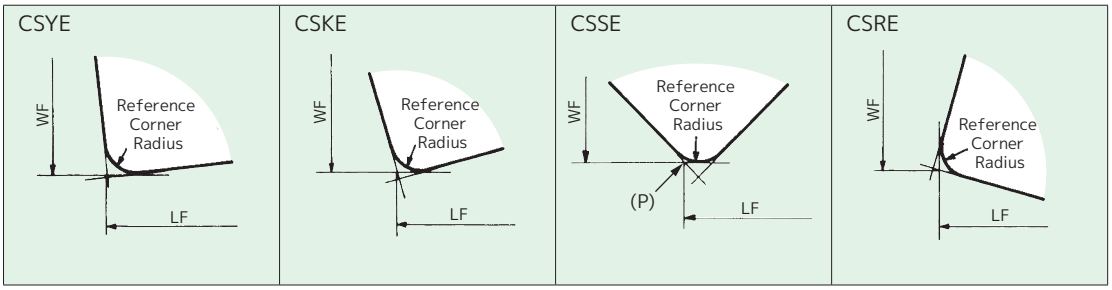
Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CSRE R/L 10CA	●		38	60	12.5	11	12	14.27	50	41.70	10	+10°	+10°	20	8	2	1	*2
CSRE R/L 12CA	●		50	75	15.5	16	17	20.04	55	43.65	12	+10°	+10°	20	8	2	1	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

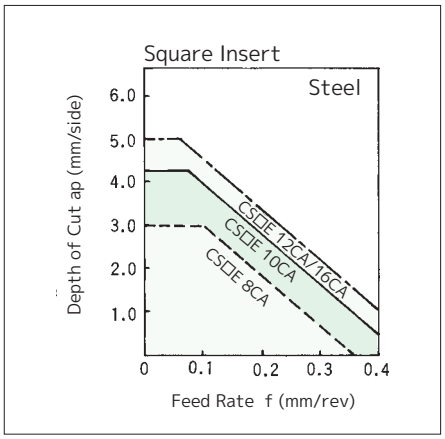
Refer to the "Applicable Insert Representative Cat. Nos." table (P.70) for *1 to *3.

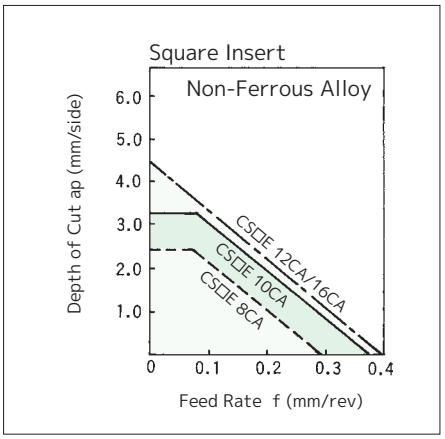
Close-up of Cutting Edge

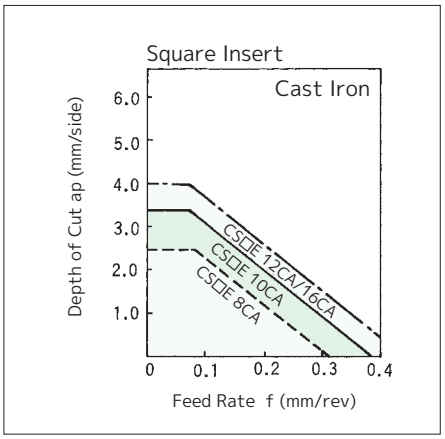


	CSYE / CSKE	CSSE	CSRE
Insert Inscribed Circle (mm)	7.94	9.525	12.70
Reference Corner Radius (mm)	0.8	0.8	0.8

Cutting Conditions







CE type

Holder

Fig.1

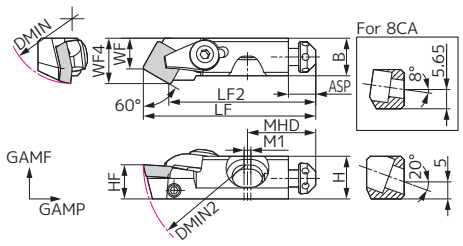


Figure shows right-handed (R) tool.

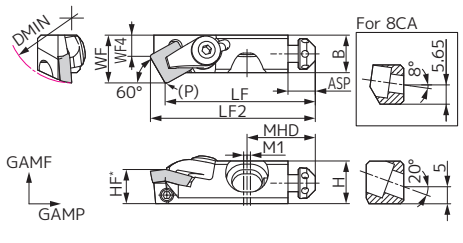
CSTE

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CSTE R/L 8CA	●	●	30	50	11.5	10.13	9	12.51	46	39.92	10	+10°	+10°	19	8	2	1	*1
CSTE R/L 10CA	●	●	38	60	12.5	11	9	13.30	50.5	43.05	10	+8°	+8°	20	8	2	1	*2

*DMIN2 indicates the minimum bore diameter for radial mounting.

Fig.1



*: HF shows the (P) point height Figure shows right-handed (R) tool.

CSWE

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
CSWE R/L 8CA	●	●	30	–	11.5	9.90	11.6	5.52	42	45.51	10	+10°	+10°	19	8	2	1	*1
CSWE R/L 10CA	●	●	38	–	12.5	11	14	6.56	44	48.30	10	+10°	+10°	20	8	2	1	*2

Refer to the table below for *1 and *2.

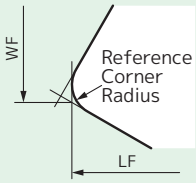
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

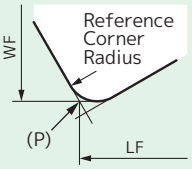
Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**SEGN0702**	7.94	2.38
*2	**SEGN0903**	9.525	3.18

Close-up of Cutting Edge

CSTE



CSWE



Insert Inscribed Circle (mm)	7.94	9.525
Reference Corner Radius (mm)	0.8	0.8

Parts (CSTE type / CSWE type)

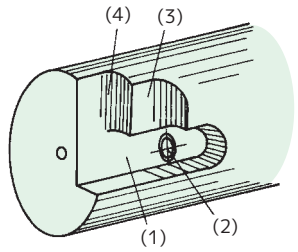
Unit Cat. No.		Clamp Plate	Radial Adjustment Screw	Axial Adjustment Screw	Shim	Shim Retainer	Shim		Axial Adjustment Wrench	Cap Screw	Clamp Plate Wrench	Radial Adjustment Wrench	Cap Screw Wrench
							Thickness 0.8mm	Thickness 1.0mm					
Cat. No.	Size												
CSTE	8CA	BCM04R	BT0406	AJM5F	–	–	S083	S103	1.8×45	BX0515	(LH020)	(LH020)	(LH040)
CSWE	10CA	BCM05R	BT0408				S0810	S1010		BX0615	(LH025)		(LH050)

*Wrenches in ( ) are sold separately.

CE type

Mounting Part Design

● In order to mount the SEC-Cartridge Unit CE type, the quill requires the following parts.



(1) Square groove or 2-face seat
(2) Mounting bolt hole
(3) Cutout for mounting bolt operation
(4) Chip pocket/cutout for insert mounting/removal

● After deciding on the Cat. No. of the Cartridge Unit to be used, select dimensions (1) to (4) according to the dimension tables and design formulas on the following pages.
● Make sure (4), the chip pocket/cutout for insert mounting/removal, is big enough to allow easy manipulation of the insert and clamp plate.
● (1), the square groove or 2-face seat, requires wall surfaces for the radial and axial adjustment screw ends to reach. (If this is not done properly, dimensional adjustments will not be possible.)

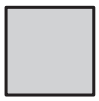
Mounting Part Dimensions

● Determine the mounting part dimensions based on the design formulas and figures in the table below.
● Explanation of the letters used in the table.

DC: Machining Diameter (C dimension is calculated to be just 0.1mm smaller than the target diameter. Use the target diameter for the substitute DC value.)
t: Shim Thickness (The calculation formula in the table is derived using 1.0mm.)
X_1, X_2, Y_1, Y_2: Corrected values based on insert corner radius (as the cutting edge position of the Cartridge Unit is measured with a reference insert corner radius, a corrected value is required when using an insert with a different corner radius from the reference corner radius (see table on the right)).
N: Chamfer Size

Relationship Between Reference Corner Radius and Insert Size

Dimensions (mm)

Insert Shape	Insert Inscribed Circle	Reference Corner Radius
Triangular type 	ø 6.35	0.4
	ø 9.525	0.8
	ø 12.70	0.8
Square type 	ø 7.94	0.8
	ø 9.525	0.8
	ø 12.70	0.8

Corrected Cutting Edge Position Values by Insert Corner Radius

Dimensions (mm)

Cat. No.		Corner Radius	X_1	X_2	Y_1	Y_2
CTUE	10CA	0.2	0.03	–	0.13	–
		0.4	0	–	0	–
		0.8	-0.06	–	-0.25	–
	12CA	0.4	0.06	–	0.25	–
		0.8	0	–	0	–
		1.2	-0.06	–	-0.25	–
CTFE	8CA	0.2	0	–	0.15	–
		0.4	0	–	0	–
		0.8	0	–	-0.29	–
	10CA	0.2	0	–	0.15	–
		0.4	0	–	0	–
		0.8	0	–	-0.29	–
	12CA	0.4	0	–	0.29	–
		0.8	0	–	0	–
		1.2	0	–	-0.29	–
	16CA	0.4	0	–	0.29	–
		0.8	0	–	0	–
		1.2	0	–	-0.29	–
CTGE	10CA	0.2	0.15	–	0	–
		0.4	0	–	0	–
		0.8	-0.29	–	0	–
	12CA	0.4	0.29	–	0	–
		0.8	0	–	0	–
		1.2	-0.29	–	0	–

Cat. No.		Corner Radius	X_1	X_2	Y_1	Y_2
CTTE	8CA	0.2	0.2	-0.25	-0.12	0.15
		0.4	0	0	0	0
		0.8	-0.4	0.51	0.23	0.29
	10CA	0.2	0.2	-0.25	-0.12	0.15
		0.4	0	0	0	0
		0.8	-0.4	0.51	0.23	0.29
	12CA	0.4	0.4	-0.51	-0.23	0.29
		0.8	0	0	0	0
		1.2	-0.4	0.51	0.23	-0.29
	16CA	0.4	0.4	-0.51	-0.23	0.29
		0.8	0	0	0	0
		1.2	-0.4	0.51	0.23	-0.29
CTWE	8CA	0.2	-0.12	–	0.2	–
		0.4	0	–	0	–
		0.8	0.23	–	-0.4	–
	10CA	0.2	-0.12	–	0.2	–
		0.4	0	–	0	–
		0.8	0.23	–	-0.4	–
	12CA	0.4	-0.23	–	0.4	–
		0.8	0	–	0	–
		1.2	0.23	–	-0.4	–
	16CA	0.4	-0.23	–	0.4	–
		0.8	0	–	0	–
		1.2	0.23	–	-0.4	–

Corrected Cutting Edge Position Values by Insert Corner Radius

Dimensions (mm)

Cat. No.		Corner Radius	X_1	X_2	Y_1	Y_2
CTJE	10CA	0.2	0.13	–	0.03	–
		0.4	0	–	0	–
		0.8	-0.25	–	-0.06	–
	12CA	0.4	0.25	–	0.06	–
		0.8	0	–	0	–
		1.2	-0.25	–	-0.06	–
CTSE	8CA	0.2	-0.19	0.15	0.19	-0.15
		0.4	0	0	0	0
		0.8	0.37	-0.29	-0.37	0.29
	10CA	0.2	-0.19	0.15	0.19	-0.15
		0.4	0	0	0	0
		0.8	0.37	-0.29	-0.37	0.29
	12CA	0.4	-0.37	0.29	0.37	-0.29
		0.8	0	0	0	0
		1.2	0.37	-0.29	-0.37	0.29
	16CA	0.4	-0.37	0.29	0.37	-0.29
		0.8	0	0	0	0
		1.2	0.37	-0.29	-0.37	0.29
CTRE	8CA	0.2	0.18	–	-0.05	–
		0.4	0	–	0	–
		0.8	-0.36	–	0.1	–
	10CA	0.2	0.18	–	-0.05	–
		0.4	0	–	0	–
		0.8	-0.36	–	0.1	–
CTXE	8CA	0.2	0.19	–	-0.07	–
		0.4	0	–	0	–
		0.8	-0.38	–	0.14	–
	10CA	0.2	0.19	–	-0.07	–
		0.4	0	–	0	–
		0.8	-0.38	–	0.14	–
CSYE	8CA	0.4	-0.01	–	0.03	–
		0.8	0	–	0	–
		1.2	0.01	–	-0.03	–
	10CA	0.4	-0.01	–	0.03	–
		0.8	0	–	0	–
		1.2	0.01	–	-0.03	–
	12CA	0.4	-0.01	–	0.03	–
		0.8	0	–	0	–
		1.2	0.01	–	-0.03	–
	16CA	0.4	-0.01	–	0.03	–
		0.8	0	–	0	–
		1.2	0.01	–	-0.03	–
CSKE	8CA	0.4	-0.02	–	0.09	–
		0.8	0	–	0	–
		1.2	0.02	–	-0.09	–
	10CA	0.4	-0.02	–	0.09	–
		0.8	0	–	0	–
		1.2	0.02	–	-0.09	–
	12CA	0.4	-0.02	–	0.09	–
		0.8	0	–	0	–
		1.2	0.02	–	-0.09	–
	16CA	0.4	-0.02	–	0.09	–
		0.8	0	–	0	–
		1.2	0.02	–	-0.09	–

Cat. No.		Corner Radius	X_1	X_2	Y_1	Y_2
CSSE	8CA	0.4	-0.17	–	0.17	–
		0.8	0	–	0	–
		1.2	0.17	–	-0.17	–
	10CA	0.4	-0.17	–	0.17	–
		0.8	0	–	0	–
		1.2	0.17	–	-0.17	–
	12CA	0.4	-0.17	–	0.17	–
		0.8	0	–	0	–
		1.2	0.17	–	-0.17	–
	16CA	0.4	-0.17	–	0.17	–
		0.8	0	–	0	–
		1.2	0.17	–	-0.17	–
CSRE	10CA	0.4	0.09	–	-0.12	–
		0.8	0	–	0	–
		1.2	-0.09	–	0.12	–
	12CA	0.4	0.09	–	-0.12	–
		0.8	0	–	0	–
		1.2	-0.09	–	0.12	–
CSTE	8CA	0.4	0.14	-0.25	-0.08	0.15
		0.8	0	0	0	0
	10CA	0.4	0.14	-0.25	-0.08	0.15
		0.8	0	0	0	0
CSWE	8CA	0.4	-0.08	–	0.14	–
		0.8	0	–	0	–
	10CA	0.4	-0.08	–	0.14	–
		0.8	0	–	0	–

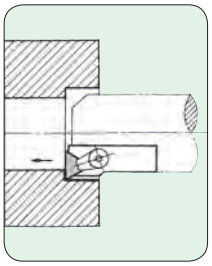
MEMO

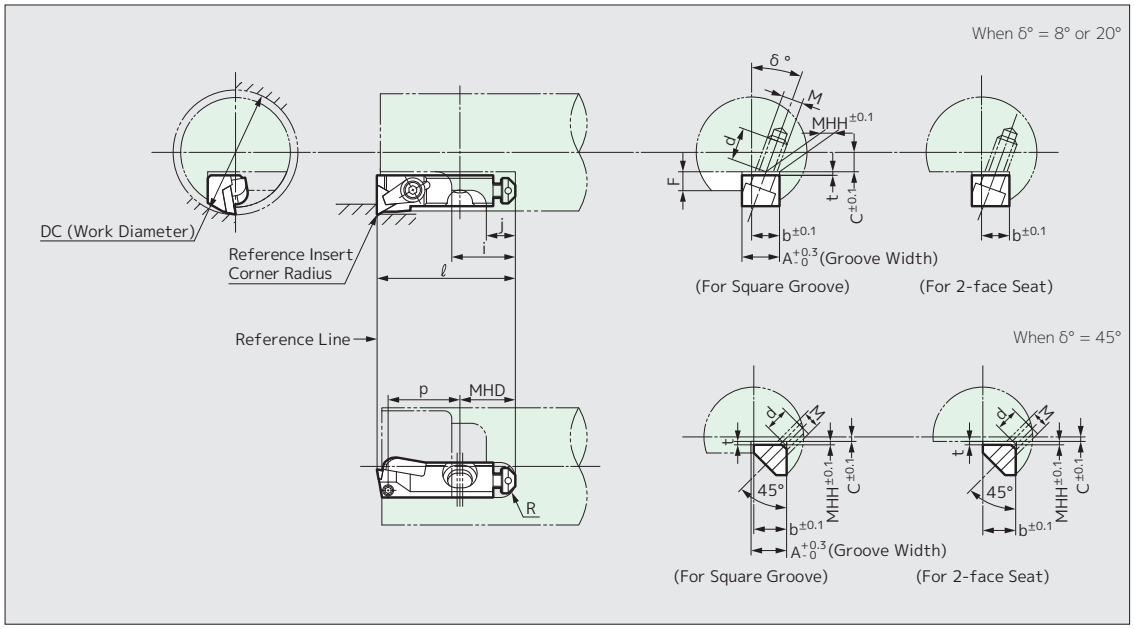
CE type

Mounting Part Dimensions and Calculation Formulas

Dimensions (mm)

Internal Turning





Cat. No.		C	A	b	ℓ	F	i	j	R	d	MHH	MHD	p	M	δ
CTUE	10CA	DC/2−15.01−Y_1	12.7	10.00	50 + X_1	5.0	26	13	3.5	12	4.64	20	24.5	M6×1.0	20°
	12CA	DC/2−21.01−Y_1	15.7	12.00	55 + X_1	10.5			5.0	16	5.64		29		
CTFE	8CA	DC/2−12.61−Y_1	11.7	10.00	46 + X_1	5.0	23	13	3.5	12	5.51	19	22	M5×0.8	8°
	10CA	DC/2−15.01−Y_1	12.7		50 + X_1		26				4.64	20	26	M6×1.0	20°
	12CA	DC/2−21.01−Y_1	15.7	12.00	55 + X_1	10.5			5.0	16	5.64		29		
	16CA	DC/2−26.01−Y_1	16.2	16.00	63 + X_1	5.5	31	17		12	1.00	25	29	M8×1.25	45°
	20CA		20.2	20.00	70 + X_1	7.5	36	22	7.0	20	1.00	30	30		
CTTE	8CA	DC/2−12.98−Y_2	11.7	10.00	37.39 + X_2	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	DC/2−14.98−Y_2	12.7		41.39 + X_2		26				4.64	20	23.5	M6×1.0	20°
	12CA	DC/2−21.20−Y_2	15.7	12.00	42.54 + X_2	10.5			5.0	16	5.64		27		
	16CA	DC/2−23.20−Y_2	16.2	16.00	50.54 + X_2	5.5	31	17		12	1.00	25	26	M8×1.25	45°
CTWE	8CA	DC/2−12.61−Y_1	11.7	10.00	42 + X_1	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	DC/2−15.01−Y_1	12.7		44 + X_1		26				4.64	20	24	M6×1.0	20°
	12CA	DC/2−21.01−Y_1	15.7	12.00	47 + X_1	10.5			5.0	16	5.64		26		
	16CA	DC/2−26.01−Y_1	16.2	16.00	53 + X_1	5.5	31	17		12	1.00	25	23	M8×1.25	45°
CTSE	8CA	DC/2−13.01−Y_1	11.7	10.00	40 + X_1	5.0	23	13	3.5	12	5.51	19	20.5	M5×0.8	8°
	10CA	DC/2−15.01−Y_1	12.7		44 + X_1		26				4.64	20	23	M6×1.0	20°
	12CA	DC/2−21.01−Y_1	15.7	12.00	47 + X_1	10.5			5.0	16	5.64		26		
	16CA	DC/2−26.01−Y_1	16.2	16.00	53 + X_1	5.5	31	17		12	1.00	25	25	M8×1.25	45°

● The symbols used in the table are as below.

DC: Machining Diameter (C dimension is calculated to be just 0.1mm smaller than the target diameter. Use the target diameter for the substitute DC value.)
t: Shim Thickness (The calculation formula in the table is derived using 1.0mm.)
X_1, X_2, Y_1, Y_2: Corrected values based on insert corner radius (as the cutting edge position of the Cartridge Unit is measured with a reference insert corner radius, a corrected value is required when using an insert with a different corner radius from the reference corner radius (see P.73)).
N: Chamfer Size

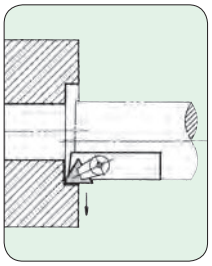
CE type

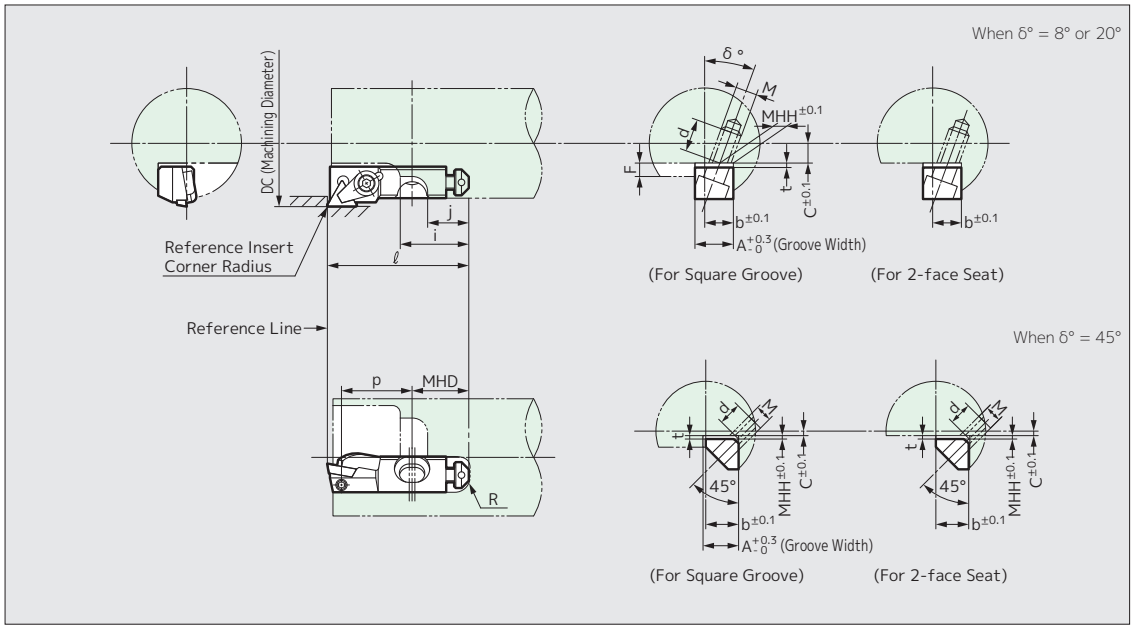
Cat. No.		C	A	b	ℓ	F	i	j	R	d	MHH	MHD	p	M	δ
CSYE	8CA	DC/2−13.01−Y_1	11.7	10.00	46 + X_1	5.0	23	13	3.5	12	5.51	19	24	M5×0.8	8°
	10CA	DC/2−15.01−Y_1	12.7		50 + X_1		26				4.64	20	26	M6×1.0	20°
	12CA	DC/2−21.01−Y_1	15.7	12.00	55 + X_1	10.5			5.0	16	5.64		31		
	16CA	DC/2−26.01−Y_1	16.2	16.00	63 + X_1	5.5	31	17		12	1.00	25	28.5	M8×1.25	45°
CSKE	8CA	DC/2−13.01−Y_1	11.7	10.00	46 + X_1	5.0	23	13	3.5	12	5.51	19	24	M5×0.8	8°
	10CA	DC/2−15.01−Y_1	12.7		50 + X_1		26				4.64	20	27	M6×1.0	20°
	12CA	DC/2−21.01−Y_1	15.7	12.00	55 + X_1	10.5			5.0	16	5.64		30		
	16CA	DC/2−26.01−Y_1	16.2	16.00	63 + X_1	5.5	31	17		12	1.00	25	29	M8×1.25	45°
CSSE	8CA	DC/2−13.01−Y_1	11.7	10.00	40 + X_1	5.0	23	13	3.5	12	5.51	19	18.5	M5×0.8	8°
	10CA	DC/2−15.01−Y_1	12.7		44 + X_1		26				4.64	20	20	M6×1.0	20°
	12CA	DC/2−21.01−Y_1	15.7	12.00	47 + X_1	10.5			5.0	16	5.64		23		
	16CA	DC/2−26.01−Y_1	16.2	16.00	53 + X_1	5.5	31	17		12	1.00	25	24.3	M8×1.25	45°
CSTE	8CA	DC/2−13.52−Y_2	11.7	10.00	39.92 + X_1	5.0	23	13	3.5	12	5.51	19	18.5	M5×0.8	8°
	10CA	DC/2−14.31−Y_2	12.7		43.05 + X_1		26				4.64	20	21.5	M6×1.0	20°
CSWE	8CA	DC/2−12.61−Y_1	11.7	10.00	42 + X_1	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	DC/2−15.01−Y_1	12.7		44 + X_1		26				4.64	20	23.5	M6×1.0	20°

CE type

Dimensions (mm)

Facing





Cat. No.		C	A	b	ℓ	F	i	j	R	d	MHH	MHD	p	M	δ
CTGE	10CA	DC/2−15.01−Y_1	12.7	10.00	50 + X_1	5.0	26	13	3.5	12	4.64	20	25	M6×1.0	20°
	12CA	DC/2−21.01−Y_1	15.7	12.00	55 + X_1	10.5			5.0	16	5.64		28		
CTTE	8CA	DC/2− 8.01−Y_1	11.7	10.00	46 + X_1	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	DC/2−10.01−Y_1	12.7		50 + X_1		26				4.64	20	23.5	M6×1.0	20°
	12CA	DC/2−14.01−Y_1	15.7	12.00	55 + X_1	10.5			5.0	16	5.64		27		
	16CA	DC/2−16.01−Y_1	16.2	16.00	63 + X_1	5.5	31	17		12	1.00	25	26	M8×1.25	45°
CTJE	10CA	DC/2−15.01−Y_1	12.7	10.00	50 + X_1	5.0	26	13	3.5	12	4.64	20	25	M6×1.0	20°
	12CA	DC/2−21.01−Y_1	15.7	12.00	55 + X_1	10.5			5.0	16	5.64		28		
CTRE	8CA	DC/2−10.01−Y_1	11.7	10.00	46 + X_1	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	DC/2−13.01−Y_1	12.7		50 + X_1		26				4.64	20	25	M6×1.0	20°
CTXE	8CA	DC/2−10.01−Y_1	11.7	10.00	46 + X_1	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	DC/2−13.01−Y_1	12.7		50 + X_1		26				4.64	20	25	M6×1.0	20°
CSRE	10CA	DC/2−13.01−Y_1	12.7	10.00	50 + X_1	5.0	26	13	3.5	12	4.64	20	24	M6×1.0	20°
	12CA	DC/2−17.01−Y_1	15.7	12.00	55 + X_1	10.5			5.0	16	5.64		26		
CSTE	8CA	DC/2−10.01−Y_1	11.7	10.00	46 + X_1	5.0	23	13	3.5	12	5.51	19	18.5	M5×0.8	8°
	10CA	DC/2−10.01−Y_1	12.7		50.5 + X_1		26				4.64	20	21.5	M6×1.0	20°

● The symbols used in the table are as below.

DC: Machining Diameter (C dimension is calculated to be just 0.1mm smaller than the target diameter. Use the target diameter for the substitute DC value.)

t: Shim Thickness (The calculation formula in the table is derived using 1.0mm.)

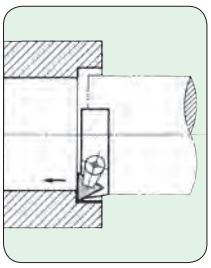
X_1, X_2, Y_1, Y_2: Corrected values based on insert corner radius (as the cutting edge position of the Cartridge Unit is measured with a reference insert corner radius, a corrected value is required when using an insert with a different corner radius from the reference corner radius (see P.73)).

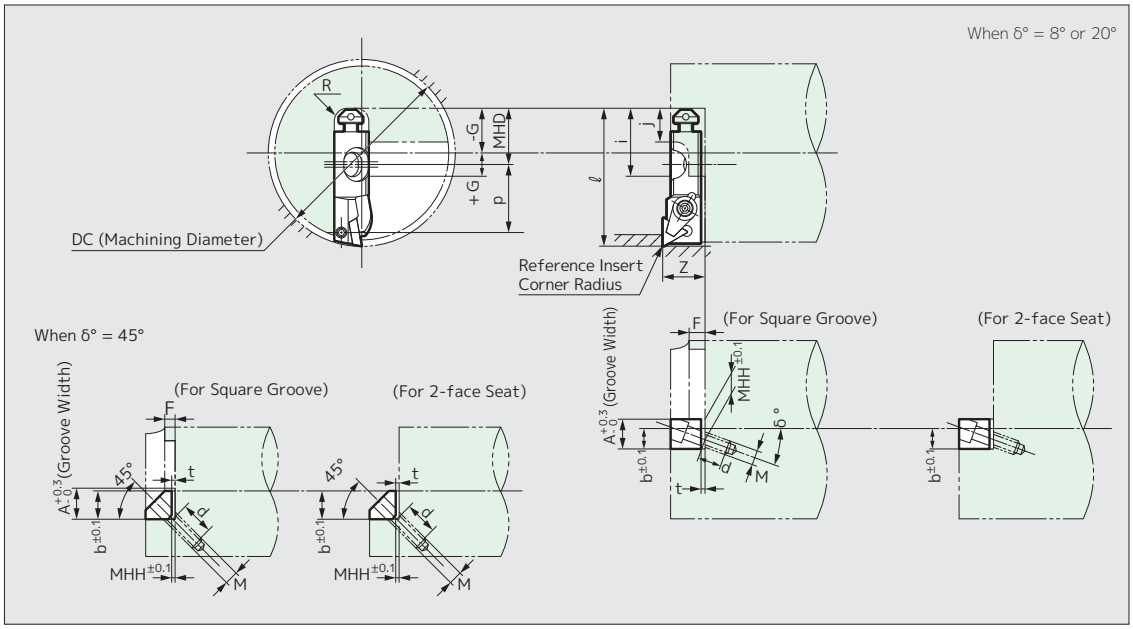
N: Chamfer Size

CE type

Dimensions (mm)

Internal Turning (Radial Mounting)



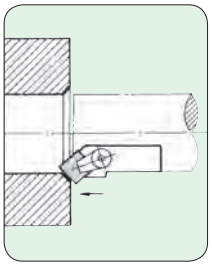


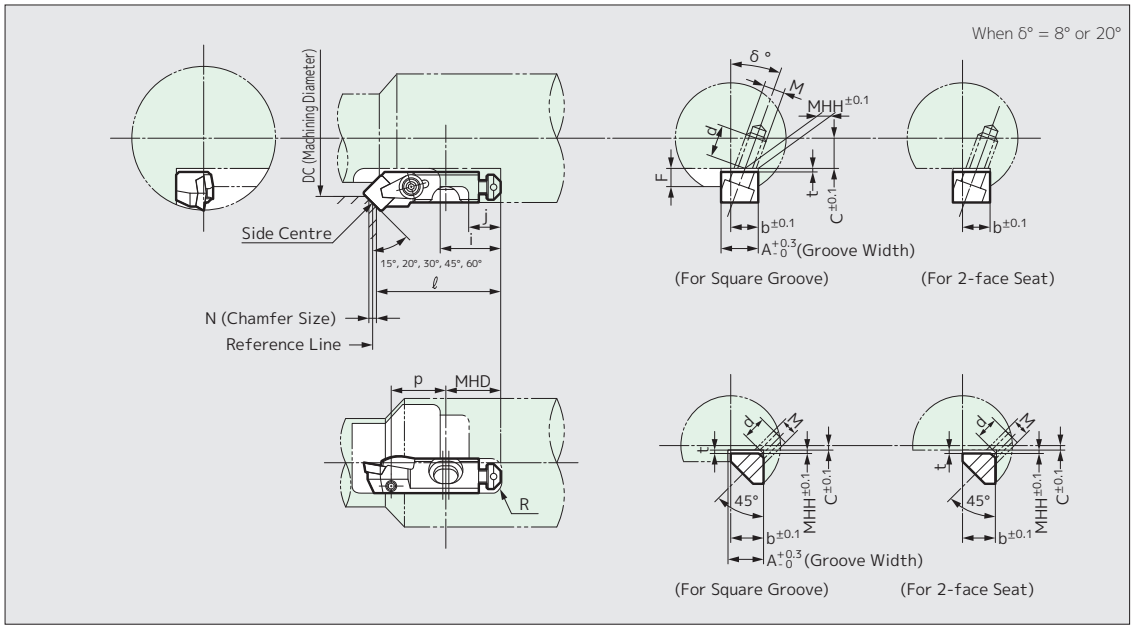
Cat. No.		A	b	ℓ	G	F	Z	i	j	R	d	MHH	MHD	p	M	δ
CTGE	10CA	12.7	10.00	50 + X_1	DC/2−50.05−X_1	5.0	15.0	26	13	3.5	12	4.64	20	25	M6×1.0	20°
	12CA	15.7	12.00	55 + X_1	DC/2-55.05−X_1	10.5	21.0			5.0	16	5.64		28		
CTTE	8CA	11.7	10.00	46 + X_1	DC/2-46.05−X_1	5.0	8.0 + Y_1	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	12.7		50 + X_1	DC/2−50.05−X_1		10.0 + Y_1	26				4.64	20	23.5	M6×1.0	20°
	12CA	15.7	12.00	55 + X_1	DC/2-55.05−X_1	10.5	14.0 + Y_1			5.0	16	5.64		27		
	16CA	16.2	16.00	63 + X_1	DC/2-63.05−X_1	5.5	16.0 + Y_1	31	17		12	1.00	25	26	M8×1.25	45°
CTJE	10CA	12.7	10.00	50 + X_1	DC/2−50.05−X_1	5.0	15.0 + Y_1	26	13	3.5	12	4.64	25	25	M6×1.0	20°
	12CA	15.7	12.00	55 + X_1	DC/2-55.05−X_1	10.5	21.0 + Y_1			5.0	16	5.64		28		
CTSE	8CA	11.7	10.00	47.04 + X_2	DC/2-47.09−X_2	5.0	5.96 + Y_2	23	13	3.5	12	5.51	19	20.5	M5×0.8	8°
	10CA	12.7		51.04 + X_2	DC/2-51.09−X_2		7.96 + Y_2	26				4.64	20	23	M6×1.0	20°
	12CA	15.7	12.00	57.18 + X_2	DC/2-57.23−X_2	10.5	10.82 + Y_2			5.0	16	5.64		26		
	16CA	16.2	16.00	63.18 + X_2	DC/2-63.23−X_2	5.5	15.82 + Y_2	31	17		12	1.00	25	25	M8×1.25	45°
CSSE	8CA	11.7	10.00	44.91 + X_2	DC/2-44.96−X_2	5.0	8.09 + Y_2	23	13	3.5	12	5.51	19	18.5	M5×0.8	8°
	10CA	12.7		50.03 + X_2	DC/2-50.08−X_2		8.97 + Y_2	26				4.64	20	20	M6×1.0	20°
	12CA	15.7	12.00	55.25 + X_2	DC/2-55.30−X_2	10.5	12.75 + Y_2			5.0	16	5.64		23		
	16CA	16.2	16.00	61.25 + X_2	DC/2-61.30−X_2	5.5	17.75 + Y_2	31	17		12	1.00	25	24.3	M8×1.25	45°
CTRE	8CA	11.7	10.00	46 + X_1	DC/2-46.05−X_1	5.0	10.0 + Y_1	23	13	3.5	12	5.51	19	21.0	M5×0.8	8°
	10CA	12.7		50 + X_1	DC/2−50.05−X_1		13.0 + Y_1	26				4.64	20	25.0	M6×1.0	20°
CTXE	8CA	11.7	10.00	46 + X_1	DC/2-46.05−X_1	5.0	10.0 + Y_1	23	13	3.5	12	5.51	19	21.0	M5×0.8	8°
	10CA	12.7		50 + X_1	DC/2−50.05−X_1		13.0 + Y_1	26				4.64	20	25.0	M6×1.0	20°
CSRE	10CA	12.7	10.00	50 + X_1	DC/2−50.05−X_1	5.0	13.0	26	13	3.5	12	4.64	25	24	M6×1.0	20°
	12CA	15.7	12.00	55 + X_1	DC/2-55.05−X_1	10.5	17.0			5.0	16	5.64		26		
CSTE	8CA	11.7	10.00	46 + X_1	DC/2-46.05−X_1	5.0	10.0 + Y_1	23	13	3.5	12	5.51	19	18.5	M5×0.8	8°
	10CA	12.7		50.5 + X_1	DC/2-50.55−X_1			26				4.64	20	21.5	M6×1.0	20°

CE type

Dimensions (mm)

Chamfering





Cat. No.		C	A	b	ℓ	F	i	j	R	d	MHH	MHD	p	M	δ
CTTE	8CA	DC/2−11.55 + 0.28N	11.7	10.00	41.7 -0.49N	5.0	26	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	DC/2−12.55 + 0.28N	12.7		45.7 -0.49N						4.64	20	23.5	M6×1.0	20°
	12CA	DC/2−17.65 + 0.28N	15.7	12.00	48.8 -0.49N	10.5			5.0	16	5.64		27		
	16CA	DC/2−19.65 + 0.28N	16.2	16.00	56.8 -0.49N	5.5	31	17		12	1.00	25	26	M8×1.25	45°
CTWE	8CA	DC/2− 8.6 + 0.85N	11.7	10.00	44.3 -0.49N	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	DC/2−11.0 + 0.85N	12.7		46.35-0.49N		26				4.64	20	24	M6×1.0	20°
	12CA	DC/2−15.25 + 0.85N	15.7	12.00	50.35-0.49N	10.5			5.0	16	5.64		26		
	16CA	DC/2−20.25 + 0.85N	16.2	16.00	56.35-0.49N	5.5	31	17		12	1.00	25	23	M8×1.25	45°
CTSE	8CA	DC/2− 9.65 + 0.49N	11.7	10.00	43.4 -0.49N	5.0	23	13	3.5	12	5.51	19	20.5	M5×0.8	8°
	10CA	DC/2−11.65 + 0.49N	12.7		47.4 -0.49N		26				4.64	20	23	M6×1.0	20°
	12CA	DC/2−16.5 + 0.49N	15.7	12.00	51.95-0.49N	10.5			5.0	16	5.64		26		
	16CA	DC/2−21.1 + 0.49N	16.2	16.00	57.95-0.49N	5.5	31	17		12	1.00	25	25	M8×1.25	45°
CTRE	8CA	DC/2−11.33 + 0.13N	11.7	10.00	41.09-0.49N	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	DC/2−14.33 + 0.13N	12.7		45.09-0.49N		26				4.64	20	25	M6×1.0	20°
CTXE	8CA	DC/2−11.74 + 0.18N	11.7	10.00	41.24-0.49N	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	DC/2−14.74 + 0.18N	12.7		45.24-0.49N		26				4.64	20	25	M6×1.0	20°
CSSE	8CA	DC/2−10.63 + 0.49N	11.7	10.00	42.4 -0.49N	5.0	23	13	3.5	12	5.51	19	18.5	M5×0.8	8°
	10CA	DC/2−12.05 + 0.49N	12.7		46.95-0.49N		26				4.64	20	20	M6×1.0	20°
	12CA	DC/2−16.95 + 0.49N	15.7	12.00	50.95-0.49N	10.5			5.0	16	5.64		23		
	16CA	DC/2−21.95 + 0.49N	16.2	16.00	57.05-0.49N	5.5	31	17		12	1.00	25	24.3	M8×1.25	45°
CSRE	10CA	DC/2−14.25 + 0.13N	12.7	10.00	45.6 -0.49N	5.0	26	13	3.5	12	4.64	20	24	M6×1.0	20°
	12CA	DC/2−18.65 + 0.13N	15.7	12.00	49.1 -0.49N	10.5			5.0	16	5.64		26		
CSTE	8CA	DC/2−11.83 + 0.28N	11.7	10.00	42.85-0.49N	5.0	23	13	3.5	12	5.51	19	18.5	M5×0.8	8°
	10CA	DC/2−12.22 + 0.28N	12.7		46.67-0.49N		26				4.64	20	21.5	M6×1.0	20°
CSWE	8CA	DC/2− 9.46 + 0.85N	11.7	10.00	43.82-0.49N	5.0	23	13	3.5	12	5.51	19	21	M5×0.8	8°
	10CA	DC/2−11.18 + 0.85N	12.7		46.21-0.49N		26				4.64	20	23.5	M6×1.0	20°

● The symbols used in the table are as below.

DC: Machining Diameter (C dimension is calculated to be just 0.1mm smaller than the target diameter. Use the target diameter for the substitute DC value.)
t: Shim Thickness (The calculation formula in the table is derived using 1.0mm.)
X_1, X_2, Y_1, Y_2: Corrected values based on insert corner radius (as the cutting edge position of the Cartridge Unit is measured with a reference insert corner radius, a corrected value is required when using an insert with a different corner radius from the reference corner radius (see P.73)).
N: Chamfer Size

MEMO

PN type

Holder

Fig.1

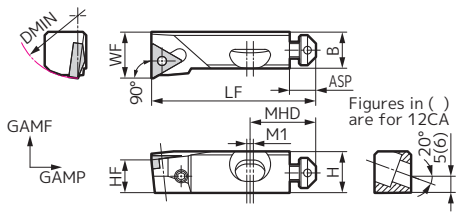


Figure shows right-handed (R) tool.

Fig.2

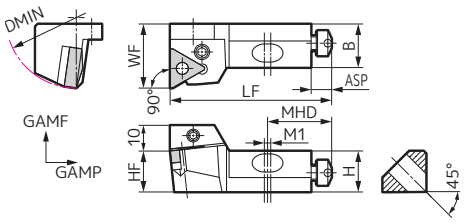


Figure shows right-handed (R) tool.

PTFN

T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
PTFN R/L 10CA	●	●	38	–	12.5	11	14	–	50	–	10	-6°	-8°	20	8	2	1	*1
PTFN R/L 12CA	●	●	50	–	15.5	16	20	–	55	–	12	-6°	-8°	20	8	2	1	*2
PTFN R/L 16CA	●	●	55	–	16	17	25	–	63	–	16	-6°	-8°	25	8	2	2	*2
PTFN R/L 20CA	●	●	70	–	20	19	25	–	70	–	20	-6°	-7°	30	10	2	2	*3

Fig.1

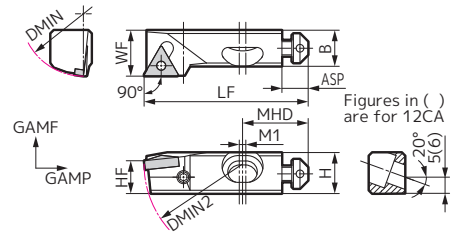


Figure shows right-handed (R) tool.

Fig.2

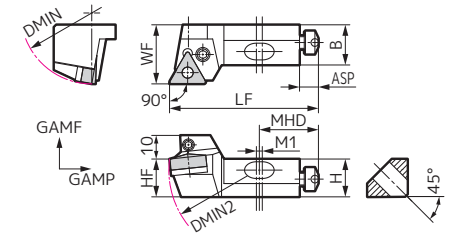


Figure shows right-handed (R) tool.

PTGN

T 60°

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
PTGN R/L 10CA	●	●	38	60	12.5	11	14	–	50	–	10	-6°	-8°	20	8	2	1	*1
PTGN R/L 12CA	●	●	50	75	15.5	16	20	–	55	–	12	-6°	-8°	20	8	2	1	*2
PTGN R/L 16CA	●	●	60	75	16	17	25	–	63	–	16	-6°	-10°	25	8	2	2	*2
PTGN R/L 20CA	●	●	70	90	20	19	25	–	70	–	20	-6°	-8°	30	10	2	2	*3

*DMIN2 indicates the minimum bore diameter for radial mounting.

Refer to the table below for *1 to *3.

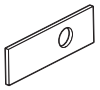
Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**TN□□11T2**	6.35	2.78
*2	**TN□□1604**	9.525	4.76
*3	**TN□□2204**	12.70	4.76

(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (PTFN type / PTGN type / PTTN type)

Unit Cat. No.		Eccentric Pin	Lever Pin	Bolt	Shim	Shim Fastening	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Cap Screw/ Bolt	Axial Adjustment Wrench	Eccentric Pin Wrench	Bolt Wrench	Radial Adjustment Wrench	Cap Screw/ Bolt Wrench
									Thickness 0.8mm	Thickness 1.0mm						
Cat. No.	Size										 BX BH					
PTFN R/L	10CA	CPU083	–	–	–	–	BT0408	AJM5F	S0810	S1010	BX0615	1.8×45	(LH020)	–	(LH020)	(LH050)
	12CA	CPU305S	–	–	–	–	BT0612		S0812	S1012	BX0625		(LH030)	–	(LH030)	
PTGN R/L	16CA	–	LCL3	LCS3	LST317CA	LSP3	BT0506	AJM6	S0816B	S1016B	BH0825		–	(LH025)	(LH025)	
PTTN R/L	20CA	–	LCL4	LCS4	LST 42CA	LSP4			S0820B	S1020B	BH0832		–	(LH030)		

*Wrenches in ( ) are sold separately.

PN type

Holder

Fig.1

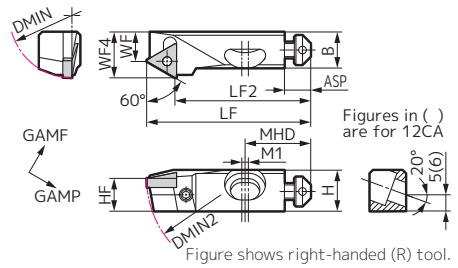


Figure shows right-handed (R) tool.

Fig.2

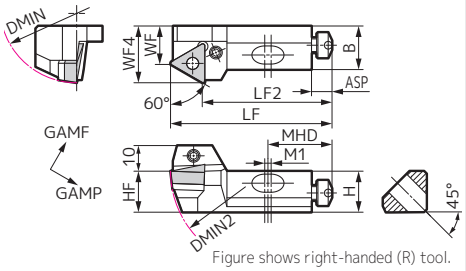


Figure shows right-handed (R) tool.

PTTN T 60°

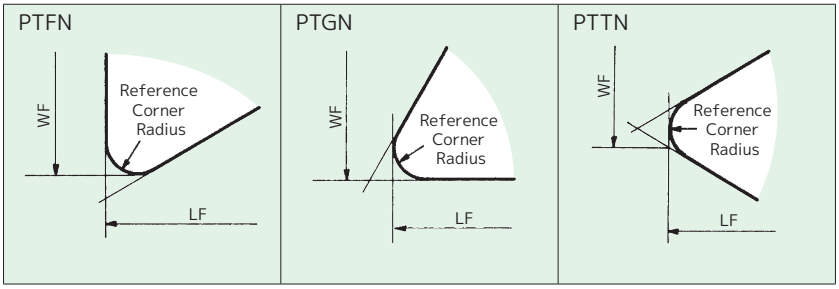
Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
PTTN R/L 10CA	●	●	38	60	12.5	11	9	13.98	50	41.38	10	0°	-10°	20	8	2	1	*1
PTTN R/L 12CA	●	●	50	75	15.5	16	13	20.20	55	42.52	12	0°	-10°	20	8	2	1	*2
PTTN R/L 16CA	●	●	60	75	16	17	15	22.20	63	50.53	16	-2°	-10°	25	8	2	2	*2

*DMIN2 indicates the minimum bore diameter for radial mounting.

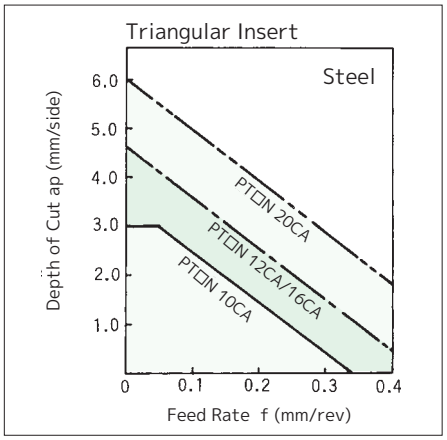
Refer to the "Applicable Insert Representative Cat. Nos." table (P.82) for *1 and *2.

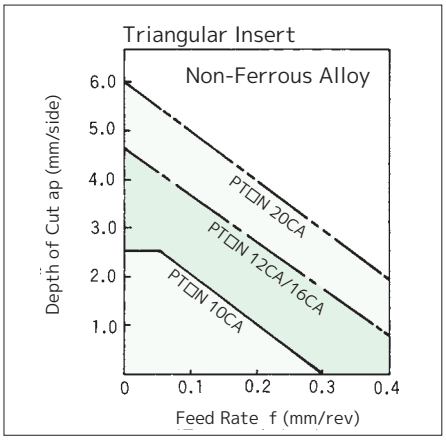
Close-up of Cutting Edge

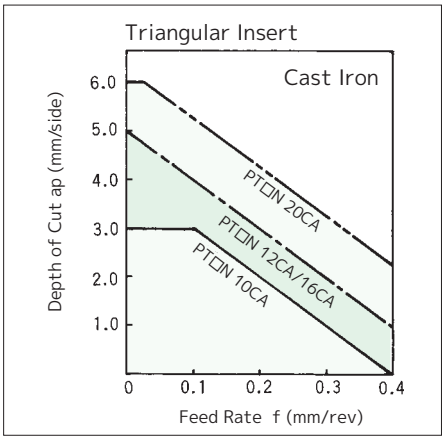


Insert Inscribed Circle (mm)	6.35	9.525	12.70
Reference Corner Radius (mm)	0.4	0.8	0.8

Cutting Conditions







PN type

Holder

Fig.1

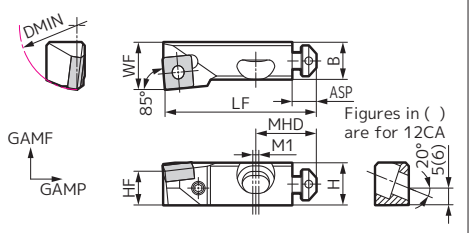


Figure shows right-handed (R) tool.

Fig.2

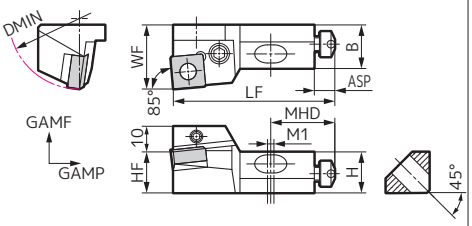


Figure shows right-handed (R) tool.

PSYN

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
PSYN R/L 10CA	●	●	38	–	12.5	11	14	–	50	–	10	-6°	-8°	20	8	2	1	*1
PSYN R/L 12CA	●	●	50	–	15.5	16	20	–	55	–	12	-6°	-8°	20	8	2	1	*2
PSYN R/L 16CA	●	●	55	–	16	17	25	–	63	–	16	-6°	-8°	25	8	2	2	*2
PSYN R/L 20CA	●	●	70	–	20	19	25	–	70	–	20	-6°	-7°	30	10	2	2	*3

Fig.1

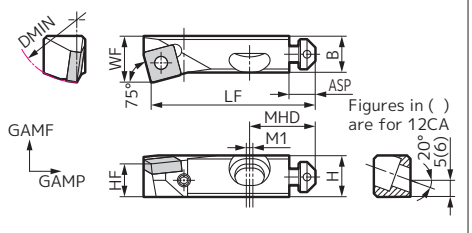


Figure shows right-handed (R) tool.

Fig.2

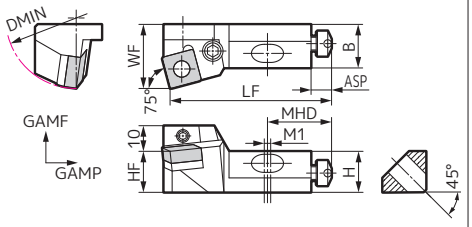


Figure shows right-handed (R) tool.

PSKN

Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
PSKN R/L 10CA	●	●	38	–	12.5	11	14	–	50	–	10	-6°	-8°	20	8	2	1	*1
PSKN R/L 12CA	●	●	50	–	15.5	16	20	–	55	–	12	-6°	-8°	20	8	2	1	*2
PSKN R/L 16CA	●	●	55	–	16	17	25	–	63	–	16	-6°	-8°	25	8	2	2	*2
PSKN R/L 20CA	●	●	70	–	20	19	25	–	70	–	20	-6°	-7°	30	10	2	2	*3

Refer to the table below for *1 to *3.

Applicable Insert Representative Cat. Nos.

Dimensions (mm)

Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**SN□□0903**	9.525	3.18
*2	**SN□□1204**	12.70	4.76
*3	**SN□□1506**	15.875	6.35

(Note) Refer to P.100 for chipbreaker feed direction selection.

Parts (PSYN type / PSKN type / PSSN type)

Unit Cat. No.		Eccentric Pin	Lever Pin	Bolt	Shim	Shim Fastening	Radial Adjustment Screw	Axial Adjustment Screw	Shim		Cap Screw/ Bolt	Axial Adjustment Wrench	Eccentric Pin Wrench	Bolt Wrench	Radial Adjustment Wrench	Cap Screw/ Bolt Wrench
									Thickness 0.8mm	Thickness 1.0mm						
Cat. No.	Size															
PSYN R/L PSKN R/L PSSN R/L	10CA	CPU304S	–	–	–	–	BT0408	AJM5F	S0810	S1010	BX0615	1.8×45	(LH030)	–	(LH020)	(LH050)
	12CA	CPU405S	–	–	–	–	BT0612		S0812	S1012	BX0625			–	(LH030)	
	16CA	–	LCL4	LCS4CA	LSS42CA	LSP4	BT0506	AJM6	S0816B (S0816A) (S0816C)	S1016B (S1016A) (S1016C)	BH0825		–	(LH030)	(LH025)	
	20CA	–	LCL5	LCS5CA	LSS53CA	LSP5			S0820B (S0820A)	S1020B (S1020A)	BH0832		–			

*Wrenches in ( ) are sold separately.

Among the 16CA sized Cartridge Units, PSKN type 0.8mm thick shim is S0816A and 1.0mm thick shim is S1016A.

Among the 16CA sized Cartridge Units, PSSN type 0.8mm thick shim is S0816C and 1.0mm thick shim is S1016C.

Among the 20CA sized Cartridge Units, PSKN type 0.8mm thick shim is S0820A and 1.0mm thick shim is S1020A.

PN type

Holder

Fig.1

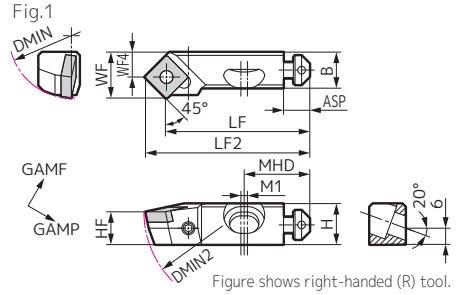


Figure shows right-handed (R) tool.

Fig.2

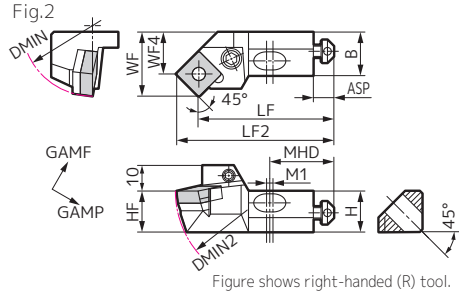


Figure shows right-handed (R) tool.

PSSN S 90°

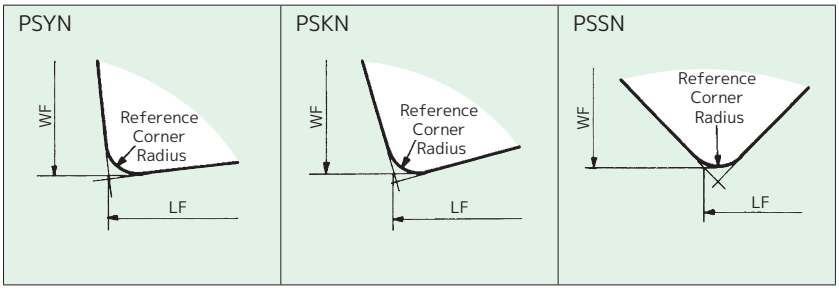
Dimensions (mm)

Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
PSSN R/L 10CA	●	●	38	60	12.5	11	14	7.92	44	50.08	10	0°	-12°	20	8	2	1	*1
PSSN R/L 12CA	●	●	50	75	15.5	16	20	11.68	47	55.32	12	0°	-12°	20	8	2	1	*2
PSSN R/L 16CA	●	●	55	75	16	17	25	16.68	53	61.32	16	0°	-11°	25	8	2	2	*2

*DMIN2 indicates the minimum bore diameter for radial mounting.

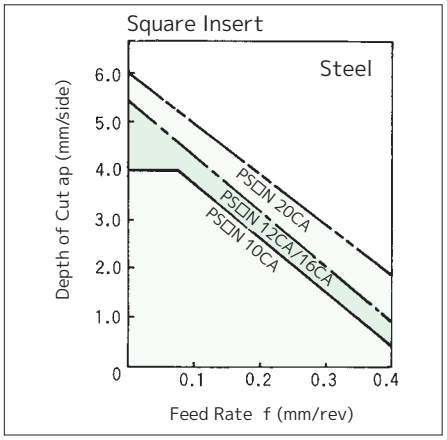
Refer to the "Applicable Insert Representative Cat. Nos." table (P.84) for *1 and *2.

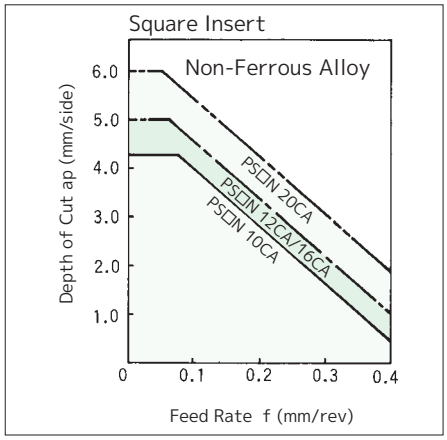
Close-up of Cutting Edge

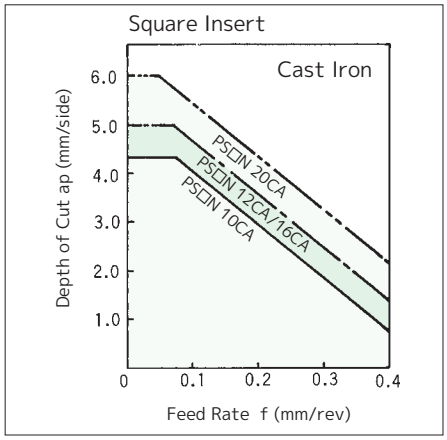


Insert Inscribed Circle (mm)	9.525	12.70	15.875
Reference Corner Radius (mm)	0.8	0.8	1.2

Cutting Conditions







PN type

Holder

Fig.1

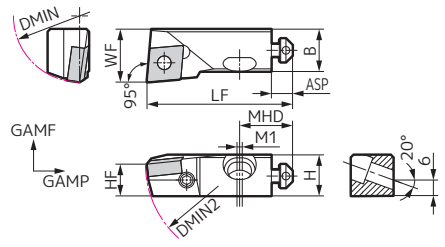


Figure shows right-handed (R) tool.

Fig.2

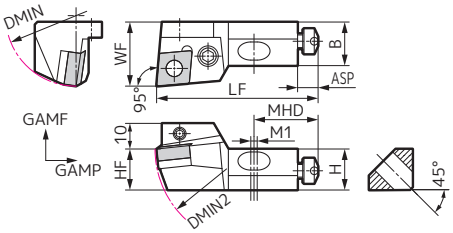


Figure shows right-handed (R) tool.

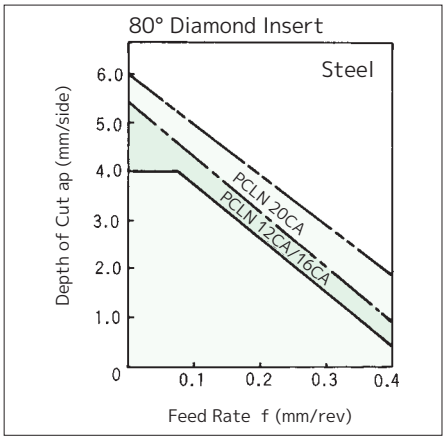
PCLN C 80°

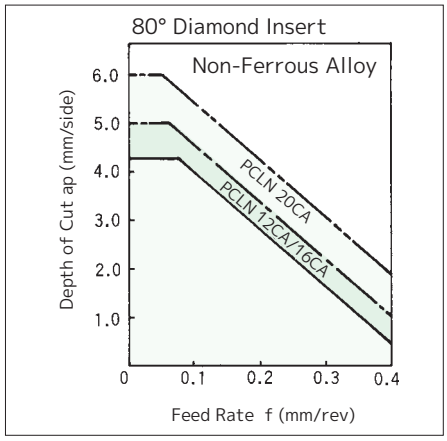
Dimensions (mm)

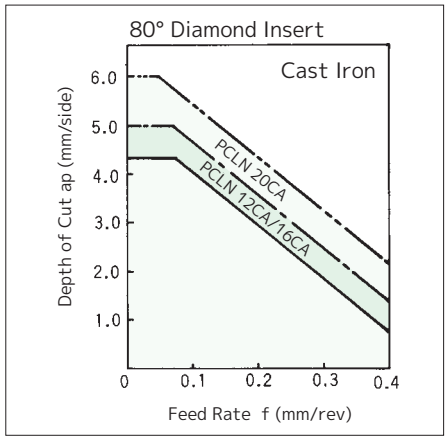
Cat. No.	Stock R	Stock L	DMIN	DMIN2	H	B	WF	WF4	LF	LF2	HF	GAMP	GAMF	MHD	ASP	M1	Fig.	Applicable Insert Group No.
PCLN R/L 12CA	●	●	50	75	15.5	16	20	–	55	–	12	-6°	-8°	20	8	2	1	*1
PCLN R/L 16CA	●	●	55	75	16	17	25	–	63	–	16	-6°	-8°	25	8	2	2	*1
PCLN R/L 20CA	●	●	70	90	20	19	25	–	70	–	20	-6°	-8°	30	10	2	2	*2

*DMIN2 indicates the minimum bore diameter for radial mounting.

Cutting Conditions





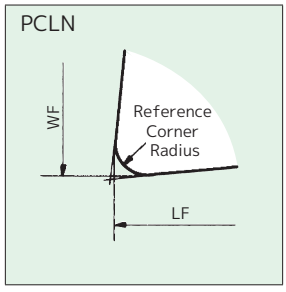


Applicable Insert Representative Cat. Nos.

Dimensions (mm)

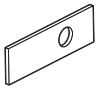
Symbol	Representative Cat. No.	Inscribed Circle	Thickness
*1	**CN□□1204**	12.70	4.76
*2	**CN□□1606**	15.875	6.35

Close-up of Cutting Edge



Insert Inscribed Circle (mm)	12.70	15.875
Reference Corner Radius (mm)	0.8	1.2

Parts (PCLN type)

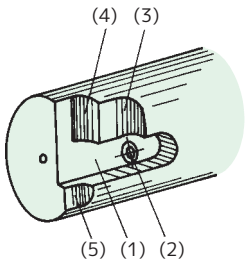
Unit Cat. No.		Eccentric Pin	Lever Pin	Bolt	Shim	Shim Fastening	Radial Adjustment Screw	Axial Adjustment Screw	Shim Thickness 0.8mm	Shim Thickness 1.0mm	Cap Screw/ Bolt	Axial Adjustment Wrench	Eccentric Pin Wrench	Bolt Wrench	Radial Adjustment Wrench	Cap Screw/ Bolt Wrench
Cat. No.	Size										BX  BH					
PCLN R/L	12CA	CPU405S	–	–	–	–	BT0612	AJM5F	S0812	S1012	BX0625	1.8×45	(LH030)	–	(LH030)	(LH050)
	16CA	–	LCL4	LCS4CA	LSC42CA	LSP4	BT0506	AJM6	S0816B	S1016B	BH0825		–	(LH030)	(LH025)	
	20CA	–	LCL5	LCS5CA	LSC53CA	LSP5			S0820B	S1020B	BH0832		–			

*Wrenches in ( ) are sold separately.

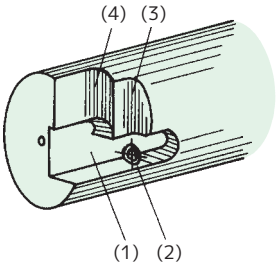
PN type

Mounting Part Design

In order to mount the SEC-Cartridge Unit PN type, the quill requires the following parts.



Pin Lock
(For 10CA and 12CA)



Lever Lock
(For 16CA and 20CA)

(1) Square groove or 2-face seat
(2) Mounting bolt hole
(3) Cutout for mounting bolt operation
(4) Chip pocket/cutout for insert mounting/removal
(5) Cutout for eccentric pin operation (for pin lock type only)

- After deciding on the Cat. No. of the Cartridge Unit to be used, select dimensions (1), (2), (3), (4), and (5) according to the dimension table and **design formulas** on the following pages.
- Make sure the chip pocket/cutout for insert mounting/removal (4) is big enough so that the insert and fastening bolt (for 16CA and 20CA) are exposed outside the groove. (If not done properly, mounting/removal of the insert alone will be impossible after installing the Cartridge Unit.)
- (1), the square groove or 2-face seat, requires wall surfaces for the radial and axial adjustment screw ends to reach. (If not done properly, dimensional adjustment will not be possible.)

Corrected Cutting Edge Position Values by Insert Corner Radius

Dimensions (mm)

Unit Cat. No.		Corner Radius	X_1	X_2	Y_1	Y_2
PTFN R/L	10CA	0.2	0.0015	–	0.1441	–
		0.4	0	–	0	–
		0.8	-0.0030	–	-0.2882	–
	12CA	0.4	0.0030	–	0.2882	–
		0.8	0	–	0	–
		1.2	-0.0030	–	-0.2882	–
	16CA	0.4	0.0030	–	0.2882	–
		0.8	0	–	0	–
		1.2	-0.0030	–	-0.2882	–
	20CA	0.4	0.0030	–	0.2889	–
		0.8	0	–	0	–
		1.2	-0.0030	–	-0.2889	–
PTGN R/L	10CA	0.2	0.1447	–	0.0015	–
		0.4	0	–	0	–
		0.8	-0.2895	–	-0.0030	–
	12CA	0.4	0.2895	–	0.0030	–
		0.8	0	–	0	–
		1.2	-0.2895	–	-0.0030	–
	16CA	0.4	0.2895	–	0.0030	–
		0.8	0	–	0	–
		1.2	-0.2895	–	-0.0030	–
	20CA	0.4	0.2895	–	0.0030	–
		0.8	0	–	0	–
		1.2	-0.2895	–	-0.0030	–
PTTN R/L	10CA	0.2	0.1992	-0.2526	-0.1141	0.1447
		0.4	0	0	0	0
		0.8	-0.3985	0.5052	0.2283	-0.2895
	12CA	0.4	0.3985	-0.5052	-0.2283	0.2895
		0.8	0	0	0	0
		1.2	-0.3985	0.5052	0.2283	-0.2895
	16CA	0.4	0.3972	-0.5037	-0.2289	0.2902
		0.8	0	0	0	0
		1.2	-0.3972	0.0537	0.2289	-0.2902
PSYN R/L	10CA	0.4	-0.0029	–	0.0330	–
		0.8	0	–	0	–
		1.2	0.0029	–	-0.0330	–
	12CA	0.4	-0.0029	–	0.0330	–
		0.8	0	–	0	–
		1.2	0.0029	–	-0.0330	–

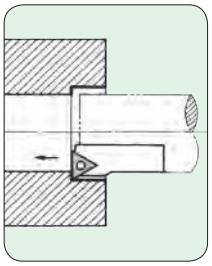
Unit Cat. No.		Corner Radius	X_1	X_2	Y_1	Y_2
PSYN R/L	16CA	0.4	-0.0029	–	0.0330	–
		0.8	0	–	0	–
		1.2	0.0029	–	-0.0330	–
	20CA	0.8	-0.0029	–	0.0331	–
		1.2	0	–	0	–
		1.6	0.0029	–	-0.0331	–
PSKN R/L	10CA	0.4	-0.0240	–	0.0890	–
		0.8	0	–	0	–
		1.2	0.0240	–	-0.0890	–
	12CA	0.4	-0.0240	–	0.0890	–
		0.8	0	–	0	–
		1.2	0.0240	–	-0.0890	–
	16CA	0.4	-0.0240	–	0.0890	–
		0.8	0	–	0	–
		1.2	0.0240	–	-0.0890	–
	20CA	0.8	-0.0240	–	0.0892	–
		1.2	0	–	0	–
		1.6	0.0240	–	-0.0892	–
PSSN R/L	10CA	0.4	-0.1638	0.1638	0.1638	-0.1638
		0.8	0	0	0	0
		1.2	0.1638	-0.1638	-0.1638	0.1638
	12CA	0.4	-0.1638	0.1638	0.1638	-0.1638
		0.8	0	0	0	0
		1.2	0.1638	-0.1638	-0.1638	0.1638
	16CA	0.4	-0.1641	0.1641	0.1641	-0.1641
		0.8	0	0	0	0
		1.2	0.1641	-0.1641	-0.1641	0.1641
PCLN R/L	12CA	0.4	0.0398	–	0.0396	–
		0.8	0	–	0	–
		1.2	-0.0398	–	-0.0396	–
	16CA	0.4	0.0398	–	0.0396	–
		0.8	0	–	0	–
		1.2	-0.0398	–	-0.0396	–
	20CA	0.8	0.0398	–	0.0396	–
		1.2	0	–	0	–
		1.6	-0.0398	–	-0.0396	–

PN type

Mounting Part Dimensions and Calculation Formulas

Dimensions (mm)

Internal Turning



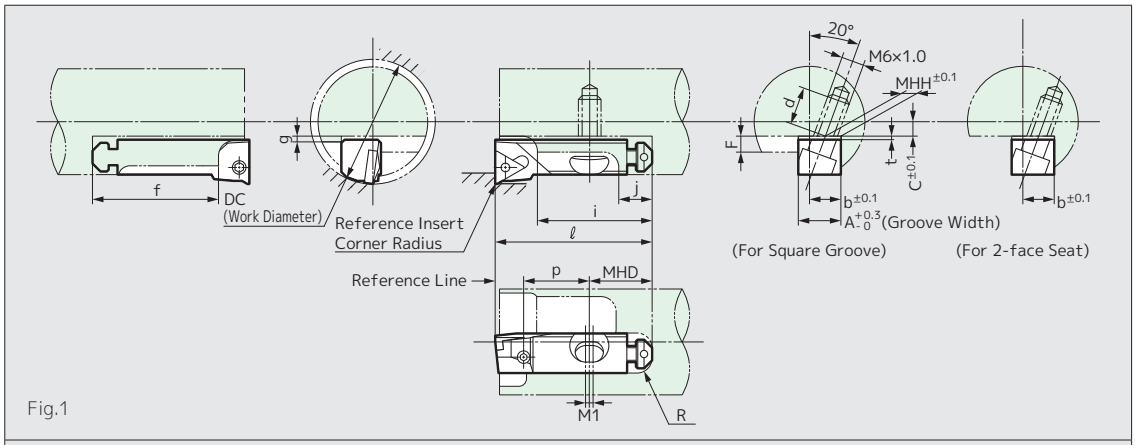
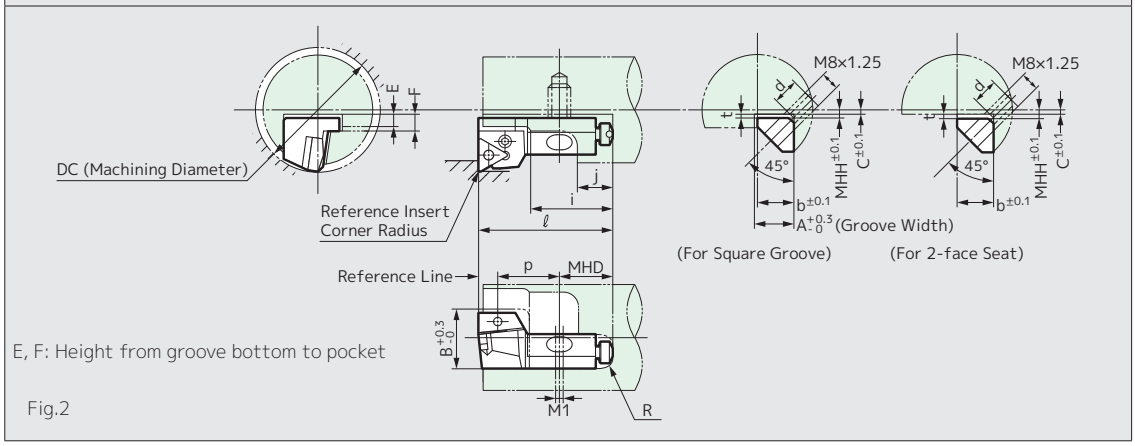


Fig.1



E, F: Height from groove bottom to pocket

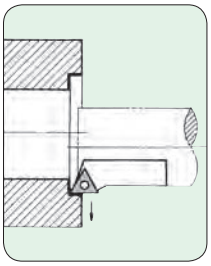
Fig.2

Cat. No.		C	A	B	b	ℓ	E	F	i	j	R	d	MHH	f	g	MHD	p	m	Fig.
PTFN R/L	10CA	$\frac{DC}{2}-15.01-Y_1$	12.7	–	10.00	50 + X_1	–	5.0	36	13	3.5	12	4.64	40	3	20	21	2	1
	12CA	$\frac{DC}{2}-21.01-Y_1$	15.7	–	12.00	55 + X_1	–	10.5	36	13	5.0	16	5.64	41	5	20	22	2	
	16CA	$\frac{DC}{2}-26.01-Y_1$	16.2	26.2	16.00	63 + X_1	5.5	5.5	38	17	5.0	12	1.00	–	–	25	29	2	2
	20CA	$\frac{DC}{2}-26.01-Y_1$	20.2	30.2	20.00	70 + X_1	2.5	7.5	40	22	7.0	20	1.00	–	–	30	31	2	
PTTN R/L	10CA	$\frac{DC}{2}-14.99-Y_2$	12.7	–	10.00	41.38 + X_2	–	5.0	33	13	3.5	12	4.64	37	3	20	18	2	1
	12CA	$\frac{DC}{2}-21.21-Y_2$	15.7	–	12.00	42.52 + X_2	–	10.5	33	13	5.0	16	5.64	37	6	20	18	2	
	16CA	$\frac{DC}{2}-23.21-Y_2$	16.2	26.2	16.00	50.53 + X_2	5.5	5.5	39	17	5.0	12	1.00	–	–	25	29	2	2
PSYN R/L	10CA	$\frac{DC}{2}-15.01-Y_1$	12.7	–	10.00	50 + X_1	–	5.0	33	13	3.5	12	4.64	37	2.5	20	19	2	1
	12CA	$\frac{DC}{2}-21.01-Y_1$	15.7	–	12.00	55 + X_1	–	10.5	33	13	5.0	16	5.64	40	6	20	20	2	
	16CA	$\frac{DC}{2}-26.01-Y_1$	16.2	26.2	16.00	63 + X_1	5.5	5.5	35	17	5.0	12	1.00	–	–	25	29	2	2
	20CA	$\frac{DC}{2}-26.01-Y_1$	20.2	30.2	20.00	70 + X_1	7.0	7.5	38	22	7.0	20	1.00	–	–	30	31	2	
PSKN R/L	10CA	$\frac{DC}{2}-15.01-Y_1$	12.7	–	10.00	50 + X_1	–	5.0	37	13	3.5	12	4.64	38	2	20	20	2	1
	12CA	$\frac{DC}{2}-21.01-Y_1$	15.7	–	12.00	55 + X_1	–	10.5	38	13	5.0	16	5.64	41	4	20	20	2	
	16CA	$\frac{DC}{2}-26.01-Y_1$	16.2	26.2	16.00	63 + X_1	3	5.5	38	17	5.0	12	1.00	–	–	25	33	2	2
	20CA	$\frac{DC}{2}-26.01-Y_1$	20.2	30.2	20.00	70 + X_1	3	7.5	40	22	7.0	20	1.00	–	–	30	37	2	
PSSN R/L	10CA	$\frac{DC}{2}-15.01-Y_1$	12.7	–	10.00	44 + X_1	–	5.0	31	13	3.5	12	4.64	35	2	20	17	2	1
	12CA	$\frac{DC}{2}-21.01-Y_1$	15.7	–	12.00	47 + X_1	–	10.5	30	13	5.0	16	5.64	37	3.5	20	17	2	
	16CA	$\frac{DC}{2}-26.01-Y_1$	16.2	–	16.00	53 + X_1	5.5	5.5	31	17	5.0	12	1.00	–	–	25	16	2	2
PCLN R/L	12CA	$\frac{DC}{2}-21.01-Y_1$	15.7	–	12.00	55 + X_1	–	10.5	33	13	5.0	16	5.64	39	6	20	20	2	1
	16CA	$\frac{DC}{2}-26.01-Y_1$	16.2	26.2	16.00	63 + X_1	5.5	5.5	33	17	5.0	12	1.00	–	–	25	29	2	2
	20CA	$\frac{DC}{2}-26.01-Y_1$	20.2	30.2	20.00	70 + X_1	–	7.5	37	22	7.0	20	1.00	–	–	30	31	2	

PN type

Dimensions (mm)

Facing



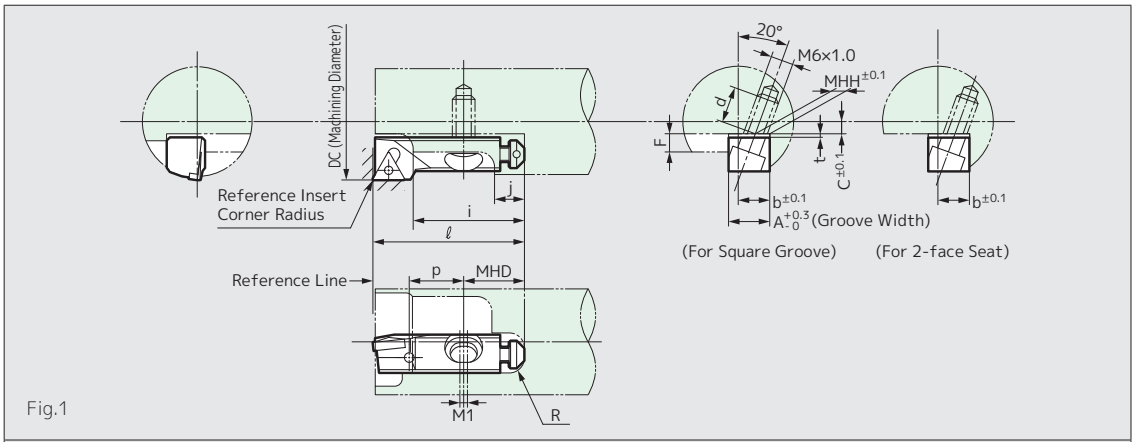
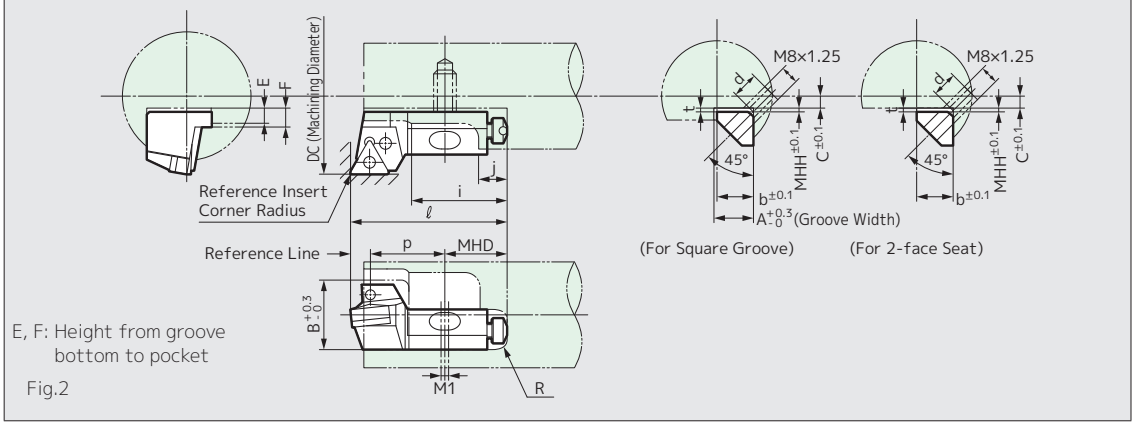


Fig.1



E, F: Height from groove bottom to pocket

Fig.2

Cat. No.		C	A	B	b	ℓ	E	F	i	j	R	d	MHH	f	g	MHD	p	m	Fig.
PTGN R/L	10CA	$\frac{DC}{2}-15.01-Y_1$	12.7	–	10.00	50 + X_1	–	5.0	34	13	3.5	12	4.64	38	3	20	18	2	1
	12CA	$\frac{DC}{2}-21.01-Y_1$	15.7	–	12.00	55 + X_1	–	10.5	31	13	5.0	16	5.64	38	8	20	18.5	2	
	16CA	$\frac{DC}{2}-26.01-Y_1$	16.2	26.2	16.00	63 + X_1	5.5	5.5	38	17	5.0	12	1.00	–	–	25	30	2	2
	20CA	$\frac{DC}{2}-26.01-Y_1$	20.2	30.2	20.00	70 + X_1	2.5	7.5	40	22	7.0	20	1.00	–	–	30	30	2	
PTTN R/L	10CA	$\frac{DC}{2}-10.01-Y_1$	12.7	–	10.00	50 + X_1	–	5.0	33	13	3.5	12	4.64	37	3	20	18	2	1
	12CA	$\frac{DC}{2}-14.01-Y_1$	15.7	–	12.00	55 + X_1	–	10.5	33	13	3.5	16	5.64	37	6	20	18	2	
	16CA	$\frac{DC}{2}-16.01-Y_1$	16.2	26.2	16.00	63 + X_1	5.5	5.5	39	17	5.0	12	1.00	–	–	25	29	2	2
PSSN R/L	10CA	$\frac{DC}{2}-8.93-Y_2$	12.7	–	10.00	50.08 + X_2	–	5.0	31	13	3.5	12	4.64	35	2	20	17	2	1
	12CA	$\frac{DC}{2}-12.69-Y_2$	15.7	–	12.00	55.32 + X_2	–	10.5	30	13	5.0	16	5.64	37	3.5	20	17	2	
	16CA	$\frac{DC}{2}-17.69-Y_2$	16.2	26.2	16.00	61.32 + X_2	5.5	5.5	31	17	5.0	12	1.00	–	–	25	16	2	2
PCLN R/L	12CA	$\frac{DC}{2}-21.01-Y_1$	15.7	–	12.00	55 + X_1	–	10.5	33	13	5.0	16	5.64	39	6	20	20	2	1
	16CA	$\frac{DC}{2}-26.01-Y_1$	16.2	26.2	16.00	63 + X_1	5.5	5.5	33	17	5.0	12	1.00	–	–	25	29	2	2
	20CA	$\frac{DC}{2}-26.01-Y_1$	20.2	30.2	20.00	70 + X_1	7.0	7.5	37	22	7.0	20	1.00	–	–	30	31	2	

● The symbols used in the table are as below.

DC: Machining Diameter (C dimension is calculated to be just 0.1mm smaller than the target diameter. Use the target diameter for the substitute DC value.)

t: Shim Thickness (The calculation formula in the table is derived using 1.0mm.)

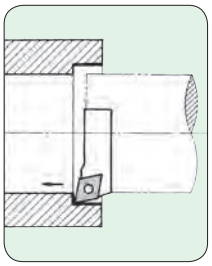
X_1, X_2, Y_1, Y_2: Corrected values based on insert corner radius (as the cutting edge position of the Cartridge Unit is measured with a reference insert corner radius, a corrected value is required when using an insert with a different corner radius from the reference corner radius (see P.91)).

N: Chamfer Size

PN type

Dimensions (mm)

Internal Boring (Radial Mounting)



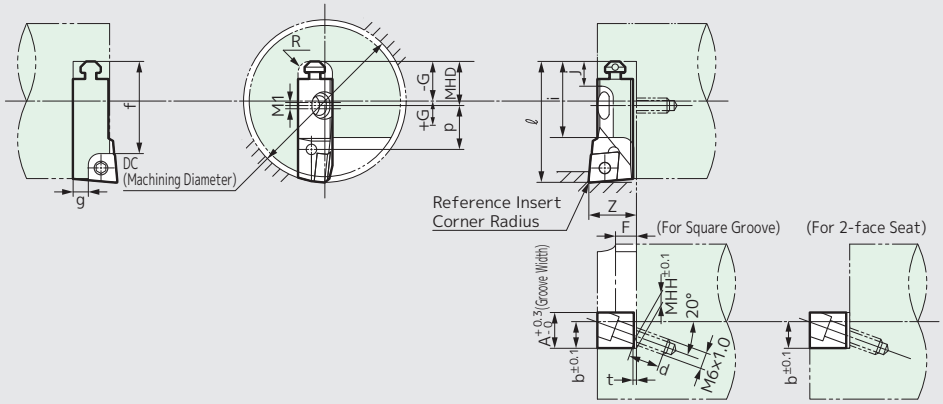


Fig.1

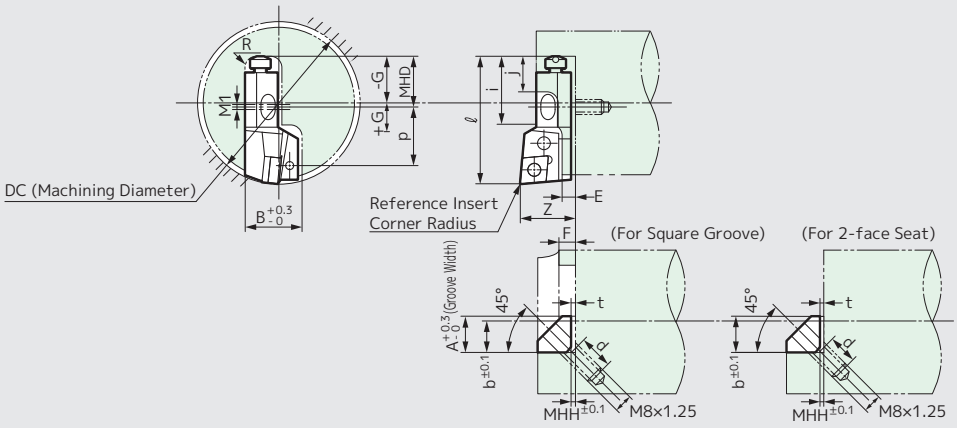


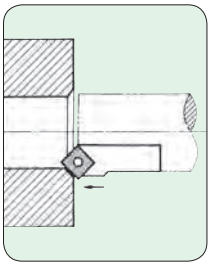
Fig.2

Cat. No.		A	B	b	ℓ	G	E	F	Z	i	j	R	d	MHH	f	g	MHD	p	m	Fig.
PTGN R/L	10CA	12.7	–	10.00	50 + X_1	$\frac{DC}{2}-50.05-X_1$	–	5.0	15	34	13	3.5	12	4.64	38	5	20	18	2	1
	12CA	15.7	–	12.00	55 + X_1	$\frac{DC}{2}-55.05-X_1$	–	10.5	21	31	13	5.0	16	5.64	38	8	20	18.5	2	
	16CA	16.2	26.2	16.00	63 + X_1	$\frac{DC}{2}-63.05-X_1$	5.5	5.5	26	38	17	5.0	12	1.00	–	–	25	30	2	2
	20CA	20.2	30.2	20.00	70 + X_1	$\frac{DC}{2}-70.05-X_1$	2.5	7.5	26	40	22	7.0	20	1.00	–	–	30	30	2	
PTTN R/L	10CA	12.7	–	10.00	50 + X_1	$\frac{DC}{2}-50.05-X_1$	–	5.0	10	33	13	3.5	12	4.64	37	3	20	18	2	1
	12CA	15.7	–	12.00	55 + X_1	$\frac{DC}{2}-55.05-X_1$	–	10.5	14	33	13	5.0	16	5.64	37	6	20	18	2	
	16CA	16.2	26.2	16.00	63 + X_1	$\frac{DC}{2}-63.05-X_1$	5.5	5.5	16	39	17	5.0	12	1.00	–	–	25	29	2	2
PSSN R/L	10CA	12.7	–	10.00	50.08 + X_2	$\frac{DC}{2}-50.13-X_2$	–	5.0	8.92	31	13	3.5	12	4.64	35	2	20	17	2	1
	12CA	15.7	–	12.00	55.32 + X_2	$\frac{DC}{2}-55.37-X_2$	–	10.5	12.68	30	13	5.0	16	5.64	37	3.5	20	17	2	
	16CA	16.2	26.2	16.00	61.32 + X_2	$\frac{DC}{2}-61.37-X_2$	5.5	5.5	17.68	31	17	5.0	12	1.00	–	–	25	16	2	2
PCLN R/L	12CA	15.7	–	12.00	55 + X_1	$\frac{DC}{2}-55.05-X_1$	–	10.5	21	33	13	5.0	16	5.64	39	6	20	20	2	1
	16CA	16.2	26.2	16.00	63 + X_1	$\frac{DC}{2}-63.05-X_1$	5.5	5.5	26	33	17	5.0	12	1.00	–	–	25	29	2	2
	20CA	20.2	30.2	20.00	70 + X_1	$\frac{DC}{2}-70.05-X_1$	7.0	7.5	26	37	22	7.0	20	1.00	–	–	30	31	2	

PN type

Dimensions (mm)

Chamfering



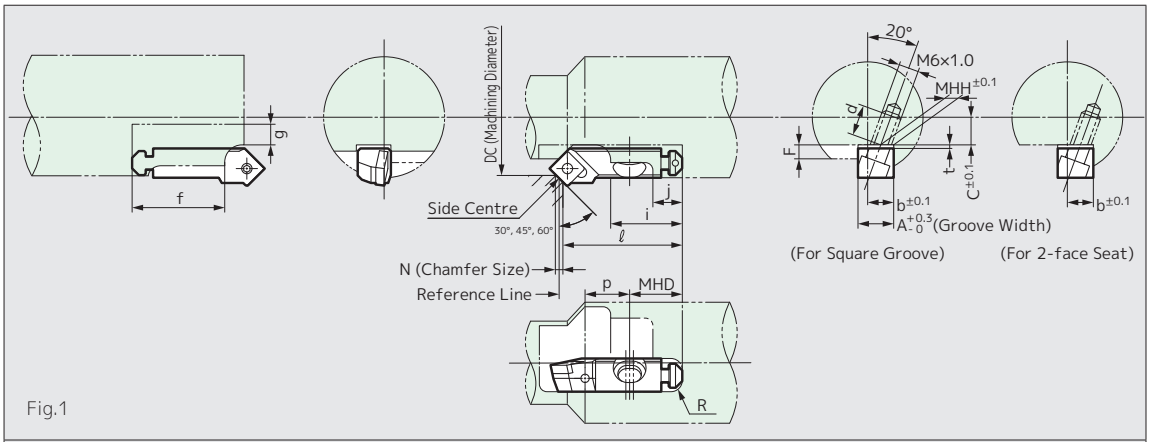


Fig.1

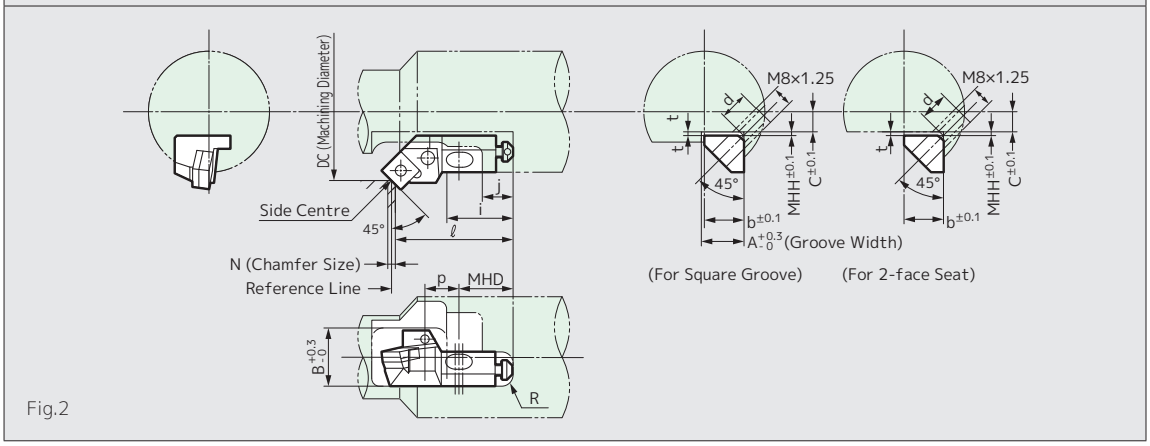


Fig.2

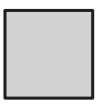
Cat. No.		C	A	B	b	ℓ	E	F	i	j	R	d	MHH	f	g	MHD	p	m	Fig.
PTTN R/L	10CA	$\frac{DC}{2}$−12.52 + 0.29N	12.7	–	10.00	45.64−0.5N	–	5.0	33	13	3.5	12	4.64	37	3	20	18	2	1
	12CA	$\frac{DC}{2}$−17.67 + 0.29N	15.7	–	12.00	48.65−0.5N	–	10.5	33	13	5.0	16	5.64	37	6	20	18	2	
	16CA	$\frac{DC}{2}$−19.67 + 0.29N	16.2	26.2	16.00	56.65−0.5N	5.5	5.5	39	17	5.0	12	1.00	–	–	25	29	2	2
PSSN R/L	10CA	$\frac{DC}{2}$−11.96 + 0.5N	12.7	–	10.00	47.04−0.5N	–	5.0	31	13	3.5	12	4.64	35	2	20	17	2	1
	12CA	$\frac{DC}{2}$−16.84 + 0.5N	15.7	–	12.00	51.16−0.5N	–	10.5	30	13	5.0	16	5.64	37	3.5	20	17	2	
	16CA	$\frac{DC}{2}$−21.84 + 0.5N	16.2	26.2	16.00	57.16−0.5N	5.5	5.5	31	17	5.0	12	1.00	–	–	25	16	2	2

● The symbols used in the table are as below.

DC: Machining Diameter (C dimension is calculated to be just 0.1mm smaller than the target diameter. Use the target diameter for the substitute DC value.)
t: Shim Thickness (The calculation formula in the table is derived using 1.0mm.)
X_1, X_2, Y_1, Y_2: Corrected values based on insert corner radius (as the cutting edge position of the Cartridge Unit is measured with a reference insert corner radius, a corrected value is required when using an insert with a different corner radius from the reference corner radius (see table on the right)).
N: Chamfer Size

Relationship Between Reference Corner Radius and Insert Size

Dimensions (mm)

Insert Shape	Insert Inscribed Circle	Reference Corner Radius
Triangular type 	ø 6.35 ø 9.525 ø 12.70	0.4 0.8 0.8
Square type 	ø 9.525 ø 12.70	0.8 0.8
80° Diamond Apex Angle 	ø 12.70 ø 15.875	0.8 1.2

MU type

Body (Positive type)

Angular type

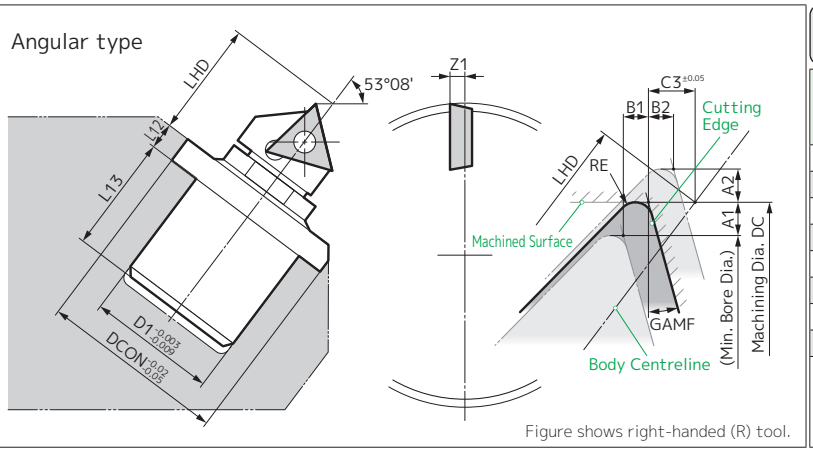


Figure shows right-handed (R) tool.

T 60°

Cat. No.	Stock		GAMF	Min. Bore Dia. DMIN	Adjustment Amount	
		LH			A1	A2
MUP1-A0	●	●	0°	25	0.4	0.4
MUP1-A15	●		15°	25	0.4	0.4
MUP2-A0	●	●	0°	36	0.55	0.55
MUP2-A15	●		15°	36	0.55	0.55
MUP3-A0	●	●	0°	47	0.9	0.9
MUP3-A15			15°	47	0.9	0.9
MUP4-A0	●		0°	73	1.4	1.4
MUP4-A15			15°	73	1.4	1.4

LHD: Distance from the datum face to the intersection of the body centreline and the machined surface plane.
C3: Distance from the cutting edge to the intersection of the body centreline and the machined plane.

Vertical type

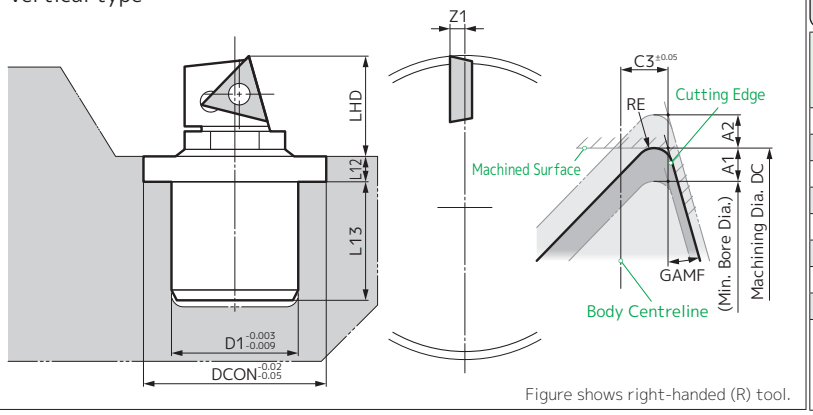


Figure shows right-handed (R) tool.

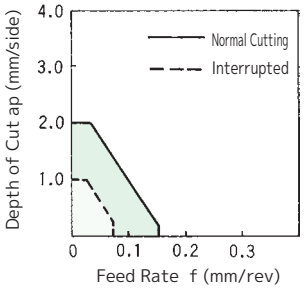
T 60°

Cat. No.	Stock		GAMF	Min. Bore Dia. DMIN	Adjustment Amount	
		LH			A1	A2
MUP1-V0	●	●	0°	25	0.5	0.5
MUP1-V15	●		15°	25	0.5	0.5
MUP2-V0	●	●	0°	36	0.7	0.7
MUP2-V15	●		15°	36	0.7	0.7
MUP3-V0	●	●	0°	47	1.15	1.15
MUP3-V15	●		15°	47	1.15	1.15
MUP4-V0	●		0°	73	1.75	1.75
MUP4-V15	●		15°	73	1.75	1.75

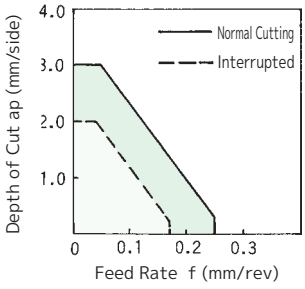
LHD: Distance from the datum face to the intersection of the body centreline and the machined surface plane.
C3: Distance from the cutting edge to the intersection of the body centreline and the machined plane.

Cutting Conditions

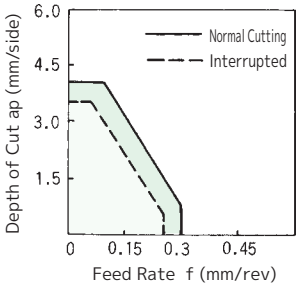
MUP1 type



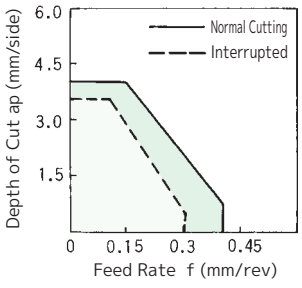
MUP2 type



MUP3 type

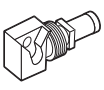


MUP4 type



- This table presents guidelines for cutting conditions with steel cutting as a reference.
- When cutting cast iron or non-ferrous metals, slightly higher cutting conditions are permissible.
- When used for interrupted cutting, stable machining is possible if the Micro Unit is designed to cut larger than its minimum bore diameter, so as to increase the load on the disc spring.

Parts (MUP type)

Unit Cat. No.		Spindle	Flat Insert Screw	Bushing	Graduated Nut	Ring	Disc Spring	Ring Flat Head Screw
Size	Cat. No.							
MUP1	**A0, A15**	-1 at end of completed product Cat. No.	BFN0206T	MUP1-A0-2	MUP1-A0-3	MUP1-A0-4	DP0512 (6-pc set)	BFX0307R
	V0, V15			MUP1-V0-2	MUP1-V0-3			
MUP2	**A0, A15**	-1 at end of completed product Cat. No.	BFN0307T	MUP2-A0-2	MUP2-A0-3	MUP2-A0-4	DP0615 (8-pc set)	BFX0410R
	V0, V15			MUP2-V0-2	MUP2-V0-3			
MUP3	**A0, A15**	-1 at end of completed product Cat. No.	BFN0307T	MUP3-A0-2	MUP3-A0-3	MUP3-A0-4	DP0918 (10-pc set)	BFX0511R
	V0, V15			MUP3-V0-2	MUP3-V0-3			
MUP4	**A0, A15**	-1 at end of completed product Cat. No.	BFTX0409N	MUP4-A0-2	MUP4-A0-3	MUP4-A0-4	DP1225 (12-pc set)	BFX0611R
	V0, V15			MUP4-V0-2	MUP4-V0-3			

Other than the spindle, the parts are neutral. For the spindle Cat. No., add -1 to the end of the completed product Cat. No. (Examples: MUP2-V0-1, MUP2-V0-LH-1 (Left-handed))

Dimensions (mm)

	LHD	L12	L13	D1	DCON	HF	F1	C3	B1	B2	Z1	RE	Applicable Insert
	11.64	3.2	7.6	15.08	19.05	9.3	5	-0.8	0.3	0.3	1.1	0.4	TP□□080204
	11.60	3.2	7.6	15.08	19.05	9.3	5	0.8	0.3	0.3	1.1	0.4	
	14.99	4	13.1	19.05	24.59	11.95	6.7	-1.1	0.41	0.41	1.6	0.4	TP□□110304
	14.99	4	13.1	19.05	24.59	11.95	6.7	1.3	0.41	0.41	1.6	0.4	
	18.62	4.8	18.5	22.225	31.75	14.9	7.9	-0.9	0.67	0.67	2.0	0.4	TP□□110304
	18.62	4.8	18.5	22.225	31.75	14.9	7.9	1.8	0.67	0.67	2.0	0.4	
	28.75	6.4	29.1	31.75	46.03	23	12.3	-1.3	1.05	1.05	3.2	0.8	TP□□160408
	28.75	6.4	29.1	31.75	46.03	23	12.3	2.8	1.05	1.05	3.2	0.8	

If a left-hand unit is required, include "-LH" after the catalogue number. (Example: MUP1-V0-LH)

Dimensions (mm)

	LHD	L12	L13	D1	DCON	–	–	C3	–	–	Z1	RE	Applicable Insert
	10.8	3.2	7.6	15.08	20.62	–	–	3.6	–	–	1.1	0.4	TP□□080204
	10.8	3.2	7.6	15.08	20.62	–	–	1.9	–	–	1.1	0.4	
	13.8	4	13.1	19.05	24.59	–	–	4.0	–	–	1.6	0.4	TP□□110304
	13.8	4	13.1	19.05	24.59	–	–	1.5	–	–	1.6	0.4	
	17.05	4.8	18.5	22.225	31.75	–	–	4.8	–	–	2.0	0.4	TP□□110304
	17.05	4.8	18.5	22.225	31.75	–	–	4.1	–	–	2.0	0.4	
	25.65	6.4	29.1	31.75	46.03	–	–	7.1	–	–	3.2	0.8	TP□□160408
	25.65	6.4	29.1	31.75	46.03	–	–	4.0	–	–	3.2	0.8	

If a left-hand unit is required, include "-LH" after the catalogue number. (Example: MUP1-V0-LH)

Applicable Insert

Refer to the body applicable insert column.
(Note) When using an insert with a handed chipbreaker, the opposite feed direction from the body is applicable.

Deciding between MUP and MUN types

Cat. No.	Suitable Conditions	Unsuitable Conditions
MUP type	● When a good surface finish is required ● When the workpiece is not rigid	● When chips are long ● For extreme interruption
MUN type	● When there are chip control problems ● When the workpiece and tool are rigid	● When the workpiece is not rigid

	Unit Set Screw	Insert Wrench	Unit Wrench	Flat Wrench
				
	FBUP1-A0-8 FBUP1-V0-8	(TRX08)	(TH020)	FBUP1-A0-15
	FBUP2-A0-8	(TRX10)	(TH020)	FBUP1-A0-15
	FBUP3-A0-8	(TRX10)	(TH020)	FBUP1-A0-15
	FBUP4-A0-8	(TRX15)	(LH030)	FBUP4-A0-15

*Wrenches in ( ) are sold separately.

Body (Negative type)

Angular type

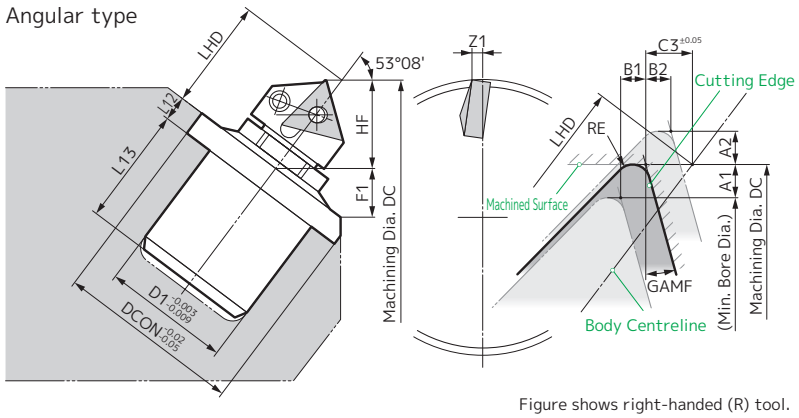


Figure shows right-handed (R) tool.

T 60°

Cat. No.	Stock LH	GAMF	Min. Bore Dia. DMIN	Adjustment Amount A1	A2
MUN2-A0		0°	36	0.55	0.55
MUN2-A15		15°	36	0.55	0.55
MUN3-A0		0°	47	0.9	0.9
MUN3-A15		15°	47	0.9	0.9
MUN3L-A0		0°	54	0.9	0.9
MUN3L-A15		15°	54	0.9	0.9
MUN4-A0		0°	73	1.4	1.4
MUN4-A15		15°	73	1.4	1.4
MUN4L-A0		0°	78	1.4	1.4
MUN4L-A15		15°	78	1.4	1.4

LHD: Distance from the datum face to the intersection of the body centreline and the machined surface plane.
C3: Distance from the cutting edge to the intersection of the body centreline and the machined plane.

Vertical type

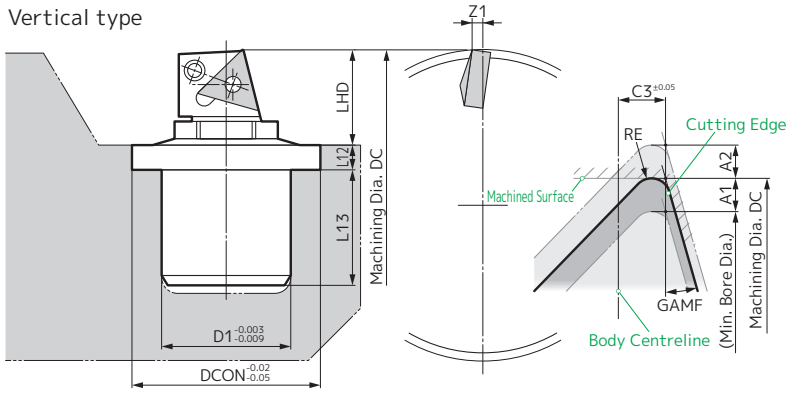


Figure shows right-handed (R) tool.

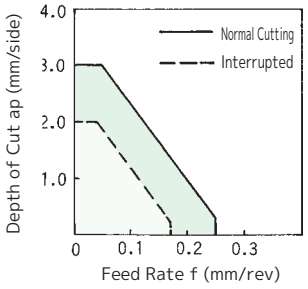
T 60°

Cat. No.	Stock LH	GAMF	Min. Bore Dia. DMIN	Adjustment Amount A1	A2
MUN2-V0		0°	36	0.7	0.7
MUN2-V15		15°	36	0.7	0.7
MUN3-V0		0°	47	1.15	1.15
MUN3-V15		15°	47	1.15	1.15
MUN3L-V0		0°	54	1.15	1.15
MUN3L-V15		15°	54	1.15	1.15
MUN4-V0		0°	73	1.75	1.75
MUN4-V15		15°	73	1.75	1.75
MUN4L-V0		0°	78	1.75	1.75
MUN4L-V15		15°	78	1.75	1.75

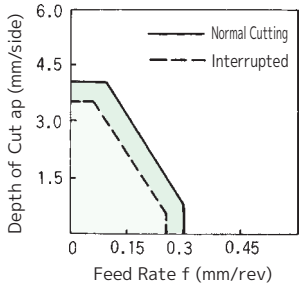
LHD: Distance from the datum face to the intersection of the body centreline and the machined surface plane.
C3: Distance from the cutting edge to the intersection of the body centreline and the machined plane.

Cutting Conditions

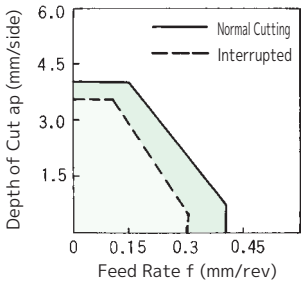
MUN2 type



MUN3(L) type

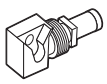


MUN4(L) type



- This table presents guidelines for cutting conditions with steel cutting as a reference.
- When cutting cast iron or non-ferrous metals, slightly higher cutting conditions are permissible.
- When used for interrupted cutting, stable machining is possible if the Micro Unit is designed to cut larger than its minimum bore diameter, so as to increase the load on the disc spring.

Parts (MUN type)

Unit Representative Cat. No. Size	Unit Representative Cat. No. Cat. No.	Spindle	Lever Pin	Bolt	Shim	Shim Retainer	Bushing	Graduated Nut
				 LCS2B LCS3S LCS4CA				
MUN2	**A0, A15**	-1 at end of completed product Cat. No.	LCL2L	LCS2B	–	–	MUN2 -A0-2	MUP2-A0-3
	V0, V15						MUN2 -V0-2	MUP2-V0-3
MUN3	**A0, A15**	-1 at end of completed product Cat. No.	LCL2L	LCS2B	–	–	MUN3 -A0-2	MUP3-A0-3
	V0, V15						MUN3 -V0-2	MUP3-V0-3
MUN3L	**A0, A15**	-1 at end of completed product Cat. No.	LCL3	LCS3S	–	LSP3	MUN3L -A0-2	MUP3-A0-3
	V0, V15						MUN3L -V0-2	MUP3-V0-3
MUN4	**A0, A15**	-1 at end of completed product Cat. No.	LCL3	LCS3S	–	LSP3	MUN4 -A0-2	MUP4-A0-3
	V0, V15						MUN4 -V0-2	MUP4-V0-3
MUN4L	**A0, A15**	-1 at end of completed product Cat. No.	LCL4	LCS4CA	LST42	LSP4	MUN4L -A0-2	MUP4-A0-3
	V0, V15						MUN4L -V0-2	MUP4-V0-3

Other than the spindle, the parts are neutral. For the spindle Cat. No., add -1 to the end of the completed product Cat. No. (Examples: MUN2-V0-1
MUN2-V0-LH-1 (Left-handed))

Dimensions (mm)

	LHD	L12	L13	D1	DCON	HF	F1	C3	B1	B2	Z1	RE	Applicable Insert
	14.99	4	13.1	19.05	24.59	11.95	6.7	-1.1	0.41	0.41	1.8	0.4	TN□□110304
	14.99	4	13.1	19.05	24.59	11.95	6.7	1.3	0.41	0.41	1.8	0.4	
	18.62	4.8	18.5	22.225	31.75	14.9	7.9	-0.9	0.67	0.67	2.0	0.4	TN□□110304
	18.62	4.8	18.5	22.225	31.75	14.9	7.9	1.8	0.67	0.67	2.0	0.4	
	29.42	4.8	18.5	22.225	31.75	23.5	7.9	-1.3	0.67	0.67	2.4	0.8	TN□□160408
	29.42	4.8	18.5	22.225	31.75	23.5	7.9	2.8	0.67	0.67	2.4	0.8	
	28.75	6.4	29.1	31.75	46.03	23	12.3	-1.3	1.05	1.05	3.2	0.8	TN□□160408
	28.75	6.4	29.1	31.75	46.03	23	12.3	2.8	1.05	1.05	3.2	0.8	
	38.35	6.4	29.1	31.75	46.03	30.7	12.3	-2.5	1.05	1.05	3.4	0.8	TN□□220408
	38.35	6.4	29.1	31.75	46.03	30.7	12.3	1.5	1.05	1.05	3.4	0.8	

If a left-hand unit is required, include "-LH" after the catalogue number. (Example: MUN2-A0-LH)

Dimensions (mm)

	LHD	L12	L13	D1	DCON	HF	F1	C3	B1	B2	Z1	RE	Applicable Insert
	13.8	4	13.1	19.05	24.59	–	–	4.0	–	–	1.8	0.4	TN□□110304
	13.8	4	13.1	19.05	24.59	–	–	1.5	–	–	1.8	0.4	
	17.05	4.8	18.5	22.225	31.75	–	–	4.8	–	–	2.0	0.4	TN□□110304
	17.05	4.8	18.5	22.225	31.75	–	–	4.1	–	–	2.0	0.4	
	23.55	4.8	18.5	22.225	31.75	–	–	7.1	–	–	2.4	0.8	TN□□160408
	23.55	4.8	18.5	22.225	31.75	–	–	4.0	–	–	2.4	0.8	
	25.65	6.4	29.1	31.75	46.03	–	–	7.1	–	–	3.2	0.8	TN□□160408
	25.65	6.4	29.1	31.75	46.03	–	–	4.0	–	–	3.2	0.8	
	33.55	6.4	29.1	31.75	46.03	–	–	7.9	–	–	3.4	0.8	TN□□220408
	33.55	6.4	29.1	31.75	46.03	–	–	3.6	–	–	3.4	0.8	

If a left-hand unit is required, include "-LH" after the catalogue number. (Example: MUN2-V0-LH)

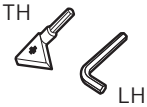
Applicable Insert

Refer to the body applicable insert column.

(Note) When using an insert with a handed chipbreaker, the opposite feed direction from the body is applicable.

Deciding between MUN and MUP types

Cat. No.	Suitable Conditions	Unsuitable Conditions
MUN type	● When there are chip control problems ● When the workpiece and tool are rigid	● When the workpiece is not rigid
MUP type	● When a good surface finish is required ● When the workpiece is not rigid	● When chips are long ● For extreme interruption

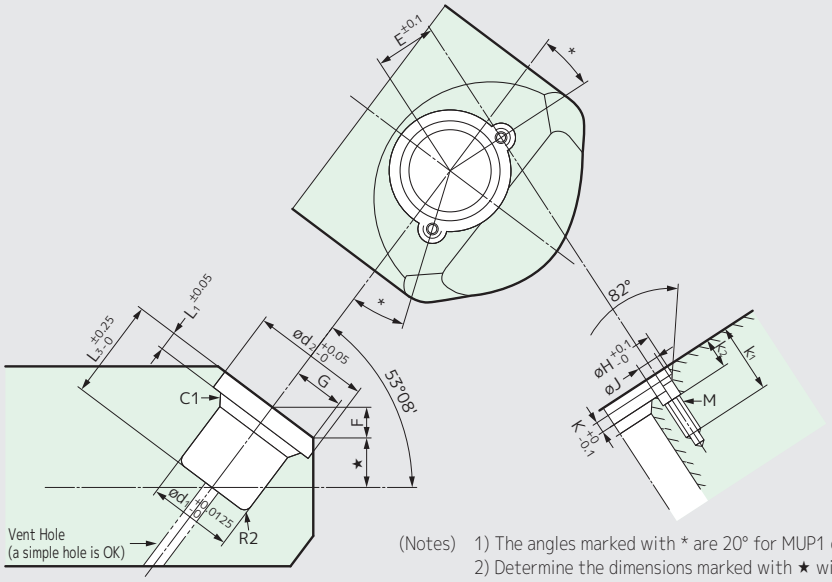
	Ring	Disc Spring	Ring Flat Head Screw	Unit Set Screw	Insert Wrench	Unit Wrench	Flat Wrench
							
	MUP2-A0-4	DP0615 (8-pc set)	BFX0410R	FBUP2-A0-8	(TH020)	(TH020)	FBUP1-A0-15
	MUP3-A0-4	DP0918 (10-pc set)	BFX0511R	FBUP3-A0-8	(TH020)	(TH020)	FBUP1-A0-15
	MUP3-A0-4	DP0918 (10-pc set)	BFX0511R	FBUP3-A0-8	(TH025)	(TH020)	FBUP1-A0-15
	MUP4-A0-4	DP1225 (12-pc set)	BFX0611R	FBUP4-A0-8	(TH025)	(LH030)	FBUP4-A0-15
	MUP4-A0-4	DP1225 (12-pc set)	BFX0611R	FBUP4-A0-8	(LH030)	(LH030)	FBUP4-A0-15

*Wrenches in ( ) are sold separately.

Mounting Part Design

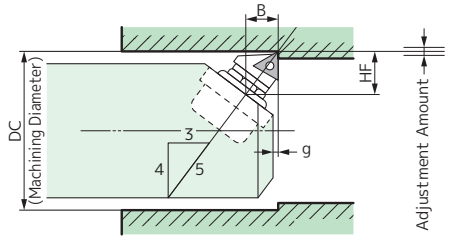
● Angular type (A type)

Dimensions (mm)

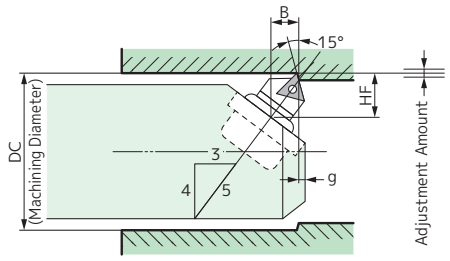


(Notes) 1) The angles marked with * are 20° for MUP1 only, and 0° for all others.
2) Determine the dimensions marked with ★ with reference to the table below.
3) The ϕd_1 dimension should ideally minimize play during actual fitting of the Unit. In addition, the body external diameter tolerance is $^{-0.003}_{-0.009}$.

Unit Representative Cat. No.	ϕd_1	ϕd_2	L_1	L_3	E	F	G	øH	øJ	K	M	k_1	k_2
MUP1-A	15.08	19.05	3.2	12.7	9.53	5.0	8.4	4.6	3.2	1.9	M3 x0.5	13	4
MUP2-A , MUN2-A	19.05	24.59	4.0	19.1	12.30	6.7	11.1	5.7	3.2	2.7	M3 x0.5	13	5
MUP3-A , MUN3(L)-A	22.225	31.75	4.8	25.4	15.88	7.9	13.1	7.2	3.8	3.7	M3.5x0.6	16	6
MUP4-A , MUN4(L)-A	31.75	46.03	6.4	38.1	23.02	12.3	20.5	9.5	5.3	5.1	M5 x0.8	19	7

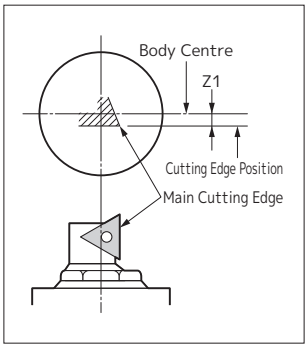


Unit Cat. No.		DC	B	HF	g
MUP	**1 -A0**	25.8	7.76	9.3	1.04
	2 -A0	37.1	10.09	11.95	1.21
	3 -A0	48.8	12.08	14.9	1.60
	4 -A0	75.8	18.55	23	2.15
MUN	**2 -A0**	37.1	10.09	11.95	1.21
	3 -A0	48.8	12.08	14.9	1.60
	4 -A0	75.8	18.55	23	2.15
	3L -A0	55.8	18.96	23.5	8.48
	4L -A0	80.8	25.51	30.7	9.11



Unit Cat. No.		DC	B	HF	g
MUP	**1 -A15**	25.8	6.16	9.3	0.56
	2 -A15	37.1	7.69	11.95	1.19
	3 -A15	48.8	9.38	14.9	1.10
	4 -A15	75.8	14.45	23	1.95
MUN	**2 -A15**	37.1	7.69	11.95	1.19
	3 -A15	48.8	9.38	14.9	1.10
	4 -A15	75.8	14.45	23	1.95
	3L -A15	55.8	14.86	23.5	-4.38
	4L -A15	80.8	21.51	30.7	-5.11

Mounting Position



- As in the figure on the left, the cutting edge position is above centre by the amount of Z1 with regard to the body centre. Therefore,
- When using for internal boring, align the body centre and the quill centre.
- When using for external turning, the body centre and quill or workpiece centre must be shifted down by the Z1 amount.

● MUP type and MUN type

Unit Representative Cat. No.	Z1(mm)
MUP1 -A	1.1
MUP2 -A	1.6
MUP3 -A	2.0
MUP4 -A	3.2
MUN2 -A	1.8
MUN3 -A	2.0
MUN3L -A	2.4
MUN4 -A	3.2
MUN4L -A	3.4

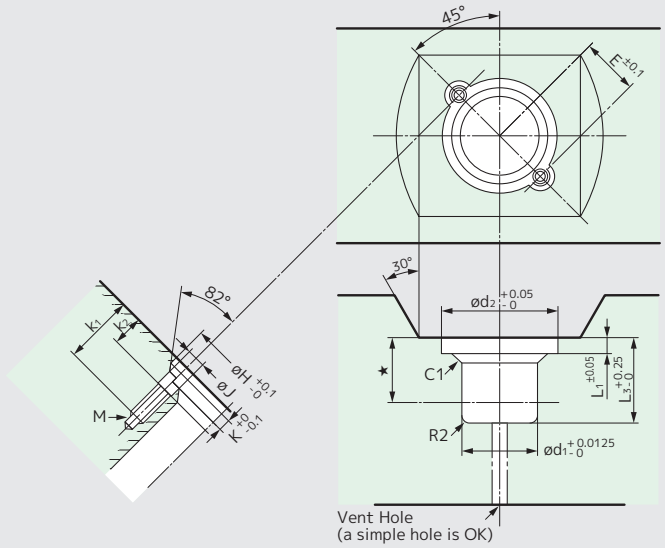
● The adjustment amount shown in the above figure is as in the table below.

Unit Representative Cat. No.	Adjustment Amount
MUP1-A	0.8
MUP2-A **MUN2-A**	1.1
MUP3-A **MUN3-A, MUN3L-A**	1.8
MUP4-A **MUN4-A, MUN4L-A**	2.8

● Vertical type (V type)

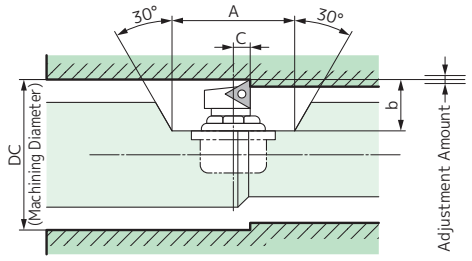
Dimensions (mm)

Left-handed (LH) tool is also as shown in the figure.

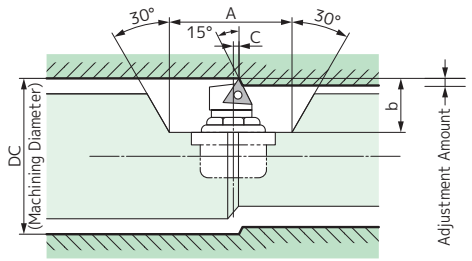


(Notes) 1) Determine the dimensions marked with ★ with reference to the table below.
2) The ød$_1$ dimension should ideally minimize play during actual fitting. In addition, the body external diameter tolerance is $^{-0.003}_{-0.009}$.

Unit Representative Cat. No.	ød$_1$	ød$_2$	L$_1$	L$_3$	E	øH	øJ	K	M	k$_1$	k$_2$	–	–
MUP1-V	15.08	20.62	3.2	12.7	10.31	5.8	3.2	2.2	M3 x0.5	13	4	–	–
MUP2-V , MUN2-V	19.05	24.59	4.0	19.1	12.30	5.7	3.2	2.7	M3 x0.5	13	5	–	–
MUP3-V , MUN3(L)-V	22.225	31.75	4.8	25.4	15.88	7.2	3.8	3.7	M3.5x0.6	16	6	–	–
MUP4-V , MUN4(L)-V	31.75	46.03	6.4	38.1	23.02	9.5	5.3	5.1	M5 x0.8	19	7	–	–

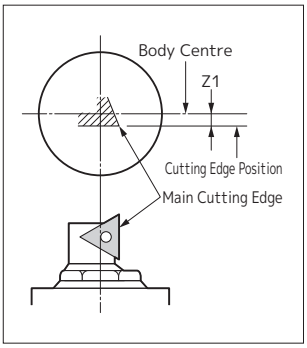


Unit Cat. No.		DC	C	b	A
MUP	**1 -V0**	26	3.6	10.8	30
	2 -V0	37.4	4.0	13.8	40
	3 -V0	49.3	4.8	17.05	50
	4 -V0	76.5	7.1	25.65	60
MUN	**2 -V0**	37.4	4.0	13.8	40
	3 -V0	49.3	4.8	17.05	50
	4 -V0	76.5	7.1	25.65	60
	3L -V0	56.3	7.1	23.55	50
	4L -V0	81.5	7.9	33.55	60



Unit Cat. No.		DC	C	b	A
MUP	**1 -V15**	26	1.9	10.8	30
	2 -V15	37.4	1.5	13.8	40
	3 -V15	49.3	4.1	17.05	50
	4 -V15	76.5	4.0	25.65	60
MUN	**2 -V15**	37.4	1.5	13.8	40
	3 -V15	49.3	4.1	17.05	50
	4 -V15	76.5	4.0	25.65	60
	3L -V15	56.3	4.0	23.55	50
	4L -V15	81.5	3.6	33.55	60

Mounting Position



- As in the figure on the left, the cutting edge position is above centre by the amount of Z1 with regard to the body centre. Therefore,
- When using for internal boring, align the body centre and the quill centre.
- When using for external turning, the body centre and quill or workpiece centre must be shifted down by the Z1 amount.

● MUP type and MUN type

Unit Representative Cat. No.	Z1(mm)
MUP1 -V	1.1
MUP2 -V	1.6
MUP3 -V	2.0
MUP4 -V	3.2
MUN2 -V	1.8
MUN3 -V	2.0
MUN3L -V	2.4
MUN4 -V	3.2
MUN4L -V	3.4

● The adjustment amount shown in the above figure is as in the table below.

Unit Representative Cat. No.	Adjustment Amount
MUP1-V	1.0
MUP2-V **MUN2-V**	1.4
MUP3-V **MUN3-V, MUN3L-V**	2.3
MUP4-V **MUN4-V, MUN4L-V**	3.5

ABS System

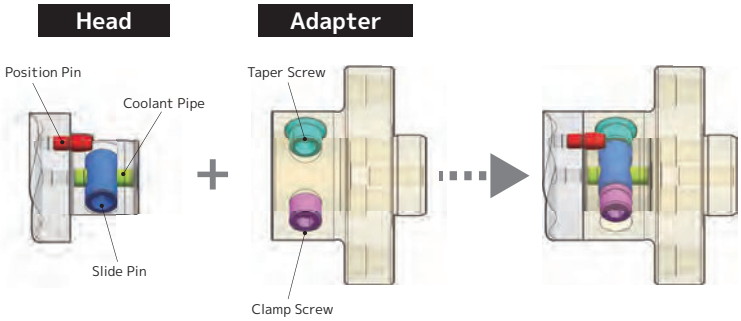
■ Features

The IGETALLOY ABS system has received high acclamation worldwide for its strong clamping force, high rigidity and high precision. ABS is one of the quick change systems for round tools, which increases our customers' productivity in special tooling applications, while simplifying and standardising these special tools. The SBA system is also available. For details, please contact us.

■ Applications

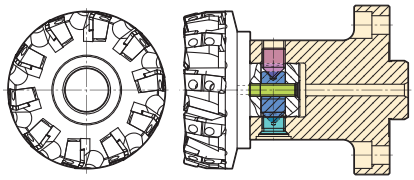
- The clamp screw, taper screw and slide pin act as a wedge for strong holding force.
- High rigidity, high precision. High indexing accuracy during tool changes.
- A wide array of sizes are available to cover a variety of tools.
- Easy handling allows short tool change times.
- Allows coolant supply from inside the spindle.
- Strong clamping force even with small diameters.

■ Clamp Mechanism

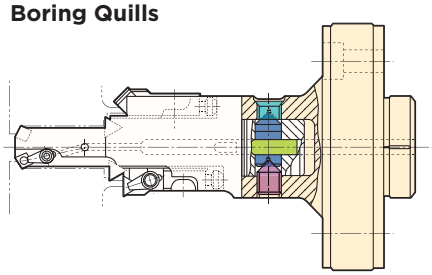


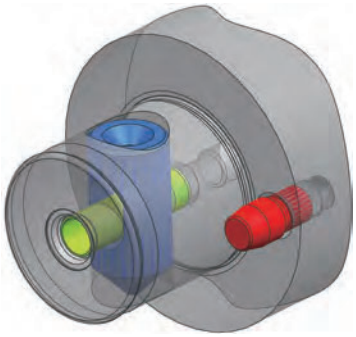
■ ABS System Design Examples

Indexable Cutters



Boring Quills





■ ABS Standard (Head)

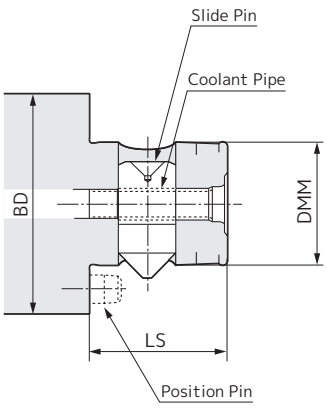
Head Dimensions

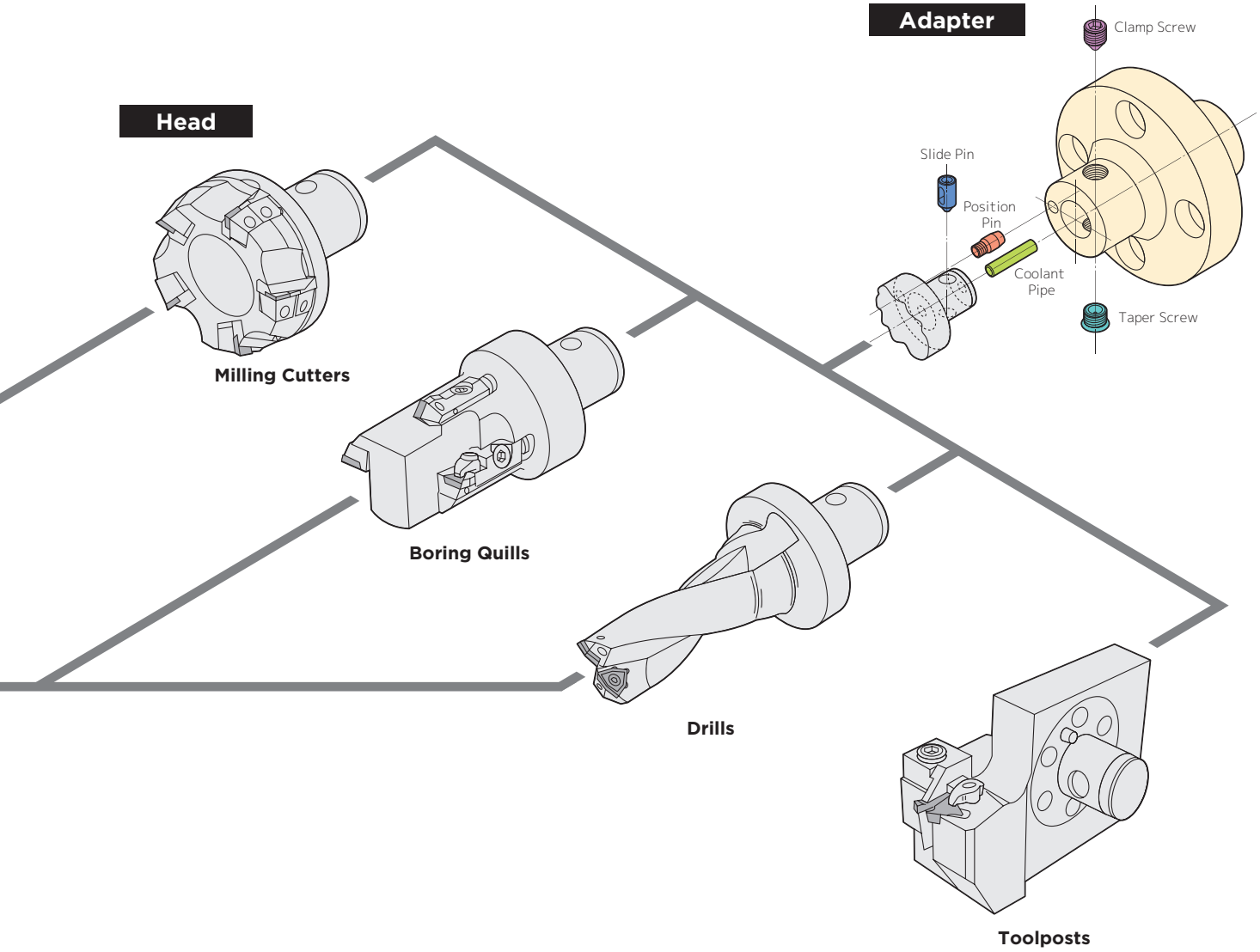
Dimensions (mm)

Cat. No.	Body Dia. BD	Shank Dia. DMM	Shank Length LS
ABS 25M	25	13	20
ABS 32M	32	16	23
ABS 40M	40	20	26
ABS 50M	50	28	31
ABS 63M	63	34	38
ABS 80M	80	46	43

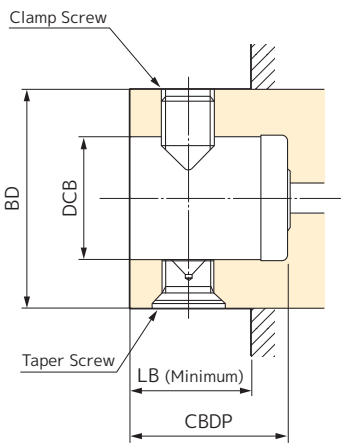
Spare Parts

Set Cat. No.	Slide Pin	Position Pin	Coolant Pipe
ABS 25-ES-M3	ABS 25-E3.2	ABS 25-E4	ABS 25-E6
ABS 32-ES-M3	ABS 32-E3.2	ABS 32-E4	ABS 32-E6
ABS 40-ES-M3	ABS 40-E3.2	ABS 40-E4	ABS 40-E6
ABS 50-ES-M3	ABS 50-E3.2	ABS 50-E4	ABS 50-E6
ABS 63-ES-M3	ABS 63-E3.2	ABS 63-E4	ABS 63-E6
ABS 80-ES-M3	ABS 80-E3.2	ABS 80-E4	ABS 80-E6





■ ABS Standard (Adapter)



Adapter Dimensions

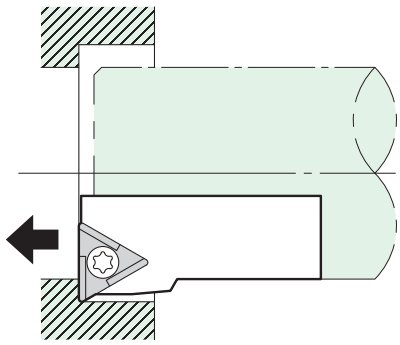
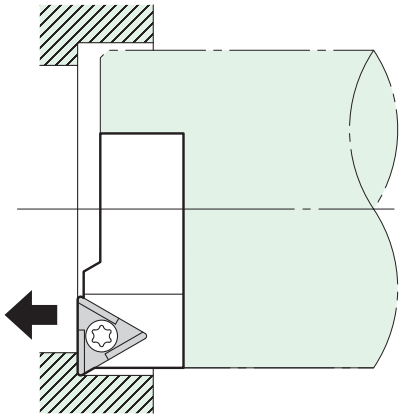
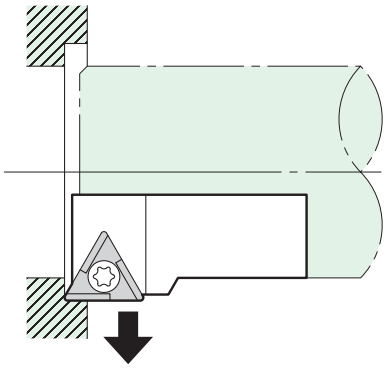
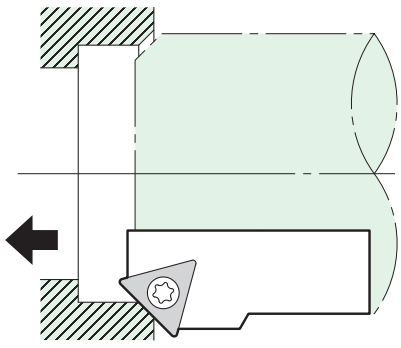
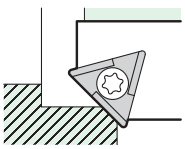
Dimensions (mm)

Cat. No.	Body Dia. BD	Shank Dia. DCB	Shank Length CBDP	Min. Clamping Length LB
ABS 25W	25	13	22	13.0
ABS 32W	32	16	25	16.0
ABS 40W	40	20	30	18.5
ABS 50W	50	28	34	22.0
ABS 63W	63	34	41	28.0
ABS 80W	80	46	48	34.0
ABS100W	100	56	58	40.5
ABS125W	125	70	76	51.0
ABS160W	160	90	96	53.0
ABS200W	200	112	116	82.0

Spare Parts

Set Cat. No.	Clamp Screw	Taper Screw
ABS 25-FS-W	**ABS 25-F1**	**ABS 25-F2**
ABS 32-FS-W	**ABS 32-F1**	**ABS 32-F2**
ABS 40-FS-W	**ABS 40-F1**	**ABS 40-F2**
ABS 50-FS-W	**ABS 50-F1**	**ABS 50-F2**
ABS 63-FS-W	**ABS 63-F1**	**ABS 63-F2**
ABS 80-FS-W	**ABS 80-F1**	**ABS 80-F2**
ABS100-FS-W	**ABS100-F1**	**ABS100-F2**
ABS125-FS-W	**ABS125-F1**	**ABS125-F2**
ABS160-FS-W	**ABS160-F1**	**ABS160-F2**
ABS200-FS-W	**ABS200-F1**	**ABS200-F2**

Chipbreaker Feed Direction Selection

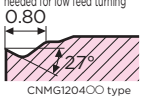
Applications	Chipbreaker Feed Direction
Internal Boring 	Select a neutral chipbreaker or one that is opposite handed from the Cartridge Unit. Handed Inserts Selection Example For STFPR10CA, TPGT110304L-FX
Internal Boring (Radial Mounting) 	Select a neutral chipbreaker or one with the same hand as the Cartridge Unit. Handed Inserts Selection Example For STGPL10CA, TPGT110304L-FX
Facing 	Select a neutral chipbreaker or one with the same hand as the Cartridge Unit. Handed Inserts Selection Example For STGPR10CA, TPGT110304R-FX
Chamfering 	If the Cartridge Unit position was determined using the design formula, chamfering will be performed at the centre of the insert cutting edge. In this case, select a neutral chipbreaker. When the chamfering position is changed, a handed chipbreaker can be used. 

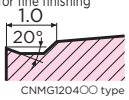
MEMO

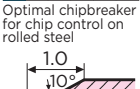
Chipbreaker Selection

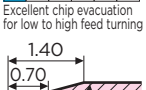
Negative type Finishing to Medium Cutting

Fine Cutting

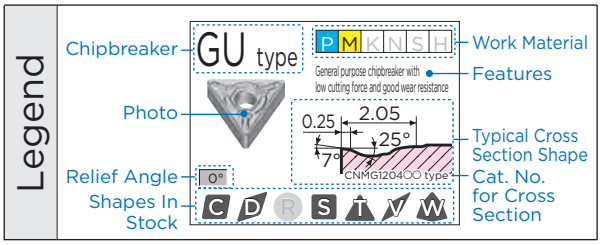
FB type — Provides excellent chip control and cutting edge sharpness needed for low feed turning


FA type — Curved faced chipbreaker is effective for fine finishing


FL type — Optimal chipbreaker for chip control on rolled steel


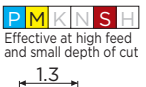
FE type — Excellent chip evacuation for low to high feed turning


Legend



Finishing

LU type — Effective chip control for variable depths of cut and profiling


SU type — Effective at high feed and small depth of cut


SE type — Finishing chipbreaker reduces tool wear on rake face. Effective even for high-efficiency turning


EF type — Exotic alloy finishing chipbreaker with excellent chip evacuation


LUW type — High-efficiency finishing chipbreaker with wiper edge


SEW type — New high-feed finishing chipbreaker with wiper edge

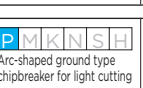

FX type — Parallel chipbreaker with superior cutting edge sharpness


FY type — Wide chipbreaker with cutting edge sharpness

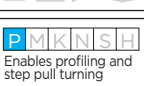

FT type — Arc-shaped ground type finishing chipbreaker


Light to Medium Cutting

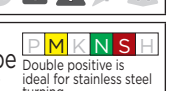
SJ type — Standard chipbreaker with excellent cutting edge strength


ST type — Arc-shaped ground type chipbreaker for light cutting


GX type — Double positive chipbreaker providing superior cutting edge sharpness


SX type — Enables profiling and step pull turning


EX type — Standard chipbreaker for exotic alloys

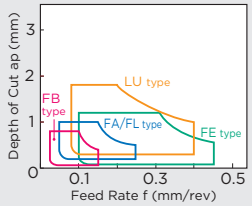

UP type — Double positive is ideal for stainless steel turning


Bumpy Chipbreaker | Standard Chipbreaker | Handed Chipbreaker
BREAK MASTER (CBN/PCD) | For Chamfering

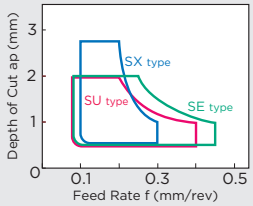
Applicable Work Materials: P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Chipbreaker Application Range (Inscribed Circle of Insert up to ø12.7mm)

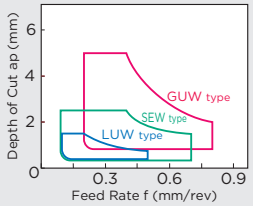
Fine Finishing to Finishing



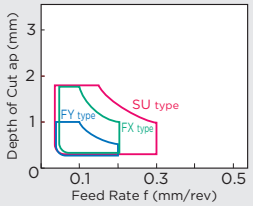
Finishing to Light Cutting



Wiper Insert



High-precision Cutting (Ground)



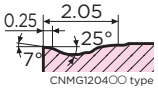
Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number (size, class, etc.).

By Cutting Conditions

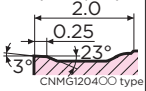
Chipbreaker Selection

Negative type Medium Cutting to Roughing

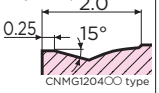
Medium Cutting

GU type — P M K N S H
General purpose chipbreaker with low cutting force and good wear resistance


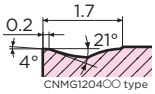
0° C D R S T V W

GE type — P M K N S H
General purpose chipbreaker with high rake face wear resistance even in high-efficiency turning


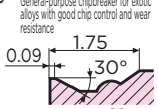
0° C D R S T V W

UX type — P M K N S H
General purpose chipbreaker with strong cutting edge and high reliability


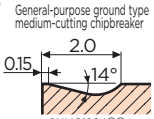
0° C D R S T V W

UG type — P M K N S H
Highly versatile, long-selling product


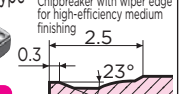
0° C D R S T V W

EG type — P M K N S H
General-purpose chipbreaker for exotic alloys with good chip control and wear resistance


0° C D R S T V W

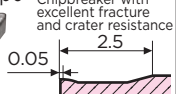
UM type — P M K N S H
General-purpose ground type medium-cutting chipbreaker


0° C D R S T V W

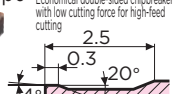
GUW type — P M K N S H
Chipbreaker with wiper edge for high-efficiency medium finishing
Wiper Insert


0° C D R S T V W

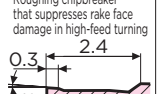
Medium to Roughing

EM type — P M K N S H
Chipbreaker with excellent fracture and crater resistance


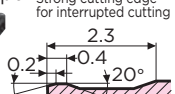
0° C D R S T V W

MU type — P M K N S H
Economical double-sided chipbreaker with low cutting force for high-feed cutting


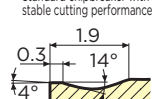
0° C D R S T V W

ME type — P M K N S H
Roughing chipbreaker that suppresses rake face damage in high-feed turning


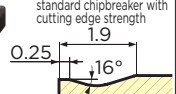
0° C D R S T V W

MX type — P M K N S H
Strong cutting edge for interrupted cutting


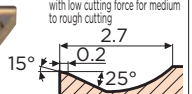
0° C D R S T V W

UZ type — P M K N S H
Standard chipbreaker with stable cutting performance


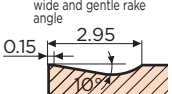
0° C D R S T V W

GZ type — P M K N S H
Extremely reliable standard chipbreaker with cutting edge strength


0° C D R S T V W

HM type — P M K N S H
Wide, M class, handed chipbreaker with low cutting force for medium to rough cutting


0° C D R S T V W

MM type — P M K N S H
Ground chipbreaker with wide and gentle rake angle


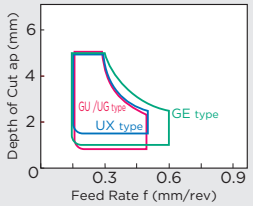
0° C D R S T V W

Bumpy Chipbreaker | Standard Chipbreaker | Handed Chipbreaker
BREAK MASTER (CBN/PCD) | For Chamfering

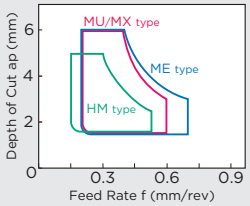
Applicable Work Materials: P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Chipbreaker Application Range (Inscribed Circle of Insert up to ø12.7mm)

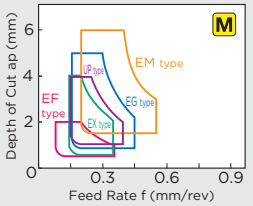
Medium Cutting



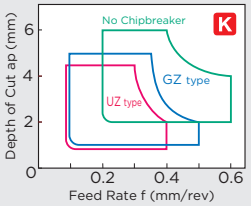
Roughing



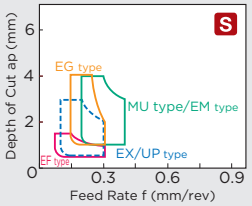
Stainless Steel



Cast Iron



Exotic Alloy

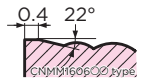


Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number (size, class, etc.).

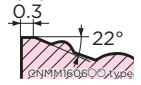
Chipbreaker Selection

Negative type Roughing

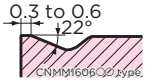
Rough to Heavy Cutting

HG type — P M K N S H
Excellent chip control for heavy cutting


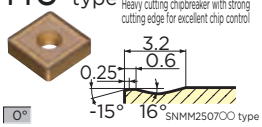
0° C D R S T V W

MP type — P M K N S H
Single-sided chipbreaker with low cutting force for roughing


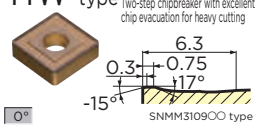
0° C D R S T V W

HP type — P M K N S H
Strongest cutting edge for heavy cutting


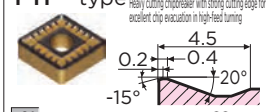
0° C D R S T V W

HU type — P M K N S H
Heavy cutting chipbreaker with strong cutting edge for excellent chip control


0° C D R S T V W

HW type — P M K N S H
Two-step chipbreaker with excellent chip evacuation for heavy cutting


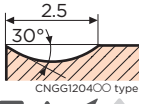
0° C D R S T V W

HF type — P M K N S H
Heavy cutting chipbreaker with strong cutting edge for excellent chip evacuation in high-feed turning


0° C D R S T V W

Negative type Aluminum Alloy Cutting

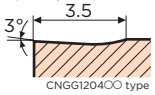
Finishing

AX type — P M K N S H
Parallel Al chipbreaker with cutting edge sharpness


0° C D R S T V W

Negative type Hardened Steel Cutting

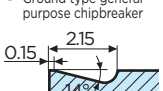
Finishing

GH type — P M K N S H
Hardened steel chipbreaker reduces cutting force and provides good chip evacuation


0° C D R S T V W

Negative type Chamfering

Chamfering

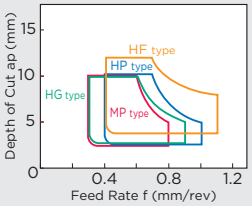
C type — P M K N S H
Ground type general-purpose chipbreaker


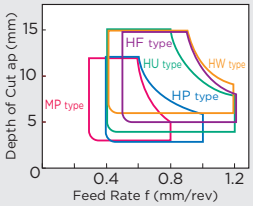
0° C D R S T V W

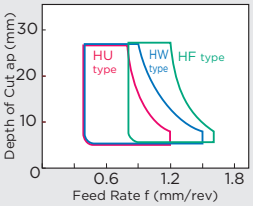
Bumpy Chipbreaker | Standard Chipbreaker | Handed Chipbreaker
BREAK MASTER (CBN/PCD) | For Chamfering

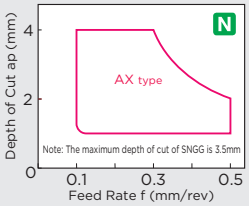
Applicable Work Materials: P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

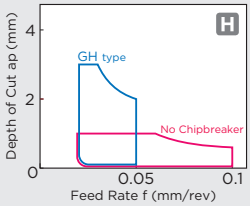
Chipbreaker Application Range

Rough to Heavy Cutting (Inscribed Circle ø15.875 to 19.05mm)


Rough to Heavy Cutting (Inscribed Circle ø25.4mm)


Rough to Heavy Cutting (Inscribed Circle ø31mm)


Aluminum Alloy


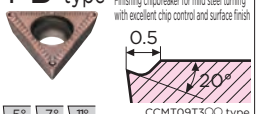
Hardened Steel


Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number (size, class, etc.).

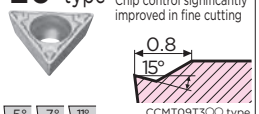
Chipbreaker Selection

Positive type M Class (Finishing to Medium Cutting)

Finishing to Light aCutting

FB type — Finishing chipbreaker for mild steel turning with excellent chip control and surface finish


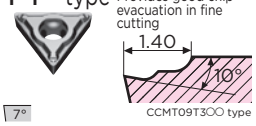
5° 7° 11° — C D R S T V W

LU type — Chip control significantly improved in fine cutting


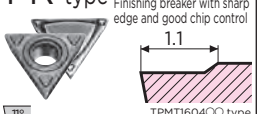
5° 7° 11° — C D R S T V W

LUW type — High-performance finishing breaker with wiper edge


7° 11° — C D R S T V W

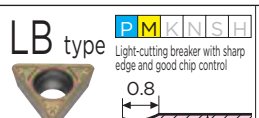
FP type — Provides good chip evacuation in fine cutting


7° — C D R S T V W

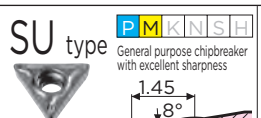
FK type — Finishing breaker with sharp edge and good chip control


11° — C D R S T V W

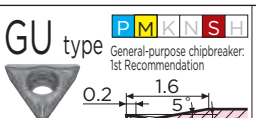
Light to Medium Cutting

LB type — Light-cutting breaker with sharp edge and good chip control


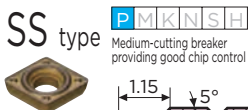
5° 7° 11° — C D R S T V W

SU type — General purpose chipbreaker with excellent sharpness


5° 7° 11° — C D R S T V W

GU type — General-purpose chipbreaker: 1st Recommendation


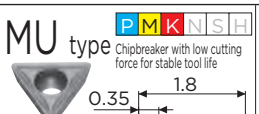
5° 7° 11° — C D R S T V W

SS type — Medium-cutting breaker providing good chip control


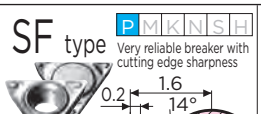
11° — C D R S T V W

US type — For Small Hole Boring Bars

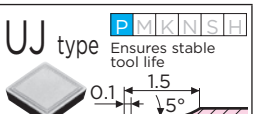

11° — C D R S T V W

MU type — Chipbreaker with low cutting force for stable tool life


7° 11° — C D R S T V W

SF type — Very reliable breaker with cutting edge sharpness


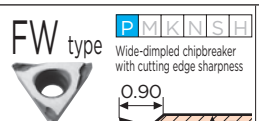
11° — C D R S T V W

UJ type — Ensures stable tool life


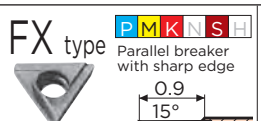
11° — C D R S T V W

Positive type G Class (Ground type)

Finishing to Light Cutting

FW type — Wide-dimpled chipbreaker with cutting edge sharpness


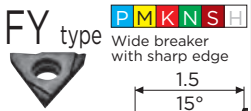
5° 11° — C D R S T V W

FX type — Parallel breaker with sharp edge


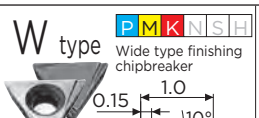
5° 7° 11° — C D R S T V W

FYS type — Fine cutting breaker with sharp edge

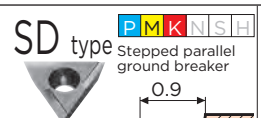

5° 7° — C D R S T V W

FY type — Wide breaker with sharp edge


5° 7° 11° — C D R S T V W

W type — Wide type finishing chipbreaker


5° 11° — C D R S T V W

SD type — Stepped parallel ground breaker


7° 11° — C D R S T V W

SDW type — High-performance finishing breaker with wiper edge. Parallel ground type breaker

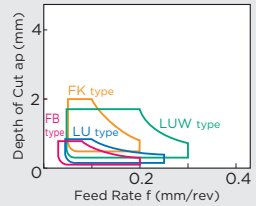

11° — C D R S T V W

Bumpy Chipbreaker | Standard Chipbreaker | Handed Chipbreaker
BREAK MASTER (CBN/PCD) | For Chamfering

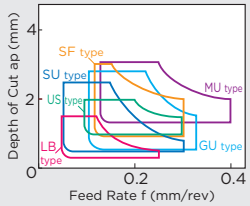
Applicable Work Materials: P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Chipbreaker Application Range

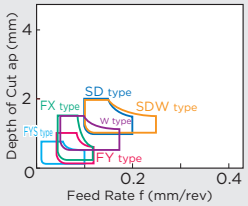
M Class Finishing to Light Cutting



M Class Light to Medium Cutting



G Class Ground type



Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number (size, class, etc.).

Chipbreaker Selection

Positive type G Class

Finishing to Light Cutting

FF type (New)

P M K N S H

Realises outstanding chip evacuation in fine cutting conditions

5° 7°

C D R S T V W

FC type

P M K N S H

Peripheral ground 3D breaker with good chip control and cutting edge sharpness

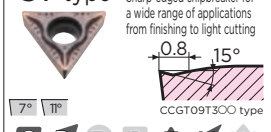
7° 11°

C D R S T V W

SI type

P M K N S H

Sharp-edged chipbreaker for a wide range of applications from finishing to light cutting



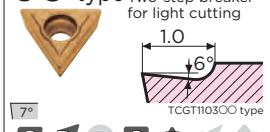
7° 11°

C D R S T V W

SC type

P M K N S H

Two-step breaker for light cutting



7°

C D R S T V W

Positive type Aluminum Alloy Cutting

Finishing

AW type

P M K N S H

Finishing Al chipbreaker with cutting edge sharpness

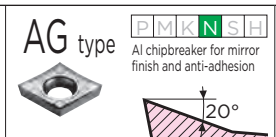
7°

C D R S T V W

AG type

P M K N S H

Al chipbreaker for mirror finish and anti-adhesion



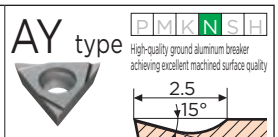
7°

C D R S T V W

AY type

P M K N S H

High-quality ground aluminum breaker achieving excellent machined surface quality



5° 7° 11°

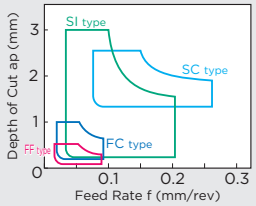
C D R S T V W

Bumpy Chipbreaker | Standard Chipbreaker | Handed Chipbreaker
BREAK MASTER (CBN/PCD) | For Chamfering

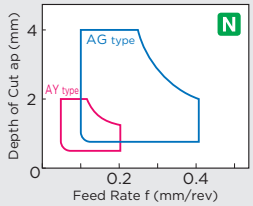
Applicable Work Materials: P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Chipbreaker Application Range

G Class Chipbreaker



Aluminum Alloy



Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number (size, class, etc.).

Chipbreaker Selection

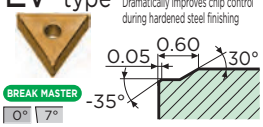
SUMIBORON Insert CBN

Finishing to Light Cutting

LV type

P M K N S H

Dramatically improves chip control during hardened steel finishing



BREAK MASTER

0° 7°

C D R S T V W

FV type

P M K N S H

Dramatically improves chip control during hardened steel finishing

BREAK MASTER

0° 7°

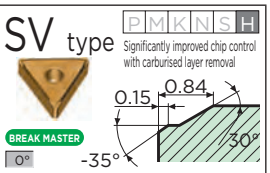
C D R S T V W

Carburised Layer Removal

SV type

P M K N S H

Significantly improved chip control with carburised layer removal



BREAK MASTER

0°

C D R S T V W

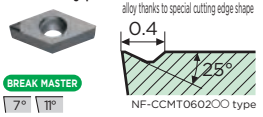
SUMIDIA Insert PCD

Finishing to Light Cutting

LD type

P M K N S H

Ideal chipbreaker for finishing of aluminum alloy thanks to special cutting edge shape



NF-CCMT0602OO type

BREAK MASTER

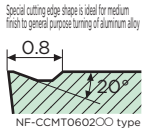
7° 11°

C D R S T V W

GD type

P M K N S H

Special cutting edge shape is ideal for medium finish to general purpose turning of aluminum alloy



NF-CCMT0602OO type

BREAK MASTER

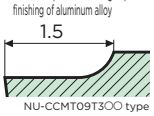
7° 11°

C D R S T V W

DM type

P M K N S H

Perfect chipbreaker for high-speed finishing of aluminum alloy



NU-CCMT09T3OO type

BREAK MASTER

7° 11°

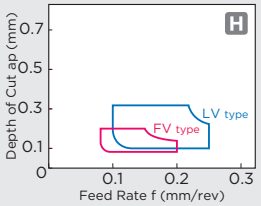
C D R S T V W

Bumpy Chipbreaker | Standard Chipbreaker | Handed Chipbreaker
BREAK MASTER (CBN/PCD) | For Chamfering

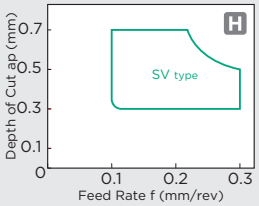
Applicable Work Materials: P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Chipbreaker Application Range

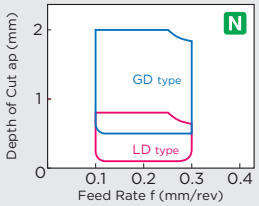
SUMIBORON (Hardened Steel) (Inscribed Circle up to 12.7mm)



SUMIBORON (Carburised Layer Removal) (Inscribed Circle up to 12.7mm)



SUMIDIA (Aluminum Alloy)

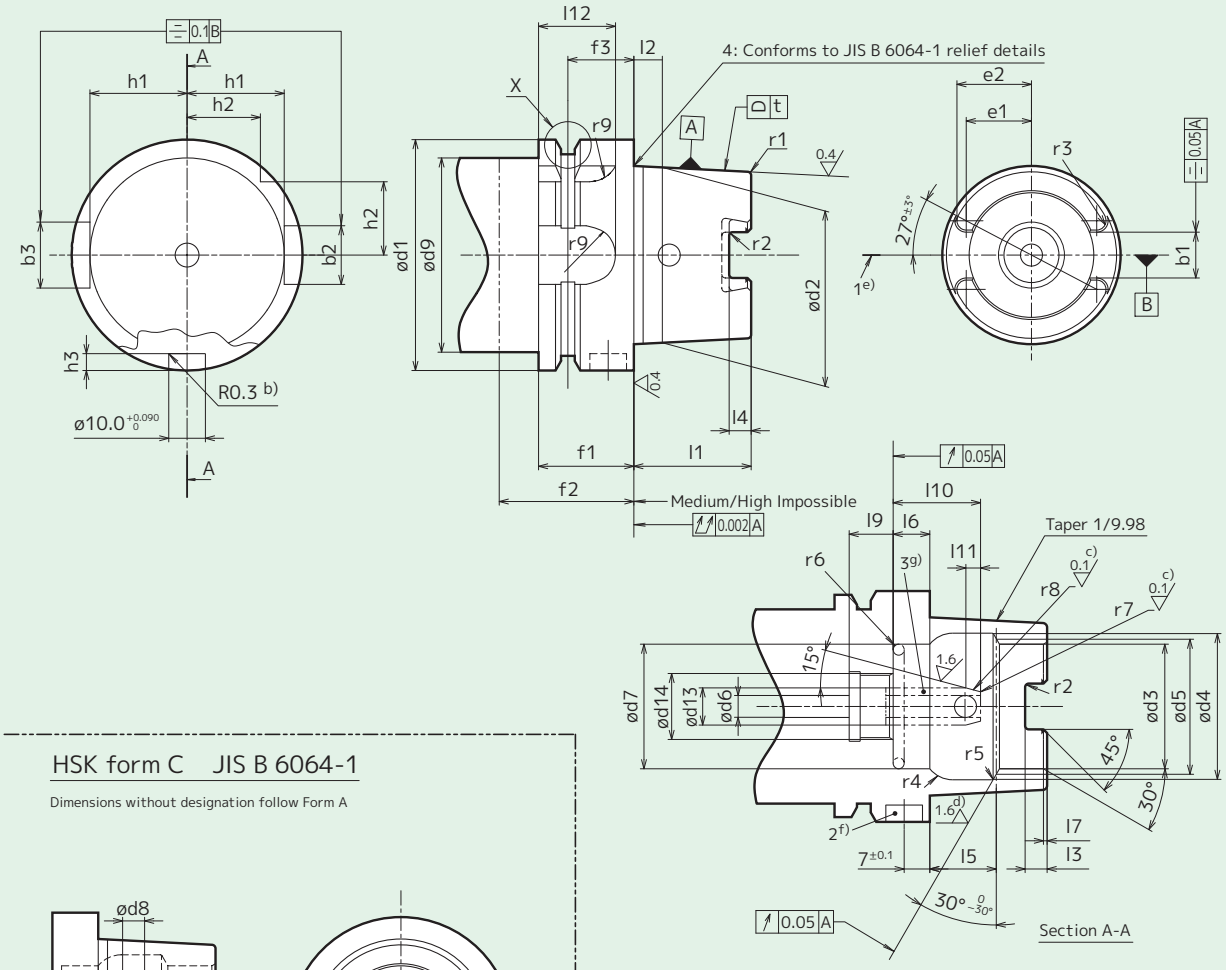


Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number (size, class, etc.).

Standard of Tapers

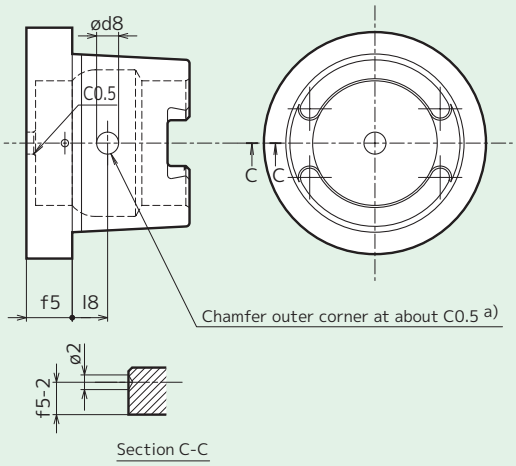
HSK Tooling Supported by 2 Faces (Materials: JIS B 6064-1:2013 (ISO 12164:2001))

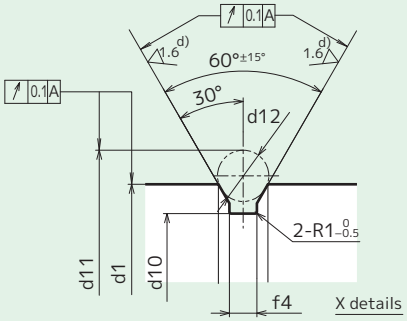
HSK form A JIS B 6064-1



HSK form C JIS B 6064-1

Dimensions without designation follow Form A





1 : Cutting edge e)
2 : Datachip hole f)
3 : Coolant pipe g)
4 : Relief

(a): Hole entrance C0.5 (min.) chamfer
(b): Or C0.3
(c): Lapped finish
(d): Finish turned
(e): Right-handed holder cutting edge position
(f): Option
(g): The coolant pipe should be self-aligning and without leakage; it should move within a range of ±1° with minimal force.

Standard of Tapers

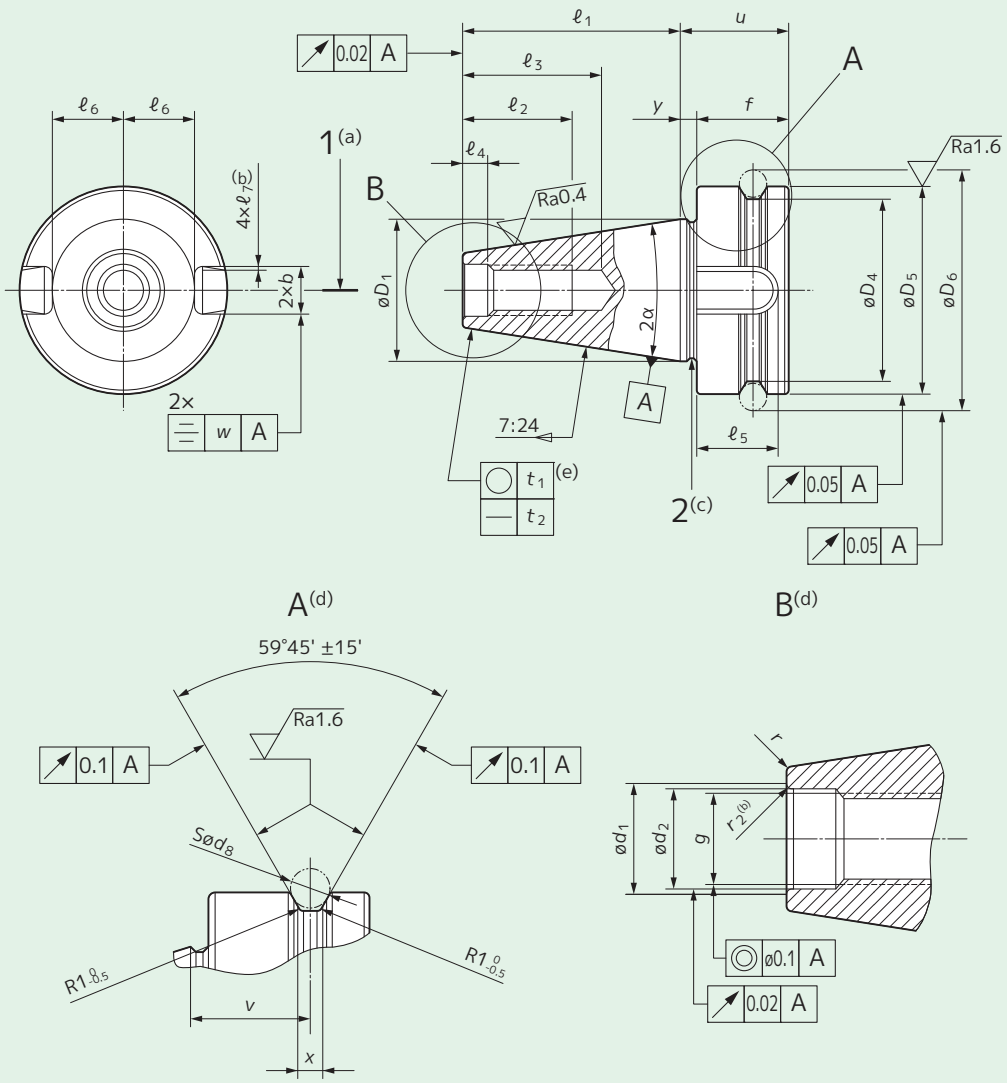
HSK Tooling Supported by 2 Faces (Materials: JIS B 6064-1:2013 (ISO 12164:2001))

(Unit: mm)

Item \ Size		32	40	50	63	80	100	125	160
b1	±0.04	7.05	8.05	10.54	12.54	16.04	20.02	25.02	30.02
b2	H10	7	9	12	16	18	20	25	32
b3	H10	9	11	14	18	20	22	28	36
d1	h10	32	40	50	63	80	100	125	160
d2		24.007	30.007	38.009	48.010	60.012	75.013	95.016	120.016
d3	H10	17	21	26	34	42	53	67	85
d4	H11	20.5	25.5	32	40	50	63	80	100
d5		19	23	29	37	46	58	73	92
d6	max.	4.2	5	6.8	8.4	10.2	12	14	16
d7	$^{0}_{-0.1}$	17.4	21.8	26.6	34.5	42.5	53.8	–	–
d8		4	4.6	6	7.5	8.5	12	–	–
d9	max.	26	34	42	53	68	88	111	144
d10	$^{0}_{-0.1}$	26.5	34.8	43	55	70	92	117	152
d11	$^{0}_{-0.1}$	37	45	59.3	72.3	88.8	109.75	134.75	169.75
d12		4	4	7	7	7	7	7	7
d13	f8	6	8	10	12	14	16	18	20
d14		M10×1	M12×1	M16×1	M18×1	M20×1.5	M24×1.5	M30×1.5	M35×1.5
e1		8.82	11	13.88	17.99	21.94	27.37	35.37	44.32
e2	$^{0}_{-0.05}$	10.2	12.88	16.26	20.87	25.82	32.25	41.25	52.2
f1	$^{0}_{-0.1}$	20	20	26	26	26	29	29	31
f2	min.	35	35	42	42	42	45	45	47
f3	±0.1	16	16	18	18	18	20	20	22
f4	$^{+0.15}_{0}$	2	2	3.75	3.75	3.75	3.75	3.75	3.75
f5		10	10	12.5	12.5	16	16	–	–
h1	$^{0}_{-0.2}$	13	17	21	26.5	34	44	55.5	72
h2	$^{0}_{-0.3}$	9.5	12	15.5	20	25	31.5	39.5	50
h3	$^{+0.2}_{0}$	5.4	5.2	5.1	5	4.9	4.9	4.8	4.8
l1	$^{0}_{-0.2}$	16	20	25	32	40	50	63	80
l2		3.2	4	5	6.3	8	10	12.5	16
l3	$^{+0.2}_{0}$	5	6	7.5	10	12	15	19	23
l4	$^{+0.2}_{0}$	3	3.5	4.5	6	8	10	12	16
l5	JS10	8.92	11.42	14.13	18.13	22.85	28.56	36.27	45.98
l6	$^{0}_{-0.1}$	8	8	10	10	12.5	12.5	16	16
l7	$^{+0.3}_{0}$	0.8	0.8	1	1	1.5	1.5	2	2
l8	±0.1	5	6	7.5	9	12	15	–	–
l9	$^{0}_{-0.3}$	6	8	10	12	14	16	18	20
l10		20	21.5	23	24.5	26	28	30	32
l11		2.5	2.5	3	3	3	3	3.5	3.5
l12		12	12	19	21	22	24	24	24
r1		0.6	0.8	1	1.2	1.6	2	2.5	3.2
r2	$^{0}_{-0.2}$	1	1	1.5	1.5	2	2	2.5	2.5
r3	±0.05	1.38	1.88	2.38	2.88	3.88	4.88	5.88	7.88
r4		4	5	6	8	10	12	16	20
r5		0.4	0.4	0.5	0.6	0.8	1	1.2	1.6
r6		0.5	1	1.5	1.5	2	2	–	–
r7		1	1	1	1.5	1.5	1.5	1.5	1.5
r8		2	2	2	3	3	3	3	3
r9		3.5	4.5	6	8	9	10	5	5
t		0.002	0.002	0.0025	0.003	0.004	0.004	0.005	0.005
JIS B 6064-1 (relief)		0.2×0.1	0.4×0.2	0.6×0.2	0.6×0.2	1×0.2	1×0.2	1.6×0.3	1.6×0.3
O-ring		16×1	18.77×1.78	21.89×2.62	29.82×2.62	36.09×3.53	47.6×3.53	–	–

Standard of Tapers

Bolt Grip Taper (J type) (Material: JIS B 6339-2:2011)
(Material: ISO 7338-2:2007)



1 : Cutting edge
2 : Boundary of taper and flange

(a) : Right-handed holder cutting edge position
(b) : Depends on manufacturer (rounded or chamfered)
(c) : Depends on the manufacturer
(d) : Scale ratio 2:1
(e) : Medium/high not permitted

Standard of Tapers

Bolt Grip Taper (J type) (Material: JIS B 6339-2:2011) (Material: ISO 7338-2:2007)

Unit (mm)

Dimensions	Shank No.				
	30	40	45	50	60
b $^{+0.2}_{0}$	16.1		19.3	25.7	
D_1 (f)	31.75	44.45	57.15	69.85	107.95
d_2 H8	12.5	17	21	25	31
D_4 $^{0}_{-0.5}$	38	53	73	85	135
D_5 h8	46	63	85	100	155
d_6 ±0.05	56.03	75.56	100.09	118.89	180.22
g 6H	M12	M16	M20	M24	M30
d_8	8	10	12	15	20
d_1 (Max)	14.5	19	23.5	28	36
f (g)	20	25	30	35	45
ℓ_1 ±0.2	48.4	65.4	82.8	101.8	161.8
ℓ_2 (Min.)	24	30	36	45	56
ℓ_3 (Min.)	34	43	50	62	76
ℓ_4 $^{+0.5}_{0}$	7	9	11	13	16
ℓ_5 (Min.)	17	21	26	31	34
ℓ_6	16.3	22.6	29.1	35.4	60.1
ℓ_6 (Tolerance)	$^{0}_{-0.2}$		$^{0}_{-0.4}$		
ℓ_7 $^{0}_{-0.5}$	1.6			2	
r	0.5	1			
r_2 (h) $^{0}_{-0.5}$	0.8	1	1.2	1.5	2
t_1	0.001		0.002		0.003
t_2	0.002		0.003		0.004
w	0.12			0.2	
u	22	27	33	38	48
v ±0.1	13.6	16.6	21.2	23.2	28.2
x	4	5	6	7	11
y (i) ±0.4	2		3		
α	8°17'50"				
α (Tolerance)	$^{+4"}_{0}$				

(f): Basic diameter on gauge surface

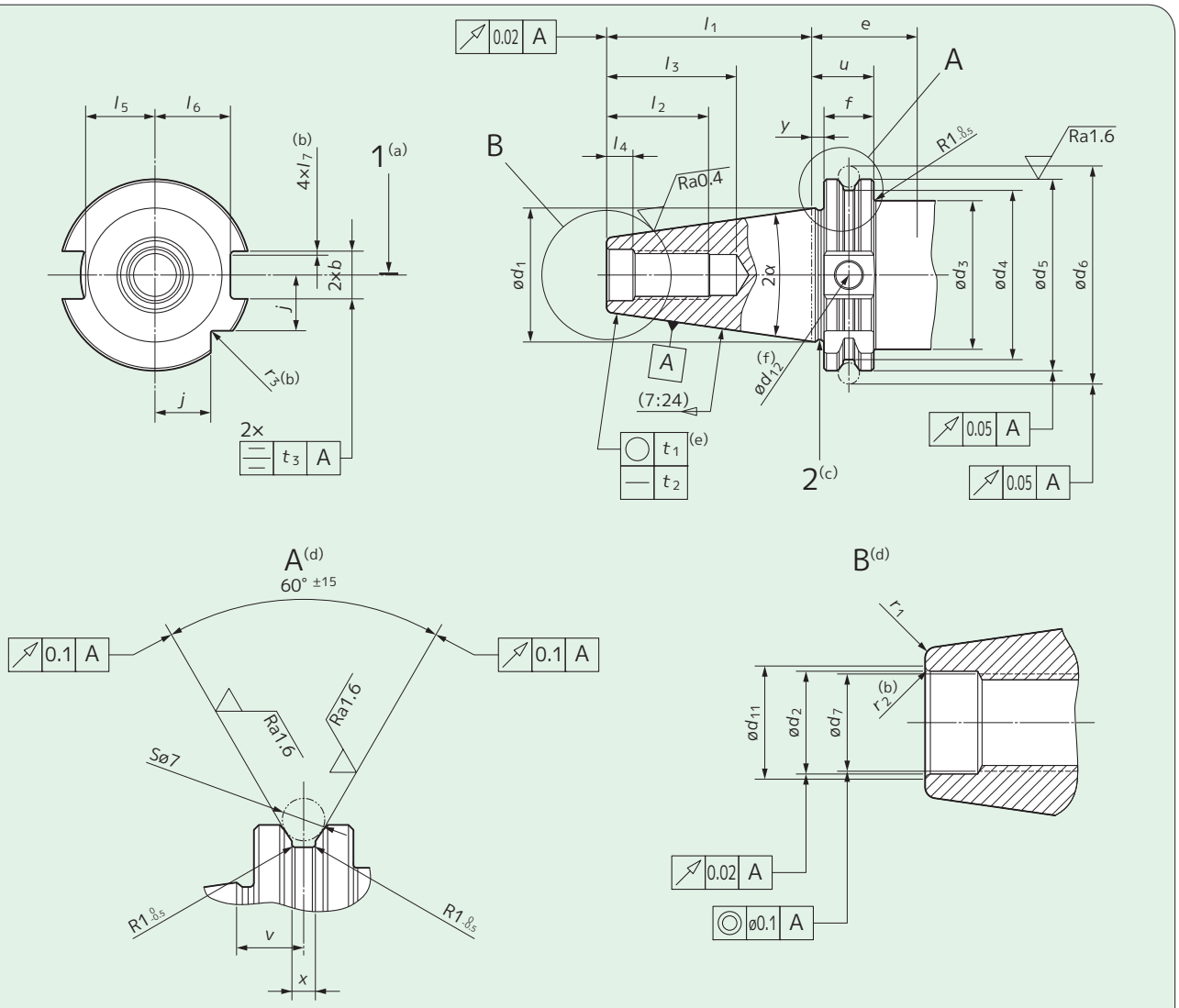
(g): Reference value

(h): Hole entrance is to be either rounded or chamfered, but must not exceed diameter d_1.

(i): Tolerance ±0.1 for JF type

Standard of Tapers

Bolt Grip Taper (A type, U type) (Material: JIS B 6339-1:2011)
(Material: ISO 7338-1:2007)



1 : Cutting edge
2 : Boundary of taper and flange

(a) : Right-handed holder cutting edge position
(b) : Depends on manufacturer (rounded or chamfered)
(c) : Depends on the manufacturer
(d) : Scale ratio 2:1
(e) : Medium/high not permitted
(f) : Depth 0.4

Standard of Tapers

Bolt Grip Taper (A type, U type) (Material: JIS B 6339-1:2011) (Material: ISO 7338-1:2007)

Unit (mm)

Dimensions	Shank No.									
	30		40		45		50		60	
	Shape									
	A	U	A	U	A	U	A	U	A	U
b $^{+0.2}_{0}$	16.1				19.3		25.7			
d_1 (g)	31.75		44.45		57.15		69.85		107.95	
d_2 H7	13		17		21		25		32	
d_3	45	31.75	50	44.45	63	57.15	80	69.95	130	107.95
d_3 (Tolerance)	Max.	$^{+0.15}_{-0.15}$	Max.	$^{+0.15}_{-0.15}$	Max.	$^{+0.15}_{-0.15}$	Max.	$^{+0.15}_{-0.15}$	Max.	$^{+0.15}_{-0.15}$
d_4 $^{0}_{-0.5}$	44.3	39.15	56.25		75.25		91.25		147.7	132.8
d_5 $^{0}_{-0.1}$	50	46.05	63.55		82.55		97.5	98.5	155	139.75
d_6 ±0.05	59.3	54.85	72.3		91.35		107.25	108.25	164.75	149.5
d_7 6H	M12		M16		M20		M24		M30	
d_{11} (Max)	14.5		19		23.5		28		36	
d_{12}	–	9.52	–	9.52	–	9.52	–	9.52	–	9.52
e (Min.)	35								38	
f (h)	15.9									
j $^{0}_{-0.3}$	15	–	18.5	–	24	–	30	–	49	–
l_1 $^{0}_{-0.3}$	47.8		68.4		82.7		101.75		161.9	
l_2 (Min.)	24		32		40		47		59	
l_3 (Min.)	33.5		42.5		52.5		61.5		76	
l_4 $^{+0.5}_{0}$	5.5		8.2		10		11.5		14	
l_5	16.3		22.7		29.1		35.5		54.5	
l_5 (Tolerance)	$^{0}_{-0.3}$				$^{0}_{-0.4}$					
l_6	18.8		25		31.3		37.7		59.3	56.8
l_6 (Tolerance)	$^{0}_{-0.3}$				$^{0}_{-0.4}$					
l_7 $^{0}_{-0.5}$	1.6						2			
r_1	0.6		1.2		2		2.5		3.5	
r_1 (Tolerance)	$^{0}_{-0.3}$		$^{0}_{-0.5}$							
r_2 (i) $^{0}_{-0.5}$	0.8		1		1.2		1.5		2	
r_3 $^{0}_{-0.5}$	1.6						2			
t_1	0.001				0.002				0.003	
t_2	0.002				0.003				0.004	
t_3	0.12						0.2			
u $^{0}_{-0.1}$	19.1									
v ±0.1	11.1									
x $^{+0.15}_{0}$	3.75									
y ±0.1	3.2									
α	8°17'50"									
α (Tolerance)	$^{+4"}_{0}$									

(g) : Basic diameter on gauge surface

(h) : Reference value

(i) : Hole entrance is to be either rounded or chamfered, but must not exceed diameter d_{11}.

Parts List

SEC-Cartridge Units/SEC-Micro Units List of Parts Used

Part Name / Shape / Dimensional Figure	Cat. No.	Stock	Applicable Unit: SEC-Cartridge Units: BU type	MINIT P24 type	MINIT N38 type	SP type	SX type	SC type	CP type	CE type	PN type	SEC-Micro Units: MUP type	MUN type	Dimensions (mm): d	Pitch	L	ℓ	D	B	α°	A	H	C	T	θ°	Tightening torque (N·m)	Fig
Cap Screw	**BX0412**	●	○			○	○		○	○				M4	0.7	12	Full thread	7.0	3	—	—	—	—	—	—	—	1
Fig.1	**BX0515**	●	○		○	○	○		○	○				M5	0.8	15	Full thread	8.5	4	—	—	—	—	—	—	—	1
	BX0615	●	○			○	○	○	○	○	○			M6	1.0	15	Full thread	10.0	5	—	—	—	—	—	—	—	1
	BX0625	●				○			○	○	○			M6	1.0	25	18	10.0	5	—	—	—	—	—	—	—	1
	BX0820	●	○											M8	1.25	20	Full thread	13.0	6	—	—	—	—	—	—	—	1
Bolt	**BH0415**	●		○										M4	0.7	15	Full thread	7.5	2.5	—	—	—	—	—	—	—	1
Fig.1	**BH0825**	●				○			○	○	○			M8	1.25	25	22.5	14.0	5.0	—	—	—	—	—	—	—	1
	BH0832	●							○	○	○			M8	1.25	32	29.5	14.0	5.0	—	—	—	—	—	—	—	1
Axial Adjustment Screw	**AJM4F**	●	○											M4	0.5	12	5	8	2.0	—	—	—	—	—	—	—	1
Fig.1	**AJM5F**	●	○			○	○	○	○	○	○			M5	0.5	13	5	9	2.0	—	—	—	—	—	—	—	1
	AJM6	●							○	○	○			M6	1.0	18	6	10	2.9	—	—	—	—	—	—	—	1
Lever Lock Bolt	**LCS2B**	●											○	M3	0.5	10.0	3.05	3.6	2.0	—	—	—	—	—	—	—	1
Fig.1	**LCS3**	●									○			M6	1.0	17.0	10	6.0	2.5	—	—	—	—	—	—	—	1
	LCS3S	●											○	M6	1.0	15.0	10	6.0	2.5	—	—	—	—	—	—	—	1
	LCS4	●									○			M8	1.0	21.0	10	8.0	3.0	—	—	—	—	—	—	—	1
	LCS4CA	●									○		○	M8	1.0	17.5	10	8.0	3.0	—	—	—	—	—	—	—	1
	LCS5CA	●									○			M8	1.0	20.5	12	8.0	3.0	—	—	—	—	—	—	—	1
Radial Adjustment Screw	**BT0406**	●				○	○		○	○				M4	0.7	6	—	—	2.0	—	—	—	—	—	—	—	1
	BT0408	●	○			○	○	○	○	○	○			M4	0.7	8	—	—	2.0	—	—	—	—	—	—	—	1
Fig.1	**BT0412**	●				○			○	○				M4	0.7	12	—	—	2.0	—	—	—	—	—	—	—	1
	BT0506	●									○			M5	0.8	6	—	—	2.5	—	—	—	—	—	—	—	1
	BT0507K	●		○										M5	0.8	7	—	—	2.5	—	—	—	—	—	—	—	2
Fig.2	**BT0610**	●							○					M6	1.0	10	—	—	3.0	—	—	—	—	—	—	—	1
	BT0612	●	○			○			○	○	○			M6	1.0	12	—	—	3.0	—	—	—	—	—	—	—	1
	BT0620	●								○				M6	1.0	20	—	—	3.0	—	—	—	—	—	—	—	1
Flat Screw	**FBUP1-A0-8**	●										○		M3	0.5	6.0	—	4.4	2.0	82	—	—	—	—	—	**1.0**	1
	FBUP1-V0-8											○		M3	0.5	6.0	—	5.6	2.0	82	—	—	—	—	—	**1.0**	1
	FBUP2-A0-8	●										○	○	M3	0.5	10.0	—	5.5	2.0	82	—	—	—	—	—	**1.0**	1
Fig.1	**FBUP3-A0-8**	●										○	○	M3.5	0.6	12.0	—	7.0	2.0	82	—	—	—	—	—	**1.0**	1
	FBUP4-A0-8	●										○	○	M5	0.8	15.0	—	9.3	3.0	82	—	—	—	—	—	**2.7**	1
	BFX0307R	●										○		M3	0.5	7.0	—	4.0	2.0	60	—	—	—	—	—	**1.0**	1
	BFX0410R	●										○	○	M4	0.7	9.5	—	5.8	2.5	90	—	—	—	—	—	**1.8**	1
	BFX0511R	●										○	○	M5	0.8	10.5	—	7.5	3.0	90	—	—	—	—	—	**2.7**	1
Fig.2	**BFX0611R**	●										○	○	M6	1.0	11.0	—	9.5	3.0	90	—	—	—	—	—	**2.7**	1
	BFN0206T	●										○		M2	0.4	5.5	—	3.3	T8	90	—	—	—	—	—	**1.1**	2
	BFN0307T	●										○		M3	0.5	7.0	—	4.2	T10	90	—	—	—	—	—	**2.0**	2
	BFTX02506N	●				○	○	○						M2.5	0.45	5.5	—	3.45	T8	60	—	—	—	—	—	**1.5**	2
	BFTX0307N	●		○		○								M3	0.5	6.5	—	4.2	T10	60	—	—	—	—	—	**2.0**	2
	BFTX03584	●					○							M3.5	0.6	7.4	—	5.2	T15	60	—	—	—	—	—	**3.0**	2
	BFTX0409N	●				○		○				○		M4	0.7	9.0	—	5.6	T15	60	—	—	—	—	—	**3.4**	2
Eccentric Pin	**CPU072**	●	○											2.20	—	9.5	3.5	3.5	2	—	—	—	—	—	—	—	1
	CPU083	●	○								○			2.34	—	11.5	3.5	3.8	2	—	—	—	—	—	—	—	1
	CPU092	●	○											2.50	—	9.0	3.0	3.5	2	—	—	—	—	—	—	—	1
Fig.1	**CPU103**	●	○											2.66	—	11.5	3.5	3.8	2	—	—	—	—	—	—	—	1
	CPU304	●	○											3.40	—	13.5	3.5	5.5	3	—	—	—	—	—	—	—	1
	CPU304S	●									○			3.40	—	10.0	3.5	5.5	3	—	—	—	—	—	—	—	2
Fig.2	**CPU305**	●	○											3.40	—	17.0	4.5	5.5	3	—	—	—	—	—	—	—	1
	CPU305S	●			○						○			3.40	—	11.0	4.5	5.5	3	—	—	—	—	—	—	—	2
	CPU405	●	○											4.50	—	17.0	4.5	6.5	3	—	—	—	—	—	—	—	1
	CPU405S	●			○						○			4.50	—	12.0	4.5	6.5	3	—	—	—	—	—	—	—	2
Lever Pin	**LCL2L**	●											○	—	—	9.5	—	—	—	—	2.6	6.2	—	—	—	—	1
Fig.1	**LCL3**	●									○		○	—	—	10.0	—	—	—	—	3.7	12.0	—	—	—	—	1
	LCL4	●									○		○	—	—	14.55	—	—	—	—	4.7	14.0	—	—	—	—	1
	LCL5	●									○			—	—	17.1	—	—	—	—	6.0	17.0	—	—	—	—	1
Shim	**LSC42CA**										○			6.7	—	—	—	—	—	—	12.5	—	—	3.2	8	—	1
Fig.1	**LSC53CA**	●									○			7.7	—	—	—	—	—	—	15.68	—	—	4.8	10	—	1
	LSS42CA	●									○			6.7	—	—	—	—	—	—	12.5	—	—	3.2	8	—	2
	LSS53CA	●									○			7.7	—	—	—	—	—	—	15.68	—	—	4.8	10	—	2
	LST317CA	●									○			5.0	—	—	—	—	—	—	9.33	—	—	2.7	—	—	3
Fig.2	**LST42**												○	6.9	—	—	—	—	—	—	12.65	—	—	3.18	—	—	3
	LST42CA	●									○			6.7	—	—	—	—	—	—	12.5	—	—	3.2	—	—	3
	SSPD422	●							○					3.4	—	—	—	—	—	—	11.6	—	—	3.18	6	—	4
	STPD322	●							○					3.4	—	—	—	—	—	—	8.4	—	—	3.18	6	—	5
Fig.3	**STPD422**	●							○					3.4	—	—	—	—	—	—	11.0	—	—	3.18	6	—	5
Fig.4																											
Fig.5																											

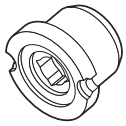
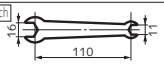
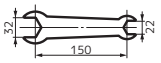
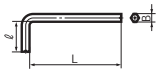
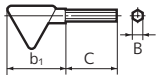
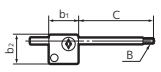
Parts List

SEC-Cartridge Units/SEC-Micro Units List of Parts Used

Part Name / Shape / Dimensional Figure	Cat. No.	Stock	Applicable Unit: SEC-Cartridge Units: BU type	MINIT P24 type	MINIT N38 type	SP type	SX type	SC type	CP type	CE type	PN type	SEC-Micro Units: MUP type	MUN type	Dimensions (mm): d	Pitch	L	ℓ	D	H	T	θ°	h	Tightening torque (N·m)	Fig
Shim Retainer Fig.1	**LSP3**	●									○		○	5.0	—	5.5	—	—	3.3	—	—	—	—	1
	LSP4	●									○		○	6.7	—	7.0	—	—	4.0	—	—	—	—	1
	LSP5	●									○			7.7	—	8.5	—	—	4.5	—	—	—	—	1
Fig.2	**SPP308**	●							○					3.2	—	8.0	—	4.8	—	—	60	—	—	2
Shim	**S0810**	●				○	○	○	○	○	○			7.0	—	40.0	12	—	11.0	0.8	—	4.5	—	1
	S0812	●				○			○	○	○			7.0	—	43.0	12	—	13.0	0.8	—	5.5	—	1
	S0816A										○			—	—	55.0	17	—	15.5	0.8	—	2.9	—	2
	S0816B	●				○			○	○	○			—	—	50.0	17	—	15.5	0.8	—	2.9	—	2
	S0816C										○			—	—	45.0	17	—	15.5	0.8	—	2.9	—	2
Fig.1	**S082**	●	○											5.0	—	30.5	10	—	9.5	0.8	—	5.0	—	1
	S0820A										○			—	—	61.0	20	—	19.5	0.8	—	2.9	—	2
	S0820B	●							○	○	○			—	—	54.5	20	—	19.5	0.8	—	2.9	—	2
	S083	●	○			○	○		○	○				6.0	—	34.0	11	—	10.5	0.8	—	5.3	—	1
	S084	●	○											7.0	—	38.0	12	—	12.5	0.8	—	5.5	—	1
	S085	●	○											9.0	—	45.0	14	—	17.0	0.8	—	8.0	—	1
	S086	●	○											9.0	—	52.0	14	—	20.0	0.8	—	8.0	—	1
	S1010	●				○	○	○	○	○	○			7.0	—	40.0	12	—	11.0	1.0	—	4.5	—	1
Fig.2	**S1012**	●				○			○	○	○			7.0	—	43.0	12	—	13.0	1.0	—	5.5	—	1
	S1016A										○			—	—	55.0	17	—	15.5	1.0	—	2.9	—	2
	S1016B	●				○			○	○	○			—	—	50.0	17	—	15.5	1.0	—	2.9	—	2
	S1016C										○			—	—	45.0	17	—	15.5	1.0	—	2.9	—	2
	S102	●	○											5.0	—	30.5	10	—	9.5	1.0	—	5.0	—	1
	S1020A										○			—	—	61.0	20	—	19.5	1.0	—	2.9	—	2
	S1020B	●							○	○	○			—	—	54.5	20	—	19.5	1.0	—	2.9	—	2
	S103	●	○			○	○		○	○				6.0	—	34.0	11	—	10.5	1.0	—	5.3	—	1
Fig.3	**S104**	●	○											7.0	—	38.0	12	—	12.5	1.0	—	5.5	—	1
	S105	●	○											9.0	—	45.0	14	—	17.0	1.0	—	8.0	—	1
	S106	●	○											9.0	—	52.0	14	—	20.0	1.0	—	8.0	—	1
	SM090	●			○									—	—	22.0	6.5	—	12	0.90	—	4.5	—	3
	SM095	●			○									—	—	22.0	6.5	—	12	0.95	—	4.5	—	3
	SM100	●			○									—	—	22.0	6.5	—	12	1.00	—	4.5	—	3
	SM105	●			○									—	—	22.0	6.5	—	12	1.05	—	4.5	—	3
	SM110	●			○									—	—	22.0	6.5	—	12	1.10	—	4.5	—	3
	SMP080	●		○										4.5	—	22.0	5.0	—	8.0	0.8	—	3.4	—	1
	SMP100	●		○										4.5	—	22.0	5.0	—	8.0	1.0	—	3.4	—	1
Clamp Plate	**BCM04R**	●							○	○				—	—	—	—	—	—	—	—	—	—	1
	BCM05R	●							○	○				—	—	—	—	—	—	—	—	—	—	1
	BCM06R	●							○	○				—	—	—	—	—	—	—	—	—	—	1
Disc Spring	**DP0512**											○		—	—	—	—	—	—	—	—	—	—	1
	DP0615											○	○	—	—	—	—	—	—	—	—	—	—	1
	DP0918											○	○	—	—	—	—	—	—	—	—	—	—	1
	DP1225											○	○	—	—	—	—	—	—	—	—	—	—	1
Spindle	**MUP1-A0-1**	●										○		—	—	—	—	—	—	—	—	—	—	1
	MUP1-A15-1											○		—	—	—	—	—	—	—	—	—	—	1
	MUP1-V0-1											○		—	—	—	—	—	—	—	—	—	—	1
	MUP1-V15-1											○		—	—	—	—	—	—	—	—	—	—	1
	MUP2-A0-1	●										○		—	—	—	—	—	—	—	—	—	—	1
	MUP2-A15-1											○		—	—	—	—	—	—	—	—	—	—	1
	MUP2-V0-1											○		—	—	—	—	—	—	—	—	—	—	1
	MUP2-V15-1											○		—	—	—	—	—	—	—	—	—	—	1
	MUP3-A0-1	●										○		—	—	—	—	—	—	—	—	—	—	1
	MUP3-A15-1											○		—	—	—	—	—	—	—	—	—	—	1
	MUP3-V0-1											○		—	—	—	—	—	—	—	—	—	—	1
	MUP3-V15-1											○		—	—	—	—	—	—	—	—	—	—	1
	MUP4-A0-1											○		—	—	—	—	—	—	—	—	—	—	1
	MUP4-A15-1											○		—	—	—	—	—	—	—	—	—	—	1
	MUP4-V0-1											○		—	—	—	—	—	—	—	—	—	—	1
	MUP4-V15-1											○		—	—	—	—	—	—	—	—	—	—	1
Fig.1	**MUN2-A0-1**												○	—	—	—	—	—	—	—	—	—	—	1
	MUN2-V0-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN2-A15-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN2-V15-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN3-A0-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN3-V0-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN3-A15-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN3-V15-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN3L-A0-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN3L-V0-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN3L-A15-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN3L-V15-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN4-A0-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN4-V0-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN4-A15-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN4-V15-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN4L-A0-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN4L-V0-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN4L-A15-1												○	—	—	—	—	—	—	—	—	—	—	1
	MUN4L-V15-1												○	—	—	—	—	—	—	—	—	—	—	1

Parts List

SEC-Cartridge Units/SEC-Micro Units List of Parts Used

Part Name / Shape / Dimensional Figure	Cat. No.	Stock	Applicable Unit											Dimensions (mm)						Tightening torque (N·m)	Fig
			SEC-Cartridge Units									SEC-Micro Units									
			BU type	MINIT P24 type	MINIT N38 type	SP type	SX type	SC type	CP type	CE type	PN type	MUP type	MUN type	d	L	ℓ	B	C	b_1		
Bushing Fig.1 	**MUP1-A0-2**											○		—	—	—	—	—	—	—	1
	MUP1-V0-2											○		—	—	—	—	—	—	—	1
	MUP2-A0-2											○		—	—	—	—	—	—	—	1
	MUP2-V0-2											○		—	—	—	—	—	—	—	1
	MUP3-A0-2											○		—	—	—	—	—	—	—	1
	MUP3-V0-2											○		—	—	—	—	—	—	—	1
	MUP4-A0-2											○		—	—	—	—	—	—	—	1
	MUP4-V0-2											○		—	—	—	—	—	—	—	1
	MUN2-A0-2												○	—	—	—	—	—	—	—	1
	MUN2-V0-2												○	—	—	—	—	—	—	—	1
	MUN3-A0-2												○	—	—	—	—	—	—	—	1
	MUN3-V0-2												○	—	—	—	—	—	—	—	1
	MUN3L-A0-2												○	—	—	—	—	—	—	—	1
	MUN3L-V0-2												○	—	—	—	—	—	—	—	1
	MUN4-A0-2												○	—	—	—	—	—	—	—	1
	MUN4-V0-2												○	—	—	—	—	—	—	—	1
	MUN4L-A0-2												○	—	—	—	—	—	—	—	1
	MUN4L-V0-2												○	—	—	—	—	—	—	—	1
Graduated Nut Fig.1 	**MUP1-A0-3**											○		—	—	—	—	—	—	—	1
	MUP1-V0-3											○		—	—	—	—	—	—	—	1
	MUP2-A0-3											○	○	—	—	—	—	—	—	—	1
	MUP2-V0-3											○	○	—	—	—	—	—	—	—	1
	MUP3-A0-3											○	○	—	—	—	—	—	—	—	1
	MUP3-V0-3											○	○	—	—	—	—	—	—	—	1
	MUP4-A0-3											○	○	—	—	—	—	—	—	—	1
	MUP4-V0-3											○	○	—	—	—	—	—	—	—	1
Ring Fig.1 	**MUP1-A0-4**											○		—	—	—	—	—	—	—	1
	MUP2-A0-4											○	○	—	—	—	—	—	—	—	1
	MUP3-A0-4											○	○	—	—	—	—	—	—	—	1
	MUP4-A0-4											○	○	—	—	—	—	—	—	—	1
Axial Adjustment Wrench Fig.1 	**1.8X45**	●	○			○	○	○	○	○	○			1.8	45	—	—	—	—	—	1
Flat Wrench Fig.1 	**FBUP1-A0-15**	●										○	○	—	—	—	—	—	—	—	1
Fig.2 	**FBUP4-A0-15**											○	○	—	—	—	—	—	—	—	2
Wrench Fig.1 	**LH020**	●	○			○	○	○	○	○	○			—	50	16	2.0	—	—	—	1
	LH025	●		○					○	○	○			—	56	18	2.5	—	—	—	1
	LH030	●	○		○	○			○	○	○	○	○	—	63	20	3.0	—	—	—	1
	LH040	●	○		○	○	○		○	○				—	70	25	4.0	—	—	—	1
	LH050	●	○			○	○	○	○	○	○			—	80	28	5.0	—	—	—	1
	LH060	●	○											—	90	32	6.0	—	—	—	1
Fig.2 	**TH020**	●										○	○	—	—	—	2.0	39	35	—	2
	TH025	●											○	—	—	—	2.5	39	35	—	2
Fig.3 	**TRX08**	●				○	○	○				○		—	—	—	T8	38.5	19	—	3
	TRX10	●		○		○						○		—	—	—	T10	42.1	22	—	3
	TRX15	●				○	○	○				○		—	—	—	T15	46	22	—	3

MEMO

< SAFETY NOTES >

- Very hot or lengthy chips may be discharged while the machine is in operation. Therefore, machine guards, safety goggles or other protective covers must be used. Fire safety precautions must also be considered.
- Please handle with care as this product has sharp edges.
- Improper cutting conditions or mis-handling of the tool may result in breakages or projectiles. Therefore, please use the tool within its recommended conditions.
- When using non-water soluble cutting oil, precautions against fire must be taken and please ensure that a fire extinguisher is placed near the machine.

Sumitomo Electric Industries, Ltd.

Hardmetal Division

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